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**Designing innovation policy
for the 21st century**

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Abstract of the article "Designing innovation policy for the 21st century"

The fast changing world is indeed implying new challenges both from the perspective of enterprises and policy makers. There is a constant need to adapt the policy strategies and instruments aimed at supporting innovation activity to the new challenges, both connected with finding the right evidence for policy action as well as so called “grand challenges of the 21st century” like climate change, ageing populations, energy security and security itself.

The Polish government is shaping its new approach to the policy making by drafting 9 principal strategies for the development of the country in the next 10 years. One of the priority areas is innovation, together with the need for sustaining the competitive advantage of the country and maximizing the effectiveness of the policy actions. The above mentioned priorities are to be reflected in the *Strategy for Innovative and Efficient Economy*, to be adopted in the middle of the year by the Council of Ministers. The main aim of the strategy is to show the development path for the country till 2020, based on research, innovation and competitiveness. But indeed strategy itself will not contribute to creating an innovation nation – there is a need for specific policy action dedicated to the support of R&D and innovation activity and creating the right framework conditions. These goals are set for the Entrepreneurship Development Programme showing in details the ways the government is to intervene on the basis of market failure identification. The programme is to be implemented mainly by the next operational programmes financed by the EU structural funds for the years 2014-2020. As a consequence, there is an unique opportunity to change the innovation policy to better one, based on solid evidence, analysis of barriers to innovation, on the evaluation of current instruments and best practices from all over the world. This exercise is supported by the technology foresight for the Polish industry, which aim is to indicate technologies for the future – those leading ones and those which might be perceived as Polish specialization and competitive advantage in the coming decades.

The above mentioned challenges appear simultaneously with the unique experience to go out with national innovation policy making to the broader audience – by having the honor to steer the EU decision making process for the second half of the year 2011 under the Polish Presidency in the Council of the European Union.

Introduction

The innovation policy making has never been so complex and multidimensional like at present. The reason for that is the emerging broad innovation policy approach including practically all kind of changes in the definition of innovation and moreover all policies which need to foster innovation as well. Taking this into consideration the policy makers need to get a strong insight into the EU aspects in order to design a policy well adjusted to the needs of society and complementary to the already existing and emerging EU schemes. The policy makers should also carefully follow the recommendations of the international organizations like OECD, in order to seek new ways to promote innovation and entrepreneurship culture. This article presents the EU vision with respect to innovation support (based on EU 2020 strategy and Innovation Union flagship project), as well as the Polish response concerning the design and implementation of innovation policy (strategies and programmes). At the end the article gives an insight into the Polish Presidency in the Council of European Union priorities in order to set the scene for Polish contribution to the economic and innovation policy making on the EU level. The article basically constitutes an attempt to assess whether the Polish innovation policy is well adjusted to the EU trends and ambitious enough to boost innovation capacity in Poland.

1. New European vision and new policy challenges

The EU's economic strategy "*Europe 2020 - A strategy for smart, sustainable and inclusive growth*¹" stresses the need for common action by Member States to implement reforms enabling facing the challenges posed by globalization, aging populations and increasing pressure on resources. The intention of the European Commission (EC) was to present a vision of social market economy of XXI century, characterized by stable economic growth, high level of employment, productivity and social cohesion.

The EC has proposed three main mutually reinforcing priorities: **smart growth** (development of knowledge and innovation based economy), **sustainable growth** (promoting resource-

¹ European Commission: Communication from the Commission: Europe 2020 - A strategy for smart, sustainable and inclusive growth, COM(2010) 2020 final, Brussels, 3.3.2010

efficient and more competitive economy) and **inclusive growth** (strengthening the economy characterized by high employment and social and territorial cohesion)².

In addition, the Commission proposed indicators to monitor progress in implementing the above three priorities by five overarching objectives set out at EU level. One of these goals is to allocate **3% of EU GDP in investments in research and development**.

Smart growth means increasing the role of knowledge and innovation as drivers of future growth. This requires improving the quality of education, research performance, promoting innovation and knowledge transfer in the UE, making full use of ICT, and also ensuring that the innovative ideas will be transformed into new products and services, which could contribute to growth, creating jobs and solving social problems in Europe and worldwide.

At the same time it should be noted that the building of knowledge-based economy implies a need for educating co-operation skills and the ability to transfer knowledge between different market players (enterprises - research institutions - consumers). For this purpose it is necessary to take appropriate action in increasing the role of science in economic development, in accordance with the principle of "knowledge triangle", which contributes to the implementation of the so-called "fifth freedom".

The EU 2020 strategy was criticized for the lack of fresh, detailed ideas and pursuing the 3% target once more. In the view of many Member States it was not giving the full picture and many issues were in fact missing, like innovation in the public sector. During the discussions the Member States felt like giving an opinion to the too general policy document.

Given the above, the EC presented **flagship projects** which implementation will enable to achieve progress in each of the thematic priorities, including smart growth. Implementation of smart growth priority is embedded in the "**Innovation Union**"³ - a project to improve the framework conditions and access to finance for research and innovation.

The EU emphasized several needs in order to implement Innovative Union:

- Need to continue to invest in education, R&D, innovation and ICTs,
- Pursue reforms to get more value for money and tackle fragmentation,

² Ibid.

