1. The concept of innovation policy

Active innovation policy is one of the major drivers of progress in industrialised nations. In the 1950s and 1960s two concepts of policies were applied: industrial policy and scientific policy, which, to a certain degree, were coordinated at the Government level. The two types of policies merged as late as in the 1970s, giving a rise to the concept of innovation policies. According to R. Rothwell, innovation policy results from the merger of technological policy (inventions, education, technology, and the infrastructure of basic research) and industrial policy (subsidies, investment projects, tariffs and tax policies, industrial restructuring). Table 1 shows an evolutions that innovation policies underwent in technologically advanced countries.

In the said period, as part of innovation policy activities, efforts were made in order to support economic development based on knowledge. Support was given mainly to small and medium size enterprises, which were supposed to create an appropriate environment stimulating entrepreneurship. In the 1980s innovation policies gained strategic significance, and the necessity was stressed to integrate it with economic, industrial, energy, social as well as educational policies.

Contemporary innovation policy is defined as “...a set of Government intervention activities in an economy, intended to exert influence on technical innovation processes”

Currently, innovation policy is one of West European major policies. It certainly results from the role played by innovations in the contemporary world as well as so called imperfection of the self-regulating role of the market, which - without the support of governments – is not capable of ensuring the appropriate level of economic innovativeness in terms of society’s expectations. Another argument in favour of developing innovation policy by the State is the fact that technological advancement is one of the major drivers of economic progress. Therefore, governments cannot afford to disregard this phenomenon, not trying to use innovations in their efforts to promote social and economic development. Government innovation policies include different undertakings. According to OECD classification they include the following:

- Legal regulations (social, economic, administrative),
- Institutional regulations and government-related standards,
- Requests for scientific and technical activities (research projects, government contracted projects, huge research programmes, participation in international projects),
- Financing research activities (financial, exportation and know how policies, tax incentives, loans, subsidies, venture capital),
- Programmes for disseminating technologies (focused on specific technologies and organizations, designed for industries and regions),
- Educational system
Table 1. Evolution of government policies related to science and technology in highly developed countries

<table>
<thead>
<tr>
<th>1950s and 1960s</th>
<th>Science policy</th>
<th>Industrial policy</th>
<th>Company size</th>
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<tbody>
<tr>
<td></td>
<td>- scientific education</td>
<td>- grants for research and development projects</td>
<td>- focus on large corporations and industrial metropolitan areas</td>
</tr>
<tr>
<td></td>
<td>- academic research</td>
<td>- restructuring of industries</td>
<td>- creating national &quot;flagships&quot;</td>
</tr>
<tr>
<td></td>
<td>- basic research conducted in government laboratories</td>
<td>- technical education and trainings</td>
<td></td>
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<tr>
<td>Mid 1970s</td>
<td>Innovation policy</td>
<td>Technical policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- grants and innovations</td>
<td>(strategic innovation policy)</td>
<td>- greater focus on small companies</td>
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<tr>
<td></td>
<td>- support for joint research projects related to new products</td>
<td>- selection of, and support for specific technologies and high tech goods</td>
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<td></td>
<td>- government purchases stimulating innovation</td>
<td>-international cooperation</td>
<td></td>
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<tr>
<td>Mid 1980s</td>
<td>- greater focus on science policy</td>
<td>Technical policy</td>
<td>-focus on new companies based on advanced technologies, focus on cooperation between companies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(strategic innovation policy)</td>
<td></td>
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<tr>
<td>Cross-industry projects</td>
<td></td>
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</table>


The major entities involved in government innovation policies include the following: 5
- Entrepreneurs, both small and medium size companies, representing all the forms of ownership status,
- Educational institutions, especially those of higher learning,
- Science-related entities, R&D centers, entities supporting and serving scientific organizations, organizations representing health care and environmental protection services,
- Entities related to the IT and communications infrastructure (entities managing communications and IT networks as well as data base systems, high capacity calculating centers, libraries, etc.),
- Creators of innovative solutions,
- Central and local government administrative entities.

Three basic areas of innovation policies may be defined: 6

- Encouraging innovation through:
  - Stimulating competitiveness,
  - Protection of intellectual and industrial property,
  - Simplified administrative and tax procedures,
  - Improvements in the legal infrastructure,
  - Increase in funding for innovation activities.
- Stimulating the correlation between research and innovation through:
  - Developing strategic visions related to R&D activities,
  - Increasing funding designed for corporate research,
  - Setting up new technological companies,
  - Strengthening cooperation between research centres, universities and businesses,
  - Enhancing the potential of SMEs to apply new technologies and know-how,
- Creating innovation culture through:
  - Education and training,
  - Exchange of staff, students and scientists between scientific centres and businesses,
  - Increasing social awareness of innovations,
  - Encouraging entrepreneurs to be innovative,
  - Encouraging public authorities to be open to innovation,
  - Promoting cooperation which stimulates innovation.

