

INNO-Policy TrendChart
Innovation Policy Progress Report

Bulgaria

2009

PREFACE

Innovation is a priority of all Member States and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States.

PRO INNO Europe® is an initiative of the Directorate General for Enterprise and Industry (DG ENTR) which aims to become the focal point for innovation policy analysis, learning and development in Europe, with the view to learning from the best and contributing to the development of new and better innovation policies in Europe. Run by the Innovation Policy Directorate of DG ENTR, it pursues the collection, regular updating and analysis of information on innovation policies at national and European level.

INNO-Policy TrendChart serves the open method of coordination approach laid down by the Lisbon Council in March 2000. It supports policy makers and innovation support measure managers in Europe by providing summarised and concise information and statistics on innovation policies, performances and trends. It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

INNO-Policy TrendChart products

INNO-Policy TrendChart, previously the TrendChart on Innovation, has been running since January 2000. It currently tracks innovation policy developments in all 27 EU Member States, plus Brazil, Canada, China, Croatia, Japan, Iceland, India, Israel, Norway, Switzerland, Turkey and the US.. The INNO-Policy TrendChart website¹ provides access to the following services and publications, as they become available:

- a database of innovation policy measures in the 39 countries;
- a news service and related innovation policy information database;
- annual policy monitoring reports for all countries covered;
- the European Innovation Progress Report, an annual synthesis report bringing together key points in the INNO-Policy TrendChart.

This document has been prepared within the framework of an initiative of the European Commission's Enterprise and Industry Directorate-General, Innovation Policy Development Unit. Official responsible: Cesar Santos (Cesar.SANTOS@ec.europa.eu).

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The report covers the period from July 2008 to June 2009.

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¹ See <http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=52&parentID=52> online.

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Executive Summary: public support for innovation — a snapshot

1. Main trends in the National Innovation System

Bulgaria became actively involved in the implementation of the political, economic and social priorities of the EU since becoming a Member State. This has a positive impact on the Bulgarian economy, in 2008, the gross domestic product (GDP) growth in the country reached 6.0% in real terms. Still, this strong economic growth has not brought about improved innovation potential to the Bulgarian economy, which impairs its long-term sustainability.

According to the European Innovation Scoreboard (EIS) 2008, Bulgaria is one of the catching-up countries with an innovation performance well below the EU-27 average but the rate of improvement is one of the highest of all countries and it is a growth leader within the catching-up group. Relative strengths, compared to the country's average performance, are in human resources, finance and support and economic effects and relative weaknesses are in linkages and entrepreneurship and throughputs.

Over the past 5 years, throughputs and finance and support have been the main drivers of the improvement in innovation performance, in particular as a result from strong growth in private credit (25.2%), broadband access by firms (21.5%), community trademarks (67.6%) and community designs (31.0%). Performance in economic effects has hardly grown, in particular due to a decrease in new-to-market sales (-5.7%) and new-to-firm sales (-3.1%).

Although research and development (R&D) expenditures in Bulgaria are increasing by EUR 10.2 million to EUR 15.3 million annually, they are still four times lower than the EU average level and remain at about 0.50% of Bulgaria's GDP. The structure of R&D expenditure remains strongly imbalanced. The share of public sector financing is double that of businesses, which is the exact opposite of the Lisbon-recommended ratio of 1:2. The innovation strategy of the Republic of Bulgaria envisages that total R&D spending should reach 1.15% of GDP by 2013 but this is out of line with the current level of slightly above 0.50% of GDP.

Regarding the national innovation system, the decisive structural elements of this system are already in place, which can successfully define the state innovation policy and coordinate the implementation of the measures. However, the different elements in the Bulgarian innovation system are disjointed: basic and applied research is largely detached from R&D carried out by the private sector. It would be important that the different elements in the innovation system link seamlessly but at the same time have clear and distinct role. Underdeveloped elements of the national innovation system are the intermediary units which provide innovation-related services and play the role of transfer brokers (technology parks, business incubators etc.). The interaction between the components of the system is weak and does not involve all forms of information and technology exchange, the potential for which is already available. In addition, there is a serious divergence among Bulgaria's Nomenclature of Territorial Units for Statistics 2 (NUTS 2) regions as regards their innovation potential. This unbalanced development results in lower share of innovation companies and weak links between innovation partners from different regions. It requires not simply redirecting funds to poor regions, but focused government policy on the recently developed Regional Innovation Strategies and public investment in innovation infrastructure — universities, technology transfer networks, venture funds, etc.²

2. Main developments in public support for innovation

Bulgaria is having relatively little progress in the sphere of innovation development. Only in the last years the government indicated that it has a more clear understanding about undertaking of measures for the implementation of an adequate innovation support policy according to the Lisbon Strategy

² Innovation.bg 2009, ARC Fund, Sofia, February 2009.

guidelines and to the National Innovation Strategy. The National Science Fund and the National Innovation Fund have been opened, supplying financing to priority research and innovation projects. The nine centres for technological transfer have started operation in some universities, as well as the centres for promotion of entrepreneurship. Certain new instruments for support of innovations have emerged – voucher schemes; scientific competitions for student's technology companies; the Development Bank has started its operations in the last quarter of 2008, supporting innovative projects of SMEs, etc. The participation of Bulgarian companies, scientific associations and universities in EU framework and operational programmes is expanding. However, as a whole the main support measures have remained the same over the past few years.

The measures within the framework of the National Innovation Strategy implemented in 2008 and 2009, aimed at strengthening the links between research and business (technology transfer centres), building the innovation infrastructure, strengthening the skills in entrepreneurship and innovation (entrepreneurship centres in universities), supporting existing clusters, developing new financial support schemes for innovation (Bulgarian Development Bank, business angels), etc. The Innovation Strategy was complemented by one more major instrument – the Operational Programme Competitiveness.

There are some new measures which began in 2008 and 2009 in the field of research and innovation, education, and ICT application and administration. They are aimed at modernising and integrating the Bulgarian research-education network, developing the Bulgarian schools' computer network (to be completed by 2011), as well as at establishing a test environment for operational compatibility of the public administration geographic information system (GIS) which will be completed in the third quarter of 2009.

Despite the measures implemented in the years 2008 and 2009, the analysis of the national innovation system indicates that their scope is insufficient for the development of an effective national innovation system. Furthermore, it showed that research and innovation still fail to be recognised as key factor for economic growth and competitiveness. The steps remain isolated, without a common strategy and they do not lead to a considerable improvement in the country's innovation potential. The financial resources devoted to R&D are not considered sufficient, in fact in this area Bulgaria is lagging behind the EU average. In Bulgaria R&D is heavily focused on basic research, financed largely by public funds, and carried out mainly by public research institutes and universities.

3. Appraisal of national innovation policy

No serious changes took place in 2008 and 2009 in the research and innovation policy of the country. The lack of clear priorities at the highest levels of governance continues to be the major problem in the implementation of Bulgaria's innovation policy. The main objectives of the national innovation policy are formulated in the [National Innovation Strategy \(NIS\)](#), adopted in 2004. This is the most important document that is crucial for the development of the innovation system and growth in the innovation potential of the Bulgarian economy. An other document, which underlines the goals for the innovation policy is the [National Reform Programme \(2008-2010\)](#).

The national strategic reference framework with the seven operational programmes are also in line with the Lisbon Strategy.

Though these policy documents encompass almost exhaustively the guidelines of the renewed Lisbon Strategy, the actual research and innovation policy portfolio remains much more narrowly defined, mostly due to the lack of sufficient funding. The lack of coherence between the different strategic documents concerning research and innovation measures and the absence of clear national priorities, remains the most serious problem for developing a successful R&D and innovation policy.

The development of innovation policy is not accompanied by discussion between policy-makers and society, there is no active communication between those participating in innovation activities, and no monitoring and assessment of the measures which have been implemented. This model of innovation policy formation does not allow a reliable evaluation of the innovation potential. There is no in-depth

analysis of the situation in the country, in a number of cases foreign practices are applied automatically. The policy does not provide measures for overcoming the reasons for the delay in the sphere of innovation, while the outlined measures in a number of cases are applied only formalistically.

Conclusion: A prerequisite for the success of investments in new technologies is the implementation of a coordinated national policy in science, technology and innovation. Many experts in Bulgaria are of the opinion that the country needs a **uniform strategy** for scientific, technological and innovation development.³ Such a strategy must develop the competence of all its participants and call upon the expertise of research and educational organisations, technological intermediaries and business circles. Priorities and expected results in the development of scientific research and innovation must be clearly outlined, the institutions responsible for their achievement also need to be identified. There has to be a clear plan regarding the supplementation of finance of scientific research and innovations in Bulgaria.

The currently fragmented and uncoordinated policy support system is unsuited to the implementation of a unified research, technological and innovation policy. The inefficiency of the existing system to deliver results requires radical action: the establishment of a **strong structure**, such as a ministry or an agency for research, technological development and innovation under the direct authority of the Prime Minister⁴.

³ At present there are two strategies — National Innovation Strategy and a Draft of the National Strategy for Scientific Research.

⁴ Innovation.bg 2009, ARC Fund, February 2009, <http://www.arcfund.net> online.

1. Main trends and challenges in the National Innovation System

1.1 Recent economic trends and market developments

Macroeconomic indicators. In 2008, the GDP growth in Bulgaria reached 6.0% in real terms. Regardless of the halving of the growth in GDP during the last quarter of 2008 (3.5% as compared to 6.9% for the last quarter of 2007), the GDP's growth for the full year 2008 in the country is negligibly slower than the growth for 2007 (6.0% compared to 6.2%) because of the record-breaking pace over the first three quarters. Manufacturing, as a component of the production side of GDP, caused the most concern during the last quarter; the worsening of the industrial sector, which is due to the deepening of the drop in value added by industry, began back in the third quarter. The dynamics in the construction sector also slowed several points, but it was still positive. However, the shrinking of the growth in the services sector, whose share in GDP is predominant, held the greatest weight regarding the general slowing of the growth of the economy. In breaking down the dynamics of the final use components of GDP for the last quarter of 2008, we can observe an abrupt shrinkage in the growth of household consumption, a drop in collective consumption, and a slowing in the growth of investments as compared to the previous quarter. Taking into consideration the influence of the unfavorable international environment, the drop of foreign trade in goods and services was most expected.

The abrupt shrinkage of the aggregate economic development during the fourth quarter of 2008 was the reason for a more significant slowing of the real growth of the aggregate productivity of the economy, which sank by six times in comparison to the growth from one year ago, as well as compared to the previous quarter, owing mostly to the worsening fall of productivity in industry⁵

In the first quarter of 2009, the real GDP dropped by 3.5%. The economic decline spread to most economic sectors. Manufacturing is currently most affected by the weak external demand and companies are trying to limit their expenditures in order to minimise the negative effect of the global crisis on their financial standing and maintain their competitiveness. For the first quarter of 2009, the export of goods shrank by 18%. The export of goods in 2009 is expected to shrink another 10%. For the first quarter of 2009, consumption and investment dropped by 5.4% and 19.8%, respectively. In 2009, the share of investment is expected to drop to 26.5% of GDP, over 38.4% in 2008.

During the second quarter of 2009, the GDP decreased by 4.8% over the same period of 2008. The decline during that period is mostly due to the shrinking industrial production. Investment in fixed capital dropped by 14%. The exports of goods and services plunged by 19%, and imports dropped by 27%.

In the first half of 2009, the GDP decreased by 4.2% as compared to the same period of the last year. In the same period, the trend of decreasing inflation year-on-year continued, and in June it reached 2.6%, mostly under the influence of lower food and fuel prices. It is expected that the annual inflation rate will continue to decrease during the third quarter, and it is possible that deflation will be reported for certain months.

For the first time in several years, unemployment for March and February 2009 is a higher than the previous month even if decreasing on an annual basis. During the last four years the unemployment for these months has been lower than its respective level from one year ago, as well as than the previous month. Unemployment continues to grow, in June the unemployment rate reached 7.8%.

⁵ For details see The Economy of Bulgaria, quarterly reports, Centre for Economic Development, January 2009, April 2009, July 2009.

Assessment of the competitiveness of the national economy. According to the International Index for Competitiveness, developed by the World Economic Forum⁶, during the last years Bulgaria is increasing its competitiveness. In 2008, Bulgaria occupies the 76-th place among 134 countries (79-th in 2007).

Despite the improvement, Bulgaria is one of the lowest ranked EU members. Bulgaria's low ranking is attributed to infrastructure inadequacies and institutional weaknesses including corruption. However, on a positive note, Bulgaria has moved up four places in the ranking since 2007, an improvement linked to the perceived benefits brought about the accession to the EU.

In 2008 Bulgaria registered a worsening in its position compared to 2007 of the following sub-indices: basic requirements (76 in 2007, 82 in 2008) and innovation and sophistication factors (91 in 2007, 92 in 2008). In terms of innovation factors, Romania (75), Croatia (62) and Turkey (63) considerably outrun Bulgaria and the place of the country (92) could be assessed as unsatisfactory.

Under the separate indicators forming the innovation readiness, Bulgaria is on one of the last places in terms of capacity for innovation (80th place), company spending on R&D (101st place), university-industry research collaboration (92), government procurement of advanced technology products (82), availability of scientists and engineers (93), firm level technology absorption (114), availability of latest technologies (103), FDI and technology transfer (115 place).

Bulgaria continues to show unsatisfactory results in terms of business competitiveness. Under this indicator, the country continues to be last compared to all new member-states. In 2008, Bulgaria takes the 92nd place (83rd in 2007), while Turkey is 60th, Croatia is 72nd, and Romania is 78th.

Exhibit 1: Comparable indicators of economic performance

Indicator	National performance		EU 27 average	
	2004	2008	2004	2008
GDP per capita in PPS (EU-27=100)	33.7	40.1	100*	100*
Real GDP growth rate (% change previous year)	6.6	6.0	2.5	0.9
Labour productivity per person employed (EU-27=100)	33.7	36.4	100*	100*
Total employment growth (quarterly % change) (1)	2.6	3.3	0.7	1.0
Inflation rate (average annual)	6.1	12.0	2.0	3.7
Unit labour costs (growth rate)	-4.0	4.3	-1.4	0.5
Public balance (net borrowing/lending) as a % of GDP	1.6	1.5	-2.9	-2.3
General government debt as a % of GDP	37.9	14.1	62.2	61.5
Unemployment rate (as % of active population)	12.1	5.6	9.0	7.0
Foreign direct investment intensity	6.5	11.6 (2007)	0.9	3.4 (2007)
Business investment as a percentage of GDP	not available	-		

Source: Eurostat - Structural Indicators and Long-term Indicators <http://epp.eurostat.ec.europa.eu>

Key: (*) EU25 average, (^) or latest available year (for example: 2005); (:) not available

1.1.1 The credit crisis and its effect on innovation activity

The impact of the global crisis on the Bulgarian economy has become more visible since the beginning 2009. This was reflected in a drop in the exports of Bulgarian goods and services, the decreased capital inflow and reduced internal inflation. Internal demand started to decrease, too, which resulted in a shrinking current account deficit of the balance of payments. For the period January 2009 to May 2009, the balance of the current and capital account has improved by EUR 1.7 billion, which is primarily caused by the shrinking trade deficit under the influence of lower international prices and declining internal demand. The stability of the country's external position is preserved, with foreign direct investments covering 67.7% of the total current and capital account deficit for the first five months. By the end of the year, the inflow of external financial resources into the Bulgarian economy will remain positive, but it will be lower than the rate reported for 2008. The shrinking

⁶ The Global Competitiveness Report 2008-2009, World Economic Forum

economic activity and internal demand in the country will contribute to the continuing decrease of the current and capital account deficit of the balance of payments.

According to the experts from the Agency for Economic Analyses and Forecasting, a GDP decrease of 6.3% is expected in 2009. The scenarios for rehabilitation of the economy are associated with improving the country's exports.

