



EXECUTIVE SUMMARY

The innovation activity of Bulgarian businesses experienced the impact of the economic crisis through the fall of public and private R&D funding, as well as through the deterioration of the overall business and innovation environment (higher risk aversion, personnel reductions, consumer markets stagnation, etc.). The long delayed reforms in science and education, the lack of systematic and institutional interaction between them and the business sector (e.g. transfers of new technological solutions are sporadic), as well as the inefficient management and utilization of European funds allotted for economic modernization additionally exacerbated the problems caused by the crisis.

Entrepreneurship

The number of **active businesses** in Bulgaria totaled some 110,000 in 2009, of which between 10,000 and 15,000 enterprises employed more than 10 staff and only between 1,000 and 2,500 – more than 50. It is precisely among these one hundred thousand enterprises where the entrepreneurs who launch innovative activity through a start-up or engage in **corporate entrepreneurship** in existing medium-sized and/or large enterprise are to be found. The dynamics of the number of **newly registered companies** in Bulgaria amongst which authentic innovative entrepreneurs can be sought show that after a peak of 9,000 in June 2008, it dropped more than threefold, reaching slightly over 3,000 a month after March 2009.

Highly innovative and particularly **academic entrepreneurship** is definitive for the development of some industries of the national economy (for example information and communication technologies). Combined with the global dynamics in the development of ICT, this fact could explain differences in the structure of R&D expenditure between the areas of natural and technological sciences in Bulgaria – while in the case of natural sciences funding from the state is the leading force, in the case of technological – the business provides the larger portion of the funding. At the same time, there is a need for sector

policies in the field of innovation and enterprise, which take into account the development specifics of the respective scientific and technological areas and industries of the economy.

Data concerning R&D expenditure in Bulgaria are largely unreliable, which hampers the generation of sector policies additionally. This drawback directly concerns the link between science and business. On the one hand, there are varied hidden forms of science – business interaction like the undisclosed establishment of spin-off companies related to state R&D institutes, parallel engagement (moonlighting) of scientists and researchers in public scientific and private business enterprise, consulting and expert services, as well as cooperation on personal (as opposed to institutional) basis in national and international research projects. On the other hand, business enterprises very often fail to declare formally to the authorities their R&D expenditure because of the lack of fiscal and/or reporting incentives. For example, detailed analysis of public and private R&D investment in the sector of information and communication technologies showed that official statistical data accounted for only about a half of the actual R&D activity of the enterprises.

Innovation activity of Bulgarian enterprises

The fourth survey of innovation activity of Bulgarian business (INA-4), conducted by the Applied Research and Communications Fund, revealed a **considerable increase of innovation activity in 2009**. The share of companies, which declared they had innovation activity increased to 71% in 2009 compared to 43% in 2008. This reflects the positive consequences of the country's accession to the European Union and the efforts of business to respond to the requirements of competitive European markets and legislation. The crisis encouraged enterprises to seek ways to differentiate their products and services, as well as to send clearer messages to consumers, which led to a particularly strong increase of marketing innovations. It is expected that 2009/2010 will mark a significant decline in innovation activity, with only the most innovative enterprises (about 35%) continuing to develop new products and services.

Nearly **19% of the Bulgarian enterprises introduced successfully process innovations** in 2008/2009 – projects, which require serious commitment by management, both in the form of coordinated vision about the long-term development of the company and in respect to the investments made. The **share of companies, which launched new and improved products or services was slightly bigger (26%)**. As a rule, the technological solutions introduced by Bulgarian companies are borrowed from foreign partners.

The innovations declared by Bulgarian companies are **such mainly at company and national level and are not novel for the international market**, although a considerable portion of the managers have defined them as such. The results of patent and licensing activity of Bulgarian enterprises show that there are practically no process and product innovations of international significance in Bulgaria. The numbers for the last nearly ten years are: an average of 103 protection documents (half of the submitted applications) were issued annually by the Bulgarian Patent Office, significantly more applications were submitted by individuals than by research institutes or small and medium-sized enterprises, and **only 63 licensing contracts** at an insignificant market value were concluded for obtaining rights on inventions.