5 Ibidem
Two types of innovation policy are defined in professional literature. The first one, characteristic of such countries as Japan and France, is marked by government intervention being the main driver of the planning process. The other type occurs in the Netherlands, Germany, or Denmark, where innovation policy is viewed as a component of general economic policies, creating a favourable environment for developing entrepreneurship.

Active innovation policy is mainly developed at the regional levels of Government administration. Following the decisions made at the regional level, technological parks, clusters, or regional innovation systems are set up. They operate in a given region, stimulating its economic growth, and making it more competitive. For this reason, regional innovation policies have been identified with regional policy. In some scientific papers (eg M. Engeles Diez, M. Soledad Esteban, The evaluation of regional innovation and cluster policies: looking for new approaches) the concept of innovation policy is interchangeably used with regional policy.

2. Innovativeness of the Polish economy

A number of statistical analyses indicate a low level of the innovativeness of the Polish economy as compared with other EU member countries. Poland’s innovativeness as compared with the other member countries is shown in Diagram 1.

The Polish industry represents one of the lowest levels among the 25 countries in terms of technological advancement, and only few small and medium size businesses set up over the recent years apply advanced technologies, or offer modern services.

Therefore, Polish companies are not competitive on the European or global market, not being able to manufacture goods based on most advanced technologies, nor do they apply the latest logistics and distribution systems, which make it easy to reach target clients. The financial means, indispensable to acquiring and applying innovative solutions, exceed the potential of most Polish entrepreneurs.

Figure 1. The summary innovation indexes of EU members in 2004
This situation is clearly reflected by the ratio of innovative companies (as compared with the total number of companies). It dropped from 36.7% in 1994-1996 to 28.9% in 1997-1998, while in 1998-2000, the ratio reached a mere of 16%.

The innovativeness of the Polish economy is also adversely affected by a low contribution made by Polish companies to research and development projects. According to GUS (the Chief Statistical Office), this participation in 2001 amounted to 24.3% while in 2002 it fell to 21.4%. The average participation in R&D outlays on behalf of EU countries reached the level of 55%, out of which 9% is financed by the Government, which implies that about 50% is financed by companies.

On the basis of the surveys conducted in 2000, concerning the innovativeness of Polish businesses, the following conclusions were formulated:

• Polish companies show little interest in the transfer of technology;
• Too small a role is played by the external transfer of technologies with a minimum participation of licences purchased abroad;
• Poland’s participation in the international transfer of technologies is not sufficient;
• Polish companies focus on the purchase rather than sale of new technologies;
• Transfer of technological achievements is insufficient;
• The share of technologies applied in automation-related activities seems excessively high.

In Poland, unlike in EU countries, the central budget assigns insufficient funds for research and development projects. The share of R&D spending in GDP has been dropping for a few years and now it comes to 0.35%.

The scale of government intervention in EU countries is much broader than in Poland. In those countries, due to high expenditure on R&D, the multiplying effect occurs. It means that an increase in government expenditure on R&D encourages corporate research projects, making companies assign more funds designed for R&D.

According to A. H. Jasiński, there are three reasons for low national and private expenditures on R&D in Poland in the 1990s:

• „blind faith” in free market mechanisms, characteristic of the early 1990s. It turned out that the market itself did not make businesses increase their expenditure on innovation;
• Current difficulties in the sector of public finance in the period of economic transformation;
• Low level of social awareness of the role of science in the development of contemporary society;

Science and research in Poland are not adjusted to the needs of an economy based on knowledge. During the period of transformation no support was given to scientific and research entities. In 1990-2001, such entities recorded a reduction in staff from about 72 thousand to 26 thousand people. Additionally, the results of the survey conducted in 2002 showed that merely 14% of the scientific achievements of the investigated centers had been put into practical use. The mechanisms encouraging innovation are not well developed in Poland. Additionally, there are no proper incentives stimulating innovation among youth and entrepreneurs in the process of transferring technologies and innovation to businesses. The insufficiency of innovation-oriented solutions manifests itself in the lack of the proper environment which would encourage innovation in scientific centres and businesses. Tax concessions are major tools encouraging corporate innovation in the specific business areas, which are not effective in the case of high risk activities.

Venture capital funds, one of the main sources of financing SMEs in the West in the area of innovative products, production methods, or services, are not commonly used in Poland.