The IMF forecasts are more optimistic. According to the IMF⁷ the Bulgarian economy would shrink by 3.5% in 2009 and by 1% in 2010. Net capital inflows in Bulgaria amounted to only EUR 800 million between October 2008 and April 2009, compared to EUR 6.1 billion in the previous five months. According to the International Monetary Fund (IMF), the reduction was in part due to the decision of the Bulgarian National Bank in late 2008 to lower the required reserves ratio. During the first two months of 2009, Bulgaria's exports dropped by 27%, and the consumer demand declined by 32%. The net capital inflows will decline from 33.25% of GDP in 2008 to 9.25% of GDP in 2009, and export volumes will shrink by 12%, and import volumes by 25%. The net foreign direct investment is projected at 7.2% of the GDP, which is 58% lower than in 2008 and 75% lower than in 2007.

Public finances are in surplus, the balance sheets of the central bank and the government are strong, with considerable foreign reserves and substantial buffers accumulated in the fiscal reserve account. The banking system has benefited from the cushions created by regulation put in place in previous years to contain rapid credit growth and entered the recession with a high capital adequacy ratio and still enjoys positive profitability. According to the IMF, strong policies can help steer Bulgaria through the present crisis, and emphasises the need for proper utilisation of EU funds.

In 2009 the challenges to maintaining financial and economic stability are increasing. One solution is to mobilise resources for the catching up with innovative development. The Bulgarian economy is an open one and strongly dependant on international markets. The reaction to the influence of external factors is a key point in pursuing a strong state policy in a crisis environment. At the start of 2009 the Bulgarian Government formulated several **measures against the crisis**. The measures are described in three packages:

Economic activity

- The measures in this package are aimed at extending public investment by around EUR 450 million compared to 2008.
- Besides this additional investment, a programme of EUR 500 million is envisaged. The state has initiated the establishment of a state company for the building of industrial zones in order to create attractive conditions for high productive investments and for a more favourable business environment.

Market flexibility

- This package aims to increase the capital of the Bulgarian Development Bank available for small and medium sized business. Furthermore, in order to improve the export opportunities of Bulgarian enterprises, the government aims to increase the credit ceiling of the Bulgarian Agency for Export Insurance (BAEI).
- A number of measures were envisaged to maintain a favourable business environment and to attract foreign investment. These measures are oriented mainly towards improving administrative services, speeding up VAT refunds and simplifying the regulation regimes.

Flexibility of social networks

- This package is aimed at ensuring flexibility and security in the labour market and includes measures for stimulating employment, new job creation and development of social networks.

⁷ <http://www.imf.org/external/index.htm>

Bulgaria has to take the opportunity revealed in the crisis to mobilise its resources so that new expansion sources can be transformed and stimulated. An important role in achieving this is attributed to innovations. In most EU countries, besides the transfer of funds for rescuing the financial sector and real economy, funds are assigned also to investments in scientific research and innovations. In Bulgaria an attempt for consolidation neutralising of the crisis is made by the stated intent of the **consolidation of the National Innovation Fund and the National Science Fund**⁸.

The most important business-oriented measure is the creation of the **Bulgarian Development Bank** as an instrument supporting innovation and technologies in small and medium sized enterprises (SMEs). SMEs suffer from a lack of sufficient information and the financial and human resources necessary to create innovative products and implement information and communication technologies. EU practice shows that micro-financing is an appropriate way of funding innovation in SMEs. The National Innovation Strategy stipulates that the State policy should stimulate micro-financing for innovative activity by SMEs in areas lagging behind in their economic development. This would help overcome accumulated regional imbalances in economic and social development, as well as the concentration of production and employment in certain areas of the country. The creation of Bulgarian Development Bank (BDB) is a tool for improving access to finance for SMEs in the country. The overall budget is EUR 250 million.

The BDB started its activities in the end of 2008. One of the 3 programmes of the BDB is the high technologies programme. The BDB will support every economically sound and environmental investment in the area of high technologies. Lack of appropriate funding sources in a time of crisis is the biggest obstacle confronting company managers in the country, because investment in the creation of a new product, technology and their introduction to the production process is risky.

The **new Bulgarian government**⁹ declared that the anti-crisis measures will be directed towards providing growth, introducing innovations, enforcing strict fiscal policies, cutting expenditures, deregulating the private sector, and ensuring the proper functioning of the judicial system. At this stage, the Bulgarian Minister of the Economy, Energy and Tourism declared in August 2009 that two major projects, supported by the EU funds could have an exceptionally positive impact as anti-crisis measures. The first one, worth EUR 13.5 million, concerns the Agency for SMEs and its activity towards boosting exports includes exports of high-technology products. The second one is focused on the Bulgarian Investment Agency and it should stimulate foreign investment in high-value added sectors of the economy.

Other issues are related to the following steps:

- In the 2009 state budget law the financing of the national Fund for Scientific Research will be increased up to EUR 50 million. This will be mainly targeted to applied research projects.
- Proposals for the adoption of two projects with a three-year term of operation were elaborated: a national programme for the development of information technologies and a national programme for the development of broadband access in Bulgaria. They are aimed at systematising the efforts and providing for adequate conditions for accelerated convergence with the advanced in this regard EU countries.

Company level. Fostering innovation is an essential dimension of any company strategy to overcome existing problems while establishing foundations for dynamic companies capable of generating new engines of high and sustained growth. The importance of innovation policy has been amply recognised in many company anti-crisis programmes. In Bulgaria there are companies which realise that the investment in innovation and improvement of management is only a good investment. That is because of the possibility of improving governance, increasing profits and streamlining costs.

⁸ It is an intent, it should be happen by the end of 2009

⁹ The new Bulgarian government was formed in July 2009 and is headed by B. Borisov, leader of GERB party - winner of the parliamentary elections, held on 5 July 2009.

Companies like Ideal Standard, Visible, Metro Cash & Carry, Nestle Bulgaria, Podemkran, Port Varna, Bulgaria Sica, Tandem-C Fibran Bulgaria, Fresh Up Cosmetics, HIT Bulgaria and others create conditions for providing adequate business decisions based on analysis of the true situation, optimising costs by introducing innovation and allowing flexibility of the management.

1.2 Recent trends in the national innovation performance

EIS 2008

According to EIS 2008 Bulgaria is one of the catching-up countries with an innovation performance well below the EU-27 average but the rate of improvement is one of the highest of all countries and it is a growth leader within the catching-up countries. Relative strengths, compared to the country's average performance, are in human resources, finance and support as well as economic effects. Relative weaknesses are in linkages and entrepreneurship and throughputs.

Over the past five years, throughputs and finance and support have been the main drivers of the improvement in innovation performance, in particular as a result from strong growth in private credit (25.2%), Broadband access by firms (21.5%), community trademarks (67.6%) and community designs (31.0%).

Performance in economic effects has hardly grown, in particular due to a decrease in new-to-market sales (-5.7%) and new-to-firm sales (-3.1%). This could be considered to pose a serious challenge to the country's competitiveness and to the trade balance. Bulgarian export production is not particularly aimed at innovative products, but rather at acquiring foreign know-how, modernising old processes and products, improving the organisation and the effectiveness of management and adopting products that are new only to the Bulgarian not to the world market. That is why the trade balance deficit is seen to be a serious threat to the national economy. According to the recently adopted 'Export Promotion Strategy Vision 2013' the attraction of considerable investments in export oriented high-tech production (among other measures) will boost export effectiveness.

Finance and Support. As a general conclusion, we have to note that Bulgaria is experiencing relatively little progress in the sphere of innovation development. Although R&D expenditures in Bulgaria are increasing by EUR 10.2 million to EUR 15.3 million annually, this is still four times lower than the EU average and remains at about 0.50% of Bulgaria's GDP. The structure of R&D expenditure remains strongly imbalanced. The share of public sector financing is double that of businesses, which is the exact opposite of the Lisbon-recommended ratio of 1:2. The Innovation Strategy of the Republic of Bulgaria envisages that total R&D spending should reach 1.15% of GDP by 2013 but this is out of reach with the current level of slightly above 0.50% of GDP.

Human resources. In human resources, records show that the availability of a highly qualified and educated workforce is a key factor in innovation, Bulgaria has lower than the European level scores:

- 31.5 per thousand young people aged 20 to 29 were graduates of science and engineering, social sciences and humanities, whereas the European rate came to 40.3 per thousand;
- the percentage of the population with higher education aged 25 to 64 came to 22.4% (the Community average is 23.5%);
- only 1.3% of the population aged 25 to 64 participated in lifelong learning activities, whereas in Europe, this represents 9.7%.

The indicator, which is higher than the European average is the population aged 20 to 24 which had at least completed secondary education, 83.3%, is above the European level, 78.1%.

Linkages and Entrepreneurship. The Linkages and Entrepreneurship dimension underlines the efforts made by business regarding collaboration and the importance of cooperation, both between innovative companies and with the public sector. The cooperation among business, science and other institutions in innovative projects in Bulgaria is weak, the percentage of innovative SMEs collaborating in innovation is lower, only 3.8%, compared to the European average of 9.4%.

Throughputs. One of the most important weaknesses of the national innovation system is the low level of commercialisation of the Bulgarian research base. The patent activity of Bulgarian enterprises is low — the European patent office (EPO) patents per million population in the country is 4.3, in comparison to the EU level (128.0). The data on patent application activity within the national market are more optimistic, marking an increase in all categories, with the exception of patent applications. Regarding the community trademarks and community designs there is a marked growth (60% and 30%). The influence of the country's EU membership on the trends of this activity is substantial. Overall, Bulgarian companies are confronted with a number of difficulties in their research and development activity, which greatly inhibits their capacity to create and use technologies with a high degree of novelty.

Economic Effects. As for economic effects, the dimension that brings together the economic success that innovation activities have on employment, exports and sales, the following are worth noting:

- personnel employed in knowledge-intensive service sectors represents 8.3% of total employment, compared to 14.5% in Europe;
- employment in medium-high and high-tech manufacturing sectors accounts for 5.13% of the total compared to the community average of 6.7%;
- medium and high-tech exports represent only 21.2% of total exports (the EU average is 48.1%).

Index of Bulgarian Enterprises¹⁰

According to the National Index of Bulgarian Enterprises 2009, for the period 2006-2008 the overall number of enterprises engaged in innovation in Bulgaria has increased by between 3% and 9%. Around a third of companies (29-34%) innovate each year with 90% of them having stable levels of innovation budgets, and half having increased these levels in 2008 compared to 2007. Between 7 and 10% of enterprises innovate only occasionally. The share of R&D personnel in Bulgaria is 0.56% of the workforce, ranking higher than Romania only. Nearly 60% of the R&D personnel is employed by the state sector, funded by the state budget through institutional financing and responding to centrally defined priorities. The level of professional qualification has declined. Bulgaria ranks last in Europe on lifelong learning, lagging considerably behind the majority of the Member States.

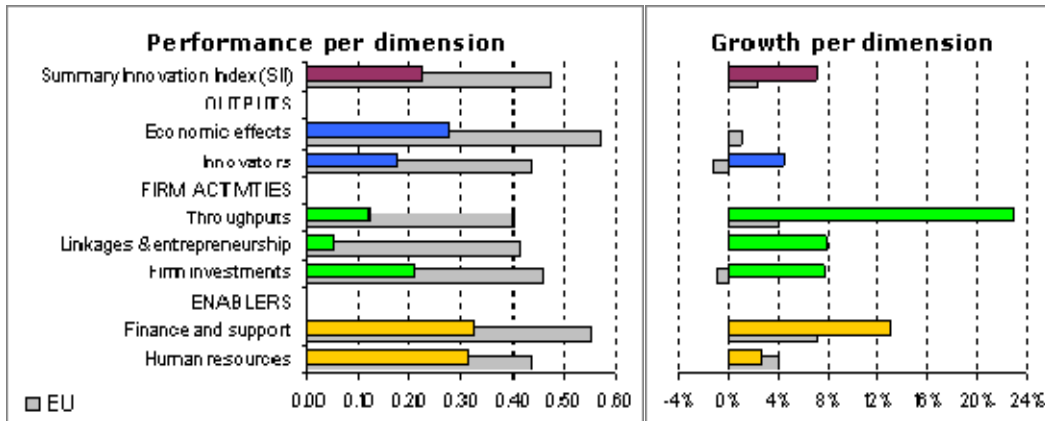
The innovativeness of Bulgarian enterprises is influenced by a number of endogenous and exogenous factors. The characteristics of the market, the adoption of quality standards, the quality of human resources, the intellectual property protection, the presence of long term planning and the features of its IT systems are the factors that most comprehensively account for the innovativeness of enterprises. The average innovation index for Bulgarian enterprises operating mostly in international markets is three times higher that of the enterprises in local markets and twice higher that of regional market enterprises. Innovations are a long term commitment and require certain shifts in attitude. The average innovation index of enterprises with a planning horizon of three years is 50% higher than that of enterprises which plan for just a year ahead.

There is a serious divergence among Bulgaria's NUTS 2 regions as regards their innovation potential. This unbalanced development results in lower share of innovation companies and weak links between

¹⁰ The Innovation Index of Bulgarian Enterprises is a trademark of the Innovation.bg Report, elaborated by ARC Fund. It is a composite measure of innovation activity of Bulgarian enterprises. The index ranks the innovativeness of enterprises according to: (1) the existence and combination of product, process, organisational and marketing innovations in a given enterprise and (2) the degree of novelty of the product and process innovations introduced by the enterprise.

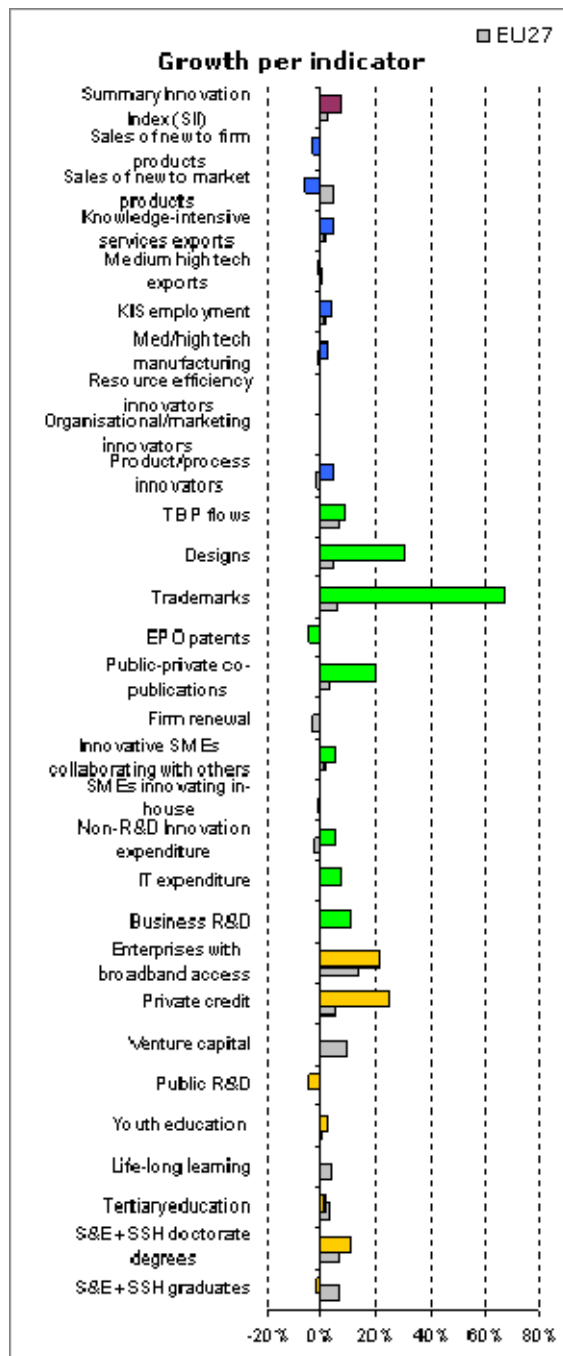
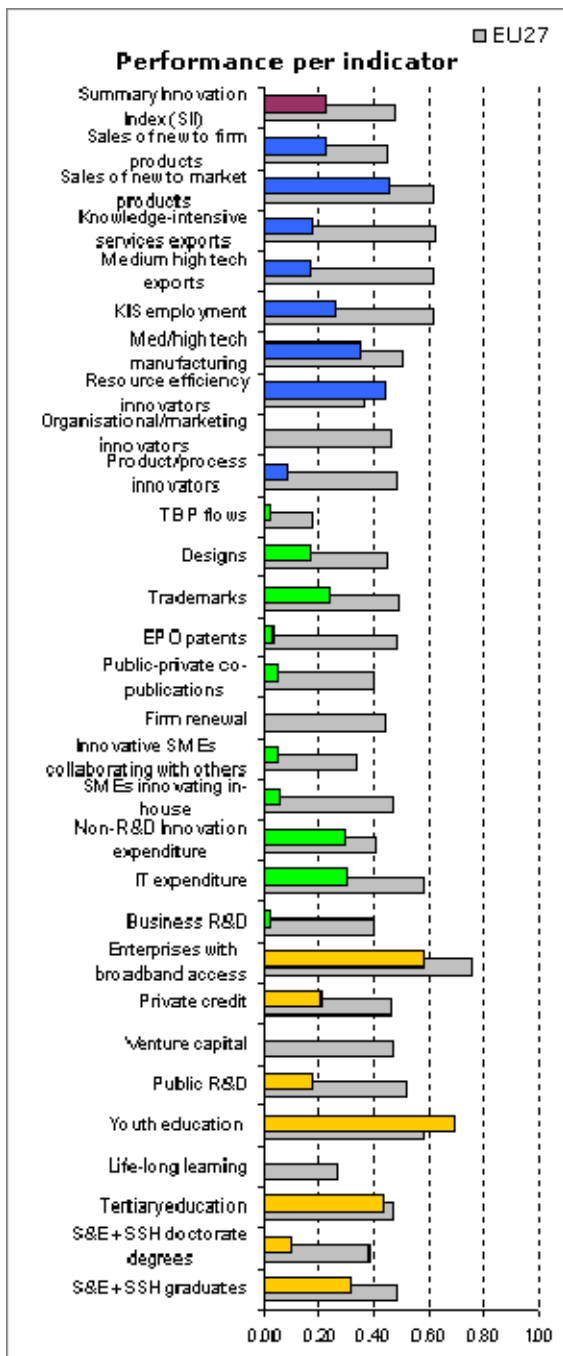
individual innovation partners from different regions. It requires not simply redirecting funds to poor regions, but focused government policy on the recently developed Regional Innovation Strategies and public investment in innovation infrastructure — universities, technology transfer networks, venture funds, etc.¹¹

