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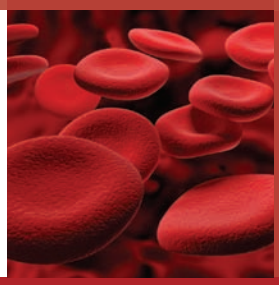

State Supported R&D in the Czech Republic

Short Guidebook 2009

Ministry of Education, Youth and Sports on the occasion
of the Czech Presidency of the Council of the EU
Prague 2009

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MINISTERSTVO ŠKOLSTVÍ,
MLÁDEŽE A TĚLOVÝCHOVY

State Supported R&D in the Czech Republic
Short Guidebook 2009

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Preface

The support of research and development (R&D) is one of the Government's priorities in the Czech Republic. The support of R&D was at CZK 9.67 billion in 1999 and has increased to the current CZK 23 billion during the last 10 years, which is an increase of 238%. Measured by the share of GDP, we moved from 0.52% in 1999 to 0.62% in 2008, which is the average achieved by the EU-27.

Despite this indisputable positive trend, the needed for improvement of the R&D standard and better usage of its results is evident. The benefits for economy and society remain relatively low in the Czech Republic. In some respect, it is because of the current system of R&D public support, which is rather decentralised. In principle, all Ministries and Central Administrative Authorities support R&D from their own budget.

Significant changes to the system of support shall arise from the Reform of the system of research, development and innovation, which has been approved by the Czech Government on 26 March 2008. The main objective of the Reform is specified in seven particular points:

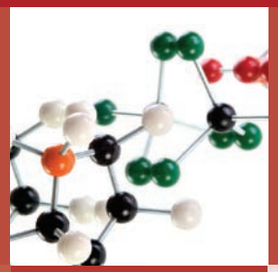
1) To simplify R&D funding according to its results and support teams and individuals by direct projects and grant schemes.
2) To significantly lower the number of 22 budget chapters supporting R&D and simplify the administration.
3) To support excellence in research and ensure the utilisation of its results for innovation.
4) To condition programme support of R&D by co-operation of public research with the actual users of R&D results, based on shared funding from public and private resources.
5) To introduce more versatile organisational structures of public research.
6) To provide experts for research, development and innovation.
7) To involve the Czech Republic in wider international co-operation in R&D and innovation.

These objectives are detailed further on in this Guide. You can find here not only characteristics of the most important R&D programmes, but also detailed characteristics of international co-operation of the Czech Republic in the area of R&D, including participation in EU Framework Programmes. The last chapter is dedicated to programmes from EU structural funds, especially the Operational Programme "Research and Development for Innovation" (R&DI). It is a fundamental and strategic Operational Programme, which shall strengthen research, developmental and innovative potential of the Czech Republic.

Research – Innovation – Education. Europe's excellent research infrastructures will be the backbone for a continuing high level of research. These sites, together with their researchers who are mobile and able to collaborate easily, will result in Europe as a successful global competitor in the sphere of research and development. The Czech Republic would also like the each site to serve as a "knowledge triangle" where universities, research institutions and industries meet, collaborate, and contribute to regional competitiveness. After all, this is one of the crucial priorities introduced by the Czech U Presidency in the field of R&D.

Ondřej Liška
Minister of Education, Youth and Sports

1 Introduction



"State-supported R&D in the Czech Republic – Short Guidebook – 2009" contains publicly accessible data and materials provided by the Research and Development Council, as well as from individual administrators of the budgetary chapters (providers). It is primarily a description of the present system of state funding for R&D, as well as a description of the basic aspects of the National R&D policies and tools for their implementation, as a description of the reforms presently being applied to systems of research, development and innovation. You will also find a breakdown of public funding for R&D in the publication. The main objective of the "Short Guidebook" is to provide information concerning the ways and means of acquiring state funding by participation in public tenders. For this reason, a substantial part of it related to the target-oriented funding of research and development. Selected programmes, announced by the main individual providers are progressively characterized. These are: the Academy of Sciences of the Czech Republic (AS CR), the Grant Agency of the Czech Republic (GA CR), the Ministry of Industry and Trade (MIT), the Ministry of Education, Youth and Sports (MEYS), the Ministry of Health (MH), the Ministry of Agriculture (MA) and the Ministry of the Environment (ME). A special chapter deals with the international co-operation of the Czech Republic in the area of research and development at the intergovernmental level (IR&DC). The last chapter presents R&D funding programmes financed from the EU Structural Funds. The publication addresses the situation as it existed in November 2008.

Definitions and terms

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The basic definitions and terms are defined pursuant to Act no. 130/2002 Coll. on funding for research and development:

Research is systematic creative work that extends knowledge, including a better understanding of human beings, cultures or societies, employing methods that enable the confirmation, supplementation or rejection of the knowledge acquired, performed as:

1) basic research, which means experimental or theoretical activities undertaken with the aim of acquiring knowledge concerning the fundamentals or the basic nature of the phenomena observed, and explaining their causes and possible impacts while using the knowledge acquired, or

2) applied research, which means experimental or theoretical activities undertaken with the aim of acquiring new knowledge and focusing on its future practical application. That part of applied research, the results of which are developed to be used in new products, technologies and services and which are intended for commercial use, pursuant to special legal regulations (such as the Commercial Code), is referred to as industrial research.

Development is the systematic creative application of research knowledge, or of other subjects, to the production of new or improved materials, products or equipment, or for the introduction of new or better technologies, systems, or services, including the creation and testing of prototypes, semi-operational or demonstration equipment.

For the purposes of providing funding:

a) a **provider** is an administrator of a state budgetary chapter or a self-governing territorial unit, which decides to provide funding and which provides this funding,

b) a **beneficiary** is an organizational division, a legal entity or natural person, for the benefit of which a provider has decided to provide funding,

c) a **co-beneficiary** is an organizational division, a legal entity or natural person, whose contribution to the project was determined in the project proposal and with whom a beneficiary has concluded an agreement on performance of part of the project,

d) an **applicant** is an organizational division, a legal entity or natural person, which applies for funding,

e) a **program** is a set of practical, time and financial conditions required to achieve the research and development goals as formulated by the provider, as announced by the provider in public tenders for research and development or within the framework of the terms of a public tender pursuant to a special legal regulation (Act no. 137/2006 Coll., on the assignment of public tenders),

f) **infrastructure** means a facility or support activities for research, development and innovation that receives support from public funds and that may include: services for research, development and innovation; special research facilities, including the purchase thereof, which are essential for part of the research and development activities and which are established by research organizations for their own exclusive use, and for data acquisition and data storage systems; the activities of legal entities providing administrative and financial funding for research, development and innovation; verification of research and development results, ensuring rights to these and their publication,

g) **major infrastructure for research, development and innovation** means a unique research facility, including the purchase thereof, which is essential for a target-oriented research and development activity with

high financial and technological demands and which is approved by the Government and established by a research organization for use by other research organizations,

h) **result** means new knowledge in research and development, acquired through activities undertaken within the framework of the project performance or a research programme, or their utilization,

i) a **user** is an organizational division, a legal entity or natural person, which uses a result in its activities,

j) **eligible costs** are research and development costs that are approved by a provider as necessary for the performance of the project or the research programme and that are incurred during the project performance, which are substantiated, evidenced and allocated to approved activities,

k) **target-oriented funding** means the provision of targeted funds for a research and development project, where the project is defined by the subject of the research and development activity