The regional infrastructure for investment projects, although varied, is relatively well developed. This infrastructure includes: institutions of higher learning, scientific and research centres, technological incubators of entrepreneurship, the outlets of the Polish Academy of Sciences, technological parks. The system as a whole is not coherent, and is not capable of functioning in an effective way.

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10 A. H. Jasiński, Polityka innowacyjna w Polsce...op. Cit., s. 277.
11 Ibidem, s. 281.
Apart from the generally negative assessment, Poland’s innovation system has a number of strengths including:

- A large number of middleman organizations, acting for the benefit of innovation through different forms of activities – education/training, consulting, transfer of technology, consultancy, having a similar structure to their EU counterparts,
- The regional distribution of middleman organizations is adapted to the distribution of science and research facilities,
- Possibility of participation in direct aid programmes under Phare SCI-TECH II,
- Existence of innovation companies which mostly have their own R&D facilities,
- Vesting responsibility for regional innovation programmes in the hands of local governments,
- Over the last decade Poland has recorded a rapid increase in the number of students as well as PhD students (by 350%).

Apart from that, Poland as an EU member state, has access to an important source of financing – structural funds, and actively participates in the projects which stimulate economic development based on knowledge under the Lisbon Strategy as well as Framework Programmes and other European undertakings.

3. Objectives of Poland’s innovation policy in Government strategic documents

Innovation-related issues in the Polish economy are included in a number of government programs. The understanding of the actual needs, setting priorities, objectives, and determining implementation methods is the first step in the process of developing an economy based on knowledge. Government Strategy in the scope of innovation policy is included in the following documents:

- National Strategy for Regional Development 2001-2006,
- National Development Plan 2004-2006,
- Increasing the innovativeness of the Polish economy up to 2006,

The National Strategy for Regional Development is one of the major medium term structural strategies. Its main objective was to harmonize the planning process in Poland with that of the EU.

The strategic objective is to create favourable conditions for increasing regional competitiveness, counteracting the marginalization of some of the regions with a view to encouraging long-term economic development, its economic, social and territorial consistency in the process of being integrated with the EU.

The strategic objective of the National Strategy for Regional Development is to be achieved as a result of the concentration of resources and activities in those areas which have been given priority in the policy of regional development. Among the five defined areas, the major role in Poland’s development is played by the restructuring of regional economic potential and the creating of the conditions encouraging diversification. This area includes the following sub-objectives:

- Stimulating local investments and support for SMEs,
- Encouraging innovation and acceptance of new solutions and technology transfers.

A special role is played by the second sub-objective, which implies support offered to businesses in applying the regional potential in the area of encouraging innovation and increased responsiveness to new solutions. Support activities mainly focus on:

- Setting up and functioning of organizations which effectively apply scientific achievements in business practice including technology transfer centres, technological parks, organizations offering professional advice to innovative businesses, incubators of entrepreneurship; support activities may also include managing the resources of restructured companies, converting them to incubators, centers for encouraging innovation and technology transfers,
- Implementation of new technologies – supporting SMEs through financing innovative solutions and implementation of modern technologies; it would fill the gap in access to high risk innovation projects, and would be designed for venture capital institutions that finance innovative projects.

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14 Ibidem
• Training and educational programmes related to innovation, supporting innovation projects for youth and children,
• Comprehensive projects related to developing information-based society.

The National Development Plan 2004-2006, is an overall document which defines Poland’s social and economic strategy in the first years of its membership in the EU. Its main objective is to increase economic competitiveness based on knowledge as well as entrepreneurship facilitating sustainable development, creating jobs, and ensuring social and economic harmonization with the EU at the regional and national level.\textsuperscript{15}

The strategic activities specified in the Plan focus on five areas:
• encouraging corporate competitiveness,
• HR development and new jobs,
• Encouraging investment, promoting sustainable development and space consistency,
• Structural changes in farming and fishing, rural development,
• Enhancing regional development potential, countering the phenomenon of marginalization.

In terms of innovativeness, the first area is the most significant one – increased corporate competitiveness. Increased corporate competitiveness and structural changes require assigning concentrated funds to the development of SMEs in developing and implementing innovative solutions.

The following forms of support are available:
• Increasing investment,
• Increasing exports and tightening international cooperation,
• Creating new jobs,
• Compliance with EU environmental standards,
• A better use of opportunities offered by the European Uniform Market,
• Adapting to an economic environment which is open to knowledge.

A special role in the process of increasing the competitiveness of the Polish economy will be played – within the scope of the discussed area (so called axis) – by the direct expenditure on science and research and providing access to the technologies of information oriented society.