Exhibit 2: European Innovation Scoreboard: country pages



¹¹ Innovation.bg 2009, ARC Fund, Sofia, February 2009.

INNO-Policy TrendChart



	2001	2002	2003	2004	2005	2006	2007	2008	growth
SII				0.172	0.174	0.178	0.206	0.221	7.0%
ENABLERS									6.4%
Human resources									2.6%
1.1.1 S&E and SSH graduates	29.8	33.3	31.0	31.2	31.6	31.5	--	--	-1.4%
1.2.2 S&E and SSH doctorate graduates	0.22	0.24	0.25	0.25	0.32	0.36	--	--	11.2%
1.1.3 Tertiary education	21.3	21.1	21.1	21.4	21.6	21.9	22.4	--	1.5%
1.1.4 Life-long learning	1.4	1.2	1.3	1.3	1.3	1.3	1.3	--	0.0%
1.1.5 Youth education	78.1	77.4	76.3	76.1	76.5	80.5	83.3	--	2.2%
Finance and support									13.2%
1.2.1 Public R&D expenditures	0.37	0.40	0.40	0.38	0.37	0.36	0.33	--	-4.7%
1.2.2 Venture capital (3-year average)	--	--	--	--	--	--	--	--	--
1.2.3 Private credit	0.15	0.20	0.27	0.36	0.43	0.47	0.67	--	25.2%
1.2.4 Broadband access by firms	--	--	--	28.0	32.0	57.0	61.0	--	21.5%
FIRM ACTIVITIES									13.6%
Firm investments									7.7%
2.1.1 Business R&D expenditures	0.10	0.09	0.10	0.12	0.10	0.12	0.15	--	10.7%
2.1.2 IT expenditures	--	--	--	1.5	2.0	2.0	--	--	7.5%
2.1.3 Non-R&D innovation expenditures	--	--	--	0.65	--	0.79	--	--	5.0%
Linkages & entrepreneurship									7.8%
2.2.1 SMEs innovating in-house	--	--	--	--	--	15.1	--	--	0.0%
2.2.2 Innovative SMEs collaborating with others	--	--	--	3.1	--	3.8	--	--	5.0%
2.2.3 Firm renewal (SMEs entries + exits)	--	--	--	--	--	--	--	--	--
2.2.4 Public-private co-publications (2-year avg.)	--	0.1	0.3	0.4	0.4	0.5	--	--	19.4%
Throughputs									23.0%
2.3.1 EPO patents	2.0	1.9	2.7	2.4	1.4	--	--	--	-4.4%
2.3.2 Community trademarks	1.0	0.1	0.6	0.3	1.3	8.4	32.8	--	67.6%
2.3.3 Community designs	--	--	--	0.9	1.3	1.9	19.2	--	31.0%
2.3.4 Technology Balance of Payments flows	--	0.17	0.15	0.15	0.32	0.25	--	--	8.9%
OUTPUTS									0.5%
Innovators									4.5%
3.1.1 Product/process innovators (SMEs)	--	--	--	14.9	--	17.8	--	--	4.5%
3.1.2 Marketing/organisational innovators (SMEs)	--	--	--	14.2	--	15.7	--	--	--
3.1.3 Resource efficiency innovators									
3.1.3a Reduced labour costs	--	--	--	18.9	--	15.9	--	--	--
3.1.3b Reduced use of materials and energy	--	--	--	17.0	--	13.2	--	--	--
Economic effects									0.0%
3.2.1 Employment in medium-high/high-tech manuf	5.51	5.33	4.67	4.62	4.65	4.90	5.13	--	2.4%
3.2.2 Employment in knowledge-intensive service	7.77	7.52	7.31	8.06	8.28	8.16	8.35	--	3.4%
3.2.3 Medium/high-tech manufacturing exports	--	22.0	23.1	21.3	22.2	21.2	--	--	-0.9%
3.2.4 Knowledge-intensive services exports	--	--	--	15.2	16.6	18.2	--	--	4.6%
3.2.5 New-to-market sales	--	--	--	8.5	--	6.7	--	--	-5.7%
3.2.6 New-to-firm sales	--	--	--	4.1	--	3.6	--	--	-3.1%

1.3 Identified Challenges

Based on the analysis of the national innovation performance, we should conclude that the Bulgarian innovation system faces many challenges which require specific corrective measures. The three most important challenges are the following:

- to increase the R&D expenditure (private and public);
- to strengthen the quality of human capital for innovation;
- to stimulate the partnership between science institutions, enterprises and other institutions involved in the innovative process.

Challenge 1: To increase the R&D expenditure (private and public).

Lisbon goals call for all EU member states to increase their R&D investment to 3% of GDP by 2010 — of which 2% of GDP — is expected to be financed by the private sector. To achieve these goals, Member States are to improve the environment for the private research investment, R&D partnerships, and high-technology start-ups. Regarding the amount of the resources allocated for research, Bulgaria (0.50% of GDP) is lagging considerably behind the EU average. R&D is focused on basic research, financed largely by public funds, and carried out mainly by public research institutes. R&D carried out by businesses is quite modest. The Bulgarian enterprises participate far less in the financing of research and development activities and their share accounts for 0.11% of GDP.

Achieving the Lisbon goals, in particular, the private sector investment goal, is a significant challenge for Bulgaria, and is an unrealistic achievement by 2010. So far the Bulgarian government has not initiated any formal review and assessment of the 3% action plan and Lisbon-strategy related policy initiatives and measures.

The government has introduced incentives for private financing of R&D through the establishment of the National Innovation Fund (NIF) and the National Science Fund (NSF). The funds open opportunities for R&D by providing up to 50% of projects financing on a competitive basis.

In 2007 started an additional instrument for stimulating private R&D, the operational programme (OP) entitled *Development of the Competitiveness of the Bulgarian Economy*. The programme has been elaborated in the framework of the strategic and programme documents for the absorption of the structural funds. The first priority of this programme has been identified as stimulation of creation and development of innovative enterprises and improvement of the pro-innovative business environment for increasing competitiveness of Bulgarian enterprises and the national economy.

According to the national reform programme 2008-2010, some new measures are focused on increasing the funding for R&D and innovation in the country, as follows.

- In the 2009 state budget law, the financing of the national science fund will be increased up to EUR 50 million. They will be mainly targeted to applied research projects.
- The government envisages increasing the financing for the NIF from EUR 2.5 million in 2005 to EUR 50 million in 2013.
- The process of accepting applications under the OP competitiveness including under the priority 1 developing an economy based on knowledge and innovation activities continues, where the priority will be given to projects including innovation and R&D.
- By the end of the second quarter of 2009 the Ministry of Education and Science and the Ministry of Economy and Energy, in collaboration with the business organisations, should propose the creation of new schemes and mechanisms for funding the innovation activity with higher involvement of the business and the higher schools.

Challenge 2: To strengthen the quality of human capital for innovation

In Bulgaria, the provision of research and high-tech business with the necessary human resources is a serious challenge for the scientific and innovation policy. The personnel engaged in R&D represent only 0.56% of the workforce in the country and this indicator is complemented by an insufficient growth rate of 12% at a base level, too low compared to that of Europe. The analysis of the institutional structure of the people employed in R&D in the EU shows that the R&D workforce is predominantly employed in private business and higher education sectors. In Bulgaria is just the opposite, nearly 60% of the personnel engaged in carrying out scientific and research activities is in the state sector, funded by the budget with primarily institutional financing principles.

The people employed in high-tech production sectors in Bulgaria followed the average decrease level in Europe until 2004. After that the country marked slight growth. In 2007, the share of people employed in sectors with high added value compared to general employment in the country approached 80% of the EU level.

Data about the country's participation in lifelong learning are very unfavourable, the percentage of the population in the age group 25-64 that took part in formal and informal education is only 1.3%

compared to the average level of 9.6% for the EU-27. According to this indicator Bulgaria ranks last together with Romania.

There are some measures started in 2008 and 2009 in the field of education and human resource development. They are aimed at modernising and integrating the Bulgarian research-education network, developing the Bulgarian schools' computer network. However, the proposed measures remain at the level of formulating objectives and priorities.

Challenge 3: To stimulate the partnership between science institutions, enterprises and other institutions involved in the innovative process.

A strong link between all participants in the innovation system is a prerequisite for an efficient transformation of research into new products. The lack of market orientation among research organisations reflects unfavourably on the nature and quality of the innovation activities in Bulgarian enterprises. The cooperation among business, science and other institutions in innovative projects is relatively weak. According to the data from EIS only 3.8% of the Bulgarian innovative SMEs cooperate with other SMEs, while this indicator is 9.4% for EU. According to the Bulgarian Innovation Index only 5.4% of the innovative enterprises interact with research and technological centres, 9.5% rely on government support, 8.9% on external consultants and 15.5% collaborate with trade associations.

In 2008 there is an attempt to alter this problem through a new element in the operation of the National Innovation Fund, oriented to stimulate cooperation between science and business, the implementation of a scheme in support of the knowledge transfer to enterprises ('voucher scheme'). It aims at facilitating the provision of technological knowledge to the enterprises by higher education establishments and research organisations, its chief goal being to promote closer relations between science and industry. Another measure implemented in 2008 in support of cooperation between business and science is the National Competition to Finance Technological Start-Up Companies of Students/Graduates of Bulgarian Higher Education Establishments in 2006 and 2007.

Exhibit 3: Main innovation policy challenges

Description of challenge	Relevant indicators and trends
<p>1. Increasing the R&D expenditure (private and public) Lisbon goals call for all EU member states to increase their R&D investment to 3% of GDP by 2010, of which 2% of GDP — is expected to be financed by the private sector. Regarding the amount of the resources allocated for research, Bulgaria (0.50% of GDP) is lagging considerably behind the EU average. The Bulgarian enterprises participate far less in the financing of research and development activities - their share accounts for 0.11% of GDP. The main Challenge of the Bulgarian innovation system is to increase the R&D expenditure.</p>	<ul style="list-style-type: none"> R&D expenditure — 0.50% of GDP (slowly increase), business share – only 0.11% <p>Achieving the Lisbon goals — in particular, the private sector investment goal — is a significant challenge for Bulgaria, and unrealistic to achieve by 2010.</p>
<p>2. Strengthening the quality of human capital for innovation In Bulgaria, the provision of research and high-tech business with the necessary human resources is a serious challenge for the scientific and innovation policy.</p>	<ul style="list-style-type: none"> Personnel engaged in R&D — 0.56% of the work force in the country, the indicator is complemented by an insufficient growth rate — 12% at a base level (very low compared to that of Europe) Personnel engaged in state sector — 60% (just opposite to the EU) Participation in lifelong learning — population in the age group 25-64, taking part in formal and informal education — 1.3% (compared to the average level of 9.6% for the EU-27) (slowly increases)
<p>3. Stimulating the partnership between science institutions, enterprises and other institutions involved in the innovative process. In Bulgaria the cooperation among business, science and other institutions in innovative projects is weak. The lack of market orientation among research organisations reflects unfavourably on the nature and quality of the innovation activities in Bulgarian enterprises. Stimulating the links between science institutions and business is an important challenge for Bulgarian innovation system.</p>	<ul style="list-style-type: none"> Innovative enterprises cooperate with universities and research institutes — 10.1% (slowly increases) Innovative SMEs cooperating with other SMEs — 3.8%

2. Public Support to Innovation

2.1. Main objectives for innovation policy

The main objectives of the national innovation policy are formulated in different strategic and programme documents:

National Innovation Strategy. The main objectives of the national innovation policy are formulated in the National Innovation Strategy (NIS), adopted in 2004. This is the most important document that is crucial for the development of the innovation system and growth in the innovation potential of the Bulgarian economy. The detailed formulation of goals, activities, timeline and resources for their implementation presented in the strategy are the background for the development of the innovation capacity in the country.

According to the document the R&D expenditure should reach 1.15% of GDP in 2013. It also spells out the yearly increase in R&D spending of the public and the private sector throughout the period with an average 1% increase per annum. By 2008 it is clear that the actual R&D spending in Bulgaria lags significantly behind the planned increase.

Government forecast for development of the R&D expenditures in Bulgaria (2003-2013)¹²

Share in GDP (%)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
GERD	0.54	0.64	0.74	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15
BERD	--	--	0.14	0.15	0.17	0.17	0.20	0.23	0.26	0.29	0.32
GOVRD	--	--	0.43	0.45	0.46	0.47	0.49	0.50	0.52	0.54	0.55

The NIS is based on a comprehensive analysis of the situation in Bulgaria and the expertise of countries with good management practices in this area. The major goals targeted with the implementation of the strategy could be summarised in the following directions:

- increase of the GDP;
- increase of the value added created by the Bulgarian industry;
- increase of the productivity;
- improvement of the balance of payments of the country;
- attracting foreign investments.

The achievement of these goals presumes implementation of several steps:

- human resources development;
- creation of new knowledge;
- transfer and implementation of contemporary technologies;
- provision of financial resources for innovative products implementation;
- development of markets.

The strategy envisages 10 measures divided in two groups — financial and non-financial measures for creating the framework for conducting proper innovation policy. The measures are outlined below.

- Financial:
 - establishment of an Innovation Fund with the initial sum of EUR 2.5 million, envisaged in 2005 budget;
 - promotion of employment for young specialists in small and medium-sized enterprises;
 - establishment and/or expansion, optimisation of Technological Centres.

¹² National Innovation Strategy, Chapter 6.2, p.41

- Non-financial:
 - optimisation of the 'science-technologies-innovations' system;
 - training in entrepreneurial skills;
 - development of clusters in Bulgaria;
 - adoption of European indicators — measuring the innovative potential of industrial enterprises;
 - attracting foreign investment in the R&D area;
 - establishing and providing support to the existing technological parks;
 - establishing entrepreneurship centres in higher education institutions.

