

Science, Innovation and Information Society

Innovation.bg 2012



The *Innovation.bg 2012* report provides an annual review of the condition of the national innovation system and assesses the innovation potential of the Bulgarian economy and the existing opportunities for development. The report makes multiple recommendations for policy actions taking into account the local economic, political, cultural, and institutional environment while at the same time drawing upon the latest international theoretical and empirical research. Like each edition since the outbreak of the economic crisis, this annual report also strongly emphasizes the urgent need for a more efficient and transparent allocation of the scarce public funding for science and innovation.

The target audiences of *Innovation.bg* are both high-level decision-makers in the public sector and representatives of innovative businesses. Following the methodology of the previous editions, *Innovation.bg 2012* analyzes the development dynamics of the national innovation system during the past year and the future growth opportunities in five groups of indicators:

- gross innovation product;
- entrepreneurship and innovation networks;
- investment and financing of innovation;
- human capital for innovation;
- information and communication technologies (ICT)

Innovation.bg 2012 focuses on the

innovation potential of the information and communication technologies. The analysis is supplemented by reliable data on the trends in the ICT sector. To realistically quantify the productivity and the R&D expenditures of local ICT firms turned out to be a formidable task. ARC Fund estimates suggest that the official data concerning R&D in the ICT sector significantly underestimates its innovativeness.

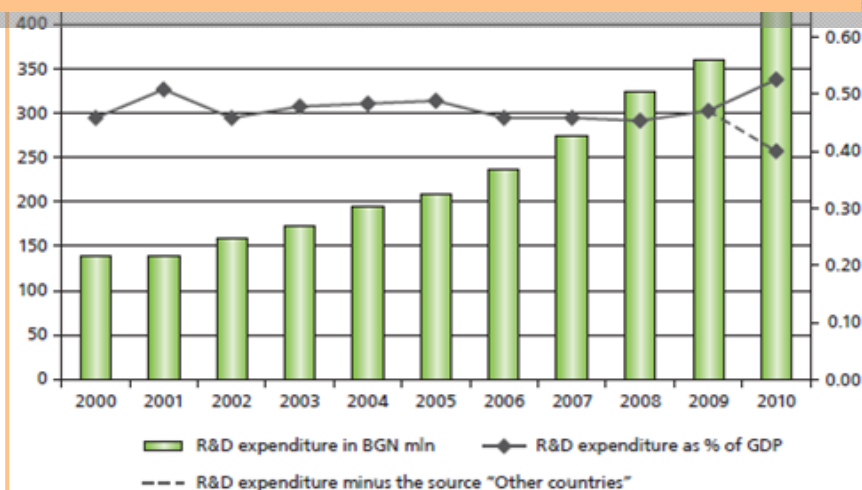
The key importance of the ICT sector for the **smart growth of the Bulgarian economy** is revealed by the manifold higher value added per employee as compared to the national average. On the European level, however, Bulgaria is positioned in the midfield by share of ICT goods and services and in terms of foreign investments still

lags behind its immediate competitors. Despite the high hopes and the progress achieved so far, without a tangible change in the

policies supporting this sector Bulgaria cannot be expected to assume a leading position in ICT exports.

Investment and Financing for Innovation

Figure 1. R&D expenditures in Bulgaria



Source: Own calculations based on NSI data, 2012.

During the period examined in the Innovation.bg 2012 report, several positive trends shaped the national science and innovation landscape. It is telling that in the second edition of Innovation Union Scoreboard 2011, Bulgaria holds an absolute record with regard to the rate of change in the monitored indicators. The reason for this success is the increased expenditures for R&D in the enterprise sector, which proves to be adaptive and conscious of the importance of steady investments in innovations. Other positive tendencies include the emergence of Bulgarian multinationals and the ever-increasing number of outsourced