1) in a **programme project**, in which the beneficiary defines the method and conditions under which it would contribute to the programme goals as laid down by the provider,

2) in a **grant project**, in which the beneficiary itself establishes the project goals and methodology of the basic research,

3) in a **public tender** for research and development, in which the beneficiary performs research and development on behalf of the provider, which is the sole user of its results,

l) **institutional funding** means the provision of institutional funds for a research programme, for specific university research or for international co-operation by the Czech Republic in research and development, where

1) a **research plan** is defined by the subject of research activity by a legal entity or organizational division, its goals, strategy, costs and assumed results, achieved through basic or applied research, with the exception of industrial research and its conceptual development for a period of between 5 and 7 years,

2) **specific university research** means that part of research performed at universities, which is directly linked to education and in which students also participate,

3) **international co-operation of the Czech Republic in research and development** means co-operation implemented on the basis of international agreements binding on the Czech Republic.

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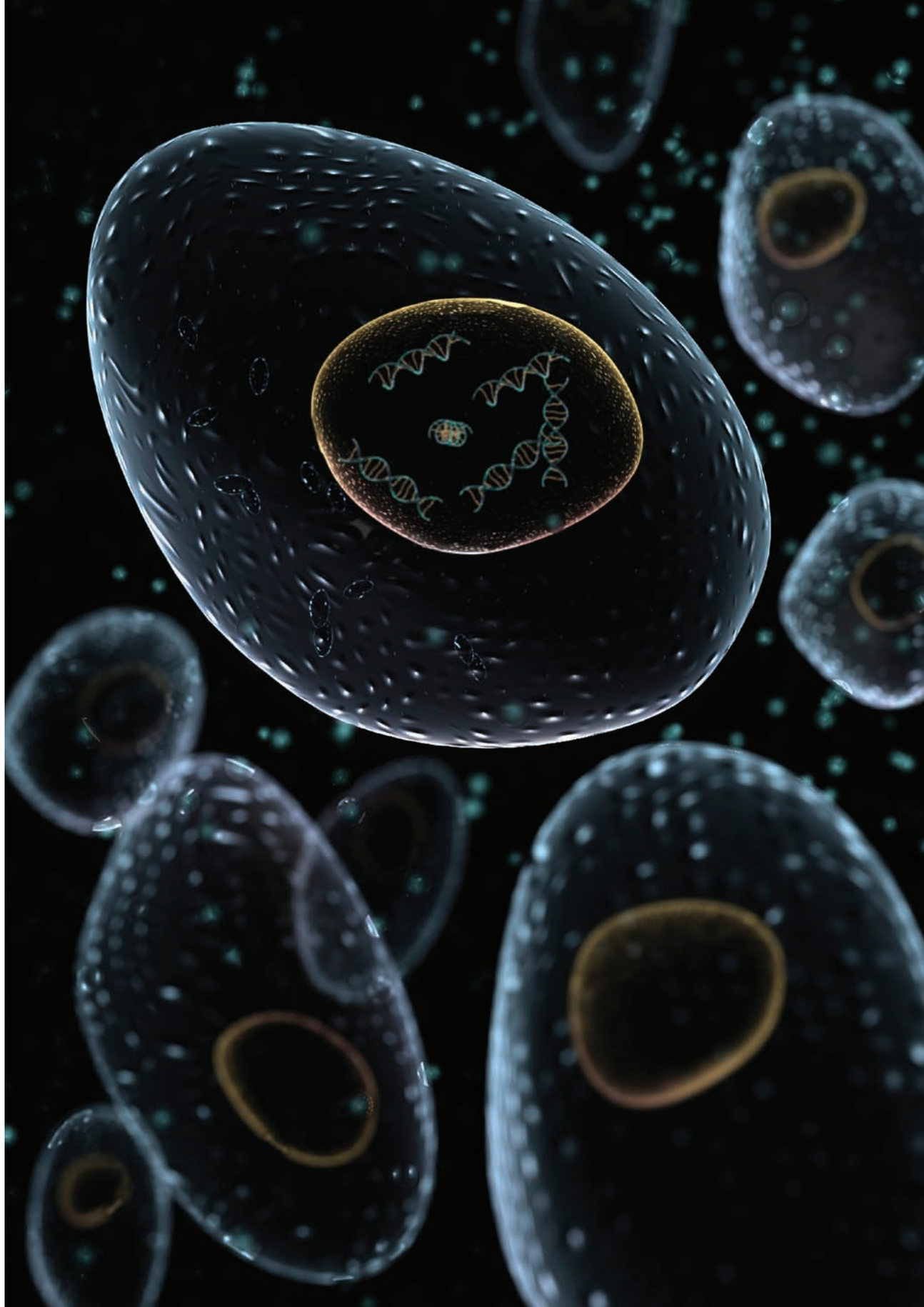


Basic valid legal regulations and documents concerning research and development

The legal framework for public funding of R&D in the Czech Republic is mainly governed by the following legal regulations:

- Act no. 130/2002 Coll., on support for research and development from public funds and on amendments to certain related Acts,
- Act no. 130/2002 Coll. has already been amended nine times by the following Acts:
- 1st by Act no. 41/2004 Coll., amending certain Acts in relation to the adoption of the Act on Public Tenders – Part II of the Act on support for research and development was repealed.
- 2nd by Act no. 215/2004 Coll. on changes to certain relations in the area of public funding and on an amendment to the Act on support for research and development – Part III of the Act on support for research and development was repealed.
- 3rd by Act no. 342/2005 Coll. on amendments to certain Acts in relation to the adoption of the Act on public research institutions – several parts of the Act were amended, for example, the definition of a beneficiary was expanded, the definition of infrastructure was clarified, the provision of financial rewards for exceptional results in R&D was enabled, a special regime was instituted for the performance of R&D related to classified matters or related to state protection or state security, the method of disclosing results was amended, the method of disclosing the eligibility of applicants was clarified and the Grant Agency of the Czech Republic was authorized to announce programmes.
- 4th by Act no. 413/2005 Coll. on amendments to Acts in relation to the amendment to the Act on the protection of classified information and on security clearance – the word "facts" was replaced in the text of the Act by the word "information" and the text of footnote no. 14 was amended.
- 5th by Act no. 227/2006 Coll. on research on human embryonic stem cells and related activities and on amendments to certain related Acts – the authority of the Research and Development Council was extended to cover the issue of opinions on applications for permits to conduct research on human embryonic stem cells and established the obligation of the Council to create a Bioethical Commission for this purpose; the method of remuneration for members of the Research and Development Council advisory bodies was also amended.
- 6th by Act no. 81/2006 Coll., amending Act no. 365/2000 Coll., on public administration information systems and amendments to certain Acts, as amended and other related Acts – the provisions of Section 32, paragraph 5, regarding data on researchers in research and development information systems were amended.
- 7th by Act no. 171/2007 Coll. amending Act no. 130/2002 Coll., on public support for research and development and on amendments to certain related Acts (Act on support for research and development), as amended – the Act enables public funds to be used to cover Czech participation in the expenses of international projects (referred to as co-financing of international projects).
- 8th by Act no. 296/2007 Coll., amending Act no. 182/2006 Coll., on insolvency and its resolution (the Insolvency Act), as amended, and certain Acts in relation to its adoption – the provisions concerning bankruptcy and settlement were amended (conditions of eligibility of applicants).
- 9th by Act no 124/2008 Coll., amending Act no. 269/1994 Coll., on the Criminal Register, as amended, and certain other Acts – the conditions proving the eligibility of applicants prior to contract signature or the issue of a decision on the provision of funding were amended, and, in particular, the method of proving the applicant's integrity was changed (the extract from the Criminal Register is no longer submitted by the applicant, but the provider acquires this extract itself).