Regional Innovation Strategies (RIS). The task of the RIS is to build a critical mass of projects to work with the structural funds in the field of innovation in the period 2007-2013 to the benefit of the regions. The RIS should contribute to the implementation of the National Innovation Strategy in the regions, as well as to develop proposals for adequate measures for the implementation of the national innovation policy. The RIS projects are a good instrument for the decentralised implementation of the National Innovation Strategy.

National Strategy for Scientific Research for the period 2008-2018 (draft)¹³. In March 2009 the Budget Commission within the Parliament adopted the draft of the National Strategy for Scientific Research 2008-2018. The Strategy states the intentions and responsibilities of the Government, to develop science structures and to improve education. Its major objectives are the allocation of resources for carrying out scientific research, the development of human potential for scientific research, and the integration of Bulgaria into the European internal market. The document reflects Bulgaria's intention to comply with the EU criteria in research by applying indicators for the efficiency of scientific research and by creating and sharing new knowledge. Taking into account the current state of the scientific research in Bulgaria, the amount of financing, available human resources, and results from the scientific activities the strategy addresses several goals and proposes measures for their achievement. These are:

- integrating higher education in the scientific and research activity of the country;
- development of the science and research potential;
- setting the priorities for the scientific research;
- achieving high-quality competitive scientific results;
- establishment of effective relations and collaboration with other sectors;
- supporting and improving international cooperation.
- promoting openness, publicity and transparency regarding the scientific activities in Bulgaria.

According to the Strategy the State will also offer financial support to new innovative companies, introducing new high-tech decisions. Several instruments will be applied — venture funds, guaranty funds, etc.

National Reform Programme — Another document, which underlines the goals for the innovation policy is the National Reform Programme. In 2006 the Bulgarian government adopted its first National Reform Programme for 2007–2009. The targets of the National Reform Programme for 2007–2009 are defined as increasing the competitiveness of the national economy by creating mechanisms for funding of applied research, implementation of new technologies and innovative productive methods, and attaining of new knowledge and skills.

The new National Reform Programme (2008-2010), adopted in 2008 focuses on: the need for increasing the quality of human capital by a new law on school education, law on higher education and implementation of the lifelong learning strategy; the support for R&D and innovation, mainly by financial incentives, and the infrastructure building with an emphasis on information and

¹³ The [Law on Scientific Research Promotion](#), adopted in 2003 is the legal basis of the Strategy.

communication technologies. The NRP recognises the importance of R&D in the broader sense of innovation, but the main research and innovation-related objectives, mentioned in the national reform programme are general. The highlight is set on the development of a political framework for scientific research and innovative activity, the improvement of intellectual property protection, and the investment in innovation. In particular the main objective of the programme, concerning science and innovation, is to improve the pro-innovative infrastructure, investment assistance of research institutions, technological business incubators and national innovation centres in several areas of knowledge, such as information and communication technologies, biotechnologies, nuclear energy technologies, nanotechnologies, microelectronic, etc. It is necessary that the NRP is updated to include more **concrete measures** suited to address the major problem of reforming the public research base and to stimulate private R&D investment. This should be achieved by increasing the share of competitive funding and focusing on few priorities. Regarding the business environment and SME development, the NRP includes some measures, but they are very general. The government should take measures to cut red tape, to introduce more transparency and to improve business environment and facilitate start-ups.

Operational Programme for the Development of the Competitiveness of the Bulgarian Economy 2007–2013¹⁴. The OP Development of the Competitiveness of the Bulgarian Economy 2007–2013 is one of the seven operational programmes financed by the cohesion and structural funds of the European Union. The total amount of the public financial resources for the programme will be about EUR 1.1 billion. The programme has been elaborated in the framework of the strategic and programme documents for the absorption of the structural funds (NSRF). The first priority of this programme has been identified as stimulation of creation and development of innovative enterprises and improvement of the pro-innovative business environment for increasing competitiveness of the Bulgarian enterprises and the national economy.

National Programme for Accelerated Development of Information Society 2008-2010. Bulgaria continues its efforts on acceleration of information society development in line with the launch by the EC of the initiative i2010 — European Information Society 2010 — as a key element of the renewed Lisbon partnership for growth and jobs. The foreseen measures in this field are summarised in the State Policy for Accelerated Information Society Development and is specified in the National Programme for Accelerated Information Society Development. The state policy document defines several priority areas for acceleration of the development of the information society in legislative, technological, economic and social dimension: increasing the quality of life through development of the national infrastructure and improving the quality of public services through further development of the e-Government; encouragement of the usage of ICT technologies as a key factor for the creation of favourable business environment and support for the development of competitive ICT industry; successful integration of ICT in the education and training with the aim of assuring high-qualified human resources for the needs of the ICT sector and the labour market and modernisation and optimisation of the ICT infrastructure of the research institutes, schools and universities; ensuring the conditions for broad access for the citizens to the services of the Information society and popularization of their usage; improving the information security, guaranteeing the consumer protection.

The National Programme for Accelerated Development of the Information Society was adopted by the Government in October 2008. There are seven main areas in the Programme: ICT infrastructure, society and culture, economy and employment, scientific research and innovation, education and training, branding of ICT sector, etc. The planned finance provided for the IT projects for the period 2008-2010 is about EUR 220 million. The State Agency for IT and communications is responsible for the implementation of the policy in this area.

¹⁴ <http://www.opcompetitiveness.bg/en/index.html>

Exhibit 4: Main innovation policy documents

Main innovation policy documents	Approved
National Innovation Strategy	August 2004
National Strategy for Scientific Research for the period 2008-2018 (draft)	March 2009, approved by the Budget Commission within the Parliament
National Reform Programme 2008-2010	20 November 2008 by the Government
Operational Programme for the Development of the Competitiveness of the Bulgarian Economy 2007–2013	26 September 2007 by the EC
National Programme for Accelerated Development of Information Society 2008-2010	October 2008 by the Government

According to the experts there is a need of developing an **integrated national policy** for research, technology and innovation based on a consensus on the priorities of economic development. Bulgaria needs an **integrated Strategy** for research, technological development and innovation, which would protect the interests and enhance the competencies of all participants in the national innovation system. It is necessary to establish a clear centre of policy responsibility on innovation, which will coordinate the operation of the various public bodies of the national innovation system and takes decisions on the design and implementation of the national research, technological and innovation policy.

2.2. Innovation governance system

The main public institutions, fundamental to maintaining and enhancing the Bulgarian national innovation capacity, have been created. A better role distribution has been achieved between policy formulation and implementation bodies, while the policymaking process lies within various ministries, and its implementation is left to the government agencies reporting to various ministries. There are, however, still several old structures dating from the earlier era of Bulgarian scientific research (Bulgarian Academy of Sciences for example), which have not been reformed. To get the maximum benefit from the new structures that have been introduced, it is essential that reform of the innovation system is continued and old structures renewed.

The Bulgarian innovation system is dominated by the public sector. More than 40 percent of Bulgarian R&D organisations operate in the public (budget) sector; 28 percent in the higher education sector; 26 percent in the business sector; and 1-2 percent are non-profit organisations. Moreover, the private sector innovation structure in Bulgaria is underdeveloped.

The interactions in the national innovation system should be manifested in practice in: joint research and development activities, exchange of complementing products of intellectual property, participation in commercial and non-commercial forms of technology transfer, inter-company cooperation and manpower mobility. The adopted priorities in Bulgaria should aim at creating a system integrity which shall enable the dissemination of knowledge and information between the actors in the innovation process.

2.2.1. Governmental bodies

In Bulgaria the policymaking process remained within ministries, where new directorates were formed for the sake of policymaking, while implementation went to the executive and state agencies. While the Ministry of Economy and Energy possesses an implementing agency, the Bulgarian Small and Medium Enterprises Promotion Agency (BSMEPA), the Ministry of Education and Science (MES) has not been assigned an implementing agency in the field of science. The main innovation policy-related government bodies on the policy formulation side are as follows:

The Ministry of Economy, Energy and Tourism (MEET). The Ministry is responsible for the formulation of the public innovation policy concerning the business sector. The National Innovation Strategy proposed the establishment of the **National Innovation Council** as an advisory body to the MEE, which consists of representatives of the Ministry of Education and Science, Ministry of Finance, Ministry of Regional Development and Public Works, scientific community, business circles, education and NGOs.

The Ministry of Education, Youth and Science (MEYS). The Ministry defines the national priorities in the field of education and science. MES coordinates the **National Council for Science and Research**, which comprises of representatives of government ministries and science organisations. MEYS devises plans and maps out the research framework for the whole country, including the identification of research priorities. The Ministry is also responsible for creating a favorable environment and incentives for the development of science and research. It promotes the science and research with the assistance of institutions such as the [National Science Fund \(NSF\)](#) — the main financial instrument supporting science and research in the country.

The Ministry of Labour and Social Policy (MLSP) is involved in various programmes related to the encouragement of entrepreneurship within the context of National Employment Action Plans. The Ministry is managing the OP Human Resources. Policy on science in the agricultural sector is held by the Ministry of Agriculture and Food and in the military by the Ministry of Defense.

2.2.2. Main bodies managing implementation of policies

A number of executive bodies have been created with the main purpose of implementing activities and evaluating results connected with the encouragement of innovation. Various agencies, some of which are further reviewed in this section, are responsible for policy implementation:

Bulgarian Small and Medium-sized Enterprises Promotion Agency (BSMEPA)¹⁵. The agency reports to the MEE and implements the measures set in the National Innovation Strategy. BSMEPA is the main organisation supporting SMEs in the country and is managing the National Innovation Fund. The BSMEPA's services are aimed at SMEs to help them start, grow, become more competitive and enter into new markets. BSMEPA offers the following services: information on taxation, current legislative changes, currency regimes, credit policies of the banks, participation in privatisation, announced concessions, public procurements, etc. These information and consulting services and products are provided by BSMEPA in its headquarters in Sofia, and in its 26 regional offices. The BSMEPA website also offers a database of Bulgarian companies. The database includes small and medium sized Bulgarian companies — producers and service providers, most of them with an export orientation. This information is designed to facilitate the formation of business contacts with Bulgaria.

Information Technology and Communications State Agency (ITC State Agency). This agency reports to the Council of Ministers and implements the measures in telecommunications and information technology policy.

Bulgarian Patent Office (BPO)¹⁶. The main activities undertaken by the BPO include: organisation of seminars and training on Industrial Property Business and creation of the Bulgarian Industrial Property Network with offices located in Sofia, Plovdiv, Varna, Bourgas and Russe. The Bulgarian Industrial Property Network (BIPN) embracing the regional PATLIB centres and the University Industrial Property Points (IP Points). The main role of these centres is to provide different kinds of patent information services and support to the SMEs, scientific researchers, academic circles and the individual inventors and to promote the industrial property and raise awareness of the industrial property system. The BIPN was the catalyst for the establishment of university industrial property information and consultation points.

¹⁵ <http://www.sme.government.bg> online.

¹⁶ <http://www.bpo.bg/> online.

Private sector associations and business organisations. Some private sector associations and business organisations are actively involved in increasing efforts of the Bulgarian private enterprises in innovative activities. The largest among them are the following:

- Bulgarian Industrial Association (BIA) — one of the largest private sector associations with a vast spectrum of activities in areas such as patent applications, legislative amendments and professional training.
- Bulgarian Chamber of Commerce and Industry (BCCI) — BCCI has established an e-commerce information centre aiming at increasing awareness among enterprises for better Internet and e-commerce utilisation.
- Confederation of Employers and Industrialists in Bulgaria (CEIBG) — CEIBG is involved in a large number of projects and public private partnership in areas such as professional training, legislative amendments etc.

Non-government sector. The non-government sector is also involved in innovation-related activities. Its most active representatives participate in preparing analyses and organising seminars, conferences and other activities in the field of innovation. The main representatives from the NGO sector are:

- Bulgarian Euro Info Centres (Enterprise Europe Network-Bulgaria) see <http://www.eic.bcci.bg> online, provides information, skills and various resources to SMEs during EU integration process.
- Innovation Relay Centre (IRC). The mission of IRC-Bulgaria is to foster the development of the Bulgarian industry through inward flow of technologies and knowledge stemming from European industries and EU RTD programmes, and thus to enhance the competitiveness of the industrial companies and their ability to respond to market challenges.
- Applied Research and Communication Fund — a well established NGO in the field of preparing and disseminating analyses related to innovation, technology transfer and administrative simplification matters.
- The Centre for Economic Development (CED) see <http://www.ced.bg> online. one of the leading analytical NGOs in Bulgaria covering virtually all economy fields. CED monitors innovation and information and communication technologies (ICT) development in Bulgaria since 2002 on a quarterly basis.
- The Centre for Study of Democracy — one of the leading NGOs in the field of political, legal and economic studies in the country.

2.3. Public funding to innovation

Although R&D expenditures in Bulgaria are increasing by EUR 10.2 million — EUR 15.3 million annually, they are still four times lower than the EU-15 average level and remain at about 0.50% of Bulgaria's GDP. The structure of R&D expenditure remains strongly imbalanced. The share of public sector financing is double than that of businesses or higher education, which is the exact opposite of the Lisbon-recommended ratio of 1:2¹⁷. The Innovation Strategy of the Republic of Bulgaria envisages that total R&D spending should reach 1.15% of GDP by 2013 but this is out of line with the current level of the expenditure.

2.3.1. Review of the current range of support measures for innovation

The analysis of the support measures in this chapter is based on the information contained in the ERAWATCH trendchart policy measure database, which distinguishes the following five main categories:

- governance & horizontal research and innovation policies;

¹⁷ The key financial instrument encouraging the innovation activities is the NIF. The government envisages increasing the financing for the NIF from EUR 2.5 million in 2005 to EUR 50 million in 2013. The total amount of the public financial resources for the priority one of OP Competitiveness 'Creation and development of innovative enterprises' for the period 2007-2013 is EUR 246 million.

- research and technologies;
- human resources (education and skills);
- promote and sustain the creation and growth of innovative enterprises;
- markets and innovation culture.

The national innovation policy is generally based on the Innovation Strategy of the Republic of Bulgaria, which underlines multiple measures in support of innovative development of the country. Every year the National Innovation Council reviews the annual innovation policy and the implementation of the measures. The chapter outlines also the measures envisioned under the OP Competitiveness; activities planned in the field of innovation in basic strategic documents, such as the *National Reform Programme 2008-2010* and the *National Strategic Reference Framework*, as well as activities planned by other ministries and agencies.

In general the main support measures remain the same during the last years. The measures within the framework of the Innovation Strategy implemented in 2008 and 2009, aimed at strengthening the links between research and business (technology transfer centres), building the innovation infrastructure, strengthening the skills in entrepreneurship and innovation (entrepreneurship centres in universities), supporting the existing clusters, developing new financial support schemes for innovation (Bulgarian Development Bank, business angels), etc. The Innovation Strategy was complemented by one more major instrument — the operational programme (OP) competitiveness.

Promote and sustain the creation and growth of innovative enterprises

The highest number of the measures are concentrated in the category 'promote and sustain the creation and growth of innovative enterprises'. The high number of measures as well as higher budget allocation of financial sources in this category reflects one of the most significant challenges for Bulgaria, namely the low level of expenditure for R&D and innovation. The level of funding for research and innovation projects in Bulgaria is generally low. Major part of policy measures in these categories consists of programmes operated within the OP Competitiveness, the NIF and the NSF. The support is provided in the form of direct support for businesses (grants, loans, guarantees) as well as support for innovation infrastructure that creates favourable conditions for starting up a business (innovation centres, business incubators, etc.). The most important measures in this category are the following:

BG 15 — National Innovation Fund (NIF). The National Innovation Fund is a major financial instrument for the promotion of innovation activities in Bulgaria. The NIF is a government scheme for subsidising innovative projects on a competitive basis in the Bulgarian economy and it is financed by the state budget. The National Innovation Fund has been established with Government Decree 723 from 08.09.2004. It is financed by the MEE ([see http://www.mi.government.bg/](http://www.mi.government.bg/) online) budget and managed by the BSMEPA, which itself is financed by MEET. It promotes innovative activities of all Bulgarian enterprises. Its initial budget of EUR 2.5 million is allocated for applied and industrial research in enterprises in the pre-market phase and is the first measure within the pool of financial measures set in the National Innovation Strategy to be implemented. The financing of the fund from the budget increased from EUR 2.5 million in 2005 to EUR 10 million in 2008. Over the period 2005–2008, five competitive sessions were held. The fifth session for projects financed by the National Innovation Fund was open in 2008. In the list of priorities are ICT, bio-and nanotechnology, engineer, eco and energy-saving technologies.