Implementation will be effected through:\textsuperscript{16}
• Continued implementation of financing resulting from the Government social-economic programme „Entrepreneurship – Development - Labour” as well as Scientific Research Commission projects,
• Implementation of the programme co-financed by the European Fund for Regional Development, Industry Operational Programme „Corporate Increased Competitiveness”
• Participation in international programmes for scientific cooperation including Framework Programmes,
• Implementation of programmes financed by Phare pre-accession projects to be completed by 2006.

The Programme for Increasing Corporate Innovativeness in Poland up to 2006, is one of the components of the National Development Plan. The Programme defines the priorities in achieving this goal.\textsuperscript{17}
• Creating mechanisms structures to encourage innovation,
• Encouraging innovation-oriented attitudes,
• A more effective implementation of modern solutions in the economy,
• Changes in consumption and production habits to ensure sustainable development.

Priority 1 includes the activities which aim at incorporating Poland into the European system of monitoring and forecasting development trends in technology, promoting industrial designs, developing technological and industrial parks, and developing an appropriate institutional system for encouraging innovation development processes.

Activities under priority 2 aim at arousing interest in technology and science-related issues in children and youth as well; as areas related to permanent education, entrepreneurship and innovation.

\textsuperscript{16} Ibidem, s. 69.
\textsuperscript{17} \textit{Zwiększenie innowacyjności gospodarki w Polsce do 2006 roku, Program Rządowy przyjęty przez Radę Ministrów 11 lipca 2000 roku.}
Increasing the effectiveness of implementing new solutions in the economy consists in promoting IT solutions, closer regional cooperation, attracting foreign investment in the areas focused on innovation and advanced technologies, promoting venture capital projects in Poland.

Priority 4 includes activities related to „clean production”, setting up of data bases related to national environmental protection technologies, and issuance of certificates for the effective use of energy.

Another programme developed with a view to the increased innovativeness of the Polish economy is the Industry Operational Programme „Increased Corporate Competitiveness, 2004-2006”. It sets the objectives and priorities, and defines activities in the area of implementing innovation and entrepreneurship policies, especially targeting SMEs. The Programme defines the major drivers of corporate competitiveness in the years to come:

- Technical aspects of products and services, dependent, to a large extent, upon the quality of fixed assets as well as organizational efficiency and qualified staff,
- Elasticity of production structures to demand structure,
- Functioning of the business environment, having its impact on economic effectiveness and efficiency, and close relations between industries and scientific research,
- Macro economic factors including interest rates (necessary loans for modernization and development), and the exchange rate of the Polish zloty against other currencies,
- Factors related to implementing unified policies in the area of sustainable development and environmental protection.

The priority of the programme is to improve the competitive position of companies operating in Poland under the European Unified Market. In order to achieve that goal, it is necessary to develop the production of technologically advanced and high quality products, which are based on scientific achievements.

The implementation of the major objective will include those activities which encourage innovation leading to increased product and technological competitiveness, ensuring the proper conditions for sustainable and versatile development. Two priorities are proposed as part of the implementation process:

- A higher level of entrepreneurship and innovation resulting from a stronger position of business-related entities,
- Direct aid for businesses.

It is suggested that priority 1 should include the following sub-objectives: encouraging entrepreneurship and innovation by providing access to high quality services offered by business-related entities, increasing the capacity of adapting and commercializing innovation, facilitating investment financing, and increased entrepreneurship resulting from closer bonds between R&D and businesses.

The sub-objectives under priority 2 include: increased investment outlays in companies, and increased corporate competitiveness through knowledge-related investment and creating jobs.

Efforts made in the process of implementing the set priorities should lead to creating a powerful institutional environment, supporting corporate activities as well as developing an economy driven by innovative businesses, capable of competing on global and European markets.

4. Impact of the Lisbon Strategy on Poland's innovation policies

The Lisbon Strategy is currently the most significant long-term document defining EU social and economic reforms. It was approved by member states at Lisbon Summit in March 2000. The implementation of the tasks and objectives defined in the Strategy is supposed to make the EU the world’s most competitive and dynamic, knowledge driven economy, capable of sustainable development and creating better jobs, ensuring, at the same time, a higher level of social consistency. The main reason for initiating talks and drawing up the document was the necessity of carrying out radical reforms of EU social and economic system, which demonstrated certain weaknesses in the following areas:

- Inability to cope with globalization processes as effectively as the United States, especially in the area of competitiveness,
Problems related to converting the economy to the one driven by knowledge,
Aging of society.