³ European Commission: Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions - Europe 2020 Flagship Initiative - Innovation Union, COM(2010) 546 final, Brussels, 6.10.2010

- Link up the EU and national research & innovation systems with each other and improve their performance,
- Modernize the education systems by fostering excellence,
- Complete the European Research Area in order to enable researchers and innovators to work and cooperate across the EU,
- Simplify the access to the EU programmes and the role of EIB in financing innovation,
- Fully exploit the European Regional Development Fund to develop research and innovation capacities across Europe, based on smart regional specialization strategies,
- Get more innovation out of research and foster cooperation between science and business,
- Provide better access to finance, particularly for SMEs, affordable IPR, smarter and more ambitious regulation and targets, faster setting of interoperable standards and strategic use of our massive procurement budgets,
- Launch European Innovation Partnerships to accelerate research, development and market deployment of innovations to tackle major societal challenges, pool expertise and resources and boost the competitiveness of EU industry, starting with the area of healthy ageing,
- Exploit EU and MS strengths in design and creativity and foster social innovation and develop a better understanding of public sector innovation⁴.

According to recent estimates of the experts working on the EC Communication on Innovative Union, achieving a target of spending 3% of EU GDP on R&D by 2020 could create 3.7 million jobs and increase annual GDP by close to €800 billion by 2025. Realizing it will require the full and sustained support of the European Council and the European Parliament, Member State governments, businesses, public authorities, researchers and the public.

It's worth to stress that the success in the implementation of innovation policy flagship is very closely linked to the discussions on Multiannual Financial Framework, which gives a clear message how innovation is going to be funded in the 2014-2020 perspective. These decisions are going to be taken till the end of 2012 on the EU level.

⁴ Ibid.

The EC communication provided also a new vision of innovation which are now something more than just a way to boost economic activity. Innovation is now being foreseen as a remedy to **societal challenges** like: climate change, energy supply, the scarcity of resources, shortages of raw materials and the impact of demographic changes, health, security, sustainably provided water and high-quality affordable food.

One of the concepts to deal with the above mentioned challenges is to introduce **European Innovation Partnerships (EIP)**⁵, which constitutes the partnerships between entities at EU and Member States' level to accelerate the development and use of technology responding to global challenges.

EIP are intended to counter the **fragmentation of research and development sector** in the European Union, optimize the use of expenditures on research and development and increase international cooperation between actors from different Member States. The purpose of the EIP is also the widest possible use of different instruments to support R&D and commercialization of research results - both at Community and national levels.

The above mentioned Partnerships are to integrate existing activities and initiatives such as Joint Programming Initiatives, Joint Technology Initiatives, Lead Markets Initiative and to use the activities carried out by the European Institute of Innovation and Technology, Knowledge & Innovation Communities and European Technology Platforms. They all may become an important instrument for optimizing the support of research and development in the EU, in particular a more efficient use of inputs for this purpose. In fact, EIP can substantially assist in preventing the phenomenon of duplication of the same or very similar research activities in different Member States and ensure their greater complementarity.

In addition, EIP may significantly contribute to a better balance of the European Research Area by mobilizing resources from different countries and the inclusion of these resources for the implementation of joint actions, and this in turn will contribute to the full exploitation of intellectual capital across Europe.

⁵ http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=key

At the moment an EIP pilot project for an “active and healthy aging”⁶ is being implemented. The project results will form the basis for the further implementation of the other partnerships on:

- smart cities,
- effective water management in Europe,
- sustainable supply of raw materials other than energy for modern society,
- intelligent mobility for European citizens and enterprises,
- productivity and sustainability of agriculture⁷.

So far the concept of EIP’s is largely disused and in fact it is not so clear how the idea is going to be implemented on the EU and Member States level. The concept of joining forces in order to meet the grand challenges is perfectly clear, but the idea how to make it operational and to mix the EU, national and private budgets is still a question mark.

Poland must find the right way first to catch up with the EU and second to promote smart growth and fully integrate into the above mentioned actions of the Innovative Union. So far Poland has determined that the share of expenditure on R&D/GDP in 2020 will amount to 1.7% (EU target 3%), while the percentage of people aged 30-34 with higher education will be 45% (EU target 40%). The roadmap to achieving these goals will be shown in annual editions of National Reform Programmes.

The year 2011 is unique in a sense of mobilizing the resources in order obtain these goals in the future. The new concepts, new visions, new strategies and new programmes are going to be developed. That seems to be very challenging and ambitious task.

2. New strategic approach for Poland

Development of policymaking process requires the preparation of a new generation of documents, that will suit the needs of an outlined, comprehensive development policy and will be drafted according to the specific structure consisting of, among others, implementation schedules, performance indicators and financial framework.

⁶http://ec.europa.eu/research/innovation-union/index_en.cfm?section=active-healthy-ageing&pg=home

⁷ European Commission: Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions - Europe 2020 Flagship Initiative - Innovation Union, COM(2010) 546 final, Brussels, 6.10.2010

To secure proper coordination it is vital to introduce closer links among comprehensive strategic documents (long-term and medium term development strategy of the country) with other strategic documents (development strategies, programs) created for specific areas or sectors of the economy. This would strengthen the coordination of development activities, and through synergy effects resulted in a greater dimension of socio-economic and regional planning.

The major starting point should be to continue, the process launched by the Ministry of Regional Development based on reordering the existing strategic documents, by eliminating (revocation / recognition as a non-binding) of the documents which are not implemented, duplicative, conflicting or inconsistent with the objectives of development policy and in the same time by linking documents with similar themes in the thematic blocks.

Limiting the number of strategic documents will allow the greater transparency in the process of strategic planning, more effective spending of funds from the state budget and consequently the effective implementation of national development objectives in the long and medium term perspective.