National Science Fund. The National Science Fund is a supportive body of the Ministry of Education, Youth and Science. The National Science Fund was established as a modern structure for financing scientific research. This was one of the first steps for the introduction of project financing made by the Bulgarian government. The National Science Fund is financed by the state budget. Through its financing activities the National Science Fund promotes the development of the Bulgarian science and its interaction with the other social and economic spheres, as well as with the international science community. It has the support of similar international organisations, with which it has signed

collaboration contracts. The total annual budget of the fund is EUR 30.6 million (EUR 50 million for 2009).

Research and Technologies

The category 'Research and Technologies' is the second largest category in terms of the number of innovation policy measures. The relatively high number of measures in this category reflects the second significant challenge for Bulgaria — weak cooperation between the research and business sectors. For that reason, measures focus on cooperation in R&D by supporting joint projects with research institutes and public-private partnership. A number of measures with a relatively considerable budget are also aimed at supporting business R&D activities. The most important measure in this category is:

BG 31 — Establishment and/or optimisation of technology centres. The measure is implemented with the goal to improve the transfer of new technologies between universities and enterprises. In 2007, nine technology transfer offices established at higher schools, research institutes and non-governmental R&D organisations were financed within the framework of PHARE ProjectBG2005/017-353.10.06 which provides support to the implementation of the National Innovation Strategy. The activities of the technology transfer offices are as follows: establishment of offices for transfer of technologies and a demo room; development of a web site and a database of the technology transfer offices; development of demo pilot projects, including: technical, financial and economic assessment, as well as assessment of the intellectual property rights over the innovation, development of a prototype, preparation of presentations and promotional materials for the prototype, establishment of contacts between the developers and potential users; publication of promotional material about the activities of the respective office for transfer of technologies.

Governance and horizontal research and innovation policies

The number of policy measures in the category 'Governance and horizontal research and innovation policies' is not sufficient. These policy measures include national thematic research programmes, long-term strategic research, development and innovation policies, which set up the strategic framework of RDI as well as fundamental conditions for the national innovation system in the country.

The most important measure in this category is measure **BG 21 — Development of Scientific Potential Programme.** The programme is elaborated as part of the implementation of the National Innovation Strategy of the Republic of Bulgaria and is coordinated by the Scientific Research Department at the MES. Its activities include several modules. The first module of the programme backs initiatives approved by the EU for financing under European projects. The approved projects are co-financed by state and private resources at a ratio 70:30. As part of the implementation of the National Innovation Strategy the programme targets effective use of the scientific potential. It also focuses on the creation of competitive scientific products, favourable environment for scientific research, integration in ERA, increase of the participation in international scientific and research programmes and initiatives in order to attract additional resources for scientific research, and as a whole — building up scientific potential to be applied in areas of strategic importance.

Human resources (education and skills)

Although the lack of human resources is a serious problem for the Bulgarian innovation system, in terms of number of measures and budget allocation, the category 'Human Resources (education and skills)' is underestimated. The measures within this category are focused mainly on mobility of researchers and career development (e.g. long-term contracts for university researchers). For example:

BG 27 — Research competitions, based on bilateral agreements for scientific and technical cooperation. The bilateral competitions are coordinated by the National Science Fund (NSF) at the MES. They promote joint scientific projects in cooperation with other countries in all scientific areas. Bulgaria has agreements for joint activities under this programme with Germany, Romania, Greece, the Republic of Macedonia, China, the Slovak Republic, Ukraine, and India. In 2008 the open calls for bilateral cooperation focused on India, Ukraine, Slovenia, the Slovak Republic and Germany. Another

bilateral scientific and technical cooperation programme coordinated by the NSF is the Bulgarian-French RILA Programme.

There are some new steps for improving the quality of human resources — measures are undertaken in the framework of the **OP Human Resources Development**. After the first call under the priority 'Development Support for PhD students, post-doctoral students, post-graduate students and young scientist' in 2007, 20 projects were approved.

Markets and innovation culture

The category 'markets and innovation culture' is of a marginal significance as to the range of support. A major part of policy measures in this category is focused on consultancy services, entrepreneurship education and fiscal incentives to the use of intellectual property rights. Attention is also paid also to the diffusion of innovative technologies, products and services. We should mention the following measure in this category:

BG 35 - Establishment of entrepreneurship centres at universities. The Ministry of Economy and Energy launched the project to support entrepreneurship centres at higher education schools in Bulgaria, this began at the start of 2006 after the preliminary survey on the preparedness and willingness of selected universities to take part in the project. The objective of the project is to train undergraduates at technical universities to start up their own business and to help them in the evaluation of the commercial value of technological ideas and the market demand for their products, to provide financial resources and assist start-ups of graduates. The total value of the two-year project is EUR 220 000.

The **comparative analysis** of the measures, based on multi criteria selection shows the following main findings¹⁸:

1. In Bulgaria the largest number of measures is oriented on awareness creation and science education, support to innovation management and advisory services and relation between teaching and research. Unlike EU-27, in Bulgaria the share of measures in the field of R&D cooperation is smaller (joint projects, PPP with research institutes) — only 8%, while in EU-27 its share reached almost 30%. This fact reflects one of the key challenges to the country's innovative policy — the need of more active cooperation between research organisations and private companies.
2. The largest number of measures is oriented on public research organisations (38% of all measures) and scientists (32%). The share of universities and other higher education institutions is relatively small — 20%. The reason of the high focus on public research organisations results from the specific public R&D structure, where the Bulgarian Academy of Sciences and its institutes play an important role. As compared to EU-27, Bulgaria features a smaller share of measures aimed at technological and innovative centres (about 20%), business organisations (Chambers of Commerce etc.).
3. Regarding the sectoral distribution of the measures, we should note that the measures are concentrated in the following areas: ICT, biotechnology, energy, nanotechnologies. This sectoral prioritisation reflects the competitiveness of the economy — Bulgaria has established a relatively good position in the energy and ICT sectors. The biotechnology and nanotechnology sectors have been established as priorities in the National Innovation Strategy and in the Scientific Research Strategy.
4. The largest number of innovation policy measures in Bulgaria supports diffusion of technologies in enterprises (35% of all measures). Having in mind the nature of innovation activities in the country based mainly on adopting advanced technologies and processes, this policy focus appropriately reflects the present needs of the innovation enterprises in Bulgaria. Two aspects of the innovation process, i.e. awareness raising amongst firms on innovation and the promotion of entrepreneurship/start up, which are addressed by a significant number of measures, correspond to the existing challenges in the national innovation system. The share of measures which had as their focus industrial design and development/prototype creation is lower compared to EU-27 (only 6-7% of all measures in Bulgaria focus on this, whereas it is 25% in the EU-27).
5. Regarding financing, the highest share is that of resources dedicated to supporting horizontal measures for development of innovation (nearly 70% of total funds). About 30% of the funds are intended for innovative start-up companies.

¹⁸ See Annex 1

6. There are several forms of funding used to support innovation in Bulgaria. Dominant share (more than 70%) of innovation policy measures are provided in the form of grants. Grants are used for supporting both R&D activities and implementing innovation in businesses. Guarantees and subsidized loans are also used to support innovation. These forms of funding are especially appropriate for innovation start-ups.

7. As regards co-financing, it is worth noting that co-financing is smaller for the private sector — under 20%, in contrast with EU-27, where the private sector finances nearly 35% of all measures. The share of financing from European funds is about 12%, which is also lower than the EU average: 27–28% of the measures are financed through European funds. It is advised that Bulgaria should start harnessing the private sector and use the potential provided by European funds to support the development of innovation.

Non financial measures:

Steps for improving the business environment and quality of public services. In 2008 and 2009 there were some developments which stimulated innovation in the public sector. These measures focused on the improvement of the business environment and the quality of the public services.

e-Government. In Bulgaria, e-management was initiated as a systemised and legally conditioned state policy by the Strategy for Modernisation of the Public Administration — From Accession to Integration and the Strategy for Electronic Government (Resolution No 866 dated 28.12.2002). The priorities for 2009 include: construction of the central system of e-Government (portal registers for exchange of electronic documents); implementation of e-services and maintaining current information. The budget for these activities is EUR 10.9 million.

Unified Centralised Electronic Public Commercial Registry. The Unified Centralised Electronic Public Commercial Registry began its operations on 1 January 2008 which created conditions for accelerating the companies' registration procedure.

National electronic communications network. One of the most important priorities of the Information and Communication State Agency is to ensure a high level of security of information. The most important objectives of the Agency in this area are related to the establishment of a national electronic communications network (NESM) and its integration with the existing networks in the ministries, expanding national network of public access to online services (the 'telecentres') and increasing the transmission capacity of the Bulgarian research and education network and ensure high security of information.

Information system of cadastre and registry. In January 2009 the information system of cadastre and register started its work. It operates in 28 regional offices of the Cadastre Agency and the 113 offices of the Registry Agency in the country. The system is the last stage of the implementation of the project cadastre and registry, funded with EUR 28.7 million loan from the World Bank, EUR 2 million grant from the Dutch government and subsidies from the state budget. It aims at facilitating the registration of property in Bulgaria. The system combines data on ownership and cadastre, which were previously scattered in several different institutions¹⁹.

Health Portal. In March 2009 the National Health Portal and personal electronic ambulatory records (eLAK) was officially opened.

2.3.2. New or modified support measures

2008 and 2009 saw new measures, the first of which could be classified in the category '**Promote and sustain the creation and growth of innovative enterprises**':

BG 3 – Bulgarian Development Bank, Guarantee Fund for Micro-crediting. This is the most important anti-crisis measure, implemented by the government. The aim of the measure is to facilitate access to finance of SMEs in Bulgaria. On April 23, 2008, the Bulgarian Parliament approved the law for the creation of the Bulgarian Development Bank (BDB). The act transforms the state-owned Encouragement Bank, which was created in 1999 to finance small and medium-sized enterprises and to promote Bulgaria's exports, into a development bank which aims at improving access to finance for SMEs in the country. It also created a national guarantee fund and a capital investment fund. The purpose of the development bank is to improve, stimulate, and develop the total exports and

¹⁹ Access to data and services to the cadastre and registry is provided through an Internet portal www.icadastre.bg with real data in real time.

technological potential of the small and medium-sized businesses, to assist them in their activity, and to enhance their access to funding.

One of the three programmes of the Bulgarian development bank (BDB) is the 'High Technologies' Programme. The Bank will support every economically sound and environmental investment in the area of high technologies. The overall budget of the Bank is EUR 250 million.

BG 1 - Info centres - Enterprise Europe Network-Bulgaria. The Enterprise Europe Network – Bulgaria (EIIRG-BG) was inaugurated in February 2008. The network in the country integrates the activities of the former Innovation Relay Centre-Bulgaria and the eight Euro Info Centres located in the country. The network in Bulgaria will support SMEs from all sectors in taking greater advantage of the opportunities of the Single Market. Its mission is to foster the development of Bulgarian industry through inward flow of technologies and know-how stemming from European industries, so as to enhance the competitiveness of the industrial companies and their ability to respond to market challenges. The EIIRG-BG has designed its portfolio of business and innovation support services in such a manner as to address the key development challenges facing Bulgarian companies today. Some of these challenges include the need for technological upgrades and re-engineering in order to meet the European and international standards; better networking with local and international partners; access to finance; and integration of information technologies and applications

Nanotechnology Centre. In the beginning of 2009 the Council of Ministers decided to establish Bulgarian Nanotechnology Centre Company. This measure could be classified in the 'Research and Technologies' category. The creation of this company is a step towards building on the capacity for research and industry in the fields of nanotechnology, nanomaterials, nanoproduction and micromachinery, which is going to have a positive overall effect on the economy of the country. The capital of the company will be EUR 50 million. The main partner in the project is IBM.

Exhibit 5: New Innovation Policy Support Measures (since the last report)

IPM N°	Title	Innovation policy framework category	Organisation responsible
BG 3	Bulgarian Development Bank	Promote and sustain the creation and growth of innovative enterprises	
BG 1	Enterprise Europe Network-Bulgaria	Research and technologies	

2.3.3. Strengths and weaknesses in the innovation policy support system

In Bulgaria's innovation policy support system, there exist an increasing number of strengths. Despite the measures implemented during the years 2008 and 2009, the analysis of the national innovation system indicates that their scope is insufficient for the development of an effective national innovation system and that research and innovation still fail to be recognised as key factors for economic growth and competitiveness. No serious changes took place in 2008 and 2009 in the research and innovation policy of the country. The failure to address this as a clearly spelled out priority at the highest level of governance continues to be the major setback in the implementation of Bulgaria's innovation policy. The critical factor for the innovation and the functioning of the national innovation support system is the extent of the political commitment which is employed. In 2008 and 2009 Bulgaria does not present integrated economic, innovation, technological and research policies and specific steps for ensuring the administrative, personnel and financial support for their delivery. However, the decisive structural elements of the national innovation support system are already in place, which can successfully define the state innovation policy and coordinate the implementation of the measures. Nevertheless, the interaction between the elements of the national innovation system is weak and does not involve all forms of information and technology exchange, the potential for which is already available.

Exhibit 6: Innovation policy support system SWOT overview

Strengths	Weaknesses
<ul style="list-style-type: none"> • Relatively good institutional framework – the functions of the main elements of the national innovation system have been restored or rebuilt • National Innovation Strategy in place • Draft National Strategy for Science 2008-2018 • Some progress in implementing measures set in the Strategy • The National Innovation Fund and the National Science Fund operate successfully • Involvement of main stakeholders in policymaking and policy consultation (National Innovation Council) • Evaluation process in place for internationally financed projects • Some practical experience in applying the cluster approach • The principle of project-based funding of research activities and innovation is strengthening in position (NIF, NSF) • The European indicators for measuring the innovation potential of the national economy have been adopted • The register scientific research in Bulgaria has been set up and is maintained • The regional dimension of the innovation policy – the development of regional innovation strategies in all planning regions has been developed 	<ul style="list-style-type: none"> • Research and innovation are not reconised as national priority • Lack of coordination of national innovation, technological and research policy • Lack of dialogue and interaction between public and private organisations • Weak horizontal links and coordination mechanisms between the main NIGS institutions on central level • National Innovation Strategy and innovation measures needs serious updating • Weak links between science and business • Slow implementation of measures in National Innovation Strategy because of insufficient resources • There are not enough measures addressing the development of the innovation infrastructure and innovation support services • Some of the intermediary services and the technological brokerage are still missing • Involvement of stakeholders rather formal • Lack of stakeholder involvement in delivering measures • Lack of political will to encourage venture capital enterprises • Evaluation process is not systematic and transparent • Slow lawmaking process • Lack of vertical coordination between central and local priorities (especially in innovation) • The structure of higher education does not favour the involvement of students in scientific and technological activities • Low innovation culture and weak innovation activity of businesses and a relatively small share of innovative companies compared to the EU • Low level of investments in new products and processes • Serious divergence among Bulgarian regions regarding the innovation potential
Opportunities	Threats
<ul style="list-style-type: none"> • Improved efforts for communication between stakeholders • Debate on 0% corporate profit tax rate on reinvestment of profit • Flat tax introduction • Some demand side measures in place (accelerated depreciation rates for PCs and software) 	<ul style="list-style-type: none"> • No policy for encouragement of high-tech employment • Delay in delivering regional innovation strategy initiatives • Further delay in PPP rules and regulations adoption, which delays stakeholder involvement on delivery level • After joining the EU, the Bulgarian

INNO-Policy TrendChart

<ul style="list-style-type: none"> • Pilot foresight initiatives launched by NGOs • After January 1st, 2007 there are new international sources of funding on the basis of competitive projects, incl. EU Structural Funds • The EU membership of Bulgaria will ease the partner search for mutual innovation projects • Bulgarian companies will receive access to the financial markets of the other member States 	<p>educational institutions will face very strong competition (esp. the high schools)</p> <ul style="list-style-type: none"> • The Bulgarian government might not be in position in the next few years to allocate more than 0.5% of the GDP for research and development activities • Companies might lose as a result of the accession to the EU markets • Delays in introduction of financial mechanisms to encourage innovation activity in companies • Lack of financial mechanism to support companies to co-finance their participation in EU-supported projects
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3. Innovation policy and competitiveness: an appraisal

3.1. The ability of policy to address challenges

National innovation policies set priorities based on perceived challenges while often motivated by international agreements and commitments, i.e. the Lisbon agenda. Therefore national policies act and react in a complex set of overall policy priorities and commitments. In this section, building on the analysis in the previous chapters, we are investigating how well national innovation policies identify and respond to systemic challenges, which may or may not be common in other EU Member States or even other countries outside EU.