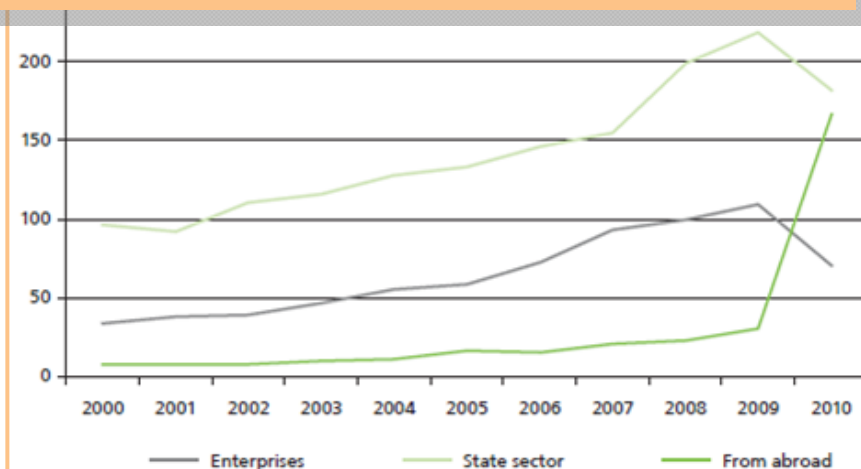
R&D centers of large foreign companies.

However, as noted in previous editions of the report and reflected in the policy recommendations, several sizeable challenges threaten to undermine the unfolding of the potential of the country's innovation system. Against the backdrop of government plans it is still discouraging to see:

- stagnating gross investment in science and innovation (0.4 % of GDP) and falling contribution for each of the national sources of financing;
- continuing failure of the

- government and key stakeholders (business, higher education) to implement the science–education–innovation triangle;
- a shrinking number of personnel engaged in R&D (over 14 % in 2010 compared to 2009);
- lack of coherence and subordination to national priorities between sources of GDP growth, public financing and committed personnel in science and innovation.

Figure 2. R&D expenditures by source of financing, in millions (BGN)



Source: Own calculations based on NSI data, 2012.

The decline of national R&D funding is only compensated by funds from the EU, which have increased fivefold between 2009 and 2010. Only thanks to this influx Bulgaria avoided registering a decline of up to 0.4 %. In this sense, the change in national R&D financing in 2010 represents a decline to the lowest level in the last 20 years.

Considering that the mid-term budget forecast does not envisage growth for the next three years, an essential change in the ratio with a view to achieve the national objective of 1.5 % share of GDP could hardly be expected.

National Innovation Policy

Despite government statements that science and innovation are priorities, their role for improving competitiveness is not sufficiently appreciated. Even though several strategic documents produced by

the government in response to *Europe 2020 Strategy* address some of the mounting challenges of science and innovation in the country, they are not viewed by most stakeholders as a genuine display of political will

for action.

The policy findings and recommendations of the previous *Innovation.bg* reports are still applicable in 2012, but when planning for the next budget period of EU 2014 – 2020 more consideration should be given to the following issues:

- Improvement of the governance and management of R&D and innovation in Bulgaria by establishing a central government body (ministry) responsible for innovation, science and technologies, including ICT and higher education, and by merging of administrative structures;
- Considerable increase of the public financial resources designated for the development of science, higher education, technologies and innovation. Not only a new Operational Program Science and Innovation should be introduced for the new budget period of EU 2014 – 2020 but an innovation component in all existing ones should be included;
- Substantiation of government policy in the field of science and innovation in order to overcome the fragmentary development in the sector and the exceedingly sharp fluctuation of budget expenditure for R&D;
- Introduction of pre-commercial procurement in legislation and practice in order to open up possibilities for local companies to develop innovative products and services and to fill market niches;
- Development of an innovative culture by encouraging journalism in the fields of innovation, R&D, and ICT as well as by establishing science and technology museums.