The concept of organizing strategic documents⁸ is a part of a broader initiative aimed to create an efficient system for managing the development of the country, according to the proposals contained in the document prepared by the Ministry of Regional Development in cooperation with the Chancellery of the Prime Minister and a team of Strategic Advisors of the Prime Minister entitled “Assumptions of Polish system for the development management”, adopted by the Council of Ministers on 27 April 2009.

The process of arranging the strategic documents will take place in stages. The whole process is being run by the Coordinating Committee for Development Policy, which is located by the Prime Minister. In the first phase of work, the areas of strategic importance in terms of socio-economic and spatial development of the country were marked out. Then the range of topics were linked to the specific development strategies. Strategies are to be horizontal in its nature and cover a wide range of issues. Then the existing strategic documents (strategies, programmes, etc.) were assigned to the so-defined strategies.

⁸http://www.mrr.gov.pl/rozwoj_regionalny/polityka_rozwoju/system_zarzadzania_rozwojem/porzadkowanie_dokumentow_strategicznycy/strony/porzadkowanie_dokumentow_strategicznycy.aspx

On the 27 November 2009, the Council of Ministers adopted a document entitled "The plan of arrangement of the development strategies"⁹ (recapitulation of Decision of 10 March 2010), concluding the first stage of work related to the project, which is to put in order the existing strategic documents, such as development strategies and programmes.

The document contains a concept for optimizing the number of existing strategies and proposes to reduce the number of development strategies and policies - from the current 42 documents of this type - to 9 new, integrated development strategies, implementing medium- and long-term policy for the development of the country. These are the following:

1. The strategy for innovative and efficient economy;
2. Human capital development strategy;
3. The strategy for the development of transport;
4. Energy security and the environment strategy;
5. Efficient state strategy;
6. Social capital development strategy;
7. The National Strategy for Regional Development 2010-2020
8. National Security Strategy of Poland;
9. The strategy for sustainable agricultural and rural development¹⁰.

Drafting each of the strategies is conducted by a designated coordinator, whose role is to manage the work on a document in a collaboration with other relevant ministries in order to prepare the strategy of a complex character.

It is assumed that the strategies will be based on the following principles:

- solidarity (including the solidarity within and between generations);
- consistency (territorial cohesion, regional, regulatory);
- public interest and democratic state;
- non-discrimination in political, social and economic development¹¹.

At the same time, strategy papers are to include a response to such challenges as: meeting the demands of competitive global economy, taking into account demographic trends, as well as efforts to improve social cohesion.

⁹ Ministry for Regional Development: The plan of arrangement of the development strategies – a paper amended after the decision of the Council of Ministers from 10 of March 2010, Warsaw, March 2010

¹⁰ <http://www.poprzedniastrona.premier.gov.pl/print.php?doc=2067>

¹¹ Ministry for Regional Development: The plan of arrangement of the development strategies – a paper amended after the decision of the Council of Ministers from 10 of March 2010, Warsaw, March 2010

The second stage of the work related to arranging the strategic documents is to make in order development programs, including those multi-annual ones.

At the end, the whole strategic exercise is to promote one single vision for the development of the country among thousands of policy officials, resulting in complementary actions taken by different ministries and agencies, and in the same time to show to the society the development path for the country in the next 10 years.

Generally the new strategic approach is being very positively evaluated by the international organizations and policy makers themselves. However the question of stability in the national strategy documents is always a vital issue since the government changes more frequently than once in 10 year period. But there is a hope that the joint effort of all the ministries and initiated horizontal dialogue across all the national policies is a step towards excellence and evidence based policy and evaluated as such is the only choice.

3. Strategy for innovativeness and effectiveness of the economy in the light of OECD recommendations

Currently, the Ministry of Economy is preparing a strategy in the area of innovation - **Strategy for Innovative and Efficient Economy**¹² - delineating the lines of interventions in increasing innovation and competitiveness of the economy. Assumptions for the Strategy were generally adopted by the Coordinating Committee for Development Policy in June 2010. The document was also consulted with various stakeholders. The Ministry of Economy is working on the final shape of the Strategy. Initially it is planned to adopt the Strategy by the Council of Ministers in the second quarter of 2011.

The main objective of the Strategy is to create conditions for a highly competitive economy based on knowledge and cooperation, which means - open and expansive economy, offering new jobs, based on mutual trust and cooperation of economic actors, steadily growing through innovation and high-efficiency resources, that will ensure in the next decade the increase of the competitiveness of enterprises in the international arena.

¹² <http://www.mg.gov.pl/node/12707>

The implementation of the Strategy will be guided by the following horizontal rules:

- Knowledge creation – a constant search for new solutions,
- Partnership cooperation – developing entrepreneurs' relationships with the business and social environment,
- Effective resource allocation and management from cradle to cradle,
- Strategic management and responsible leadership.

The main objectives of the strategy are:

- Objective 1: Adaptation of the financial and regulatory environment to the needs of innovative and efficient economy,
- Objective 2: Stimulating innovation through increasing the efficiency of knowledge and labor,
- Objective 3: Increasing the efficiency of utilization of natural resources and raw materials,
- Objective 4: Increasing the internationalization of the Polish economy¹³.

The Objective 1 is going to be implemented by the actions aimed at proper adjustment of the system of economic regulation, concentration of public spending on pro-growth and innovative activities, ensuring simplification and transparency of the tax system and last but not least - facilitating access of SMEs to the capital for all phases of their development, with particular emphasis on venture capital.