implementing regulations for Act no. 130/2002 Coll., are:

- Government Directive no. 267/2002 Coll., on the research and development information system
- Government Directive no. 461/2002 Coll., on target-oriented support for research and development from public funds and on public tenders related to research and development
- Government Directive no. 462/2002 Coll., on institutional support for research and development from public funds and on the assessment of research programmes.

- Government Directive no. 28/2003 Coll., amending Government Directive no. 462/2002 Coll., on institutional support for research and development from public funds and on the assessment of research programmes – published in the Collection of Laws on February 3rd 2003.
- Government Directive no. 67/2008 Coll., amending Government Directive no. 462/2002 Coll., on institutional support for research and development from public funds and on the assessment of research programmes, as amended by Government Directive no. 28/2003 Coll. – published in the Collection of Laws on February 29th 2008.
- Government Directive no. 83/2008 Coll., amending Government Directive no. 461/2002 Coll., on target-oriented support for research and development from public funds and on public tenders related to research and development, and Government Directive no. 462/2002 Coll., on institutional support for research and development from public funds and on the assessment of research programmes, as amended by Government Directive no. 28/2003 Coll., published in the Collection of Laws on March 11th 2008.
- **Act no. 341/2005 Coll., on public research institutions** and Act no. 342/2005 Coll., on amendments to certain Acts in relation to the adoption of the Act on public research institutions.

Act no. 341/2005 Coll. was amended by Act no. 533/2006 Coll. This amendment excluded 4 state-supported organizations from Annex no. 1 to Act no. 341/2005 Coll., in which the organizations that will be converted to public research institutions from January 1st 2007 are named. The particularities of transforming the constitution of the Academy of Sciences of the Czech Republic were dealt with by amending Act no. 283/1992 Coll., on the Academy of Sciences of the Czech Republic. Another amendment to the Act on public research institutions was made within the framework of the transposition of Council Directive EU 2005/71/EC of 12 October 2005 on a specific procedure for admitting third-country nationals for the purposes of scientific research.

Act no. 227/2006 Coll., on research on human embryonic stem cells entered into force on 1 June 2006. The Act allows research to be performed on these cells under transparent conditions. The law also resolves the issue of imports and exports of embryonic stem cells and bans embryonic exports for research purposes. It also contains a new adjustment concerning assisted reproduction, which complies with all ethical, civil and family law requirements for this issue in general. The Act also contains an amendment to the Criminal Code, which provides sanctions for breaches of this area of legislation. The MEYS decides, in accordance with this Act, on the issue of permits for research on human embryonic stem cells and related activities, administers the register of human embryonic stem cell lines and performs inspections in this area. An amendment is under preparation that should prevent obstacles to this very flourishing area.

In September 2006, the RDC again[1] appointed the Bioethical Commission, which has primarily dealt with issues arising from Act no. 227/2006 Coll. on research on human embryonic stem cells and related activities and on amendments to certain other related Acts as its advisory body. The Bioethical Commission is preparing an opinion on applications by research organizations for permits to carry out research on human embryonic stem calls for the RDC. The newly re-established Bioethical Commission for the Council also monitors developments in the area of bioethics within the framework of the European Union. In 2007 it launched preparatory discussions on hosting the meeting of the National Bioethical Commission in Prague during the first half of 2009, when the Czech Republic assumes the presidency of the EU Council.

All the legal regulations referred to above, with the exception of the Act on the Academy of Sciences of the Czech Republic, are available at the following website www.vyzkum.cz. The Act on the Academy of Sciences of the Czech Republic is available at www.cas.cz.

It appears that some more fundamental amendments to the legal regulations mentioned above will have to be made, or that some will have to be replaced with new ones. This mainly concerns the inclusion of experiences gained from the present application of the law, the strengthening of links with the Act on public research institutions that was previously adopted, the introduction of the required changes in institutional funding for R&D and the application of new EU regulations, primarily as concerns a new framework for public funding for R&D and innovation from 2006.

In 2006, the European Commission issued the updated **Community Framework for the state funding of research, development and innovation** (2006/C 323/01). It has taken this step in an attempt to modernize and to improve the existing rules for state funding and to expand the options for R&D funding for new activities that facilitate innovation. The new framework specifies the level of funding for basic research projects, applied research projects and experimental development, the principles of funding for technical feasibility studies, of the costs of acquiring rights to industrial ownership, innovative processes and organizational innovations in services, borrowings by highly-qualified workers, and funding for innovative groupings, etc. This framework is valid to 31 December 2013. After it has been in force for three years, the Commission will reassess it. After consulting with the Office for the Protection of Competition, the RDC issued a recommendation for the application of a Community Framework for State funding of research, development and innovation. The Community framework and the recommendations made by the RDC are available from www.vyzkum.cz.

