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COMMISSION STAFF WORKING PAPER

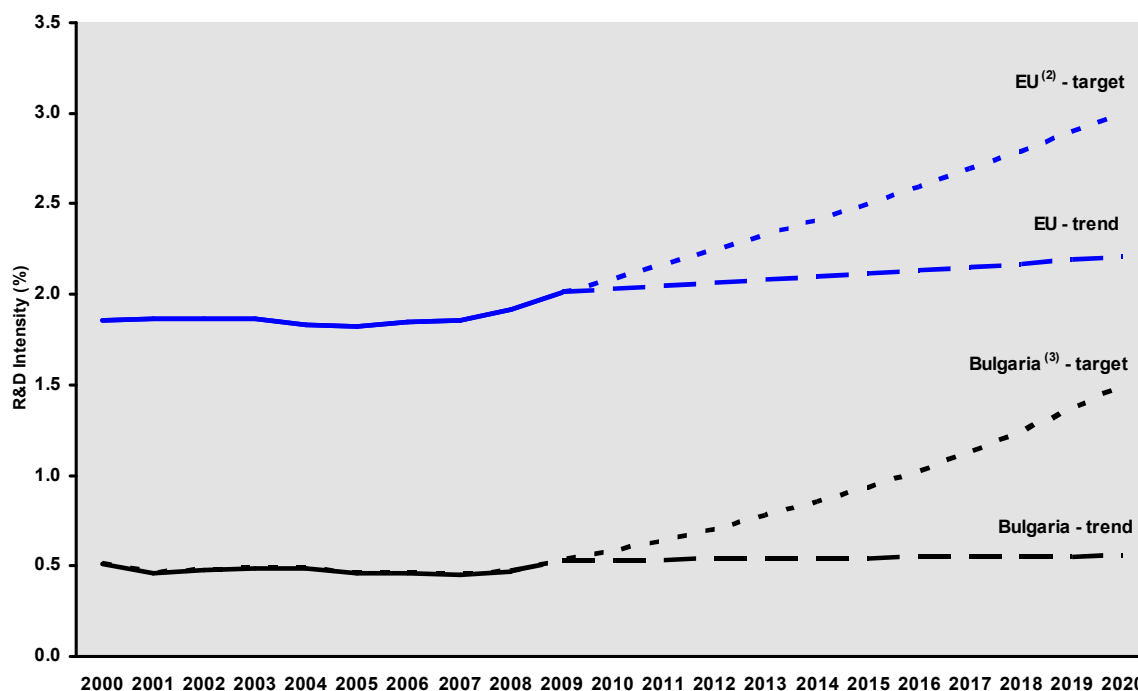
Innovation Union Competitiveness report 2011



Progress towards meeting the Europe 2020 R&D intensity target

Bulgaria is one of the countries with the lowest R&D intensity in the EU. Bulgaria's R&D intensity has been decreasing over time, from 0.57% in 1999 to 0.53% of GDP in 2009; i.e. around four times less than the EU-27 average. It is particularly worrying the very low level of private R&D investment in the economy. At 0.16% of the GDP in 2009, having increased however from 0.10% of GDP in 2002, Bulgaria ranks the lowest in the EU. The sectoral specialisation in low technology sectors and the current scarcity of medium and high technology firms in the economy is responsible for this low level of private R&D. A substantial increase of the R&D spending, both in absolute and relative terms, will be instrumental for Bulgaria in order to raise the economic competitiveness and secure high-quality jobs. Aware of the need to raise R&D investment, the Bulgarian government approved a national target for R&D intensity for 2020 of 1.5% of GDP. This target is rather ambitious and will be reached only if strong efforts and reforms based on a long-term strategy is put in place and implemented in a sustained manner.