Self-reporting by Bulgarian managers puts the share of innovative enterprises in the country at 71% in 2009. The considerable increase compared to 2008 (65% on an annual basis) is due mainly to enterprises, which have introduced organizational (30%) and market innovations (42%), aimed at streamlining operations in response to the influence of the economic crisis (streamlining organizational units, restructuring product portfolios, redefining relations with partners, changing the packaging and marketing of products and so on). Although this trend is still nascent in Bulgaria, **negative external factors have less influence on innovative enterprises and they are more successful in mobilizing internal potential to resist them** – new products form consumer loyalty, ensure stable market presence, enterprise orientation and readiness to take risks.

Innovation climate in Bulgaria

The measures undertaken by the Bulgarian government to date in supporting innovations as a major factor for overcoming the crisis and for maintaining sustainable economic growth are inadequate. If national policy and the development of micro-economic programs for innovations, information technologies and scientific and technological development are not formulated, in the long term Bulgaria will come out of the economic crisis in the same position in which it entered it and the benefits of the stable macro-economic policy of the last decade will remain unused.

Bulgaria remains the only EU member-state, which does not have a national target for the level of R&D intensity. Although this is not the only important condition for the development of innovation activity in the country, it is indicative of the government's neglect of this aspect of the economy. **In 2009, budget financing for R&D was reduced.** The National Innovation Fund with the Ministry of Economy, Energy and Tourism funded no projects and the statute of the fund itself remains unclear. The funds for research and creative activities of universities were also reduced within the framework of already smaller overall budgets for 2010. In 2009, the budgets of research projects at universities completed the year with 40% lower accounted expenditures than the amounts approved in advance.

Like in most of the other EU-27 countries, in Bulgaria **the share of the enterprise sector in R&D expenditure increased after 2005** at the expense of the government sector. In spite of this positive development, in absolute terms R&D expenditure remained very low in both the state and the private sector, with the Bulgarian state consistently reducing the intensity of its R&D spending – from 0.36% of GDP in 2000 to 0.28% for 2008. **The lack of adequate instruments to trigger or complement private R&D funding through state funds** remains a key problem for the country's innovation system. The two sectors, public and private, work in parallel, which leads to waste of financial and human resources. The state continues to support activities without clear commitment in respect to results, while viable R&D projects financed by the private sector and implemented by public research institutes do not increase the capacity of the participating state funded research organizations but remain for the personal benefit of individual researchers. There is **no system and/or instruments for productive collaboration and interaction between the state and the private R&D sector.**

In 2010, the planned budget expenditure for science amounts to 221 million levs or 1% of all budget expenditures. As in previous years, these resources will

be spent almost entirely (nearly 97%) for covering operational (running) costs (mainly salaries) and only 3% are budgeted for capital costs, including for the development of research infrastructure. At the same time, EU funds intended for the development of innovation, science and technology are among the least used even against the background of the overall sluggishness in the implementation of European funds. **The Operational Program „Competitiveness“ suffers a lack of vision and organizational capacity**, which ranked its implementation among the most significantly delayed. **The Operational Program „Human Resources Development“ remains skewed towards traditional measures for providing subsidized (usually low skill) employment.** It should instead strive to create a market and opportunities for improving the qualification and training of staff for the technological renovation of the economy.

On an international scale there is a considerable increase of the **number of researchers and those engaged in science and technology activity**. The change for Bulgaria for the period 2000 – 2008 was a positive one, but within less than 2%, which is evidence of a continuing lagging behind. In 2008, **the sectoral distribution of staff engaged in R&D remained highly unbalanced** – unlike the countries leading in terms of innovation in the EU, in Bulgaria employment is provided mainly by the state sector. As a share of total staff engaged in science and technology **the share of individuals engaged in scientific and technological activity in the high-tech sectors of industry and knowledge-intensive services** in Bulgaria in 2008 approached 6%, which is close to the average level of the indicator for EU-27 (6,84%).