Preparation work on the fundamental amendment to Act no. 130/2002 Coll. was started in 2005 with a public debate on the principles of the new legislation over the Internet. Work to prepare the amendment to the Act was interrupted on several occasions. The Government resolution on the reform of the Czech research, development and innovation system (26 March 2008 no. 287) imposed an obligation on the RDC to submit to the Government a draft amendment to Act no. 130/2002 Coll. on support for research and development from public funds and on amendments to certain related Acts by 30 June 2008. The proposal was submitted by the deadline set. After discussions and amendments recommended by the Legislative Government Council, the proposal was voted by the Government on 10 September 2008 by decree no. 1145. The proposed amendment was submitted to the Lower House of the Czech Parliament. The Government proposal for an amendment to the Act also contains the following changes:

- arising from changes to the EU rules on the provision of public R&D funding,
- the subject of the Act was expanded to incorporate innovation,
- new provisions concerning international co-operation and the use of the European funds,
- simplifying the methods of funding and reducing the administrative burden,
- establishing the Technological Agency of the Czech Republic,
- supporting infrastructure for research and development,
- handling R&D and innovation results,
- simplifying the implementing provisions. The cancellation of the Government Directive on target-oriented funding (no. 461/2002 Coll.) and on institutional funding (no. 462/2002 Coll.) is assumed. The basic provisions for target-oriented and institutional funding were directly included in the draft bill,
- changing the current legislation; amendments to the Act on universities, the Act on public research institutions, the Act on public tenders and the concession law, which arise from the legal amendment that has been submitted, have been developed
- in principle for the transitional period from 2010–2011 and for institutional funding, the transition period that will also apply to research programmes that end in 2013, on that year.

We expect the amendment to Act no. 130/2002 Coll. to enter into force on 1 July 2009.

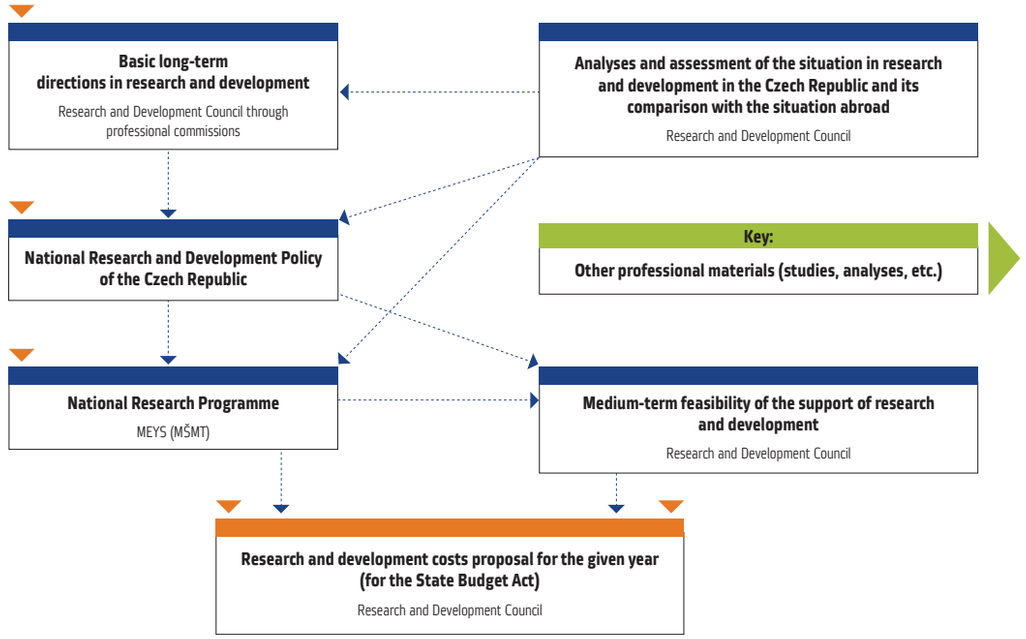
1 The Bioethical Commission was founded in 1998 as an ad hoc advisory working group within the Research and Development Council. In connection with the entry into force of Act no. 227/2006 Coll., the activities of this group were terminated and, in accordance with Section 23 and Section 24 of the above-mentioned Act, it was re-established. At the same time, the Research and Development Council approved a new Statute and Rules of Procedure for the Bioethical Commission.

4 Current system of State funding of research and development

The basic mechanism of R&D support from public funds is presented in **Figure 1**. The main activities are presented, together with their guarantors. The system of public funding for R&D in the Czech Republic is much decentralized. All the ministries, as well as the central administration, basically support R&D through their budgetary chapters. The Ministry of Education, Youth and Sports (MEYS) and the Research and Development Council (RDC) are the most important actors in the system.

Up-to-date information on individual activities can be found in Chapter 5. This Chapter 4 provides a more detailed description of R&D support from public funds and describes the principles behind this public support. We also mention issues concerning R&D assessment and the increasing dependency of the funding provided on the achievement of results. The preparation process for the state budget and for the provision of public funding is described in **Figure 2**. The left part of the figure shows the preparatory stages of the state budget – from suggestions by the administrators of the individual budgetary chapters (GA CR, AS CR, and ministries), to the approval of the budget by Parliament. It is clear that the most important role in the creation of the research and development budget is played by the Research and Development Council, while the Ministry of Finance is the most important actor in proposing the final level of the budget. The Ministry of Finance assigns funds to individual administrators of the budgetary chapters after the state budget is approved by Parliament.

Figure 1. Basic steps (stages) in the preparation of the support of research and development from public funds, according to the Research and Development Support Act No. 130/2002 Coll.



The cycle presented in Figure 2 generally lasts for about one year. Proposals for individual budgetary chapters are prepared for each following year in the period from May to June in the current year and the funds assigned are available between March and June of the following year.

State funding of research and development is provided in two forms:

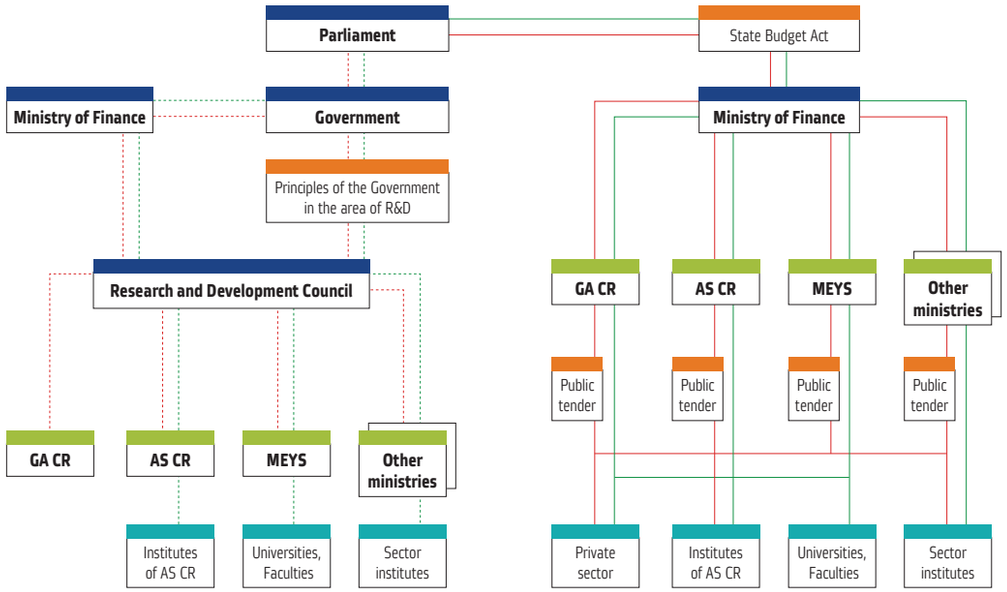
a) **target-oriented funding**, i.e. funding for research projects (the red lines in **Figure 2**):

- funding for "grant projects", i.e. the projects proposed by natural or legal persons,
- funding for "programme projects", i.e. the projects fulfilling programmes announced by the providers. Programmes are proposed and announced by administrators of the budgetary chapters and assessed by the Research and Development Council before being approved by the Government,
- funding for "public contracts", i.e. projects where the public administration sets the parameters of their results. As the state is the only user, public tenders are announced in accordance with Act no. 137/2006 Coll.