Raising the level and effectiveness of science in Poland and increase of its international competitiveness, promoting cooperation in the national innovation system and developing an innovation culture, as well as supporting the development of human resources and creating high-quality ICT infrastructures and the development of the digital market, are the main directions of above mentioned Objective 2.

In the same time Objective 3 foresees actions for transformation of the socio-economic system on the so-called. "greener path", and in particular reducing energy-and material-absorption and the Objective 4 calls for intervention with respect to support for exports and

¹³ Ibid.

Polish investments abroad, innovative and responsible flow of foreign investment, promotion of the Polish enterprises and the image of Poland internationally¹⁴.

The work on the Strategy for Innovative and Efficient Economy has been carried out in a perfect time frame, because the policymakers could take into account the results of the Innovation Strategy prepared by the OECD¹⁵ and adopted at the OECD Ministerial Council Meeting in May 2010.

OECD Innovation Strategy examines the complex factors influencing the innovativeness of the economies of OECD countries, as well as current trends in innovation. The strategy is seen not as an instrument itself, but as a process involving all actors in innovation policy.

The OECD strategy defines the priorities in the following areas:

1. Boosting innovation - a challenge for economic policy makers - Increasing innovation and stimulating the creation and application of new knowledge should be a key area for government action. Investments in innovation and knowledge contribute to the creation of a good quality jobs and contribute to productivity growth. In 1995-2006 expenditure on investment in intangible assets and investments in ICT have contributed to 2/3-3/4 of GDP growth in some OECD countries, what demonstrate that innovation is the main engine of growth in developed economies. At the same time, innovation contribute to finding the solutions for the grand challenges of society.

2. Trends in innovation – There is a need for a broader approach to innovation, namely to promote not only technological solutions based on R&D, but also include non-technological innovation and technology that are not based on R&D. At the same time, cooperation is strengthened as an important element of the innovation process. Cooperation between businesses form the possibility to extend the scope of the project implemented by companies, or supplements their possibilities.

3. Creation of human resources for innovation - The quintessence of innovation technologies and solutions are created by creative people. The main directions of development of appropriate staff for innovation activity are: adapting the educational system, activation of women scientists and entrepreneurship, increasing the international mobility of staff, creating

¹⁴ Ibid.

¹⁵ http://www.oecd.org/document/15/0,3746,en_2649_34273_45154895_1_1_1_1,00.html

the suitable working environment, involving consumers in the innovation process and shaping the entrepreneurial attitudes.

4. Encouraging innovation - Competition policy, environmental protection, openness to international trade, financial and tax system are of fundamental importance for the development and innovation. Lack of access to finance is a key constraint to the development of innovation. Governments play a vital role in increasing the demand for innovation through regulations, standards, pricing, consumer education, taxation and public procurement.

5. Creating and implementing knowledge - Innovation requires both public and private investment in infrastructure and networks to support innovation, as well as R&D and other intangible assets, while the governments play an important role in supporting both private and public investment in innovation. Public sector research plays many roles in innovation systems, including in the education, training, skills development, problem solving, creating and diffusion of knowledge and the development of new instruments. The aim of developing scientific and innovative potential of the countries, many governments have increased the level of research funding in the public sector. Public research institutions are increasingly exposed to the challenges of globalization, competition, commercialization of research results and a greater emphasis on quality. Adapting to these pressures led to changes in management structures, processes and mechanisms for prioritizing the allocation of financial resources. Evaluation of research funded with the use of public resources is in recent times a key issue for policy makers because of the increasing demand for development of evidence-based policy, and need to assess the results of public investment. Governments are increasingly trying to determine how much they should invest in science, technology and innovation, where to invest to increase social benefits and how to improve the quality of research.

6. Innovation as a response to meet global challenges - Innovations are increasingly seen as a key tool to meet global challenges, e.g. in the context of climate change (greenhouse gas), food safety and health. These types of challenges are transnational and require coordinated action at international level. Given the above, one should strengthen scientific cooperation and technology. Multidisciplinary approach to research requires the involvement of other stakeholders (public authorities, the sphere of finance, industry, universities, and finally society) to act. It is also important to identify the key elements and implementation of policies and mechanisms that can accelerate scientific and technological progress, as well as allow for the diffusion of innovations to meet global challenges.

7. Improving the management of scientific, technology and innovation policy (STI) -

Innovation of the country depends largely on the quality of management science and technology policy and innovation. Changing the perception of innovation has forced the modification of management. The development of effective management in the context of an increasingly broader perspective on innovation, requires better coordination between local, regional, national and international levels. With the development of innovative processes, management systems that ensure their proper functioning, become even more important. Given that none of the entity itself does not have the knowledge and resources to meet the challenges posed to the implementation of innovations, all countries face the task of coordinating the process of policy formulation and implementation of innovations¹⁶.

The Strategy for Innovative and Efficient Economy goes in line with the OECD innovation strategy mainly in the following areas:

- Strengthening the crucial role of innovation,
- Promoting new forms of innovation,
- Emphasizing the need for stronger cooperation,
- Boosting creativity,
- Adjusting education to the needs of industry,
- Providing appropriate legal and macroeconomic framework conditions,
- Creating an innovative culture,
- Providing access to finance,
- Mobilizing private capital,
- Developing world class science,
- Focusing on market driven research,
- Supporting innovations addressing societal challenges,
- Developing key future enabling technologies,
- Improving the coordination and governance of innovation policy.