3.1.1 How well does policy respond to innovation challenges?

According to the conceptual categorisation of systemic failures introduced by Arnold and applied in the European Innovation Progress Report 2008 the challenges to the success of a Bulgarian innovation system mentioned in the chapter 1.3 cover the following categories:

Network failure (i.e. problem in the interaction among actors in the innovation system). The model of innovation policy formation in Bulgaria does not allow a reliable assessment of the potential of all elements of the innovation system, as well as the interaction between them. There is no in-depth analysis of the situation in the country, in a number of cases foreign practices are applied automatically, without them always being suitable for the particular conditions in the country. There is no integrated approach towards innovation, technological and scientific policy (two separate strategies – NIS, now outdated, and a separate strategy for scientific research – not voted on by the Parliament). There is no unified centre for decision making and coordination of actions in the sphere of science, technologies and innovations (various ministries are responsible for the processes).

Capability failure (defined as inadequacies in the ability of companies to act in their own best interests). The lack of adequate and appropriate sources of financing is still one of the main obstacles to company innovation activity. This problem is expected to intensify due to the financial crisis. The government's efforts in the field of research and innovation are not sufficient for guaranteeing a stable innovation environment. Public funds continue to be the main source of research and innovation in Bulgaria, but they are limited and insufficient. One of the good options concerning the financing of innovative business in the enterprises is venture capital/private equity funds. The high equity investment activity is absent²⁰ — only few foreign equity investment funds operate in the country. However, they focus on growth support of the existing local medium-sized and large enterprises. There is no typical venture capital fund among these funds which could invest in emerging companies developing an innovative business.

Failure in institutions (i.e. inadequacies in other relevant national innovation system actors except companies). In Bulgaria the national innovation system is still rather a chaotic multitude of state and private organisations and institutions, among which there is poor interaction and coordination. Science and innovation are not a national priority; there is a lack of clear prioritisation of research directions. The insufficiently efficient system of public financing of research and development in innovation (RDI) activities leads to inability of public research and development institutions to meet the needs of innovation companies. There are considerable regional imbalances, which keep multiplying (the scientific and innovation potential is focused mainly in the South-West region of planning)²¹.

²⁰ Advance Equity Holding AD is one of the first Bulgarian companies for equity financing

²¹ See details on the potential of various regions and on regional investments strategies in Country Report 2007

The national innovation policy does not respond successfully to the identified challenges. The scientific research fund and the national innovation fund were opened to applications on priority research and innovation projects (increasing investment in innovation). The nine Centres for Technological Transfer have started operating in some universities (building cooperation and partnership for innovation), as have the Centres for Promotion of Entrepreneurship. Certain new instruments for support of innovations have emerged — voucher schemes; scientific competitions for student's technology companies; the Development Bank began its operations in 2008, supporting SMEs in innovative projects. The OP Competitiveness started in 2008 (boosting availability of innovation finance for young innovative enterprises). However, the implemented measures remain isolated, without a common strategy and adequate funding. They do not lead to a considerable improvement in the country's innovation potential. The measures are not sufficient, as a financial resource as well, so to have a visible impact. The development of innovation policy is not accompanied by a social discussion, there is no active communication between the participants in the innovation activities, there is no monitoring and governance over the implementation of measures. That model of innovation policy formation does not allow a reliable assessment of the innovation potential of all elements of the innovation system, as well as the interaction between them. There is no in-depth analysis of the situation in the country, in a number of cases foreign practices are applied automatically. The policy does not provide for measures for overcoming the reasons for the delay in the sphere of innovations.

The progress marked by Bulgaria in the sphere of science and innovation does not correspond to the country's potential and cannot contribute to overcoming economic crisis. In 2008 and 2009 the following features characterised the Bulgarian innovation support system:

- promotion of science and innovation, in practice were not national priorities.
- there is no integrated approach towards the innovation, technological and scientific policy.
- there is no unified centre for decision making and coordination of actions in the sphere of science, technology and innovations (various ministries are responsible for the processes).
- the national system of measures to support innovations is still a rather chaotic multitude of state and private organisations and institutions, among which there is no efficient interaction and coordination.
- there are considerable regional inconsistencies, which keep multiplying. No proper management of the innovation system at regional level.
- investments in research and innovation are limited.
- supply of human and financial resources are inadequate.

The inability of the national innovation support system to respond to innovation challenges in the country results in serious problems, which persist and intensify:

- minor participation of business in the research and innovation process;
- minor interaction between the business and the scientific organizations;
- deterioration of human resources quality (demographic, educational, research, etc. issues)
- underdeveloped scientific research infrastructure;
- poorly developed scientific and research activities in the scientific institutions.

Under the conditions of crisis the cost for scientific research and innovation is among the first to be reduced by the companies. These circumstances even further enhance the importance of public investments in scientific research and development, which means that it is necessary to correctly outline the national priorities and challenges. Of particular importance in the utilisation of funds for scientific research and development is the implementation of strict mechanisms for monitoring and reporting costs.

Conclusion: The policy documents and the implemented measures should be better targeted and better operationalised for successfully meeting the existing challenges in the national innovation system.

3.2 Effectiveness of policy design

Only in the last years has the government indicated that it has a more clear understanding of the undertakings required to implement policy according to the Lisbon Strategy guidelines. The approach applied to the design and delivery of policies does not allow for a proper evaluation of the development of the potential of the innovation system units to be conducted. This is caused by a lack of appropriate public debate and dialogue among interested parties, lack of transparency and the need for a system for monitoring and control of results. Innovation policy measures adopted by the government are not consistently implemented and furthermore, do not envisage measures aimed at overcoming the existing problems. In 2008 for example, the National Innovation Council held no meetings whatsoever despite the apparent inadequacy of the goals and measures of the National Innovation Strategy. At the same time, the drafting of the National Strategy for the development of Research 2008-2018 was initiated although the previous National Strategy for Research 2005-2010 had not yet been adopted by the national parliament (repeating what had already happened with the scientific research strategy 2005-2010). The new strategy has a number of deficiencies and probably the wise approach would be to develop a uniform strategy on science, technologies and innovations.²² The National Innovation Strategy adopted in 2004 needs renovation, since it does not correspond to the current economic environment and the identified challenges and does not take into account the economic crisis.

3.2.1 Process of delivery

The national structures for policy design and delivery are relatively new, because the clear separation between the two processes was made in Bulgaria in 2004. Two bodies continue to act on the coordination side of the Innovation Policy — the National Council for Innovation (NCI, to the Minister of the Economy) and the National Council for Scientific Research (NCSR, to the Minister of Education). In addition to setting up the stage for a coherent debate on scientific and innovation issues, they involve business representatives and academics. Being non-policymaking organisations (they are not designing measures but only assisting in their preparation), NCI and NCSR lack the mandate to set coherent priorities for boosting innovation. So it can be inferred that systematic efforts to involve as many stakeholders as possible in mixing the policy measures continue in 2008, but a well-organised and coherent system of policy coordination is still too far from being established in Bulgaria.

While the MEET possesses an implementing agency, the MEYS has not been assigned an implementing agency in the field of scientific research.

By the end of 2003, MEET, an Enterprise Policy (EP) directorate was established, which is the policymaking division among the experts of the ministry, dealing with innovation, SMEs and entrepreneurship. There are close relationships between the EP directorate and the executive agency for implementing the enterprise policy - Bulgarian Small and Medium Sized Enterprises Promotion Agency (BSMEPA). Since March 2005 BSMEPA has been running the newly established National Innovation Fund. The BSMPA does not have enough capacity to run the fund successfully. Improving the fund's activity presupposes addressing the following:

- broadening of the scope of information campaigns regarding the fund objectives, application requirements and evaluation procedures.
- simplifying the application and evaluation process in order to remove barriers for applicants and in order to reflect the specifics of the environment when granting funds.
- synchronizing of NIF activities with activities under the Competitiveness OP and with the Scientific Research Fund in order to provide financial schemes completing each other.
- start of new measures to: fund innovation activities, encourage academic entrepreneurship, create products meeting demands of the international markets and support research projects with potential for patent acquisition, etc.

²² Innovation.BG 2009, ARC Fund, 2009

Although the MEYS does not implement measures in the field of encouragement of scientific research policy through an executive agency, it directly operates the National Science Fund (NSF). NSF allocates funds to scientific institutions, academic representatives, consortiums and business representatives on a competitive basis.

There are no formal mechanisms for coordination between the two institutions (MEET, MEYS) specifically on innovation issues.

Different ministries implement science, research and development and innovation policy measures within specific industrial sectors and areas. These include the Ministry of Finance, Ministry of Defence, Ministry of Transport, Ministry of Healthcare, Ministry of Regional Development, Ministry of Labour and Social Policy, etc.. The measures are focused on the exchange of good practices and the implementation of technological, organisational and social innovations. The cumulative effect of such measures would be much greater if all efforts were synchronised under a common vision of the innovative development of the country.

There are some stakeholder involvement mechanisms on policymaking and on consultative levels but still the delivery level is lacking the sufficient quality and appropriate targeting because of the absence of a private-public partnership (PPP) in **delivering state services**. Bulgaria has some traditions in conducting high quality research, developing a good scientific product at lower prices than the average in EU and there are some examples of partnership between business and research organisations in different industries and regions.

In Bulgaria local authorities are not prioritising the innovative activities of enterprises on their territory sufficiently. This is the case because they are lacking both adequate skills and resources and so measure their responsibilities against the local budget. Given their powers and resources it may be inferred that in Bulgaria there is still no widespread regional approach to innovation policy, although there are some pilot actions in this direction. The regional development agencies and some of the business associations working on local levels possess the necessary capacity for executing some of the policy measures instead of the central administration. Those are the network of the regional development agencies (united under the Bulgarian Association of Regional Development Agencies heading)²³ and the local branches of the national business associations.

Conclusion: According to the experts the currently fragmented and uncoordinated mechanism is unsuited for the implementation of a single research, technological and innovation policy. The inefficiency of the existing system to deliver results warrants radical action: the establishment of a strong structure, such as a ministry or an agency for research, technological development and innovation under the direct authority of the Prime Minister²⁴.

3.3 Impact of public support for innovation

The measures implemented in recent years have not led to a serious improvement in the innovation development of the country, business, scientific and educational sectors. One of the main reasons for the low level of innovation is the lack of concentration of resources in this direction. The progress of the country's scientific and innovation policy **hasn't had a serious effect on the national economy** and couldn't help the society to overcome the economic crisis.

There is at present very little link between scientific, economic and societal institutions. The contribution of science and innovation to society and to the economy in developing knowledge based economy is not as strong as it should be and it needs to be generally understood that this link could and should be strengthened. In some economies, science policy and funding is therefore located within the economics ministry, reflecting the key dependence of the economy on knowledge production. The general significance of science and innovation for the development of the Bulgarian society, economy and welfare is not yet clear. There should be more public interest and understanding

²³ BARDA's web-site is <http://www.barda.bg> online.

²⁴ Innovation.bg 2009, ARC Fund, February 2009, <http://www.arcfund.net> online.

for science and innovation, supported, e.g., by publicity campaigns and by a convincing dissemination strategy of scientific and innovation results.

The **evaluation process** in Bulgaria is a relatively new activity and as such, it cannot be expected that it will respect best practices. Nevertheless some of the evaluations, when existent, are carried out by independent contractors, which significantly improves the success rate of the build-up measures.

There is some evaluation activity of the impact of different implemented measures and schemes, for example, the analysis of five schemes — a voucher scheme, a techno starter scheme, a tax incentive scheme, a loan guarantee scheme and a venture capital scheme, prepared by independent consultants for the MEET²⁵. During the evaluation, the following criteria were adopted:

- simplicity of how it works from the point of view of the enterprise.
- target groups of the scheme.
- needs and political considerations that it will address, with a particular emphasis on its strategic fit with Bulgaria's situation and the compatibility with EU rules and funding opportunities.
- impact, with a particular emphasis on the leverage effect of the scheme.
- governance and administrative requirements of the scheme.
- ease of implementation.

The findings based on the ex ante review and evaluation of the schemes, are as follows:

- **Voucher scheme:** Targets enterprises as well as know-how institutions. Good strategic fit and well suited to EU rules and funding opportunities. The impact is likely to be good if the scheme is complemented with other instruments and support mechanisms for innovation. The implementation of the scheme is, relative to other schemes, very easy. The scheme is also easy to work with for the target groups.
- **Techno Starter Scheme:** This scheme targets students, academics or others who intend to start their own, technology-based firm, young enterprises and know-how institutions, particularly universities and schools for higher professional education. Reasonably easy to implement, targeting the crucial link between universities and industry. As such, it addresses clear needs and political priorities. Long-term impact can be substantial, with limited administrative burden.
- **Tax incentive scheme:** Targets enterprises involved in R&D activities. Good strategic fit, and not in violation of EU rules. Impact needs to be carefully investigated, but likely to be significant, given the wide reach of the scheme.
- **Loan guarantee scheme:** Targets innovative enterprises. Good strategic fit and excellently suited to EU rules and funding priorities. Impact is likely to be significant, although there are possible difficulties with respect to implementation.
- **Venture capital scheme:** Targets new and young enterprises. Excellent strategic fit and perfectly suited to EU rules and funding priorities. However, given the limitations of existing financial system and support structures for entrepreneurs and start-ups, the short-term impact is very unclear. Similarly, the implementation may also face difficulties. However, the long-term impact may be considerable.
- **TOP Technology Institutes (TTIs):** Targets R&D institutes and universities. Realises a national intent to develop high level knowledge and competence in strategy for the country fields. Requires public private cooperation. Needs substantial amount of investments, both public and private. Needs continuous support for a number of years.

In view of these findings, it is clear that some schemes may be of more strategic importance and have a greater immediate impact, whilst others may prove less beneficial or be more effective at a later stage. Individual instruments should not be regarded as isolated interventions, but as belonging to a wider set of policies and instruments designed to encourage innovation. An instrument should thus not merely be evaluated on its own isolated merits, but also on how the instrument interacts with other policies and instruments.

²⁵ See MEET , <http://www.mi.government.bg/> online.

Based on these conclusions, the general recommendation is to move ahead with a gradual process of wide stakeholder involvement in order to ensure that the most pressing needs are identified and addressed. This should include extensive consultations with SME representatives and representatives from the financial sector and the research community. Without these key stakeholders on board, a financial instrument is unlikely to be appropriately tailored to the needs of Bulgaria, and will thus not succeed in achieving improved innovation outcomes. This process has already begun with the implementation of a techno starter scheme (e.g. entrepreneurship centres at technical universities) and could be taken further with the design and implementation of a pilot voucher scheme. The voucher scheme is very simple to implement, and a pilot scheme administered under the auspices of the SME Agency could be set up fairly quickly.