The administrators of the state budgetary chapters assign target-oriented funds in two ways:

- as subsidies for legal and natural persons and by funding the activities of grant and budgetary organizations for projects whose results are to be published, for the needs of public administration bodies or for several users,
- as loans (reimbursable financial aid) to legal and natural persons implementing projects whose results are targeted at a single user (with the exception of results intended for the needs of public administration bodies).

Figure 2.



Details concerning the provision of target-oriented funding are set forth in Government Resolution no. 461/2002 Coll., on target-oriented support for research and development from public funds and on public tenders for research and development projects[2].

b) **institutional funding**, i.e. the provision of institutional funds for research plans, for specific university research projects or for cooperation by the Czech Republic in selected international R&D activities.

The original wording of Act no. 130/2002 Coll., on public support of R&D and its implementing regulations stipulated that only public universities, military and police academies, grant organizations and organisational divisions in the Czech Republic could request institutional funding for research plans.

Since 2004, legal entities from the private sector can also ask for institutional funding, provided they comply with certain conditions. The most important restrictions are as follows: any other activity these subjects are engaged in must be recorded in the articles of association or some similar document; any profit after tax and any contributions to funds established by law (such as the reserve fund) must be reinvested in R&D.

The details are regulated by Government Resolution no. 462/2002 Coll., on institutional support of R&D from public funds and on the assessment of research plans[3].

The "Proposed expenditure from the state budget on research and development for 2009, with forecast expenditure for 2010 and 2011" was also prepared following the method illustrated in the left part of Figure 2.

The Reform of the system of research, development and innovation in the Czech Republic will bring important changes to the system described. The Government approved the reform in its Resolution no. 287 of 26 March 2008. The Government Resolution also sets a number of tasks regarding the implementation of the reforms. The main reason for the reforms is to increase the low level of benefits the Czech economy and society have hitherto enjoyed from research, development and innovation, to simplify the operation of the overall system of funding, to improve its effectiveness and to link R&D to innovative activities. The charts shown in Figures 1 and 2 still remain basically in effect. Instead of the National Research and Development Policies of the Czech Republic, which have hitherto been prepared by the MEYS, the RDC, together with the MEYS will prepare and submit the National Research, Development and Innovation Policies of the Czech Republic to the Government. The reform also concentrates public funding for R&D into a smaller number of budgetary chapters and introduces important changes in institutional and target-oriented funding for R&D. The principles of the reform will be incorporated as amendments to Act no. 130/2002 Coll., on support for research and development from public funds. Details are provided in Chapter 6.

2, 3 The full wording is available from www.vyzkum.cz in the Research and Development Legislature section. The English version is available at the same address.

National R&D policy and its implementation

The system of public funding for R&D is based on the implementation of more or less specific provisions arising from the National R&D Policy and on fulfilling tasks resulting from other Government Resolutions related to R&D issues. The implementation of the R&D policy takes place within the framework of the applicable legal regulations for these areas. Over recent years, links between R&D policies and other areas of state interest have been intensified, primarily as regards the use of their results for innovative products, technologies and services. An important intensification of links between the R&D policy and European Union innovations is also taken place, primarily within the context of the implementation of the Lisbon strategy and the development of the European Research and Development Area.

The previous chapters briefly describe the system of public funding, the basic documents and their links. This chapter briefly outlines the main activities that took place from the second half of 2006 to around mid November 2008. Activities are presented that relate to:

- inputs to the National R&D Policies; i.e. the long-term fundamental areas for research (DZSV), an analysis of developments in and the status of R&D and its comparison with that of other countries,
- the National R&D Policy itself,
- outputs from the National R&D Policies; i.e. the national research programmes, a medium-term survey of research and development funding and proposed R&D expenditure for the given year,
- changes in the legal regulations relating to R&D,
- an assessment of R&D as one of the main instruments to improve R&D performance and effectiveness,
- institutional changes in R&D,
- ensuring conformity between R&D policy and related European Union policies and their implementation,
- other important R&D measures.

In 2008 major changes were initiated in the system of support for research, development and innovation in the Czech Republic. On 26 March 2008, the Government passed Resolution 287 approving the Reform of the system of research, development and innovation in the Czech Republic and scheduled a series of tasks for its implementation. As has already been mentioned in the previous Chapter, details are provided in Chapter 6.

5.1 Inputs to the National R&D policies

As has already been mentioned, the basic inputs include the long-term fundamental areas for research and regular annual analyses of the development and the status of R&D and innovation in the Czech Republic and their comparison with other countries.

5.1.1. Long-term fundamental areas of research (DZSV)

Proposals for DZSV are prepared by an expert commission – the Research and Development Council (RDC). After debate within the RDC, these are submitted to the Government for approval. The Government approved the first set of DZSV on 1 July 2005 by Resolution no. 661, and the updated DZSV was then approved by Resolution no. 1192 on 18 October 2006. The DZSV establish priority prospective areas of research from the viewpoint of their potential economic and social benefits.

It must be admitted that the original plan to introduce an institute for the creation and implementation of DZSV, which stemmed from efforts to concentrate financial, personnel and other resources to deal with a limited number of areas of research, has not been a total success. It had been assumed that linking the implementation of DZSV through the National R&D Policy or the National R&D Programmes would lead to a decline in certain branches and to progress in or the establishment of other branches. This has not happened and the DZSV still remain too wide a group, covering in effect all the scientific branches operating in the Czech Republic. One of the possible causes may also be the composition of the expert commissions, none of which contain representatives of potential users of R&D results.

Table I gives the basic characteristics of the DZSV approved by the Government to date.

Table I. Basic characteristics of long-term fundamental areas of research approved by the Government.

Name	Long-term fundamental areas of research (DZSV)
Approved	Government Resolution no. 661 of 1 July 2005
Contents and main tasks	7 DZSV: Sustainable development; Molecular biology; Energy sources; Materials research; Competitive mechanical engineering; Information society; Security research Assigned: ▪ inclusion of DZSV in the draft state budget ▪ use of DZSV as a starting point when preparing proposals for new research programmes and other R&D funding activities ▪ update of the National R&D Policy for the period 2004–2008
Notes	The social sciences and humanities are missing as sufficient support materials had not been prepared
Name	**Updating long-term fundamental research trends**
Approved	Government Resolution no 1192 of 18 October 2006
Contents and main tasks	Supplemented with area 8: Social science research Assigned: ▪ inclusion of DZSV in the draft state budget ▪ use of DZSV as a starting point when preparing proposals for new research programmes and other R&D funding activities
Notes	The updated DZSV still cover too much ground

The expansion of the DZSV to incorporate an eighth area "Social Science Research" was necessary, as, on the one hand, the social, economic and humanistic sciences create knowledge enabling people the economy and society itself to connect with a fast-changing global world, while, on the other hand, clarify and retain knowledge of the history of our development and hand this over to future generations.

