

The National Plan for Research, Development and Innovation 2007-2013

The National RDI Strategy and Plan for 2007-2013 represented the reference framework, according to which the whole process of planning and implementing the RDI policies promoted by the Romania's Government was developed during the post- EU accession period.

The National RDI Strategy 2007-2013 was elaborated in 2006, as a result of a national scale consultation, with the wide participation of the academic and economic environments.

The main instrument for the implementation of the National RDI Strategy 2007-2013 is the National Plan for Research, Development and Innovation 2007-2013 (PN II).

The **objectives** pursued by the National RDI Strategy and, in direct correlation, by the programmes of the National RDI Plan, mainly refer to:

i) the development of the R&D system capacity:

- the **development of the human capital and of the material base for research**, especially in the public R&D sector, in order to develop the internal sources of competence and the capacity to use and to supply scientific and technical services in high technology domains;
- the **development in Romania of large research infrastructures**, related to pan-european research infrastructures;

ii) increasing the performance level and the relevance of R&D activities:

- **improving the quality of scientific/ technical production**: increasing the number of articles in scientific publications of the main streams, as well as increasing the number of patents registered at national and international level, along with a higher share of patents in high technology domains;
- **orientation of national RDI programmes towards priority domains and topics**, with particular impact on sustainable development and economic competitiveness;

iii) increasing the participation of the private sector in R&D activities

- the **promotion of public-private partnerships in science and technology**, by promoting the collaboration between firms and public R&D institutes and universities;
- **strengthening the research and innovation capacity in enterprises** and increasing their own contribution to the innovation of the technologies/ products and services they offer/ utilize;
- **facilitating the access of innovative firms to the RDI financing** by supporting.

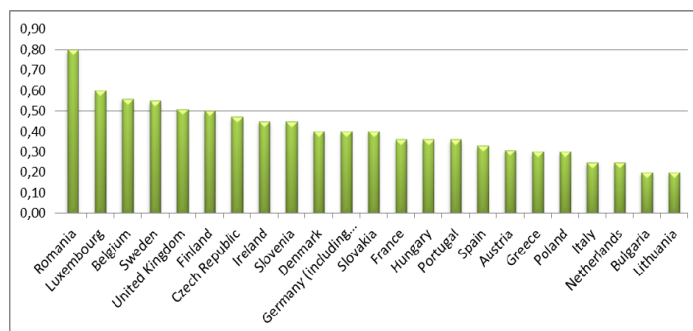
iv) developing international RDI cooperation

- increasing participation in **international R&D programmes and projects**;
- improving Romania's representation in **international RDI bodies and institutions**.

The implementation of the National RDI Strategy through PN II led to important progress steps in several areas, out of which we especially emphasize the following:

- *the volume and quality of the scientific production* – both the number and the international visibility of the Romanian scientific journals increased;
- *the competition-based allocation of funds* – the volume of public funds allocated through calls for proposals became much higher than those allocated institutionally, rising to approx. 80% of total funds;
- *the development of the R&D infrastructure* – the material base of almost all universities and R&D institutes in the public sector was up-graded to a state-of-the-art level, through a volume of investments which raised to a total of approx 150 million euros (equivalent).

The Ministry of National Education – Romania
The National Plan for Research, Development and Innovation 2007-2013 - PN II



Share of GBAORD allocated through calls for proposals

Source: Commission Staff Working Document Impact Assessment of ERA Communication, Brussels, SWD (2012)

The implementation of PN II was managed in a decentralised regime, by the Executive Unit for Financing Higher Education, Research, Development and Innovation - UEFISCDI, which is responsible for organizing the calls for projects proposals and for contracting, monitoring and evaluation of projects selected for financing.

The implementation of the National RDI Strategy and Plan 2007-2013 were subject to international evaluation during 2011-2012: "World Bank functional review" - may 2012; „Intermediate Evaluation Report for the National RDI Strategy and Plan 2007-2013" elaborated by the Technopolis Group - april 2012. The evaluation reports highlighted the existence of high targetting objectives, which became relatively difficult to attain due to the reduction of financial resources starting with 2009-2010. They also showed that in general, in spite of the difficult financial conditions, the results of the implementation of the National RDI Strategy and Plan were significant, even if under the planned levels. The total volume of funds allocated for PN II for the 2007-2013 period was at the level of approx 4,25 billion lei (around 1 bil euros), which represents around one third of the initially foreseen budget of 15 billion lei. The yearly budget of the Plan represented an average of 35%-40% of the R&D budget of the Ministry of National Education, which reached an yearly level of 350 -400 mil euros equivalent with a minimum in 2010.