Bulgaria - R&D Intensity projections, 2000-2020 ⁽¹⁾



Source: DG Research and Innovation

Innovation Union Competitiveness report 2011

Data: DG Research and Innovation, Eurostat

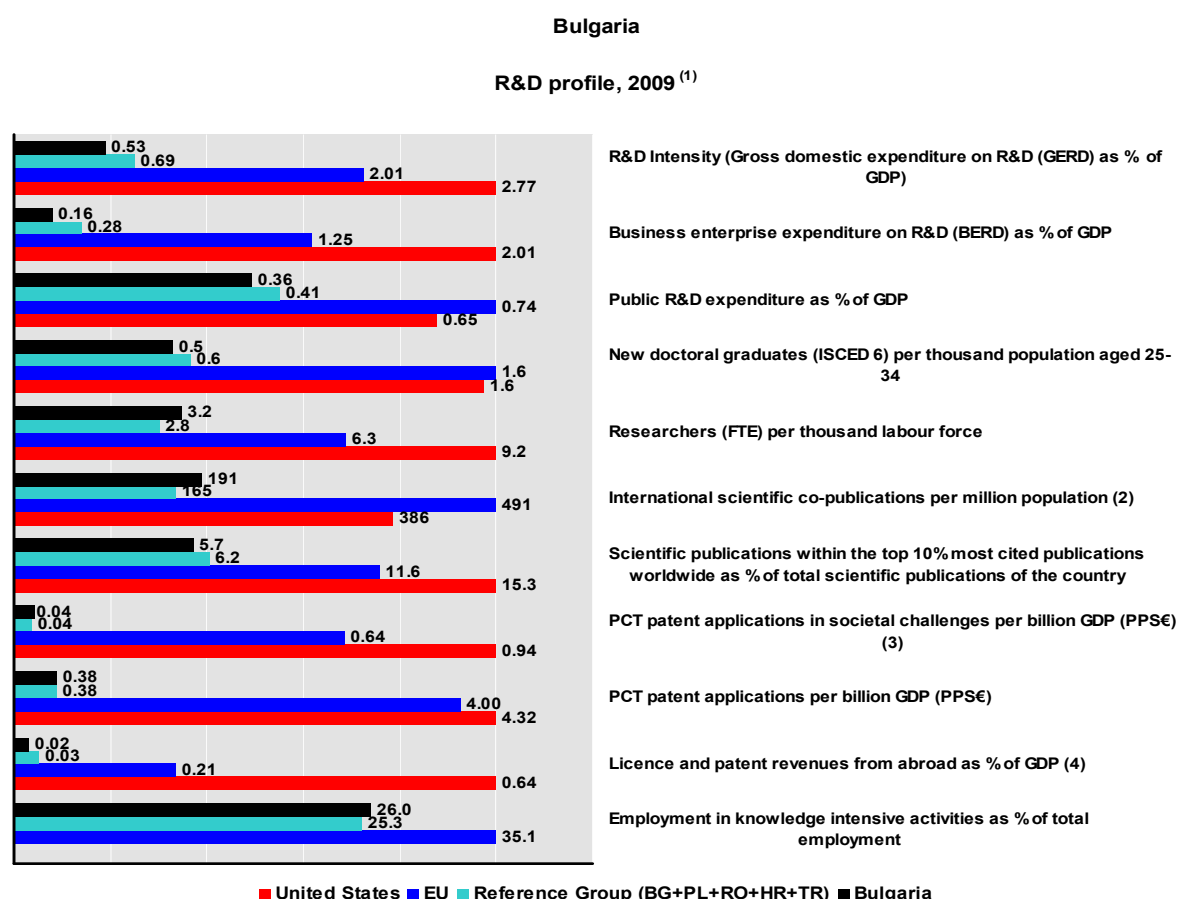
Notes: (1) The R&D Intensity projections based on trends are derived from the average annual growth in R&D Intensity 2000-2009.

(2) EU: This projection is based on the R&D Intensity target of 3.0% for 2020.

(3) BG: This projection is based on a tentative R&D Intensity target of 1.5% for 2020.

Research and Innovation Performance

In addition to the overall low R&D investment, an important challenge of the Research and Innovation system is its overall fragmentation, as reflected by the large number of research performers, e.g. universities, research institutes and institutes of the Bulgarian Academy of Science, which leads to a lack of critical mass and deficiencies in the quality of research results. Overall, Bulgaria scores low in terms of high-quality scientific publications or patents, especially in new technologies aimed at addressing societal challenges, such as the ageing of the population or climate change, and that can constitute important new sources of economic growth. As a result, the weak scientific and technological performance hinders Bulgaria's capacity to move towards more knowledge intensive, higher value added, activities. The much needed structural change will increasingly require important and efficient investments in research and innovation, as well as in education. In comparison to other similar European countries in terms of economic structure and R&D characteristics, Bulgaria appears particularly weak as regards public R&D expenditures and high-quality technological inventiveness. On the other hand, the number of researchers employed in the system, while still low compared to the EU average, is slightly higher than in the comparison countries, and therefore there can be potential to raise the quality of the scientific production, should the necessary reforms be adopted.