The Strategy for Innovative and Efficient Economy is indeed a step in the right direction. It goes in line with the crucial for innovation policy makers “OECD Innovation Strategy” and for the first time includes the very broad approach to innovation – starting from macroeconomics and fiscal perspective, through broad based innovation policy focusing on

¹⁶ Ibid.

all forms of innovation and practically all policies that may be innovative and boost innovation. The Strategy was also the first step towards building a consensus among the stakeholders on what is the right approach to innovation and started a dialogue on that vital issue.

It is indeed essential to have a clear vision of the goals and objectives, but one must emphasize that the real influence on the economy got usually the specific instruments, which constitutes the source of support. With respect to Polish conditions these are to be specified in the “Programme for the development of enterprises”.

4. Programme for the development of enterprises

The aim of the above mentioned programme is to indicate a **detailed concept of business support system in Poland, with particular emphasis on support for innovation**. The programme will provide the basis for the development of operational programmes for 2014-2020 in the area of entrepreneurship and innovation. It will cover both removing barriers and creating a favorable environment for businesses, as well as activities (financial and non-financial) increasing their innovativeness and competitiveness.

Conceptual work on the development of the programme is focusing on:

- identifying and assessing the effectiveness of currently existing instruments for enhancing innovation and competitiveness of the economy, in particular the operational programmes,
- evaluation of the effectiveness of implementing institutions (such as PARP, NCBiR, KFK, BGK),
- designing the new instruments,
- collecting and analyzing feedback from the socio-economic partners¹⁷.

The Programme at the end will include a detailed concept of business support system in Poland, with particular emphasis on innovation support and will provide the basis for the development of operational programmes for 2014-2020 in the area of entrepreneurship and innovation, including both the creation of a friendly business environment, as well as efforts

¹⁷ Ministry of Economy: Draft assumptions of the programme for the development of enterprises – internal document, Warsaw, 2011

to increase their innovation and competitiveness. So far, the Programme is developed with the active participation and guidance from the World Bank.

At present it is difficult to describe in detail how the new system will look like. However there are some preliminary thoughts to be shared with.

In the context of increasing the innovativeness of Polish economy, it is important to base its structure on two pillars: **modern services and industries with the greatest potential for growth**. Despite the dynamic development of services, the industry will remain an important sector of the Polish economy. It is important, however, that this must be **a modern industry** with the high efficiency of deployed resources and advanced research facilities. Polish industrial structure is dominated by the production of low-processed goods, material-, energy- and labor-intensive, with little contribution to knowledge and innovation. The share of high technology industries, which in developed countries are the main source of economic growth, is quite small in Poland. To increase share of these industries will be the main direction of structural changes in the industry. Nowadays the challenge in the medium and long term is to increase the internal capacity to absorb technology with appropriate growth potential in productivity of capital and labor. Innovation, i.e. inventions efficiently transferred to the economy, will have to gradually take over the role of the main engine of growth. One should also increase the level of innovativeness of **service industries**, because nowadays the service sector is a key factor influencing the level of national GDP. In the **modern service sector** - as a key future potential of the Polish economy - one should seek as well the source of competitive advantage.

Innovation arises and disseminates mainly as a result of the **cooperation of various stakeholders**. The intensity of this cooperation is a key determinant of innovation throughout the economy and its growth potential. Innovative activities of firms and the functioning of modern industry, therefore, require **an efficient system for promoting friendly relations between R&D sector and businesses**, facilitating staff movement, creation of clusters and broad access to research infrastructure - nationally as well as internationally. Such a system must also offer special conditions for new innovative or development projects (in this context, it should also promote and support participation of consortium members in the implementation of the above projects). Enhancing cooperation also requires an additional stimulus, which is the **guarantee of protection of activities' results**.

Special attention must also be paid to an area of **building relationships and knowledge transfer** between the scientific and research institutions and enterprises. In this regard, improvement is needed in several areas. First of all, it is necessary to facilitate companies to obtain information on conducted R&D and opportunities for conducting R&D by research centers. This task is the part of the implementation process of the current law package regulating the rules of financing science. Support instruments for co-operation will focus primarily on **supporting the natural processes of establishing cooperation between entities**. This means that it is necessary to ensure an appropriate environment in which co-operation of companies can be initiated in an easy and effective way.

The access to funding is crucial at every stage of company development - from inception, through development, restructuring, or changing the profile of activity. At the same time gaining access to the basic form of external funding, namely bank loans, is the important problem, especially for the smallest and medium-sized enterprises. Significant in this context, is to take action to increase access of innovative firms to other sources of funding (other than those available - structural funds and framework programmes), through the creation of appropriate instruments, mechanisms and regulations designed to increase the flow of private capital. At the same time it is necessary to direct funding mainly on the **activation of financial institutions**, rather than direct grants to entrepreneurs. The most effective use of funds is done by the instruments **that generate feedback from the companies**.

Another essential element is the concentration of R&D activities on the **social challenges** (climate, health, demographic changes, resources). Current sources of growth are becoming increasingly unviable. It is therefore necessary to seek other sources of growth - such as innovation aimed at solving problems (aging populations, climate change, issues of food supply, security, energy, etc.). Focusing efforts on these challenges will require the involvement of all key partners, as well as proper coordination of actions and initiatives taken at national and regional level.