3.3.1 Conclusions: possible future actions and opportunities for innovation policy

According to the experts there is a need for developing an integrated national policy for research, technology and innovation based on a consensus on the priorities of economic development. Bulgaria needs an integrated strategy for research, technological development and innovation, which would protect the interests and enhance the competencies of all participants in the national innovation system. It is necessary to establish a clear centre of policy responsibility on innovation, which will coordinate the operation of the various public bodies concerned with the national innovation system and take decisions on the design and implementation of the national research, technological and innovation policy.

The measures undertaken for successfully overcoming the above mentioned issues are not sufficient from the point of view of the number of measures, their adequacy and financing. Following steps should be taken:

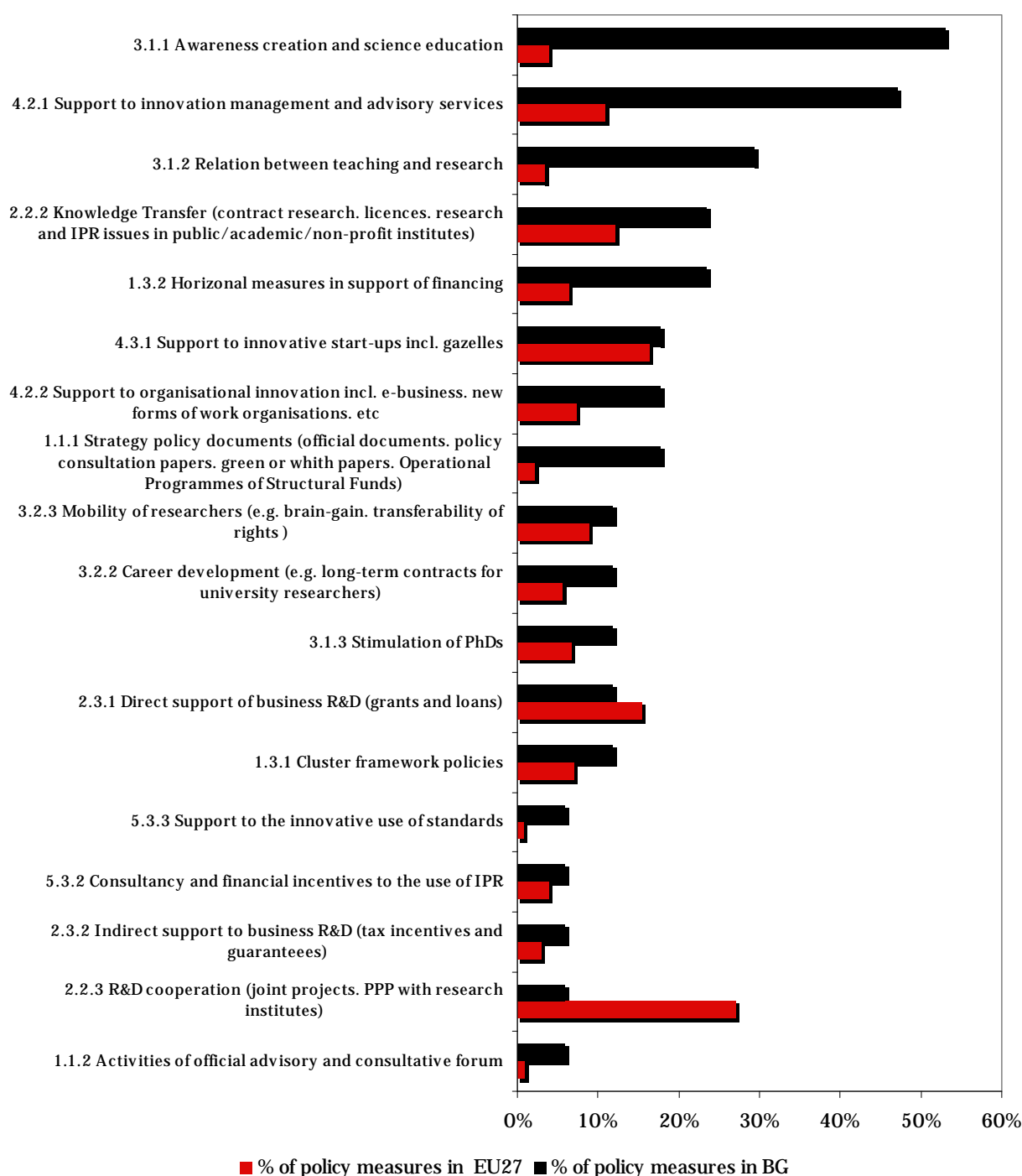
1. Develop an integrated scientific, technological and innovation policy. In the first place that means undertaking a detailed, thorough and realistic analysis of the existing potential (scientific units, universities, innovation companies, intermediary units).
2. Strictly specify the priorities in scientific, technological and innovation development, in line with the EU membership of Bulgaria and the successful participation in the European research environment.
3. Organise discussions and debate with all parties participating in the research and innovation process for achieving consent on the innovation policy.
4. Select priority economic sectors that would be the source for growth and development of competitive productions (biotechnologies, renewable energy sources, etc.)
5. Establish a specialised structure (e.g. an agency or a ministry), that would coordinate the operation of the public units participating in the national innovation system. This institution shall take decisions and bear the responsibility for the implementation of the national innovation policy.
6. Efficient interaction between the various participants in the scientific, technological and innovation policy. This means improvement of the network of intermediary and transfer organisations, establishment of new type structures (spin off, spin out companies, clusters, technology parks, etc.).
7. More active utilisation of the opportunities offered by the international innovation networks and the opened innovations.

Annexes

Annex 1: Country pages – Innovation Policy Support factsheet - Bulgaria

The information in the Policy Support factsheet is based upon information contained in the ERAWATCH-Trend-Chart Policy Measure database. Figures in the Innovation Policy Support factsheet have been prepared as a result of simple count of the measures and their estimated budgets classified in particular policy measures categories.

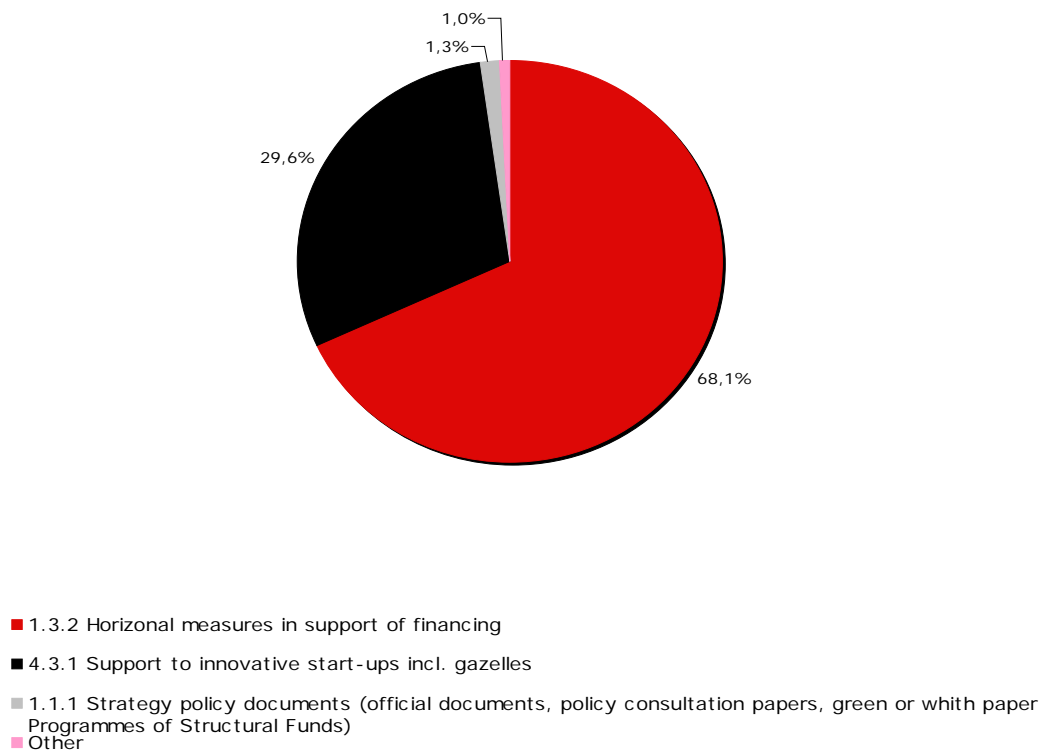
Figure 1. Policy priorities addressed by the support measures in Bulgaria and EU-27



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

According to Figure 1 the largest number of measures is oriented on awareness creation and science education, support to innovation management and advisory services and relation between teaching and research. Unlike EU-27, in Bulgaria the share of measures in the field of R&D cooperation is smaller (joint projects, PPP with research institutes) — only 8%, while in EU-27 its share reached almost 30%. This fact reflects one of the key challenges to the country's innovative policy – the need of more active cooperation between research organisations and private companies.

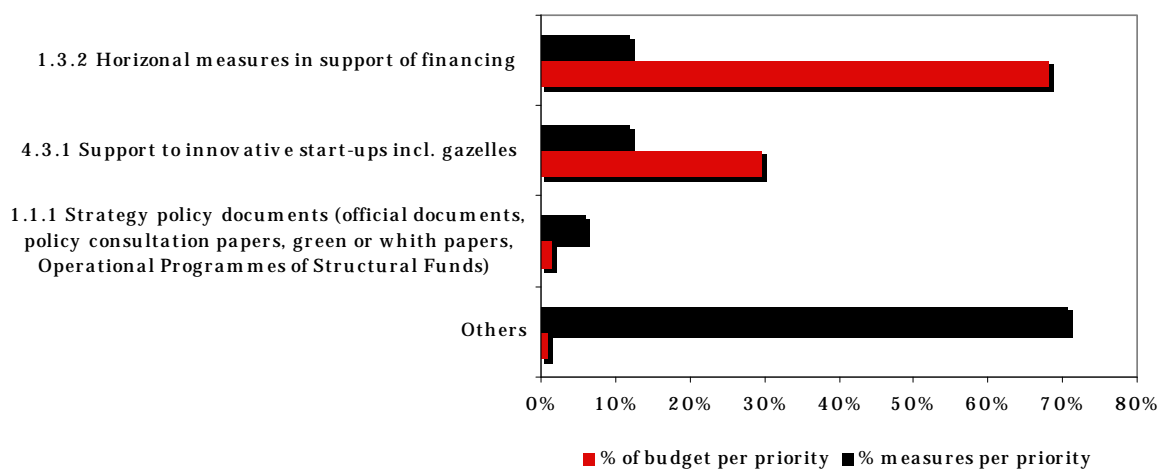
Figure 2. Estimated annual budget per policy priority in Bulgaria



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

As to financing, the highest share is that of resources dedicated to support horizontal measures for development of innovation (nearly 70% of total funds). About 30% of the funds is intended for innovative start-up companies.

Figure 3. Estimated annual budget spent on policy priority and number of support measures in Bulgaria



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

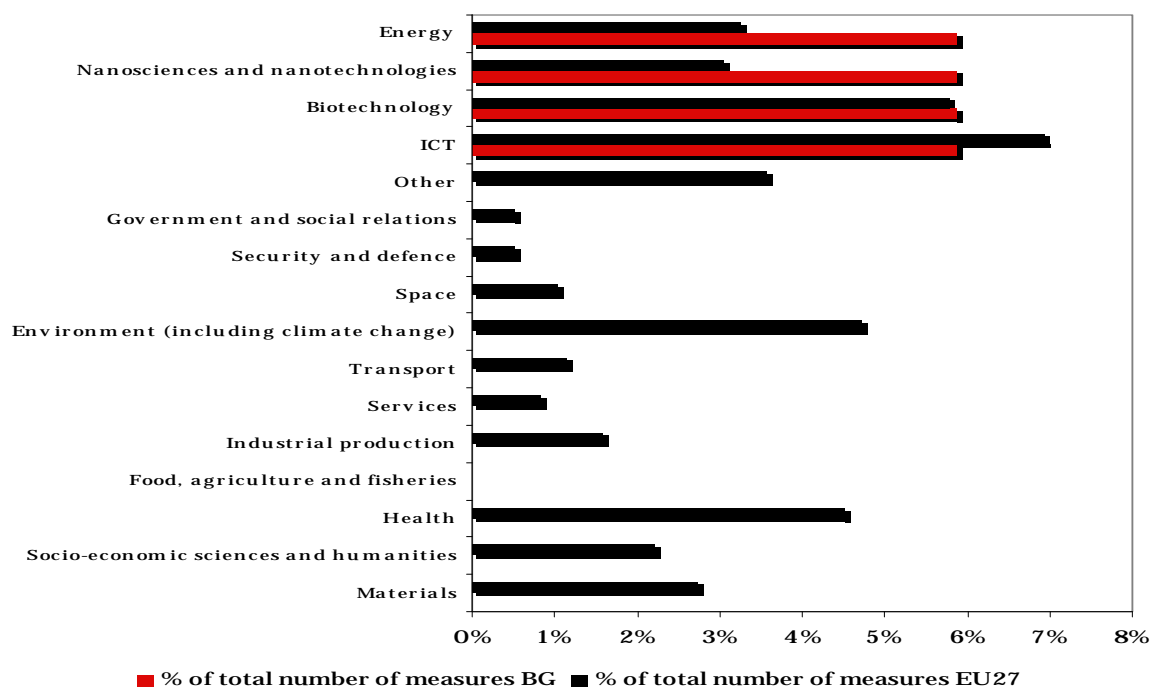
Figure 4. Target groups of support measures in Bulgaria compared to EU-27



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

In Bulgaria the largest number of measures is oriented on public research organisations (38% of all measures) and scientists (32%). The share of universities and other higher education institutions is relatively small — 20%. The reason of the high focus on public research organisations results from the specific public R&D structure, where the Bulgarian Academy of Sciences and its institutes play an important role. As compared to EU-27, Bulgaria features a smaller share of measures aimed at technological and innovative centres (about 20%), business organisations (Chambers of Commerce etc.).

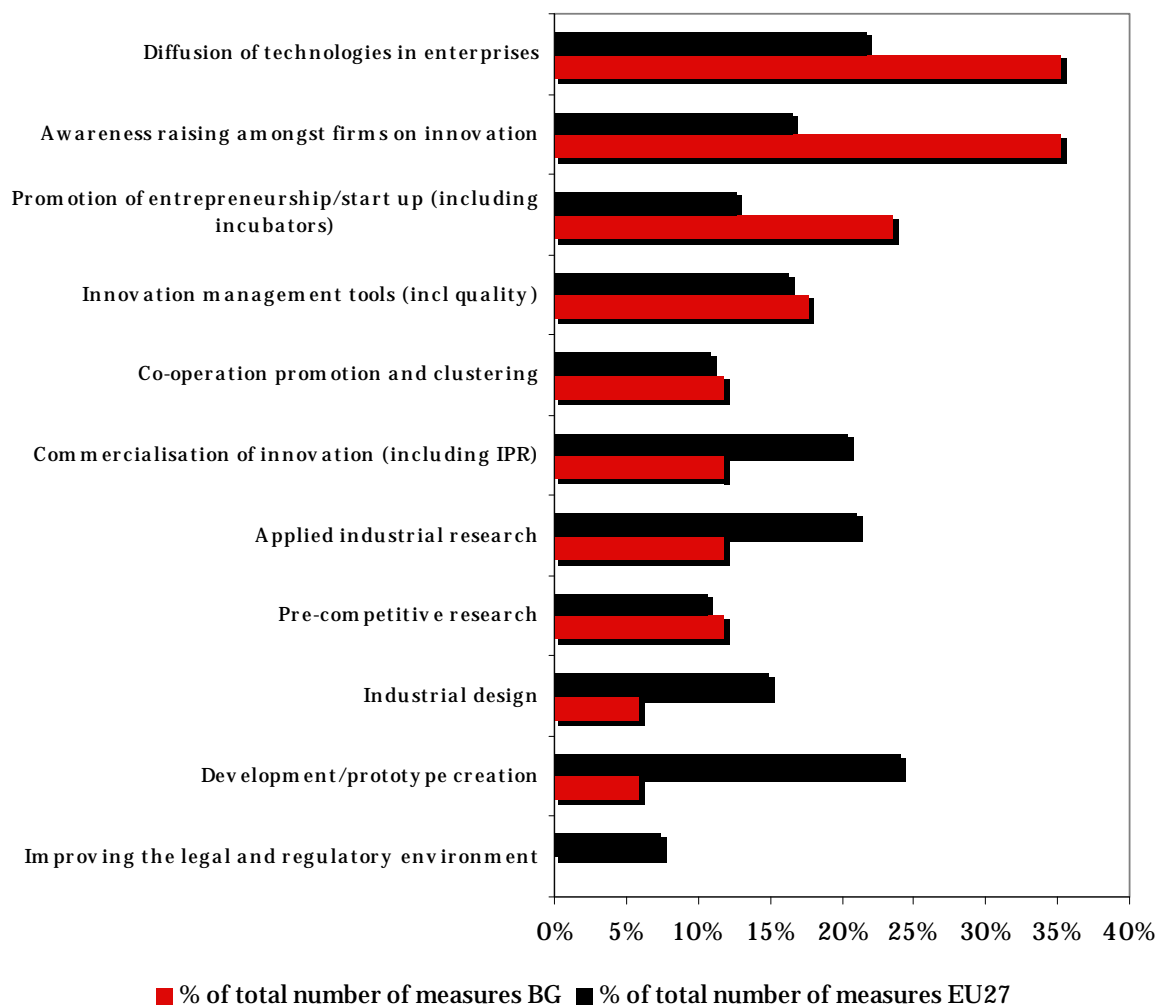
Figure 5. Targeted R&D fields by support measures in Bulgaria compared to EU-27



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

Regarding the sectoral distribution of the measures, we should note that the measures are concentrated in the following areas: ICT, biotechnology, energy, nanotechnologies. This sectoral prioritisation reflects the competitiveness of the economy — Bulgaria has relatively good positions in energy and ICT. The biotechnology and nanotechnology sectors have been established as priorities in the National Innovation Strategy and in the Scientific Research Strategy.