The full wording of the DZSV, updated DZSV and both Government resolutions are available at www.vyzkum.cz in the R&D Documents section.

The DZSV were further updated in 2008. The aim of this update was to link the proposed DZSV to the interests and needs of those using the results of R&D and also to incorporate R&D conducted in the planned new research plants into these proposals. These plants are due to be constructed during the period from 2009–2013 using financing from the EU Structural Funds from the Research and Development for Innovation Operational Programme. A slightly different composition of the RDC expert commission prepared the first version of this update, which was debated by the RDC at its 234th Session on 20 June 2008. The recommended proposals were debated by the RDC at its 237th Session on 14 November 2008. It is assumed that the amended proposals will constitute an appendix to the new National Research, Development and Innovation Policy of the Czech Republic for the period 2009–2015. The RDC is due to present the new policy to the Government by 31 March 2009. Along with the policy, the approved DZSV will provide a framework for the activities of the Technological Agency of the Czech Republic, which is due to be established in 2009.

Table II below provides a description of the proposed DZSV discussed by the RDC.

In its Resolution no. 1145 of 10 September 2008, the Government approved a proposed amendment to Act no. 130/2002 Coll. on support for research, experimental development and innovation. The proposed Government bill, which was submitted for debate to the Lower House of the Parliament of the Czech Republic in September 2008, includes the principles of the Reforms to the system of research, development and innovation in the Czech Republic, which have been approved by the Government. The draft bill no longer contains DZSV. In their place, the RDC will propose priorities for applied research, development and innovation in the Czech Republic. End users will play a far greater role in the preparation and implementation of these priorities.

Table II.

Name	Proposed long-term fundamental areas of research (DZSV)
Approved	237th Session of the RDC on 14 November 2008
Contents and main tasks	8 DZSV: Energy sources, Materials research, Competitive mechanical engineering, Information society, Security research, Biological and ecological aspects of sustainable development, Human health, Development priorities for Czech society Assigned: DZSV, that were approved by the RDC at its 237th Session, will provide one of the starting points for the preparation of the National Research, Development and Innovation Policy of the Czech Republic for the period 2009–2015
Notes	After additional, minor, changes, the DZSV will constitute an appendix to the National Research, Development and Innovation Policy of the Czech Republic for the period 2009–2015, which the RDC will submit to the Government in March 2009

5.1.2. Analyses of the development and the status of R&D and innovation in the Czech Republic and their comparison with other countries (R&D&I analyses).

R&D analyses[4] have been prepared since 1999. Since 2003 they have been prepared and presented to the Government regularly every year by the Research and Development Council. After being debated by the Government, they are published in Czech and English on the internet (on www.vyzkum.cz) and in the media. R&D&I analyses do not propose any measures to eliminate any shortcomings, or do they promote further development of any advantages discovered. However, R&D&I analyses are fully exploited for the preparation of important conceptual and strategic documents both for R&D and innovation, as well as for the economy as a whole. R&D&I analyses repeatedly confirm that, while some progress has been made in both inputs to and outputs from R&D in the Czech Republic, it is still lagging a long way behind more developed countries.

R&D&I analyses are used in the preparation of related strategic and conceptual documents. They were used in the preparation of the National R&D Policy in 2000, 2004, and its update in 2006, as well as in the preparation of the National Innovation Policy for the period 2005–2010. R&D analyses were also used in the preparation of overall conceptions and strategies, inter alia in the preparation of the Strategy for Economic Growth in 2005 and the National Strategic Reference Framework, as a basis for the drafting of operational programmes to drawdown EU funding for the implementation of the cohesion policy during the 2007–2013 budgetary period. R&D&I analyses have also been used in the preparation of the Green and White Papers on Research, Development and Innovation in the Czech Republic[5] and to support the proposed Reforms to the system of research, development and innovation in the Czech Republic.

The basic characteristics of the analytical documents are provided in **Table III** below.

During the review of compliance with the measures adopted on the basis of previous analyses, the measure assessed was contained in the following documents:

a) Harmonization of the National Research and Development Policy for the period from 2004 to 2008 with the National Innovation Policy of the Czech Republic for the period 2005 to 2010 and other relevant Czech and EU documents
b) National Innovation Policy of the Czech Republic for the period 2005-2010
c) National Development Plan, which was approved by Government Resolution no. 177 of 22 February 2006, and three operational programmes for its implementation – these are currently OP Enterprise and Innovation, OP Research and Development for Innovation and OP Education for Competitiveness
d) A series of Council documents concerning the assessment of R&D and the results achieved – a brief description of the development of the methodology and the results of the R&D assessment conducted by the RDC.

The review came to the conclusion that a large proportion of the measures assigned had been fully completed or satisfactorily completed.

4 The term "innovation" was first added to the title of these documents in 2006.

5 The White and Green Papers were prepared with the participation of external experts from the Technology Centre of the AS CR. The texts of both documents are available at www.tc.cz and www.vyzkum.cz. Both documents were published in book form by SLON publishing company.

Table III.