Source: DG Research and Innovation

Innovation Union Competitiveness report 2011

Data: Eurostat, OECD, Science Matrix / Scopus (Elsevier)

Notes: (1) The values refer to 2009 or to the latest available year.

(2) (i) HR and TR are not included in the Reference Group; (ii) The EU value refers to the median rather than to the average.

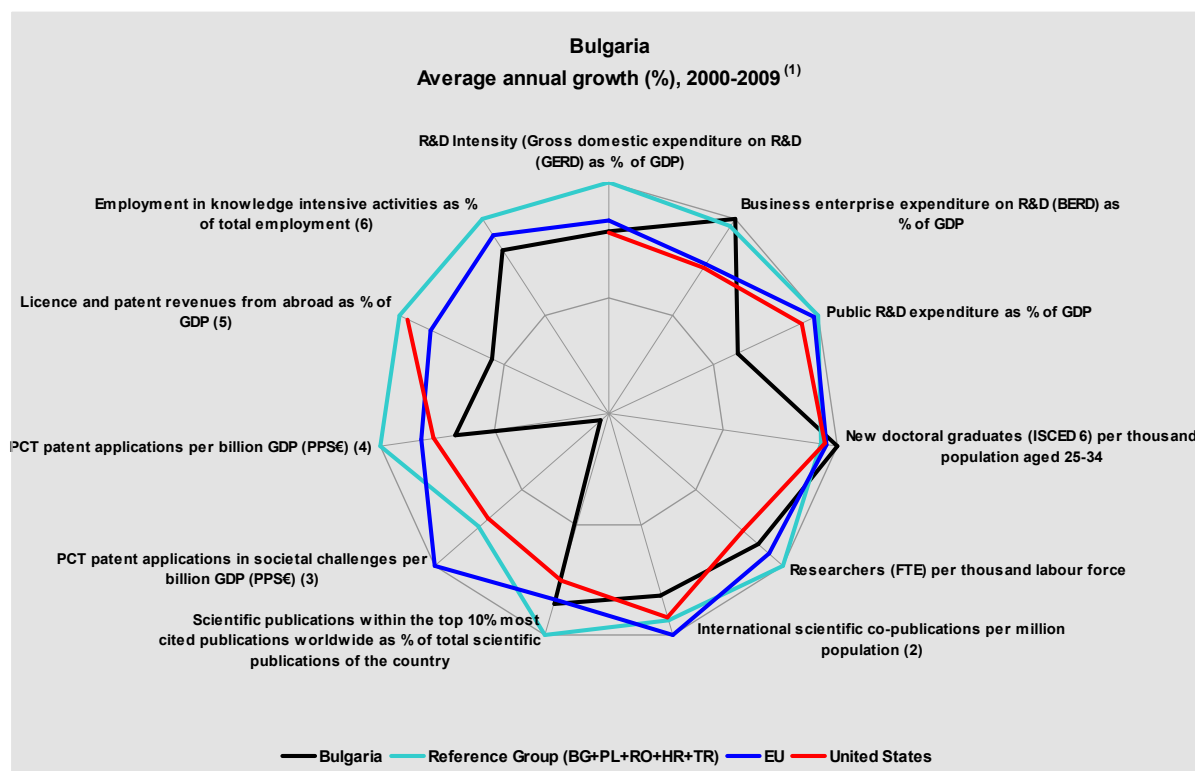
(3) HR is not included in the Reference Group.

(4) EU refers to extra-EU.

(5) Elements of estimation were involved in the compilation of the data.

In dynamic terms, the progress of the Bulgarian research and innovation system presents a mixed picture. On the one hand, private R&D intensity and the number of new doctoral graduates increased, albeit from low initial values, above the EU average, and at a similar rate as the reference group of similar countries. On the other hand, the scientific and technological production underperformed, which was translated in a lower progress of the economy towards more knowledge intensive activities. This relatively poor progress in scientific and technological performance suggests the existence of structural deficiencies in the research and innovation system and the need for further reform measures, targeting the development of an appropriate legislative framework for R&I activities, an increased efficiency of public R&D spending, an innovation policy more demand-driven and a targeted support for young innovative companies, as well as long-term strategic plans of the research institutions.