The increase of the number of persons engaged in science and technology for the period 2000-2008 (by nearly 102,000) was accompanied by a considerably more effective use of their potential. While in 2000 the unemployed in this group amounted to 5.5%, in 2008 their share dropped to 2.2%. However, **the declining share of young people who have chosen science and technology as a field for their career (also confirmed by the data for scientists), remains a worrying trend.** The falling numbers of academic staff employed in **the technical fields of science** (nearly 12% decrease) and in medical sciences (slightly over 8% decrease) will be an essential obstacle for the development of these promising high-tech fields in the country in the foreseeable future.

In 2010 R&D investment is expected to follow the general trend of decline of investment activity, albeit to a lesser degree. One of the surprising characteristics of the present global economic crisis is precisely **the slower shrinking of investments in R&D.** The survey of investment plans in industry conducted by the National Statistical Institute forecasts a 11.2% reduction of the volume of investments on an annual basis for 2010 compared to a decline of 37.2% in 2009. According to the IMD Annual Competitiveness Yearbook, legislative support for company registration in Bulgaria improved in 2009. At the same time, the ranking showed that access to credit from the banking system and from venture capital – a definitive factor for the success of entrepreneurs and innovators – deteriorated.

Priorities for Bulgaria's innovation policy until 2020

2010 is a year of great risk and opportunity. The financial and economic crisis allowed critical decisions – the ones for which there was a lack of will or determination in the conditions of intensive growth – to be made by the political elite and to be accepted easier by the business. After the momentum of the

past few years, when external factors drove up growth in productivity and exports, has waned, the time has come for the mobilization of internal growth factors – enterprise and innovation activity, and intellectual capital.

In an environment of increased debate and expectations for reforms, the government needs to show a clear will for qualitative change in the field of innovation, science and technology in Bulgaria. Understanding the significance of innovation as a growth machine (new products and processes, better organization of work and approaches to marketing) is a prerequisite for choosing economic policy priorities (economic sectors, technological fields), as well as for implementing working mechanisms to achieve Bulgaria's strategic goals as a EU member. The drafting of an integrated national innovation, science and technology strategy for the next ten years needs to rest on several building blocks:

- **Innovation policy aimed at economic recovery and sustainable growth**

The European economy is facing a number of challenges – climate change, an ageing population, lagging behind in key innovation indicators to the U.S. and emerging markets, etc. Some of the main solutions for these challenges are to be found at national level and within the framework of innovation policy. For Bulgaria, this means **updating of the current National Innovation Strategy, providing linkages to the development of science and the economy, and a clear commitment for the implementation of the strategy at the highest level of government.**

- **Instruments to achieve the priorities**

Government institutions responsible for implementing innovation policy – Ministry of Economy, Energy and Tourism and the Ministry of Education, Youth and Science – **do not put innovation at the core of the economic development agenda of the country.** This necessitates the outlining – by means of a wide public debate and analysis of the opportunities for innovative development of priority economic sectors and leading technological fields – of a **roadmap for defining, commissioning and achieving strategic targets to promote national innovation and knowledge-based competitiveness.**

The roadmap should aim to **improve the functioning mechanisms of the innovation system,** as well as to increase the intensity of interaction between the units of the national innovation system as regards R&D, protection of intellectual property, technological transfer, labor mobility and life-long learning.

- **Investing in innovation potential**

Given squeezed external funding (reduced foreign direct investment and restricted access to commercial credit) it is important that **the priorities for economic development of the country are set to correspond directly to the capacity of the national innovation system** – scientific and technological fields in which Bulgaria possesses internationally recognized experience and applicable new knowledge. **The mobilization of larger financial resources** (through the already functioning instruments – the National Innovation Fund and

the National Science Fund, as well as through effective use of the European funds and the EU framework programs for research and for competitiveness and innovation) is a necessary requirement for overcoming the gap between Bulgarian and average European level of innovation activity.

Bulgaria should **adopt a national target for R&D funding as a share of GDP**. Increasing the amount of public funding available for R&D should be combined with the application of several basic principles: ensuring transparency of funds' management, prevalence of project over institutional financing, and introducing mechanisms of monitoring and control of the achieved results.