Eighth National Innovation Forum: Innovation and Competitiveness

On December 18th, 2012, ARC Fund, Enterprise Europe Network – Bulgaria and the Ministry of Economy, Energy and Tourism with the support of the Representation of the European Commission in Bulgaria carried out the Eighth National Innovation Forum *Innovation and Competitiveness*.

As in previous years, the forum was structured around the findings of the

annual report on the innovation development in Bulgaria – *Innovation.bg 2012* and the national contest for Innovative Enterprise of the Year. The unique character of the National Innovation Forum stems from the fact that it unites the efforts of and brings together all stakeholders to discuss the innovation environment in the country and to propose optimization measures.



Mr. Ruslan Stefanov, Coordinator of Innovation.bg Group, presenting Innovation.bg 2012 at the Eighth National Innovation Forum

In his opening address, the President of Republic of Bulgaria, Mr. Rosen Plevneliev confirmed that the creation and nurturing of the country's innovation ecosystem is among his top priorities. The President noted that the Bulgarian ICT sector

has managed to become a regional hub. He also mentioned that rising entrepreneurial and innovative culture in the country contributes greatly to a faster and more integrated implementation of necessary reforms.

The *Innovation.bg 2012* report provided the background for a discussion on the following topics: (a) the need for an improved governance of state support for R&D consisting of administrative concentration and increased funding, (b) the elaboration of a long-term strategy for the scientific development of the country

and the inclusion of an innovative component in all existing Operational Programs, (c) the possibilities provided by pre-commercial procurement, (d) the attraction of R&D centers of large multinationals, and (e) measures for fostering the development of an innovative culture.



Eighth National Innovation Forum, from left to right: Dr. Ognian Shentov, Chairman, Applied Research and Communications Fund; Mr. Rosen Plevneliev, President of the Republic of Bulgaria and Ms. Zinaida Zlatanova, Head of EC Representation in Bulgaria

Annual Innovation Award

The award in the Innovative Enterprise of the Year contest is given annually to Bulgarian enterprises that have successfully developed and/or introduced innovations or to Research and Technological Development (RTD) organizations for their research that has increased the efficiency of business performance and has led to a sustainable economic impact.

Applicants are evaluated by an expert panel and a jury on the grounds of data provided by the companies, on-site visits and indepth technology audits. This year, participants in the national contest were nominated in six areas according to the impact of their innovations:

- Market Leadership;
- Process Innovation / Innovation Hub;
- Quality of Life;
- Independent Life Cycle of the Innovation;
- Sustainable innovative attitude;
- Regional social impact.



The President of Republic of Bulgaria, Mr. Rosen Plevneliev, together with the winners in the Innovative Enterprise of the Year national contest

Twelve winners were awarded the 2012 InnoAwards by the President of Republic of Bulgaria, Mr. Rosen Plevneliev. They include Walltopia Ltd and Chaos Group Ltd - global market leaders respectively in manufacturing of climbing walls and providing of 3D and animation services. ZMD Eastern Europe Ltd, a design and RTD center for development of software products and applications and DiTRA Ltd, CAD/CAM center facilitating manufacturing companies to create their product innovations, were the winners in the second category. Three companies that excel at enhancing the quality of life of their customers are Alpi Ltd, ElBy Bulgaricum Ltd and Panteley Toshev

Ltd, national technology and export leaders in the candy, dairy and food industry. KEIT Ltd, Spesima Ltd, Optix Ltd have managed to introduce an innovation with an independent life cycle in the areas of encrypted markings, specialized robots, and optomechanical and optoelectronic components. Daisy Technology Ltd, a leading manufacturer of electronic devices in Bulgaria and largest exporter of cash registers and energy meters in Southeast Europe, Central Asia and Africa won an InnoAward for its sustainable innovative attitude. The winner in the last category is Arexim Engineering Ltd, a leading manufacturer of high-tech plastic technical products.