The adoption of the National Research Strategy currently under preparation will be instrumental in defining key milestones for the further development of the Bulgarian R&I system, by establishing a limited number of research priorities in those areas in which Bulgaria has strengths identified by international benchmarking and in those which contribute to address societal challenges and can attract business R&D activities, as well as by increasing the share of competitive funding and by enlarging the scope for better framework conditions for private R&I. Bulgaria has also other relevant legislative measures in place or in preparation, such as the Law on Academic Staff Development, the Law on Bulgarian Academy of Science and the Law on Innovation.



Source: DG Research and Innovation

Innovation Union Competitiveness report 2011

Data: Eurostat, OECD, Science Metrix / Scopus (Elsevier)

Notes: (1) Growth rates which do not refer to 2000-2009 refer to growth between the earliest available year and the latest available year over the period 2000-2010.

(2) (i) HR and TR are not included in the Reference Group; (ii) EU refers to the median rather than to the average.

(3) HR is not included in the Reference Group; Average annual growth refers to real growth.

(4) Average annual growth refers to real growth.

(5) EU refers to extra-EU.

(6) TR is not included in the Reference Group.

(7) Elements of estimation were involved in the compilation of the data.

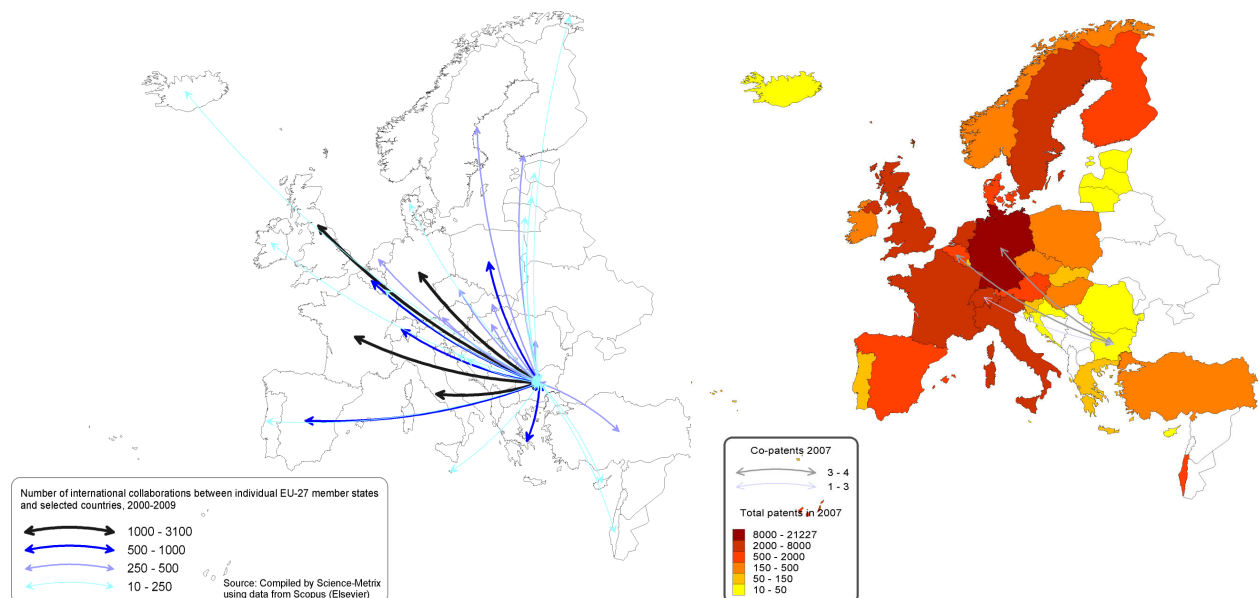
Participation in the European Research Area: Scientific and Technological collaborations

The overall number of co-publications between Bulgarian researchers and researchers from other ERA countries is one of the lowest in Europe. This suggests that the country does not sufficiently benefit from the international knowledge flows favoured by the European Research Area architecture. Main partners in terms of co-publications are the big European countries: Germany, France, Italy, the United Kingdom, and Spain.

As regards co-patenting, Germany, Switzerland and Belgium appear to be among the main partners of Bulgarian technological actors.