Name	Analysis of the status of R&D&I in the Czech Republic and their comparison with other countries
Approval	Government Resolution no. 1353 of 30 November 2006
Contents and main tasks	The following seven areas were analysed: ▪ R&D inputs ▪ R&D outputs (publications, citations, patents etc.) ▪ Innovations and competitiveness ▪ Assessment of Czech participation in the 6th EU Framework R&D programme ▪ Exceptional R&D and innovation results for 2005 ▪ Meeting the National R&D Policy (2004–2008) and its updated version in 2006 ▪ Meeting the National Innovation Policy of the Czech Republic for 2005–2010 The Government took account of the R&D&I analysis for 2006 and assigned the RDC, in collaboration with the MEYS and the AS CR, to present the Government with a summary review of the performance of measures approved on the basis of previous analyses, and a proposal for new measures.
Notes	The Government ordered a recapitulation of the performance of measures included in other documents because of the repeated confirmation that the Czech Republic was lagging behind other developed countries to a greater or a lesser extent.
Name	**Review of the performance of measures adopted on the basis of previous analyses**
Approval	Government Resolution no. 1213 of 29 October 2007
Contents and main tasks	Measures to eliminate deficiencies in the following five areas were assessed: ▪ Human resources for R&D and innovation ▪ Public support for R&D (direct and indirect) ▪ Performance and the assessment system for R&D ▪ Regional disparities in the public funding of R&D and in human resources for R&D ▪ Public administration in R&D and in innovations Assessment of the measures was postponed while deficiencies set forth in three basic strategic documents and several less important papers were addressed. For details refer to the text following Table III. The Government has taken notice of this review
Notes	It is assumed that the measures that have not been implemented will be addressed in the reform of public funding of R&D in the Czech Republic, which has been prepared.
Name	**Analysis of the status of R&D&I in the Czech Republic in comparison with other countries in 2007**
Approval	Government Resolution no. 1284 of 14 November 2007. The Government has taken account of the R&D&I analysis for 2007.
Contents and main tasks	5 areas were analysed: R&D inputs; R&D outputs; Innovation and competitiveness; Assessment of the participation of the Czech Republic in the 6th EU FP; Exceptional R&D results in 2006.
Notes	In comparison with the previous analysis of R&D&I in 2006, the assessment of compliance with the National R&D Policy and the National Innovation Policy was abandoned. Independent reports were submitted to the Government concerning the assessment of these documents.
Name	**Analysis of the status of R&D&I in the Czech Republic in comparison with other countries in 2008**
Approval	The RDC approved the R&D&I analysis at its 236th Session on 10 October 2008. The analysis was submitted to the Government. The Government approved the R&D&I analysis for 2008 in Government Resolution no. 1340 of 3 November 2008.
Contents and main tasks	5 areas were analysed: R&D inputs; R&D outputs; Innovation and competitiveness; the involvement of the Czech Republic in the EU Framework Programmes; Exceptional R&D&I results for 2007.
Notes	In comparison to previous analyses, the section concerning R&D output was significantly expanded, primarily the sub-chapter on the results of R&D financed from public funds. The results of a detailed assessment of research organizations, conducted by the RDC in 2008, were used. The analysis is available on www.vyzkum.cz and will be published in book form in Czech with a shortened English version.

Incomplete measures, primarily in the public administration of R&D, the assessment of R&D, institutional funding, etc. are systemic in nature, with complicated interrelations. The review also produced binding recommendations to remove these deficiencies through a reform of the system of R&D funding. The reform proposal, which was prepared by the RDC, was approved by the Government by Resolution no. 287 on 26 March 2008. This Government Resolution assigned a number of tasks for the implementation of reforms. For more details see Chapter 6.

All the analytical documents and relevant Government Resolutions referred to above can be found on www.vyzkum.cz.

5.1.3. National R&D Policy of the Czech Republic (NR&DP)

Table IV below presents basic information concerning two documents that currently determine the objectives and main tasks for the Government in R&D. More detailed information on the NR&DP (2004–2008) is given in the Short Guide 2007 [6].

The need to update the last R&D policy in 2006 resulted from the approval of the National Innovation Policy of the Czech Republic for the period 2005–2010, which linked the R&D field with the innovation field. The R&D policy had to be

[6] 2006 State supported R&D in the Czech republic Short Guidebook 2007

Table IV.

Name	**National research and development policy of the Czech Republic for the period from 2004–2008**
Approval	Government Resolution no. 5 of 7 January 2004
Main tasks	▪ To prepare the on-going ministerial vision of research and development ▪ To ensure budgetary support for the policy and the ministerial vision ▪ To create conditions for compliance with the Barcelona targets and the Lisbon strategy, including the Czech Republic's participation in the Action Plan for Europe ▪ To assess indirect instruments for R&D support (tax incentives, etc.) ▪ To prepare a comprehensive proposal for the assessment of R&D results and effectiveness
Notes	The policy has been presented as 140 topi cs incorporated into five sections. The policy ensures that these link up with the current goals and strategy of the EU.
Name	**Harmonization of the National Research and Development Policy of the Czech Republic for the period from 2004 to 2008 with the National Innovation Policy and other relevant documents from the Czech Republic and the European Union**
Approval of other legislative updates	Government Resolution no. 178 of 22 February 2006
Main tasks	▪ To prepare and submit a draft National Research Programme III ▪ To submit a report of compliance with the National Research Programme I ▪ To facilitate access for the Czech Republic to the European Commission's recommendation on the European Charter for researchers and the Codex used to employ researchers
Notes	An operative document ensuring compliance with the detailed National Innovation Policy of the Czech Republic for the period 2005–2010. The document also ensures compliance with the current activities of the EU in R&D primarily as these relate to the renewed Lisbon strategy.

renewed in order to ensure coherence with the relevant EU documents concerning the area of R&D, primarily to revive and to amend the Lisbon strategy. The NR&DP for 2005, and its update in 2006 and both Government Resolutions are available at www.vyzkum.cz.

In 2007, the Ministry of Education, Youth and Sports (MEYS) together with the RDC, started to work on the preparation of a new policy, which, according to the Government Resolution of 21 February 2006, should have been submitted to the Government by 31 December 2008. The preparation work also used information gained from public debates, which were organized by the Association of Research Organizations (AVO). The AVO is a not-for-profit organization that groups together organizations and individuals involved with applied research. Entrusting the AVO with the organization and assessment of public debate on the contents of the next National R&D Policy demonstrated the Government's efforts to involve the wider professional public in the preparation of this strategic document.

During the preparation of the new policy, it became clear that the problems and deficiencies of public funding for R&D are so serious that any remedy will entail more fundamental changes to the system as a whole. Because of this, the RDC has prepared a proposal for the Reforms of the system of research, development and innovation. As has already been mentioned, this reform was approved by Government Resolution 287 of 26 March 2008. Apart from other requirements, this Resolution requires that the RDC, in cooperation with the MEYS, submit a proposal for a new National Research, Development and Innovation Policy for the Czech Republic for the period from 2009-2015 to the Government by 31 March 2009. Work on the preparation of this new policy is under the coordination of a steering group under the management of the 1st Deputy Chairperson of the RDC, Dr. M. Kopicová. The following documents, which were drafted by the Technological Centre of the AS CR, were also used for the new draft policy:

- Green paper on research, development and innovation in the Czech Republic
- White paper on research, development and innovation in the Czech Republic

5.1.4. National Innovation Policy of the Czech Republic for the period 2005–2010 (NIP)

The NIP connects the area of R&D with the use of R&D results in new products, technologies and services. The draft NIP was approved by Government Resolution no. 851 of 7 July 2005. The NIP establishes very specific goals and measures for their implementation, including guarantors and deadlines for these measures. The NIP also established indicators to monitor the performance of individual measures. During the preparation of the NIP, links to the updated European Union Lisbon Strategy were also taken into account. The NIP formulated and expanded on the following four strategic goals:

- To reinforce research and development as a source of innovation
- To create functioning cooperation between the public and private sectors
- To provide human resources for innovation
- To improve the performance of public administration in research, development and innovation

Details concerning the NIP are provided in the 2006 and 2007 Short Guides.