EVAL-INNO

The Fostering Evaluation Competencies in Research, Technology and Innovation in the SEE Region (EVAL-INNO) project began in the middle of 2011. The overall objective of the project is to improve national and regional RTDI evaluation capacity in Southeast Europe in order to improve the efficacy of RTDI activities and maximize their benefits for the overall economic development. The project involves partners from six countries (Austria, Bulgaria, Greece, Hungary, Montenegro, Serbia) all of which have a high level of public policy expertise with access to national policy-makers and policy-delivery systems. Additionally, through a network of six country correspondents, the project covers the entire Southeast European area, both in assessing as well as improving RTDI evaluation and public procurement practices.

During 2012, ARC Fund produced the following outputs:

- published information in online database with RTDI organizations, strategic documents, measures, stakeholders and evaluators;
- prepared a report on the Bulgarian Public Procurement in RTDI evaluation, and a Country Study: Research and Innovation Support Mechanisms and Related Evaluation Practices in Bulgaria;
- contributed with text to the newly elaborated RTDI Evaluation Standards, published in English and Bulgarian;
- prepared a state-of-art report analysing the needs of RTDI evaluation in the 12 target countries;
- started the creation of wiki articles, on the EVAL-INNO online

platform to promote the most relevant RTDI evaluation resources.

The evaluation standards, published in 2012, aim to contribute to the improved implementation and exploitation of Research, Technological Development and Innovation (RTDI) measures by promoting meaningful evaluation procedures for fostering strategic intelligence building and evidence-based decision-making in the field of science, technology and innovation (STI) policy. They address:

- authorities commissioning RTDI evaluations (often ministries in charge of research, technological development and innovation and their respective measures, programs and policies);
- evaluators carrying out RTDI evaluation studies;
- organizations and stakeholders subject to evaluations, such as funding agencies, public research organizations, universities or intermediary organizations (e.g. technology transfer offices, technology and science parks, innovation centres).

The evaluation standards provide information about the purposes and characteristics of evaluations in the field of STI. They introduce an internationally acknowledged terminology and evaluation theory framework, guide users in practical issues concerning governance, conduct and use of RTDI evaluations. Additionally, they provide many practical tips on how to plan and implement evaluations, including the

writing of Terms of References (ToR) to procure external RTDI evaluations and the structuring of meaningful evaluation reports, to mention just a few. ARC Fund is leading both the mapping activities and the development of the four databases within the project. In 2012, it devel-

oped the structure and functionality of the online database of the project. Within the current phase, the project partners and country correspondents are engaged in the process of providing further content for the project website.



The participants in the EVAL-INNO Steering Board meeting, November 14-15, 2012, Belgrade, Serbia

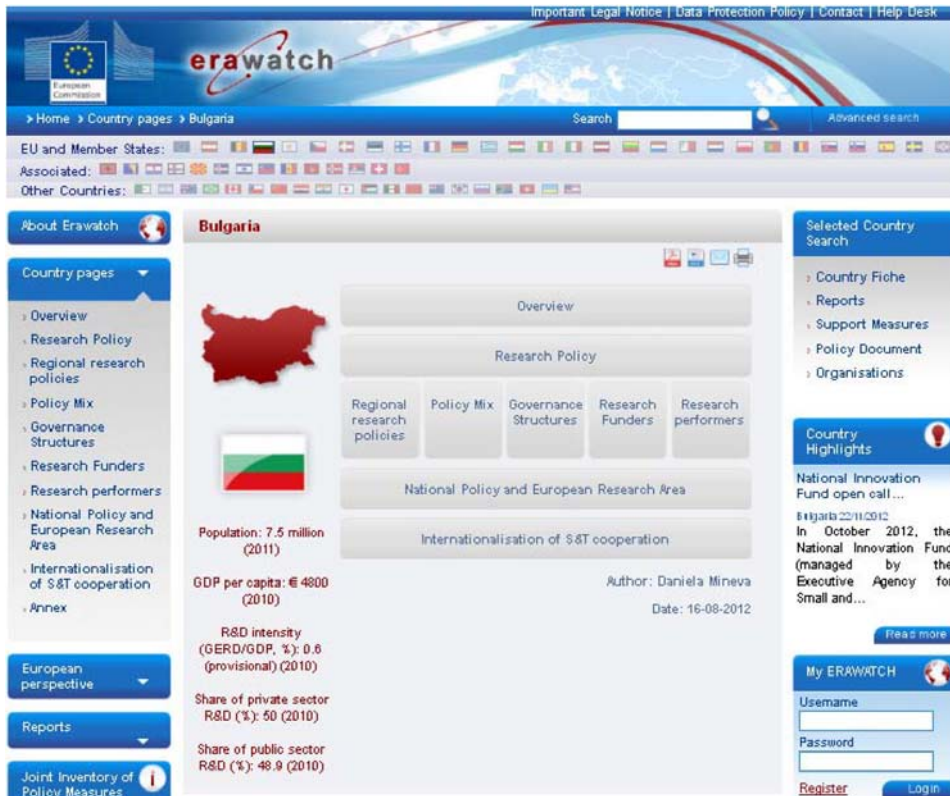
ERAWATCH: Baseload Research Inventory Service