The decade of the 1990s, apart from the successful performance of EU economy, revealed a number of its weaknesses as compared with US and Japanese economies. The existing gap became even more transparent in the following decade. It was reflected in a slower economic growth, a limited capacity of applying new technologies, and more severe labour market problems. In 2003, EU GDP per capita accounted for 71% of the US figure, European productivity and working hours were at a lower level (82% and 84.7% respectively). Employment rate in 2003 (EU) amounted to 64%, while in the USA it reached the level of 75%. Annual working hours in EU countries were also shorter, the difference being 229 hours per one employee. The percentage of university graduates in EU countries is 16% lower that in the US. Apart from that, Europeans do not make, as compared with the USA, an effective use of knowledge and its research and development potential. The original objective of the Lisbon Strategy was to surpass the United States and making the EU the world’s most advanced economy by the year 2010. Presently, in view of the structural problems that the EU is facing, less attention is being given to competing with the US economy, while the Lisbon Strategy itself is more focused on counteracting adverse trends in its economy.

For the first few years the guidelines and benchmarks included in Lisbon Strategy were hardly executed. That’s why new attempts have been made to redefine prior aimes and create some new tools to achieve them.

In the document *Working together for growth and jobs. A New Start for The Lisbon Strategy* among 10 redefined aims for european economy, 3 concentrate on innovations:

1. Increase and improve investments in Research and Development,
2. Facilitate innovation, the uptake of ICT and the sustainable use of resources
3. Contribute to a strong European industrial base.

According to the new redefined priorities the authorities in the member states at all levels should support innovations. Both, the public and state sector are to spend more on researches and put into practice new innovative solutions. Another factor for encouraging enterprises (especially small and medium sized ones) to spend more on researches and development is a suitable tax environment for R&D.

As a high quality education system is the best way of ensure competitiveness of European economy, some efforts must be done to make the universities in European countries best in the World through the completion of The European Higher Education Area.

One of the proposals to help the regional and local actors to create, put into practice and spread innovations are Innovation Poles. Another Commission’s idea introduced in *Working Together for Growth and Jobs. A new Start for the Lisbon Strategy* is European Institute of Technology which is to “…act as a pole of attraction for the very best mind, ideas and companies from around the world.”

In connection with a slow pace of the process of encouraging innovation, an action plan has been developed – (Investing in Research: an Action Plan for Europe), which aims at reaching the level of R&D outlays equaling 3% of GDP by 2010. The Plan proposes four areas of activity:

- Coordination in EU countries in developing innovation systems, which includes developing several European technological platforms,
- Increasing public expenditure on research,
- Improvements in the environment for research and innovation in Europe, including the protection of intellectual property, clear competition rules, improvements in the functioning of financial markets.

Another initiative related to the concept of a knowledge-based economy is a European Initiative for Growth. Under this initiative a number of projects have been launched concentrating on technology – the development of nanoelectronics, a new generation of lasers, a new global satellite system for environmental monitoring and security.

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The low level of innovation in European economy is mainly blamed for the low pace of economic growth. A New Action Plan for Innovation aims at increasing corporate innovativeness in EU countries. Six major objectives have been defined:

- The use of different sources of knowledge – dissemination and use of different sources of knowledge, which is indispensable to increasing innovativeness. Various activities under this initiative include developing clusters, technological platforms, enhancing the impact of the Framework Plan on innovation through adapting future activities to SME needs;
- Innovation in the entire economy – introduction of innovation in all possible business and social activities, application of benchmarking for the applied innovations, the use of best practices at the European level;
- Possibility of introducing innovation on the market – introducing regulation which does not hinder but encourages innovation, for example by building social confidence in new solutions – the use of most effective financial instruments stimulating development and innovation;
- Innovation-related skills – improving qualifications which are necessary for companies to generate innovation;
- Effective oversight – a more effective coordination between member states as well as European institutions in the area of innovation policy.

Another aspect, important from the point of view of Poland’s regional policies, in the context of implementing the Lisbon Strategy, is the need for developing national and regional development plans based on strategic priorities, ensuring the achievement of social and economic indicators approved by the EU.

As already mentioned, one of the major areas defined by the Strategy is innovation. Satisfactory progress is conditioned by regional innovation systems – the systems of cooperation between different organizations, institutions and businesses operating in regions which have set the common objective – development of entrepreneurship and innovations in the respective regions. Such entities may include: local governments, regional development agencies, universities, innovation centres, research and development centres, consulting companies, production and service companies, etc.