The key issue is also to increase awareness of enterprises in terms of **new forms of innovation**. Previous approaches to support R&D as a source of creating competitive advantage are important, but insufficient in light of the necessity of building a knowledge-based economy. New trends in innovation affect both the creation of products (goods and services) regardless of whether the technology is based on R&D activities, whether caused by active involvement of consumer (user-driven innovation), as well as changes in the structure

of organization (non-technological innovation: organizational and marketing). New forms of innovation such as: non-technological innovation, user-driven innovation, open innovation (based on the free exchange of knowledge between companies), or social innovation (social innovation within the workplace and in the creation of new social needs) require on the one hand new skills, and on the other hand, an active innovation policy to stimulate the formation of this type of innovations.

At the same time a new innovation policy must significantly contribute to transform socio-economic system on the so-called "**green path**". Important role in this field play environmental technologies and eco-innovation which certainly are to be further promoted and financed.

It is also necessary to **simplify rules and procedures** in programs supporting R&D and innovation and to ensure greater synergy and coherence between the various instruments in the above mentioned programs¹⁸.

To sum up - in the future support programmes we may¹⁹ see:

- R&D direct support,
- Preference to research and innovation addressing societal challenges (like eco-innovations and environmental technologies),
- Revolving instruments for technology absorption,
- Horizontal innovation policy but with a preference to the most promising areas/technologies (to be decided after foresight exercise),
- Tailor made trainings (focused on HR development) for specific companies (like training vouchers instead of group trainings on more general topics),
- New pre-commercial procurement schemes,
- Simplified procedures in the support programmes and more expertise in the process of evaluation of applications.

But the work on the Programme for the development of enterprises has just started. It is getting more and more complex due to the need of taking in the consideration the national and the EU regulations, where some of them are only the drafts now. The most important issue is

¹⁸ Ibid.

¹⁹ These concepts are still under discussion between experts. Final shape of the programme will be known after adoption by the Council of Ministers (foreseen in the beginning of 2012).

to gather all the policymakers and agree on the one single approach and then mobilize resources (mainly financial ones) to introduce the proposed schemes.

5. New approach to industrial policy – developing technologies for the future

In line with the Concept of Horizontal Industrial Policy in Poland adopted by the Council of Ministers on 30 July 2007 the Ministry of Economy decided to start a project which aim is to indicate the key technologies for the future development of the country – the “Technology foresight of the industry²⁰”.

The Technology Foresight of the industry will be an opportunity to verify the development potential of identified sectors and industrial areas, identify competitive industrial areas and key technologies of the future.

The decision to start the foresight exercise was based on a several needs of the economic policy makers, which are:

- the need for addressing today's global challenges,
- the need to undertake new commitments in the field of long-term planning and funding of research and technology development with respect of the growing role of knowledge in economic development,
- the need to identify areas with the highest growth potential, taking into account the social, economic, environmental factors,
- the need to set the priority directions of development of technologies that will contribute to accelerating the pace of economic growth and increased quality of life in Poland,
- the need to prepare for different scenarios of social, economic–and technological development of Poland,
- the need to clearly define priorities in industrial policy, innovation and research²¹.

Information obtained as a result of technological foresight will be helpful for entrepreneurs in their strategic planning processes by showing the main trends and directions of technological

²⁰ <http://www.fortech2030.pl/>

²¹ <http://www.mg.gov.pl/Bezpieczenstwo+gospodarcze/Przemysl/Foresight+technologiczny>

changes in the medium and long term, as well as for updating the national strategic documents.

The range of technology foresight will cover the whole industry in Poland analyzed within the areas: industrial sectors (manufacturing), the service sector related to industry, mining industry and energy industry.

So far the extensive preliminary report shows the diagnosis of the various areas which include: review and analysis of Foresight projects in industry, SWOT, STEEP analysis and the attempt to formulation of a first vision for technology development.

The experts responsible for project, as a result of desk research and expert studies have identified 10 Research Areas: (1) Industrial Biotechnology, (2) Nanotechnologies (3) Advanced manufacturing systems (4) Information and communications technology (5) Microelectronics (6) Photonics (7) Development of clean coal technologies (8) Rationalization of energy use (9) Modern equipment for the mining industry (10) Innovative technologies of mineral raw materials sourcing²².

Selection criteria of the Research Areas were as follows:

- the influence of the research area on diffusion of innovation,
- the possibility of speeding up the technological progress and increase the competitiveness of Polish industry,
- the possibility to ensure sustainable development of industry,
- compliance with global trends of technological development,
- current and projected technology application capabilities and national research potential,
- technologies selected for the research field meeting the requirements of prime technologies (leading and / or niche ones, modern, future oriented, the key ones for the development of Polish industry),
- influence of research areas on the pace of socio-economic development²³.

The next step is to carry out a Delphi Survey (in 2 rounds), which will result in list of priority technologies for the development of Polish industry. Then, the technology life curves will be

²² <http://www.fortech2030.pl/index.php/pl/aktualnoci/realizacja-fortech-2030/tezy-pol-badawczych-do-bada-delphy>

²³ <http://bip.mg.gov.pl/files/przetargi/11386/Zal.%20nr%203%20do%20umowy.pdf>

developed, illustrating the trends of technology and technological development scenarios in different research areas.

Based on the results of Delphi, clusters of technologies, competitive industrial areas, road maps (visions of technology development on a time scale), and geographical maps of technology (including information cards for future technologies) are to be developed.