ERAWATCH is the European Commission's information platform on European, national and regional research systems and policies. ARC Fund develops and updates the Bulgarian profile on ERAWATCH since 2005. For an eight consecutive year, in 2012 ARC Fund updated the

information about the Bulgarian national and regional research systems. On a regular basis, ARC Fund also publishes news about the development of the national innovation policy and main tendencies in the funding of innovations.

Recent Research Policy Developments

- In May 2012, the National Science Fund opened a new competition for financing of fundamental scientific research in priority areas, as set in the *National Strategy for Research Development 2020* (adopted 28 July 2011).
- The Ministry of Education, Youth and Science is intermediary body of operational program "*Human Resources Development*". At the end of the second quarter of 2012, the Ministry has contracted BGN 721,581,221 (€368,938,619) or 84.5% of the total budget of the two priority axes related to education - Priority Axis 3 "Improving the quality of education and training in accordance with the needs of the labor market to build a knowledge-based economy" and Priority Axis 4 "Improving the access to education and training".
- The Ministry of Education, Youth and Science also signed new two-year contracts for access to electronic scientific publications databases for the period 2012 - 2013.
- In April 2012, the Ministry of Economy, Energy and Tourism issued for public consultation the Draft *Law on Innovation*. The draft provides a mechanism for policy coherence of the development of science, technology and education. It also identifies responsibilities and obligations of the participants in the innovation system. The document also envisions the institutionalisation of the National Innovation Fund.
- On 28 February 2012, Bulgaria became one of the founding members of *CLARIN ERIC* (www.clarin.eu) - large-scale pan-European collaborative effort to create, coordinate and make language resources and technology available and readily useable. CLARIN offers scholars tools for computer-aided language processing, addressing one or more of the multiple roles language plays (i.e. carrier of cultural content and knowledge, instrument of communication, component of identity and object of study).
- On 16 February 2012, a *Memorandum of Understanding on the SEE e-infrastructure* was signed between the respective ministries of education and/or ministries of science and technology of Greece, Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Moldova, Montenegro, Romania, Serbia and Turkey. Bulgaria will provide EUR 50 000 to the Bulgarian researchers and their foreign partners for implementation of joint projects in the framework of the Memorandum.
- In its Annual Operational Program 2012, the *National Science Fund* envisages BGN 250 000 (€127,822) for the Bulgarian participation in Biodiversa (www.biodiversa.org). Biodiversa is a network of 21 research-funding agencies across 15 European countries. It is a second-generation ERA-Net, funded under the EU's 7th Framework Program for Research.