Since the development of innovation and knowledge oriented economy has a major impact on the competitiveness of regions, the EU has already taken necessary steps to increase the competitiveness of its regions. Increased competitiveness and job creation will be included in Objective 2 of the common structural policy from 2007 on. Changes to original Objective 2 imply gradual changes in EU future regional policies, shifting financing from underdeveloped regions to those projects which aim at increasing competitiveness. From the Polish perspective those changes indicate the need for shifting from redistribution policy, which aims at filling existing gaps, towards a policy which would increase the competitiveness of regions.

5. Polish initiatives related to integration with the European Research Area

In connection with the admission to EU structures, Poland’s research and development activities are undergoing significant changes, adapting to the European Research Area, which integrates the research systems of EU member countries. The process of reforms in the area of Poland’s institutions in charge of innovation policies has been initiated. Most activities under the programme of developing a knowledge-oriented economy refer to the objectives defined in the Lisbon Strategy. One of the sub-objectives of EU innovation is to reach the level of 3% of GDP as the expenditure on research and development including 2/3 of that sum from private sources.

Poland’s participation in EU undertakings related to developing the European Research Area has become a driving force of innovation in Poland. Up to now, Polish research entities have successfully participated in 5 Framework Programmes of Research, Technology Development and Presentation. In 1999-2002, as many as 5,700 Polish teams submitted their projects, out of which 1,300 were approved by the European Commission for financing. Along with teams from other countries, they contributed to 1bn euros worth of new technologies. This cooperation led to closer integration of Polish and European R&D centres. Poland ranks sixth in the 6th Research Framework Programme in terms of the implemented projects. According to A. Siemaszko20, Poland, on condition it strengthens its research infrastructure and tightens cooperation between science and business in the coming years, may join the group of five Europe’s biggest and most active countries in the area of scientific research – Germany, UK, Italy, France and Spain, creating the “big six” Group.

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Structural Funds constitute a major tool supporting the R&D sector in Poland. Poland is among the largest beneficiaries of structural and harmonization funds. The National Development Plan for 2004-2006 does not give special priority to research and technology development, however, 0.5bn euros are available for R&D under the structural funds. Most of those funds are available as part of the Industry Operational Programmes - „Increased Corporate Competitiveness” and „HR Development”, and the Integrated Operational Programme for Regional Development.

In connection with the necessity of the above mentioned changes and adjustments in Poland’s innovation policies, the Scientific Research Committee Council was transformed in 2004 into the Ministry of Science and Information Technology. The setting up of this organization will contribute to increasing funds assigned by the central budget to R&D.

The passage of the Act on financing science in October 2004, was an important step in the process of transforming R&D. One of the entries included in the Act is of special significance to Poland’s compliance with the Lisbon Strategy: „expenditure on science covered by the Ministry are set in the budget Act at the level which enables Poland to reach the level as set by the Lisbon Strategy.”

Pursuant to the Act, the Minister develops the National Framework Programme, defining the major areas of scientific research and development projects. According to A. Siemaszko, the National Framework Programme, following the example of EU Framework Programme, could be an important tool in research development and application of up-to-date solutions in the economy. Through the system of competitions it could finance corporate projects of strategic importance. Its scope should include the priorities identified by the Polish Technological Platforms.

This Act has made research scientists more sensitive to the country’s social and economic problems, providing the possibility of defining and implementing priority research areas under the National Framework Programme. It also facilitates implementing large research projects, both of cognitive and applied character, in the area of industrial production, medicine, farming, culture, etc., and it ensures the effective use of R&D funding from the structural funds, private resources, harmonization funds, offset investments as well as EU research programmes.

Currently, in the process of cooperation between R&D and business, an important role is being played by the Advanced Technology Centres and the Centres of Excellence.

The Advanced Technology Centre is a scientific consortium, composed of scientific entities conducting research of world standard, and other entities involved in scientific research, the development of innovation and implementation projects. The Advanced Technology Centre, as a result of agreements concluded by its members, conducts interdisciplinary activities related to developing, implementing and selling new technologies in the areas of vital importance to the country’s scientific and innovation policies.

The Centre of Excellence is a scientific entity, or a team of researchers involved in continuous research as part of international cooperation, especially under EU projects, which aim at promoting those areas which are of special significance in terms of Government science development policies. Researchers make use of resources made available by a number of institutions working under one scientific and organizational supervision. The Centres of Excellence should implement basic research projects as well as seek practical applications of innovative solutions. The Centre of Excellence should:

- Have a team of highly qualified researchers,
- Conduct research in specialized or multidisciplinary fields,
- Have a well defined organization structure and implement its own research programme,
- Have international recognition and scientific contacts,
- Rely on stable financing (public and independent sources).