The project is being coordinated by the Polish Chamber of Advanced Technologies with assistance of Polish Academy of Sciences and Central Mining Institute. The results of the project are to be presented to the Ministry of Economy no later than 2nd of December 2011. The whole work will end with the recommendations how to implement the results of foresight directed to policy makers and public administrations, as well as recommendations for Polish industry.

The results of the project will influence the future support schemes for R&D, innovation and technology absorption and may become a part of the Programme for the development of enterprises. The discussions on the foresight exercise so far focus on the providing appropriate quality of data and providing precise conclusions in order to secure that the right leading technologies were picked up, not only those most visible ones.

6. Polish Presidency in the Council of the European Union²⁴

Apart from the challenge of drafting the national policies Poland has an unique opportunity to influence the EU economic policy making and to provide added value in the areas selected as priorities. Poland may also learn from the experience of being in a centre of international society and transform the obtained knowledge on the national policy making.

The Polish Presidency will aim to put the European Union onto the path of development and will focus on three priorities:

- European Integration as a Source of Growth,
- Secure Europe,
- Europe benefiting from Openness²⁵.

²⁴http://pl2011.eu/sites/default/files/users/shared/o_prezydencja/program_polskiej_prezydencji_w_radzie_ue.pdf

²⁵ http://pl2011.eu/program_and_priorities?gclid=CNn78o_10aoCFRkn3wod6VtIag

The core of the above mentioned priorities is described below.

6.1 European Integration as a Source of Growth

If Europe is to be competitive in the global terms, it should **act with determination to support growth.**

The implementation of the Presidency's goals hinges, to a great extent, on the **Multiannual Financial Framework after 2013**. The Polish Presidency, which will begin negotiations on the financial framework on the basis of the European Commission's proposals, will aim to work out the best possible offer for the whole European Union. At the time of a crisis, the EU budget should become an investment tool significantly contributing to EU economic growth. The Cohesion Policy, which serves the goals of the Europe 2020 strategy, is and should remain a core policy. In this context, Common Agricultural Policy reform – ensuring modernization and greater competitiveness for European agriculture – will also be very important. Defining a new EU budget means de facto defining the shape of the EU in the coming decade. The Polish Presidency wants the new financial framework to confirm that intensified cooperation within the EU is the right response to the economic crisis and to the challenges European societies will have to face in the years to come.

The Presidency's priority is to **deepen the Single Market** and complete its formation so that its growth potential can be fully tapped into. The lack of transparent rules governing the way the Single Market operates is still a serious barrier – both for entrepreneurs wishing to expand their business and for citizens who have no access to the entire offer of the European market. The Polish Presidency welcomes the Commission's proposal for a Single Market Act intended to overhaul the Single Market and is going to place emphasis on the development of the digital services market and, to this end, will engage measures to eliminate barriers to cross-border on-line transactions as well as continue efforts to reduce the costs of roaming services. In this context the Presidency will focus especially on the development of **e-commerce**. In order to enable EU market participants to fully use electronic services, it will be necessary to reduce legal and administrative barriers and increase users' confidence and sense of security. An efficiently operating and integrated **single market for services** represents the key instrument of growth and job creation that Europe needs. The Presidency will promote the full implementation of the Services Directive and will support further actions aimed at ensuring proper application of its provisions.

As a result of the adoption of a decision authorizing enhanced cooperation, the Presidency will aim to conclude work on the creation of a **unitary patent protection system**. The measures proposed in this regard should lead to the establishment of an inexpensive system that will be easily accessible to European entrepreneurs and, as a result, increase their patent activity and competitiveness, especially in the SME sector.

One of the Presidency's priorities will be improvement of the regulatory environment in which European enterprises operate. As part of the *Smart Regulation* initiative, special attention will be put on the impact assessment instrument applied in the legislative process.

In the second half of 2011, **industrial policy** will be one of the areas dealt with by the Competitiveness Council. Taking into account the economic crisis and its impact on the condition of enterprises, as well as the EU's objectives of climate policy and the Europe 2020 strategy, the Presidency will focus on those elements of flagship initiatives promoting industry: "Industrial Policy for the Globalization Era" and "Resource-efficient Europe", which are of key importance. **Environmental regulations**, including those designed to increase the efficient use of resources, significantly influence conditions in which the industry operates. Hence, all important consequences resulting from them should be discussed while considering their implementation. Addressing this subject by the Competitiveness Council will create an added value to the discussion on competitiveness of the EU economy.

The Presidency intends to continue discussion about the **next Framework Programme in the area of research and innovation** in the context of the Europe 2020 strategy priorities and the "Innovation Union" flagship initiative. The Presidency's aim will be to create an effective and coherent system of supporting research and development at the EU, national and regional levels. The Presidency will also aim to support activities that would lead to the creation of a **simpler and more harmonised Framework Programme, which will be consistent with other support instruments, especially instruments applied under the Cohesion Policy**. Special attention will be given also to streamlining administrative and financial rules governing the participation in the Framework Programme and its accessibility for small research teams and SMEs.

However, the challenges facing Europe call for new solutions in addition to continuing the present activities. Europe has the resources and unique experience that could become the

source of its economic growth, social prosperity and sustainable development. **Europe's intellectual capital** is one such resource. In February 2011, the European Council called for the implementation of a strategic and integrated approach to boost innovation and take full advantage of Europe's intellectual capital for the benefit of its citizens, enterprises – especially SMEs – and researchers. Therefore, the Presidency will place special emphasis on measures that enhance cohesion and synergy between EU policies and initiatives to make full use of Europe's intellectual capital. In this context, the **modernisation of universities and promotion of youth mobility** will be among the Presidency's priorities. Making full use of Europe's intellectual capital to build Europe's competitive advantage requires, among other things, taking measures to modernise universities and make use of the EU's scientific potential. The Presidency will emphasise the need for closer cooperation between higher education institutions and the business community and their role in forming social and civic attitudes. Increasing young people's mobility helps to broaden their experience, which, in turn, improves their prospects in the labour market.