Website of the ERAWATCH platform

INNO Policy TrendChart Report: Public Sector Innovation in Bulgaria

Within INNO Policy TrendChart initiative, in July 2012 ARC Fund prepared a report on the public sector innovation in Bulgaria. It emphasized the importance of transparency, access to information and continuous monitoring of the effects of the implemented innovation policy. Additionally, the report recommended the inclusion of non-governmental organizations and business sector in the implementation of the innovation policy and the coordination between government institutions. The report evaluates the innovativeness of public institutions against a number of criteria and

provides examples of good practices. The central conclusion of the report is that despite the achieved progress after its EU accession, the Bulgarian administration still faces some formidable hurdles related to the development and introduction of innovative products such as:

- inertia;
- lack of resources;
- lack of in-depth knowledge about administrative procedures;
- malfunctioning.

The examples of innovative practices in the public administration and the conclusions reached by the ARC Fund experts emerged during a process of close collaboration with representatives of public entities.

The final report contains extensive interview notes with professionals from the Ministry of Labour and Social Policy and the National Revenue Agency.

INNO Policy TrendChart Report: Trends in Policy Priorities

Complementary to the first one, ARC Fund prepared another report focusing on the tendencies in the national innovation policy. It discusses the content of main strategic documents and presents a summary of a series of interviews with representatives of ministries with a key role in shaping the innovation environment in the country. The spotlight of the report falls on (a) the key challenges of innovation policy in 2012, (b) adjustment of innovation support in the light of budgetary restrictions, (c) the recent changes in the institutional set-up and governance structure of innovation support (d) the pattern of allocation of national and EU funds, and (e) the outlook

to the future of innovation policy.

The report highlights that the dried out national funding might lead to the inability of local research institutions to keep abreast of the latest tendencies in certain fields (for example bio-agriculture). Furthermore, the report also points out that Bulgaria does not have any demand-side innovation policy and that no steps have been undertaken in the time span 2011-2012 in order to overcome this weakness of the national innovation system. Such persistent flaws coupled with the negative consequences of the economic downturn pose the danger of diminishing competitiveness of Bulgarian enterprises in the mid and long term.

Regional Innovation Monitor

The Regional Innovation Monitor (RIM) is an initiative of the European Commission's Directorate General Enterprise and Industry, which has the objective to describe and analyse innovation policy trends across EU regions. RIM analysis is based on methodologies developed in the context of the INNO-Policy Trendchart which covers innovation policies at national level as part of the PRO INNO Europe initiative. The overarching objective of the initiative is to enhance the competitiveness of European regions through increasing the effectiveness of their

innovation policies and strategies. The specific objective of the RIM is to enhance the scope and quality of policy assessment by providing policy-makers, other innovation stakeholders with the analytical framework and tools for evaluating the strengths and weaknesses of regional policies and regional innovation systems.

During 2012, ARC Fund updated the profiles of the six Bulgarian planning regions. More specifically, an analysis has been conducted of the regional economic development, R&D

activities and the innovation potential. In addition to that, new measures, good practices, leading or-

ganizations and strategic documents has been identified and presented.

METRIS

For a second consecutive year ARC Fund participated as a full member in METRIS, a network of correspondents gathering insights and benchmarking the development of social science and humanities (SSH) in Europe. METRIS is an initiative of the Directorate General for Research whose aim is to become an entry and reference point for the social sciences and humanities landscapes in Europe. In line with the overarching goal of the network to ensure the collection, regular updating, and analysis of SSH information at national and European level, ARC Fund prepared an assessment of the degree of multi-

disciplinarity fostered by national supporting mechanisms and incorporated in the research agenda of public and private SSH research institutions. The report focused on the public discourse around the topic, on strategic government documents addressing specific issues related to it, and on existing funding mechanisms. The key conclusions of the assessment is that opportunities for true multidisciplinary research in Bulgaria are extremely rare and that under the current state-of-art even interdisciplinary research between SSH disciplines needs to be further stimulated, especially in public research institutions.