Co-publications between Bulgaria and European countries in 2000-2009

Co-invented patent applications between Bulgaria and European countries, 2007



Source: DG Research and Innovation
Data: Scopus/ Science Metrix and Eurostat

FP7 Key facts and figures

Applications:

As of 2011/03/16, a total of

- 2.014 eligible proposals were submitted in response to 248 FP7 calls for proposals
- involving 2.600 applicants from Bulgaria (0,98% of EU-27*) and
- requesting EUR 494,62m of EC contribution (0,56% of EU-27*)

Among the EU-27* Bulgaria (BG) ranks:

- 20th in terms of number of applicants and
- 20th in terms of requested EC contribution

Success rates:

- The BG applicant success rate of 16,8% is lower than the EU-27* applicant success rate of 21,6%.
- The BG EC financial contribution success rate of 10,9% is lower than the EU-27* rate of 20,7%.

Specifically, following evaluation and selection, a total of

- 337 proposals were retained for funding (16,7%)
- involving 438 (16,8%) successful applicants from Bulgaria and
- requesting EUR 53,95m (10,9%) of EC financial contribution

Among the EU-27*, Bulgaria (BG) ranks:

- 24th in terms of applicants success rate and
- 26th in terms of EC financial contribution success rate

Signed grant agreements

As of 2011/03/16, Bulgaria (BG) participates in

- 292 signed grant agreements
- involving 4.344 participants of which 385 (8,86%) are from Bulgaria
- benefiting from a total of EUR 1.003,70m of EC financial contribution of which EUR 47,09m (4,69%) is dedicated to participants from Bulgaria.

Among the EU-27* in all FP7 signed grant agreements,

Bulgaria (BG) ranks:

- 20th in number of participations and
- 21st in budget share

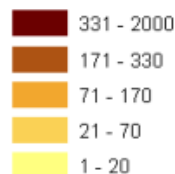
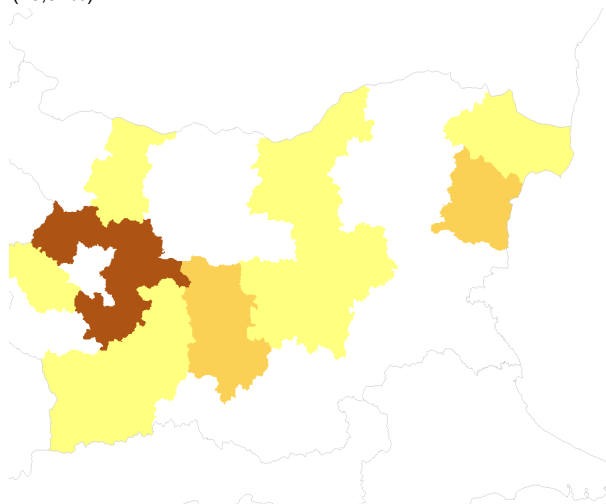
SME performance and participation

- The BG SME applicant success rate of 14,15% is lower than the EU-27* SME applicant success rate of 19,33%.
- The BG SME EC financial contribution success rate of 12,80% is lower than the corresponding EU-27* rate of 18,26%.

Specifically,

- 926 BG SME applicants requesting EUR 151,81m

**GERD as % of GDP	0,48%	1,83%
**Nr. of Researchers as % of population	N/A	0,40%
Rank in EU-27* Innovation scoreboard (2008)	- 27th	
- Below EU-27 average		
- Catching-up Country		
Nr. of FP7 applicants (% EU-27*)	2.600 (0,98%)	
Req. EC contribution by FP7 applicants in EUR million (% EU-27*)	266.507 (0,56%)	
Nr. of successful FP7 applicants (% EU-27*)	438 (0,74%)	
Req. EC contribution by successful FP7 applicants in EUR million (% EU-27*)	494,62 (0,56%)	88.295
Success rate FP7 applicants	16,8%	21,6%
Success rate FP7 EC contribution	10,9%	20,7%
Nr. of FP7 grant holders (% EU-27*)	385 (0,75%)	
EC contribution to FP7 grant holders in EUR million (% EU-27*)	51.279 (0,28%)	47,09
Nr. of FP7 coordinators (% of grant holders)	29 (7,53%)	9.383
Nr. of FP7 SME grant holders (% grant holders)	76 (19,74%)	8.845
EC contribution to FP7 SME grant holders in EUR million (% of grant holders)	13,10 (27,82%)	2.207,73
	(13,32%)	



- 131 (14,15%) successful SMEs requesting EUR 19,43m (12,80%)

In signed grant agreements, as of 2011/03/16,

- 76 BG SME grant holders, i.e., 19,74% of total BG participation
- EUR 13,10m, i.e., 27,82% of total BG budget share