The Presidency will engage in actions aimed at implementing the “Innovation Union” initiative. It will also **support creation of a sustainable and integrated European Research Area**, which should be regarded as a European community actively responding to global challenges and fully using the intellectual capital of all European countries and regions²⁶.

6.2 Secure Europe

The stability and security of European citizens is a prerequisite for promoting growth. Building growth will not be possible as long as public finances, energy, internal and external security are not ensured. The Presidency will strive to assure that this fundamental condition of Europe's continued successful development is fulfilled.

In the first place, the European Union has to regain the confidence of the financial markets for years to come. **Enhancing economic governance** in the EU will be the Presidency's main priority in the areas of economy and finance. The Council of the European Union will act consistently to apply the Stability and Growth Pact and, in particular, will assess the progress of Member States in reducing their excessive deficits during the first year of the **European Semester**. The Presidency will support actions and proposals aimed at improving the regulation and oversight of the financial markets, and drawing up rules for crisis management.

²⁶http://pl2011.eu/sites/default/files/users/shared/o_prezydencja/program_polskiej_prezydencji_w_radzie_ue.pdf

External energy policy is of fundamental importance for the future of the European Union in an increasingly globalised world. EU's position vis-à-vis the main producers, consumers and energy transit countries can be far stronger, if decisive measures are taken to enable the EU to operate effectively in the international energy environment which would lead to substantial savings and better conditions for economic growth. Work on a new energy strategy for the coming decade and challenges facing the EU in the medium- and long-term call for carrying out an analysis of the current condition of EU external energy policy and for drawing up conclusions for enhancing it.

Food security is of fundamental importance for European citizens. In view of the forecasted increase in world population, Europe must maintain its production capacities on a sustainable basis. During the Polish Presidency, the discussion on the future of the Common Agricultural Policy will enter into an important stage. **Reformed Common Agricultural Policy**, which can use EU financial resources to good effect, should continue its market-orientation, account for the public good, including food security and multifunctional development²⁷.

6.3 Europe Benefiting from Openness

The well-being of EU societies depends not only on the internal situation, but also on relations with third countries and the situation outside the European Union. Only a strong EU can become an important player on the global stage. The Presidency will support EU foreign and security policy aimed at enhancing the EU international position.

The actions that the Presidency will take in this area will significantly impact the EU economy. By building free trade areas with the **Eastern Partnership** countries, the Presidency will help enlarge the areas covered by EU rules and regulations. The continuation of EU enlargement process will, in turn, lead to extending the reach of the Single Market to millions more citizens. In bilateral relations with countries covered by the Eastern Partnership, the Presidency will aim to conclude Association Agreements and create free trade areas (by finalizing or making headway in negotiations with Ukraine and Moldova), make progress in the process of visa liberalization. In the multilateral track of the Eastern Partnership, Poland will support deepening of sectoral cooperation. It is hoped that a **new**

²⁷http://pl2011.eu/sites/default/files/users/shared/o_prezydencja/programme_of_the_polish_presidency_of_the_council_of_the_eu.pdf

framework of cooperation between the EU and Russia will be established during the Polish Presidency.

The Polish Presidency will strive to ensure that the implementation of the enlargement strategy moves forward. Its objective is to **finalize accession negotiations with Croatia** and to sign an Accession Treaty with this country. It intends to explore all circumstances which favor the **continuation of accession negotiations with Turkey**. A modern Turkey, economically strong and socially developed, would strengthen the European Union. The Presidency will see to it that meaningful progress is made in accession negotiations with **Iceland**. It will also strongly support European aspirations of the **Western Balkans**²⁸.

Concluding remarks

The present year gives the policy makers the unique opportunity to change the competitiveness position of the country, to boost its innovativeness, to plan how to modernize the industry and to develop the strengths that will drive the future economic development of the country. On the one hand we don't have any other option, being the part of the EU and facing the need to go in line with the EU 2020 objectives. But on the other hand, we are quite free in proposing our new approach to strategy-making, designing new programmes and support schemes.

Polish innovation policy is certainly on the right track. On the strategy level it reflects the EU policies and goals, is inspired by the international examples and guidance and seems to be accurate in order to reach the ambitious national goals. The most important part of the policy making is to implement the successful scheme and to monitor its impact. This issue, connected strongly with the budgetary constraints, is the greatest challenge for Polish administration. A measure of the importance of innovation for the government can be the adoption of Programme for the development of enterprises with all the financial consequences it results in.

This time must be used to fully utilize intellectual potential of the greatest minds in the country and create solutions that will prove to the world that our surprisingly good economic situation after the crisis is being based on a certain strength of the nation and it is not a coincidence.

²⁸http://pl2011.eu/sites/default/files/users/shared/o_prezydencja/program_polskiej_prezydencji_w_radzie_ue.pdf

In the same time Poland might create the vision of the country as a modern, well skilled nation, eager to face challenges. The time for it starts with the 1st July 2011 – the Polish Presidency in the Council of the European Union. It depends only on ourselves and our motivation, if we use that time properly.

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