In Poland there are currently 26 Advanced Technology Centres and 100 Centres of Excellence. The Centres are located in certain regions referred to as the Central Macro Region of Advanced Technology, or the Centre of Małopolska and Silesia.

21 Ustawa o zasadach finansowania nauki z dnia 8 października 2004 roku, Dz. U. z dnia 4 listopada 2004 r.
22 A. Siemaszko, Europejska przestrzeń..., op. cit., s. 91.
An important role in the strategic planning of a knowledge-oriented economy, in which cooperation between science and business is very close, is played by Regional Innovation Strategies. Their objective is to create long-term partner relationships between science and industries, increase the competitiveness of SMEs through implementing new technologies and developing employees’ specific skills in the area of research and innovation.

Regional Innovation Strategies should identify the focus of innovation policies as well as the most effective ways of making use of the infrastructure encouraging innovation.

Regional Innovation Strategies have been functioning in the EU since 1994. Their main objective is to increase the competitiveness of member states as compared with global leading economies in terms of innovation. The functioning of those Strategies has enabled member countries to:

- Reach a consensus in the regions related to the selection of the methodology of developing a given strategy,
- Raise the awareness of the necessity of innovation,
- Coordinate scientific and research activities, so that scientific achievements could be applied by regional industries.

Regional Innovation Strategies cover all Poland’s regions, being an effective tool for assessing the available potential and needs in the area of innovation. They serve as a tool in setting objectives of innovation policies with a view to increased competitiveness of the regional economy. Thanks to the Strategies, an innovation system is being developed at the regional level, providing businesses with access to knowledge, skills, financial resources, professional advice and market information, establishing relations between businesses and other partners within the system of innovation.

Another tool of Government innovation policies, facilitating the achievement of the goals set by the Lisbon Strategy, especially the one related to the level of 3% of GDP assigned to R&D, is a motion prepared by the Ministry of Economy and Labour whose objective is to encourage innovation.

As mentioned before, an extremely important role in developing a knowledge-oriented economy is played by the amount of funding designed for R&D. The level of funding in Poland is very low. This is mainly due to innovation policies and applied instruments. Therefore, the main objective of the above-mentioned motion is to increase economic competitiveness and innovativeness through increasing funding from the private sector and a more efficient use of public funds designed for R&D.

The Act provides for creating a new financial instrument for businesses – a technology loan. It is designed to finance investment projects based on new technologies, both domestic and foreign, as well to launch the production based on that technology.

Another instrument defined by the Act is related to the granting of the status of a research and development centre. Its objective is to develop a private R&D sector and to increase demand for such services through tax incentives. The granting of the status may be based on objective formal and economic criteria. The Act also regulates the ways in which research centers operate as well as ownership transformations.

The implementation of the 7th Research Framework Programme is scheduled to be launched shortly in EU countries; its objective is to continue work on developing the European Research Area. Under the Programme, six main objectives have been defined:

- Setting up European Centres of Excellence;
- Launching Common European Technological Initiatives;
- Development of basic research through European competitions;
- Increased mobility of researchers;
- Development of huge research infrastructure areas;
- Improvements in coordinating national research programmes.

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25 http://pldg.pl/p/pl/TarJ/20/20/1
26 A. Siemaszko, op. cit., s. 92.
The 7th Framework Programme should lead to increased competitiveness of all member states, providing them with equal access to direct aid funding; an effective use of the potential of the particular countries will accelerate the implementation of the Lisbon Strategy.

Unfortunately, out of the six priorities, two of them may turn out difficult to be implemented by Poland. The priorities in question concern launching Common European Technological Initiatives and developing huge infrastructure areas.

Currently, Poland is not actively involved in developing research structures in EU territory including Networks of Excellence. Presently, the number of networks is about 100, covering nearly all key research areas, but half of them do not have any Centres from Poland. European Technological Platforms are not represented by Polish industries, either. It poses a serious threat to Poland’s full participation in the European Research Area, which blocks access for Poland to some of financial resources designed for financing 7th Framework Programme priorities.

In order to prevent such a threat, Poland has started developing Polish Technological Platforms in order to integrate major economic areas. Three Polish Platforms have already been launched, while 17 subsequent ones are being negotiated. The objectives of Polish Technological Platforms are as follows:

- Active participation in the structures of European Technological Platforms;
- Active participation in defining and implementing European Research Strategic Agents;
- Active participation in EU Framework Programmes;
- Developing the national strategic and ambitious research programme, focused on the needs of a given industry, which would be a component of the National Framework Programme;
- Integration of key business and research partners;
- Activation of private and public resources;
- Effective use of structural funds;
- Promotion and lobbying activities on behalf of a given industry;
- Developing a proper management structure.