- bil lei -

	2010	2011	2012	2013
Ministry of National Education - R&D budget -	1,396	1,746	1,464	1,676

PN II was initially structured into six programmes, but the six-th programme ***Increase institutional performance***, planned to sustain the longer term development plan of highly performing R&D institutions, was not implemented anymore because of budget restraints.

The five active programmes are the following:

Programme 1. Human resources

Objective: Increase of the number of researchers and of their professional performances, as well as increase of the attractiveness of the research career.

The total budget was of 345 mio lei, with the following breakdown:

- research projects for young PhD students: 15,5 mio lei for the call 2007 (600 projects), and 4,8 mio lei for the call 2008 (160 projects).
- Postdoctoral research projects: 55,3 mio lei for the call 2010 (426 projects), and 18 mio lei for the call 2011 (107 projects).
- Projects for stimulating the formation of young research teams: 62,3 mio lei for the call 2010 (121 projects), and 37,7 mio lei for the call 2011 (119 projects).

Other subprogrammes:

- Projects for researchers returning from abroad: 20,4 mio lei (78 projects).
- Projects for research awards: 23,3 mio lei for 9422 articles, and 0,45 mio lei for 244 patents.
- Projects for mobility of researchers: 1,2 mio lei (277 projects).

Programme 2. Capacities

Objective: development of the R&D infrastructure and the better connection science-society, as well as the pan-european and international S&T cooperation

The Capacities Programme supports the participation in european and international programmes, initiatives and organisations. Romania is present (as a full member or as observer) in 15 pan-european projects for R&D infrastructures (table 1), included in the *European Strategy Forum on Research Infrastructures* (ESFRI) roadmap. România became a member of the *European space Agency* (ESA) and is a candidate for accession to the *European Organisation for Nuclear Research*(CERN).

Table 1

Romania's participation to ESFRI infrastructures	
Project acronym	Institution
ELI	National R&D Institute for Nuclear Physics and Engineering "Horia Hulubei"
FAIR	National R&D Institute for Nuclear Physics and Engineering "Horia Hulubei"
CERN	National R&D Institute for Nuclear Physics and Engineering "Horia Hulubei"
SPIRAL 2	National R&D Institute for Nuclear Physics and Engineering "Horia Hulubei"
C-ERIC	National R&D Institute for Materials Physics
CESSDA	RODA - University Bucureşti
CLARIN	University "A.I. Cuza" - Iaşi and the Inst. For Artificial Intelligence Research of the Romanian Academy
BBMRI	Ministry of National Education
EMSO	National R&D Institute for Marine Geology and Geo-ecology (GeoEcoMar)
IAGOS	National Institute for Aerospace R&D "Elie Carafoli", NATIONAL R&D INSTITUTE for Optoelectronics
EPOS	National R&D Institute for Earth Physics, GeoEcoMar, NATIONAL R&D INSTITUTE for Geology, Geophysics, Geochemistry and Teledetection
LIFE WATCH	University Bucuresti - Faculty of Biology
ECRIN	University of Medicine and Pharmacy - Craiova
ELIXIR	National R&D Institute for Biological Sciences
KM3NET	National R&D Institute for Lasers, Plasma and Radiation Physics
AURORAM BOREALIS-ERICON AB	"Foundation Antarctica Romania" – FAR

The total budget for this programme was of 825 mio lei, where the breakdown includes:

- Investment projects of up to 2 mio lei: 230,5 mio lei for the call 2007 (152 projects), 45 mio lei for the call 2008 (52 projects);

- investment projects for large scale R&D infrastructures: 287,3 mio lei for 7 projects (table 2)
- Prospective studies (clean energy, nanotechnologies, stem cells, services science): 1 mio lei;
- international cooperation projects: raised from 72,7 mio lei during 2008-2011 to more than double, namely 150,3 mio lei in 2013;