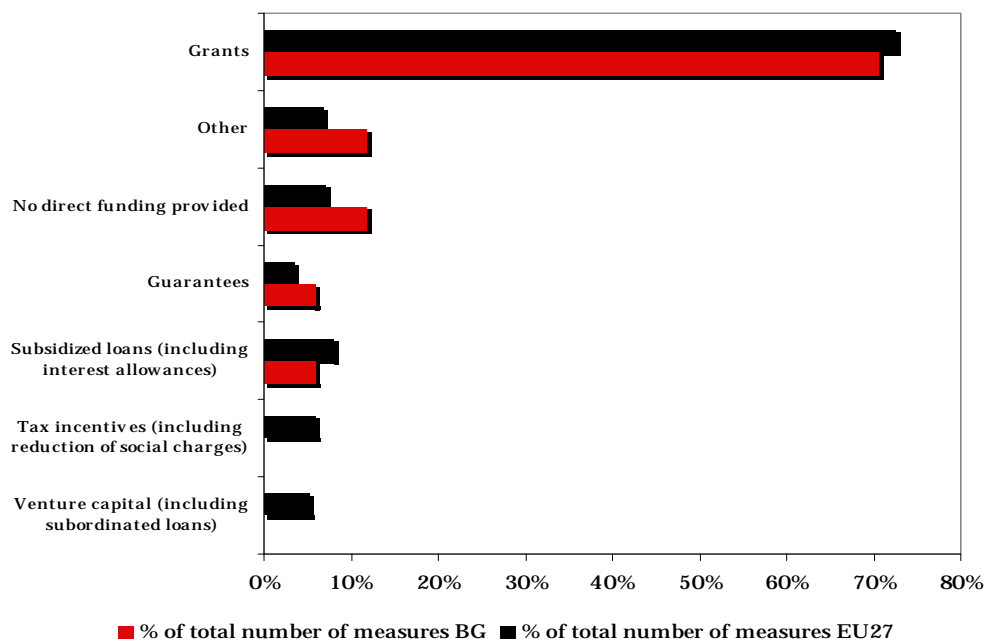
Figure 6. Aspects of innovation process targeted by measures in Bulgaria compared to EU-27



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

The largest number of innovation policy measures in Bulgaria supports diffusion of technologies in enterprises (35 % of all measures). Having in mind the nature of innovation activities in the country based mainly on adopting advanced technologies and processes, this policy focus appropriately reflects the present needs of the innovation enterprises in Bulgaria. Next two aspects of innovation process, i.e. awareness raising amongst firms on innovation and promotion of entrepreneurship/start up, which are addressed by significant number of measures, correspond to the existing challenges in the national innovation system. The share of measures focused on industrial design and development/prototype creation is lower compared to EU-27 (only 6-7% of all measures in Bulgaria against 25% in the EU-27).

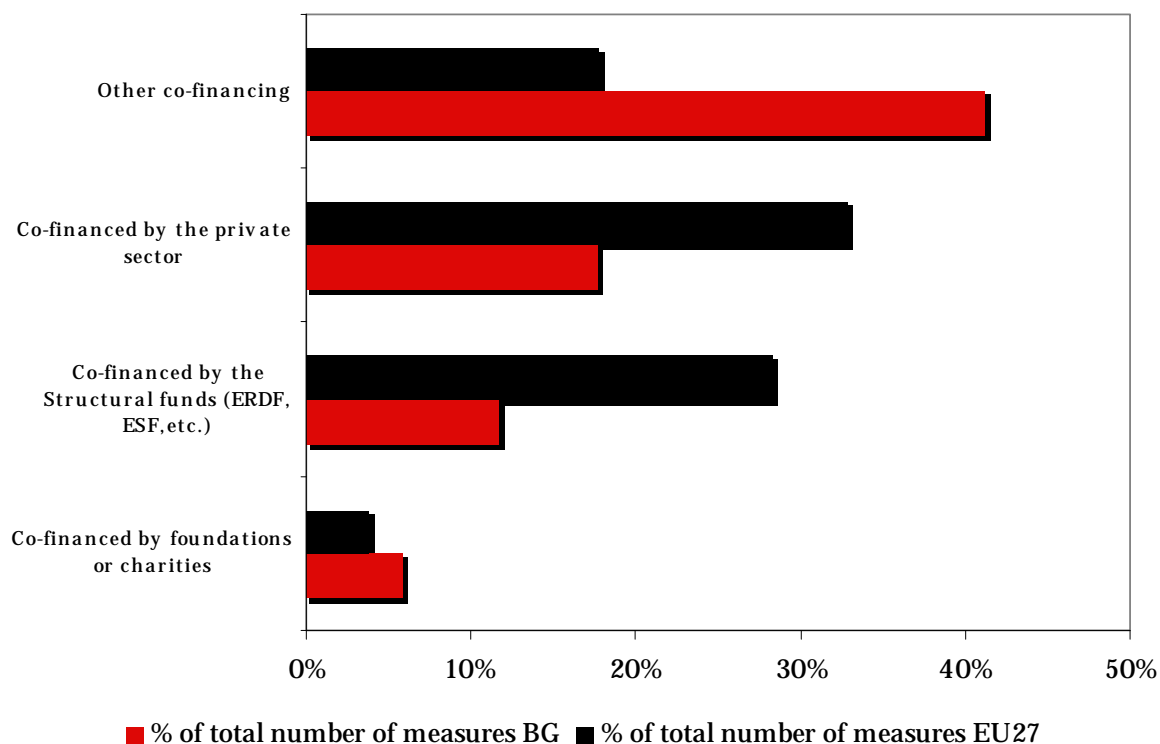
Figure 7. Forms of funding of support measures in Bulgaria compared to EU-27



Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

There are several forms of funding used to support innovation in Bulgaria. Dominant share (more than 70%) of innovation policy measures are provided in form of grants. Grants are used for supporting both R&D activities and implementing innovation in businesses. Guarantees and subsidized loans are also used to support innovation. These forms of funding are especially appropriate for innovation start-ups.

Figure 8. Sources of co-financing of support measures in Bulgaria compared to EU-27

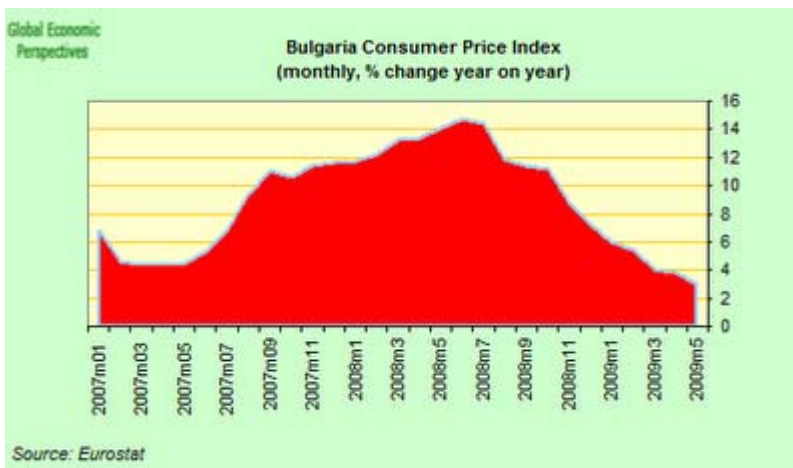
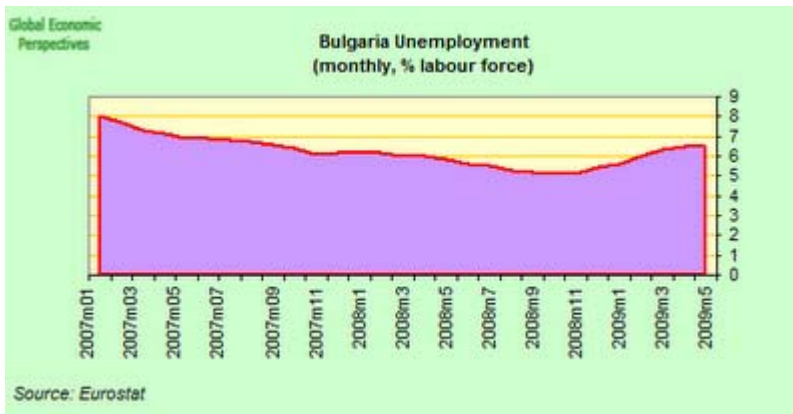
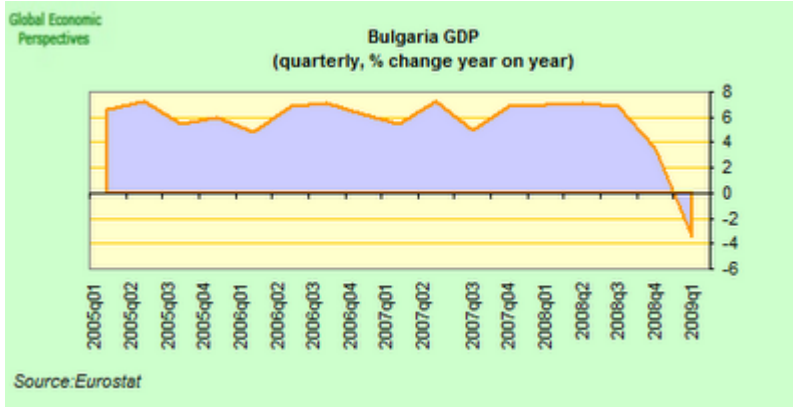


Source: TrendChart-ERAWATCH database of support measures (data downloaded on 5 June 2009)

As regards co-financing, it is worth noting that co-financing is smaller for the private sector — under 20%, in contrast with EU-27, where the private sector finances nearly 35% of all measures. The share of financing from European funds is about 12%, which is also lower than the EU average: 27–28% of the measures. Bulgaria should start harness more actively the private sector and European funds potential to support the development of innovation.

Annex 2: Charts and Graphs

Bulgaria: Macroeconomic indicators



Annex 3: Bibliography

A.1 Websites of key innovation organisations

Type of organisation	Name of organisation	Website (where available)
Government and legislative bodies		
Government	The Ministry of Economy, Energy and Tourism	http://www.mie.government.bg
Government	The Ministry of Education, Youth and Science	http://www.minedu.government.bg
Government	The Ministry of Transport	http://www.mtc.government.bg
Executive government agency	Bulgarian Small and Medium-sized Enterprises Promotion Agency	http://www.sme.government.bg
Executive government agency	ICT Development Agency	http://www.ict.bg
Executive government agency	Invest Bulgaria Agency	http://www.investbg.government.bg
Consultative body	Council for Economic Growth	CEG has no own website. More information on CEG is available in Bulgarian at http://b2b.bia-bg.com/index.asp?i=t658&l=1
Private sector organisations and entrepreneurship promotion		
Business association	Bulgarian Industrial Association	http://bia-bg.com/info/index.html
Business association	Bulgarian Chamber of Commerce and Industry	http://www.bcci.bg
Regional Development Agencies Association	Bulgarian Association of Regional Development Agencies	http://www.barda.bg
Knowledge institutes (R&D and education bodies)		
Education body	Bulgarian Academy of Sciences	http://www.bas.bg/index-en.html
Education body	Sofia University "St. Kliment Ohridski"	http://www.uni-sofia.bg
Education body	University of National and World Economy	http://www.unwe.acad.bg
Education body	Technical University in Sofia	http://www.tu-sofia.bg/index.html
Industrial research centres and innovation intermediaries		
Innovation intermediary	Innovation Relay Centre	www.irc.bg
Innovation research centre	Applied Research and Communication Fund	http://www.arcfund.net/
Government Agency	Bulgarian Patent Office	http://www.bpo.bg
Financial system		
Central bank	Bulgarian National Bank	http://www.bnb.bg - with links to other commercial banking institutions

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<http://trendchart.cordis.lu/scoreboards/scoreboard2004/BG.html>

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<http://www.investmentcompact.org> and <http://www.ced.bg>)

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<http://www.sme.government.bg/bg/innovation/Innovation%20Fund/Innovation%20Strategy%20Council%20Min.doc> (in Bulgarian)

Ministry of Economy and Energy, Annual Report on the National Innovation Policy 2007, Sofia, 2008

State Gazettes, 2008, 2009

ARC Fund, Innovation.BG 2009, Sofia, February 2009

World Economic Forum. The Global Competitiveness Report 2008-2009

Annual Report on the condition and Development of SMEs in Bulgaria 2007, CED, Ministry of Economy and Energy, Sofia, January 2008

Further information web-sites:

National Statistical Institute: <http://www.nsi.bg/Economy/Economy.htm>

Vitosha Research Agency: <http://www.vitosha-research.com>

Estat Agency for Market and Social Researches: <http://www.estatbg.com>

World Bank Investment Climate Surveys Online: <http://rru.worldbank.org/InvestmentClimate/>

High-Tech Business Incubator (HTBI) Varna: <http://www.htbi-varna-org>

South East European Research and Education Network: <http://www.seeren.org>

Business Software Alliance: <http://www.bsa.org>

Online Register of Bulgarian Administrative Structures: <http://www1.government.bg/ras/>

Annex 4: List of Abbreviations

AEAF – Agency for Economic Analyses and Forecasting
BDB – Bulgarian Development Bank
BARDA – Bulgarian Association of Regional Development Agencies
BCCI – Bulgarian Chamber of Commerce and Industry
BIA – Bulgarian Industrial Association
BPO – Bulgarian Patent Office
BSMEPA – Bulgarian Small and Medium-sized Enterprises Promotion Agency
CED – Centre for Economic Development
CEIBG – Confederation of Employers and Industrialists in Bulgaria
CSD – Centre for Study of Democracy
IMF – International Monetary Fund
ITC State Agency – Information Technology and Communications State Agency
MEET – Ministry of Economy, Energy and Tourism
MEYS – Ministry of Education, Youth and Science
MLSP – Ministry of Labour and Social Policy
NIC – National Innovation Council
NCSR - National Council for Science and Research
NIF – National Innovation Fund
NIS – National Innovation Strategy
NRP – National Reform Programme
NSF – National Science Fund
NSSR – National Strategy for Scientific Research
RIS – Regional Innovation Strategies RIS
TTIs – TOP Technology Institutes