**Summary**

In the area of innovation Poland’s position is weak as compared with EU member states, which, by the way, do not have most competitive economies from the global point of view. Considering the fact that scientific advancement and effective implementation of modern technologies are the main drivers of economic growth, Poland should make all possible efforts to increase the innovativeness of its economy.

One of the numerous tasks to be performed by Poland in the process of developing a competitive and innovative economy is the integration of science and economic life. Unfortunately, the absence of such integration hinders the development of innovative economy. Therefore, more attention in innovation policy should be given to implementing scientific achievements through the development of support infrastructure including the purchase of the results of scientific research, transforming the results of research into commercial products, offering financial assistance in launching new products and technologies, setting up new innovative companies.

It is also necessary to develop the system of integrated research and technology complexes such as Advanced Technology Centres, or Centres of Excellence. Their main objective is to develop state-of-the-art technologies and put them into business practice; they should also enter into cooperation with their EU counterparts.

An example of effective ways of developing innovation in the EU is the implementation of Framework Programmes. Therefore, it is advisable to develop National Framework Programmes, which will be mainly involved in developing technologies in Poland’s key industries. It is also important to harmonize the National Framework Programme with EU undertakings – European Technological Platforms.

The objective set by the Lisbon Strategy concerning the financing of science and innovation activities at the level of 3% poses a great challenge for Poland. Our country is not expected to achieve this objective in the coming years (the increase in R&D expenditure amounts to 3% of the central budget is planned to be achieved till 2013). Nevertheless, an increase in the expenditure should be one of the priorities of the country’s innovation policy.

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The Lisbon Strategy assumes an increase in the level of financing R&D activities by the private sector up to two thirds of the total expenditure. From the point of view of Poland’s innovation policy it implies the necessity of developing such financial instruments which would effectively encourage businesses to invest in the field of research on innovative solutions and to apply the results of research in practice. A major role in developing an innovative economy is to be played by SMEs. Unfortunately, they do not have sufficient resources for independent research; moreover, no financial instruments are available in Poland such as grants for specific purposes to be taken advantage of by SMEs.

Summing up it should be noted that Poland’s innovation policy is facing a great challenge resulting from the need to develop appropriate financial and institutional instruments, allowing the system to effectively develop a knowledge driven economy. It would allow Poland to act as a partner in cooperating with EU advanced economies on the one hand, enabling our country, on the other hand, to develop its best industries, making them competitive on European and global markets.
References


Engelès M. Diez, Soledad Esteban M., The evaluation of regional innovation and cluster policies: looking for new approaches, University of The Basque Country, Fourth EES Conference, Lousanne, October 12-14, 2000,

European Innovation Scoreboard 2004, Comparative analysis of innovation performance, Commission of The European Communities, Brussels, 19.11.2004,

Florida R., Towards the learning region, “Futures”, 1995, Vol. 27, No. 5,


Instrumenty polityki rozwoju regionalnego, Zespół Zadaniowy ds. Polityki Strukturalnej w Polsce, Warszawa 1997,

Moszkowicz K., Polityka innowacyjna w krajach wysoko rozwiniętych, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego, Wrocław 1995,

Narodowa Strategia Rozwoju Regionalnego 2001-2006, Dokument przygotowany przez Ministerstwo Rozwoju Regionalnego i Budownictwa, przyjęty przez Rząd 28 grudnia 2000,


Płowiec U. (red), Jaka polityka gospodarcza dla Polski?, VII Kongres Ekonomistów Polskich, Tom II, Polskie towarzystwo Ekonomiczne, Dom Wydawniczy Bellona, Warszawa 2001,

Rothwell R., Les enjeux economique et politique d’innovation, sous direction de Michel Leclerc. Presses de L’UQAM, Montreal 1990,

Sektorowy Program Operacyjny Wzrost konkurencyjności przedsiębiorstw lata 2004-2006, przyjęty przez Radę Ministrów 16 marca 2004 r., Warszawa 2004,


Ustawa o zasadach finansowania nauki z dnia 8 października 2004 roku, Dz. U. z dnia 4 listopada 2004,

Vanhove N., Regional Policy: A European Approach, Asgate, Aldershot, 1999,

Założenia polityki innowacyjnej państwa do 2002 roku, dokument rządowy przyjęty przez Radę Ministrów na posiedzeniu w dniu 6 grudnia 1999 r., Komitet Badań Naukowych, Warszawa 1999

Zielona Księga PFSL – Polska wobec redefinicji Strategii Lizbońskiej, Instytut Badań nad Gospodarką Rynkową, Warszawa-Gdańsk 2005,