Table 2

Programme 2. Capacities	
Investment projects for large scale R&D infrastructures	
Project	Institution
Development of the R&D infrastructure of the Bioresources Department - <i>BIORES</i>	National R&D Institute for Chemistry and Petrochemistry - ICECHIM
Modernisation of the Molecular and Biomolecular Physics Department - <i>MDFMOLBIO</i>	National R&D Institute for Isotopic and Molecular Technologies – ITIM Cluj-Napoca
Center for Gastroenterology Research and Treatment - <i>TARGET</i>	University of Medicine and Pharmacy - Craiova
Modernisation and Development of the Experimentation Platform for Turbo-engines - <i>EXTURBO</i>	National R&D Institute for Turbo-engines - COMOTI
Integrated Network for Interdisciplinary Research - <i>RICI</i>	University Babeş Bolyai – Cluj-Napoca
Development of the R&D infrastructure for Frontier Research in Nuclear Physics and Connex Domains - <i>IFIN-DIC</i>	National R&D Institute for Nuclear Physics and Engineering "Horia Hulubei"
Integrated Center for Advanced Laser technologies - <i>CETAL</i>	National R&D Institute for Lasers, Plasma and Radiation Physics

The *Capacities Programme* also includes the financing, with 25 mil lei in 2013, of the access to scientific literature (the project ANELIS), which is essential for connecting the research community in Romania to the international flow of scientific information.

Programme 3. Ideas

Objective: The Ideas Programme is dedicated to the promotion of excellence and international visibility. The programme strongly promoted the increase of quality of articles published by romanian researchers and also of the number of romanian scientific publications indexed internationally in the ISI system (from 7 in 2005, to more than 50 at present).

The total budget for this programme was of 943,3 mio lei, out of which:

- Projects for exploratory research: 261,4 mio lei for the call 2007 (438 projects), 255,5 mio lei for the call 2008 (796 projects), and 202,7 mio lei for the call 2010 (351 projects).
- Complex projects for exploratory research (up to 2 bil euros equivalent): 70,1 mio lei for the call 2008 (12 projects), and 16,4 mio lei for the call 2011 (12 projects).
- Exploratory research workshops: 2,1 mio lei for 112 projects
- Advanced studies schools: 2,4 mio lei for 39 projects.

Program 4. Partnerships in priority RDI fields

Objective: The increase of the competitiveness of the R&D activities through the stimulation of partnerships in the priority RDI fields materialised through innovative technologies, products and services. The program aims at creating conditions for a better collaboration among the different RDI entities, firms, and/or public administration units, in order to come up with innovative solutions to the complex problems raised by the development of science and of the cutting-edge technologies in Romania and also at fulfilling the strategic objectives of economic and social development.

Around 800 firms participated in more than 1500 *applied research collaborative projects* developed in partnership with universities and R&D institutes. The programme also supports the participation of romanian entities to the Joint Technology Initiatives „Clean Sky”, ENIAC, “Fuel Cells”, ARTEMIS and IMI.

The total budget for this programme was of 1.685 mio lei, out of which:

- 706 mio lei for the call 2007 (769 projects)
- 327,1 mio lei for the call 2008 (586 projects)
- 119 mio lei for the call 2011 (226 projects)

Programme 5. Innovation

Objective: Increase the capacity of innovation, technological development and transfer of research results at the level of enterprises, in order to improve their competitiveness

The programme supports technological development and innovation projects initiated and led by enterprises, including cofinancing the participation in Eureka and Eurostars programmes.

More than 300 SMEs participated in projects almost financed in almost equal shares from public and private funds. New financing instruments were introduced, such as innovouchers, equivalent to 10.000 euros each, which give to young innovative firms the possibility to use S&T services (usually measurements and testing) delivered by R&D institutes and universities.

The total budget for this programme was of 324,6 mio lei, out of which:

- For projects to develop new/ improved products, systems, technologies: 147,7 mio lei for the call 2007 (133 projects), 119,4 mio lei for the call 2008 (142 projects), and 11 mio lei for the call 2012 (31 projects);
- 7,7 mio lei. for 176 innovouchers

The Plan has given a special support, as main priorities, to large scale projects, especially those related to pan-european initiatives, which do contribute directly to the development of ERA. Thus, the development of the material base for research envisaged high performance infrastructures, with high scientific and technological impact, as well as with the power to attract and concentrate the research potential and, hence, to reduce the fragmentation of the RDI system. Such examples are the *Extreme Light Infrastructure - ELI* project, already launched and, also, the future project for the *Center Danubius for Interdisciplinary research for rivers-deltas-seas*, to be launched in the future national RDI Plan. These large scale projects, with long term development perspective, are expected to concentrate scientific excellence and resources, from both national and international areas. Also, they are expected to determine a much more significant presence of foreign direct investments oriented towards high technology domains.