



# We have come a long and bumpy way

**Prof. Krzysztof Jan Kurzydłowski, Director of the National Centre for Research and Development (NCBR), talks to “Polish Market”.**

**PM** How do you assess the development of Polish science since 1989?

We have come a long and bumpy way. When we started, the reality was completely different from what it is today. Before 1989, Polish scientists could not work freely in an international academic environment and were subject to many restrictions, which does not mean, however, that they were not successful. Political changes in Poland caused many barriers to disappear, but a number of new challenges emerged. The science sector faced numerous problems: structural, financial, legal, etc. Universities and research institutes could - regardless of difficulties encountered - conduct research, but the research financing system based on grants awarded by the minister made it difficult to reward the most promising and most needed R&D activities. Some necessary changes were introduced

by the reform of the entire system in 2010. The new Law on financing scientific research has opened up new possibilities as regards effectiveness of public and private spending on research and implementation. Two specialized public executive agencies were established to handle organizing and financing competitions for research projects to be funded from the state budget and the EU: the National Science Centre (NCN) and the National Centre for Research and Development (NCBR). Proportions were inverted in research funding distribution: the role of the competitive mechanism was strengthened at the expense of statutory grants that had prevailed previously. Therefore, the potential of Polish scientists can be better used. Also, owing to the introduction by NCBR of funding mechanisms which reward cooperation between researchers and entrepreneurs, science is more open

to the needs of the economy. At the same time, spending for on scientific research has significantly increased, mainly due to EU funds. In retrospect, and given the number of projects funded by NCBR, I can say that we are at a turning point. We managed to create an effective system of science financing, to raise awareness and involvement of entrepreneurs in R&D, we have superb research teams, and - thanks to huge investments - we can boast a modern, world-class research infrastructure. Most of the barriers that hampered the development of Polish science over the last quarter-century have been removed. We have a huge potential, changes are underway, and hopefully we will succeed.

**PM** NCBR acts as an intermediary in the three operational programmes financed from EU funds. To what extent do they help in

**the development of Poland and how important was accession to the EU for Polish science?**

Poland's accession to the EU was of great importance, since it opened a number of opportunities to make a leap forward. EU funds are spent not only on infrastructure projects, but also on research and development projects and advanced training programmes for professionals needed by the Polish economy. We received almost unimaginable resources for research and development, amounts that Polish science had never had before. More than PLN 20 billion were invested in research infrastructure: modern laboratories and equipment, science centres, educational facilities, libraries, etc. The most important contribution (more than PLN 12 billion) was that of the Operational Programme Innovative Economy. There are of course many more advantages. The EU membership opened boundaries, creating for Polish scientists an opportunity to participate in EU training and research programmes. Polish scientists are highly appreciated, as evidenced by their participation in research projects of the European Commission - Human Brain Project and Graphene Flagship. We know how to make use of the opportunities created by the membership in the Union. The new EU financial perspective 2014-2020 gives even more R&D investment opportunities. Under the Operational Programme Smart Growth Poland will spend on innovation more than PLN 8 billion, the bulk of which will go to science-business cooperation. I am convinced we will make good use of these funds.

**PM The National Centre for Research and Development is called a Polish innovation centre. Why is there such an opinion?**

If it is called so, it is a good reason to be proud of. The real innovation is possible only when it is implemented. That is why we bet on supporting and facilitating cooperation between researchers and entrepreneurs. In my opinion, we have managed to create favourable conditions to do so. The key objective of NCBR is to support economic growth based on new technologies in order to drive technological and social development. NCBR awards grants to researchers cooperating with entrepreneurs, with the latter's own high contribution. As a result, the number of scientific and industrial consortia has surged. In 2011, there were slightly over 20 contracts entered into with such consortia, compared to 700 currently. We are launching sectoral programmes in direct response to the needs of innovative sectors of the Polish economy. Thanks to our cooperation with the Polish

Aviation Technology Platform and the Polish Platform for Innovative Medicine two such programmes are already operational: INNOLOT - addressed to the aviation industry (budget: PLN 500 million) and IN-NOMED - to the medical industry (budget: PLN 300 million). We also have a joint ini-

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tiative with KGHM Polska Miedź SA, a Polish global corporation, as part of which we are jointly financing innovative research in non-ferrous metals (budget: PLN 100 million). At the same time, we are introducing innovative, unprecedented in Poland, mechanisms for public-private R&D funding. As part of our BRIDGE programmes we have engaged venture capital funds, drawing upon the experience of the most innovative countries in the world such as Israel or the United States. We are the first government agency in the world to have launched a programme for the development of graphene-based products. Our offer is extremely wide, covering all levels of what is called technological readiness of the product. More recently, in response to the needs of the beneficiaries, we have introduced a number of simplifications in application and settlement procedures. The first so-called fast-track competition for entrepreneurs has already been carried out. Decisions on granting funds have been made in 60 days. If we want to effectively support innovation, we need to be innovative and flexible ourselves.

**Does NCBR cooperate with the defence industry towards implementing innovative solutions?**

NCBR carries out tasks aimed at increasing technological independence and the potential of Polish research and business units by creating Polish know-how in the area of critical technologies. R&D programmes in the area of security and defence are implemented in cooperation with relevant ministries and agencies. Together with the Ministry of National Defence and the Ministry of Internal Affairs, we announced and settled four competitions for the implementation of research and development in the field of security and defence. Currently, scientific and industrial consortia, involving over 170 companies, implement projects to the value of PLN 1,436 million with financial support from NCBR at PLN 1,345 million.

**PM Does Polish science have any special export products? Does it have something to boast of?**

There is much talk today of graphene and how it is likely to revolutionize many fields of technology. Polish scientists have obtained widely appreciated results in terms of its use as a multifunctional material. I see a big potential in applied mathematics and computer science that can be used in virtualization of production: prototypes - before they go into mass production - are tested in a virtual world. Virtualization has a future. It can be used in all areas, and we can be successful especially in those where we have strong research teams, such as chemistry, biology, medicine and materials science. Recently, Polish ICT start-ups are increasingly successful on the global market, for example Estimote that offers beacons or creators of a dice DICE+. If only we continue to invest in R&D, we have a chance to dictate the pace of technological development, and Poland may become a significant producer and exporter of high-tech products. Such is the forecast of analysts from Oxford Economics, according to whom in 2014-20 Polish exports of high-tech products are to grow by an average of 8.6% per year and in 2021-2030 by 5.5% per year. This growth rate is higher than that predicted for almost all Western countries. As a result, Poland is set to move up to the 11th place in the ranking of the largest high-tech manufacturers, ahead of the United Kingdom and France. So we have a chance to become a major player on the market of advanced technologies.