Top 3 collaborative links with:

- UK - United Kingdom (371)
- DE - Germany (371)
- IT - Italy (291)

BG - Bulgaria - most active FP7 research priority areas by number of applicants applying for the research projects						
FP7 priority area	Nr. of applicants	Requested EC contribution by applicants (M euro)	Nr. of mainlisted applicants	Success Rate (applicants)	Requested EC contribution by mainlisted applicants (M euro)	Success Rate (requested EC contribution)
Information and Communication Technologies	429	89,92	41	9,56 %	8,62	9,58 %
Research for the benefit of SMEs	273	36,15	43	15,75 %	6,21	17,17 %
Socio-economic sciences and Humanities	242	29,38	19	7,85 %	1,43	4,86 %
Environment (including Climate Change)	239	34,73	40	16,74 %	4,07	11,72 %
Marie-Curie Actions	224	n/a	75	33,48 %	n/a	n/a
Food, Agriculture and Fisheries, and Biotechnology	147	22,70	21	14,29 %	1,86	8,20 %

BG - Bulgaria - most active FP7 research priority areas by EC contribution granted to the research projects				
FP7 Priority Area	Number of grant holders	% of all BG grant holders	EC contribution (EUR million)	% of total EC contribution to BG
Information and Communication Technologies	47	12,21%	7,41	15,73 %
Research Potential	12	3,12%	7,16	15,20 %
Research for the benefit of SMEs	44	11,43%	6,03	12,81 %
Research Infrastructures	45	11,69%	4,68	9,93 %
Health	18	4,68%	2,87	6,10 %
Environment (including Climate Change)	33	8,57%	2,81	5,97 %

BG - Bulgaria - participation in the FP7 research projects by organisation activity type									
Activity Type	Nr. of applicants	Requested EC contribution by applicants (M euro)	Nr. of mainlisted applicants	Success rate (applicants)	Requested EC contribution by mainlisted applicants (M euro)	Success rate (requested contribution)	Nr. of grant holders	EC contribution to grant holders	% of total EC contribution to grant holders
HES	829	160,98	144	17,37%	15,79	9,81%	120	15,30	32,50%
REC	633	122,87	114	18,01%	12,29	10,00%	111	12,96	27,53%
PRC	567	94,20	91	16,05%	14,24	15,11%	91	13,11	27,83%
OTH	280	39,72	41	14,64%	4,81	12,12%	29	3,06	6,49%
PUB	203	24,14	45	22,17%	3,46	14,31%	34	2,66	5,65%

SME	926	151,81	131	14,15%	19,43	12,80%	76	13,10	27,82%
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HES - Higher or secondary education, REC - Research organisations, PRC - Private for profit (excl. education), OTH - Others, PUB - Public body (excl. research and education),

BG - Bulgaria - the most active NUTS3 regions, by EC contribution granted to the FP7 research projects				
BG - Bulgaria region	Number of grant holders	% of all BG - Bulgaria grant holders	EC contribution (M euro)	% of total EC contribution to BG
Sofia (BG412)	287	74,55%	34,12	72,46%
Varna (BG331)	29	7,53%	3,13	6,65%
Plovdiv (BG421)	25	6,49%	5,36	11,39%
Ruse (BG323)	12	3,12%	0,94	1,99%
Stara Zagora (BG344)	4	1,04%	0,22	0,47%

BG - Bulgaria - most active organisations in terms of EC contribution granted to the FP7 research projects				
Legal Name	Number of Participations	% of all BG grant holders	EC contribution (M euro)	% of total EC contribution to BG grant holders
Ontotext AD	8	2,08%	3,11	6,60%
SOFIISKI UNIVERSITET SVETI KLIMENT OHRIDSKI (SU)	26	6,75%	3,05	6,48%
UNIVERSITY OF PLOVDIV	6	1,56%	2,46	5,22%
INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	25	6,49%	2,30	4,88%
NEW BULGARIAN UNIVERSITY	1	0,26%	1,56	3,31%

NOTES:

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FP7 proposal and application figures are valid as of the 2011/03/16

FP7 grant agreements and participation figures are valid as of the 2011/03/16

*EU-27 includes the 27 country-members and JRC as a separate entity

**E-STAT Reference year: 2007

**European Innovation Scoreboard is available at the website of [DG Enterprise and Industry](#)