In November 2007, the RDC submitted a detailed report on the performance of the NIP to the Government. The Government took this report into account in its Resolution no. 1305 of 21 November 2007. The Report on the performance of selected NIP measures was submitted to the Government within the framework of the review of the performance of measures assigned on the basis of previous R&D analyses, which has been referred to above.

5.2 Main outputs from R&D policies

Among the main outputs from the R&D policy are, on the one hand, the National Research Policy and on the other hand proposed state budget expenditure on R&D and the medium-term forecasts of this expenditure. The claim made in the introduction to this chapter is particularly applicable to R&D Policy output – the existing National Research Programmes, with regard to which detailed information has already been provided in the previous 2006 and 2007 Short Guides, have already been followed and the preparation of a new National Research Programme has not yet been completed. **Table V** below, which has been taken from the CESES study "Strategic Governance in R&D in the Czech Republic" provides basic data from the completed NRP I and NRP II programmes, while information concerning the preparation of draft NRP III can be found further on in the text.

Government Resolution no. 178 of 22 February 2006 on the harmonization of the National Research and Development Policy for the period from 2004–2008 required that the MEYS submit a draft National Research Programme III for the period from 2009-2014 by the end of 2008. Changes in the structure of target-oriented funding, which were introduced in the reform approved by the Government (a reduction in the number of budgetary chapters, the establishment of a Technological Agency for the Czech Republic, etc.), do not take account of the continued existence of the National Research Programmes over the long term. For this reason, work on the preparation of NRP III has been redirected to enable this programme to manage the operations and activities of research infrastructure constructed within the framework of the Research and Development for Innovation Operational Programme (OP R&D for I). A major part of the OP R&D for financed from the EU Structural Funds.

Table V.

Name	National Research Programme I (NRP I)
Approval of the document	Government Resolution no. 417 of 28 April 2003
Programme duration	2004–2009; no new research projects have yet been initiated for 2006, 2007 and 2008.
Programme expenditure from the national budget	A total of approx. 18 billion CZK; annual expenditure is set by the Act on the State Budget for the applicable year.
Basic programme structure	5 topical programmes; 3 sectional programmes.
Programme funding	From the budgetary chapters of 7 providers: MEYS, MIT, MH, MA, MT, MLSA and AS CR
Programme compliance report	The Government referred to the Report on performance of NRP I in its Resolution no. 806 of 28 June 2006
Name	**National Research Programme II (NRP II)**
Document approval	Government Resolution no. 272 of 9 March 2005
Programme duration	2006–2011
Programme expenditure from the national budget	A total of approx. 7.3 billion CZK; annual expenditure is set by the Act on the State Budget for the applicable year.
Basic programme structure	4 topical programmes; 3 sectional programmes
Programme funding	From the budgetary chapters of 3 providers: MEYS, MIT and AS CR
Programme compliance report	Government Resolution no. 806 of 28 June 2006 on the Report on the performance of NRP I contained a requirement that the Report on the performance of NRP II be submitted to the Government by 30 November 2007.

5.2.1. Structure of the National Research Programmes I and II

To allow readers a better understanding of the text of Chapter 8, we have provided a summary of the specific areas of focus (priority research subjects) dealt with in NRP I and NRP II in **Tables VI and VII**.

Table VI. NRP I – Names of the topical and sectional programmes and their parts

Topical programmes (TP)		Provider
1. Quality of life	1. Public health	MH
	2. Quality and safe food	MA
	3. The countryside and sites for the future	MA
	4. The environment and protection of natural resources	ME
2. Information society	1. Intelligent systems for decision-making, management and diagnostics	ASCR
	2. Management of information and knowledge	ASCR
	3. Communications infrastructure and technology	ASCR
	4. Computer modelling and design of systems and processes	ASCR
3. Competitiveness through sustainable development	1. Manufacturing processes and systems	MIT
	2. Safe and economic transport	MT
	3. Building and construction	MIT
	4. New materials	MIT
	5. New technologies	MIT
	6. Use of natural resources	MA
4. Energy for the economy and society	1. Safe and effective nuclear energy	MIT
	2. Energy and non-energy uses of coal and carbonaceous materials	MIT
	3. Rational use of energy and renewable natural resources	ME
5. Modern society and its development	1. A performance orientated, secure, European integrated society and its international links	MLSA
	2. Social cohesion, social differentiation and national identity	MLSA

Sectional programmes (SP)		Provider
1. Human resources for research	1. Support for personnel starting in research	MEYS
	2. Human resources for research	MEYS
2. Integrated research	1. Research centres	MEYS
	2. Information infrastructure for research	MEYS
	3. Support for target-oriented research projects	ASCR
3. Regional and international cooperation in research	1. Regional cooperation	MEYS
	2. International cooperation programmes	MEYS

Table VII. Topical programmes within NRP II

Provider	Topical Programme	Topical areas
MIT	Permanent prosperity (TP1)	T1-1-1 Increased reliability of power networks and high voltage switching stations T1-1-2 Utilisation of hydrogen and fuel cells as energy sources T1-1-3 New nuclear technologies for the power production, high potential heat, and hydrogen T1-1-4 Lowering of energy demands in operations of buildings T1-1-5 Renewable energy resources T1-2-1 New technologies and materials for the air protection T1-2-2 Technologies for the protection of water and the mineral environment T1-3-1 New materials with new usable properties T1-3-2 Applications of new materials in machinery design T1-3-3 Mechatronic systems and robotics T1-3-4 New structures in manufacturing machines T1-3-5 New semiconductor sensors and nanoparts T1-3-6 Increased operating life-span and reliability of machinery products and facilities with high quality technical parameters T1-3-7 New nanodiagnostic methods T1-4-1 Alternative energy sources in transport T1-4-2 Improved quality and reliability of the transport infrastructure T1-4-3 Transport equipment and systems for public and individual transport T1-5-1 Chemical optimising and development of new pharmaceutical technologies T1-5-2 Safety of chemicals T1-5-3 Nanomaterials and processes T1-5-4 Development of new chemical additives for products in other industries T1-5-5 Functional polymers T1-5-6 Organic syntheses for the products with high value added T1-5-7 Catalysts for the protection of environment, the energy industry, the food industry, and for low waste chemical technologies
MEYS	Healthy and quality life (TP2)	T2-1-1 Healthy and sound food T2-1-2 Systems and methods for the assessment of the healthy status of food materials, foodstuffs, and feeds T2-1-4 Non traditional utilisation of agricultural produce T2-2-1 Development of new diagnostics based on molecular–biological methods T2-2-2 Molecular genetics and biotechnologies for new drugs T2-2-3 Nanomaterials in biology and medicine T2-2-4 Biomaterials for the transplanting medicine T2-2-5 Genomics, proteomics and pathophysiology of cardiovascular diseases T2-2-6 Genomics and proteomics in the cell differentiation in oncological diseases T2-3-1 Limitation of the contamination of surface waters T2-3-2 Bio-remedy of the environment with the aid of micro-organisms T2-3-3 Modernisation in the waste management T2-3-4 Biodiversity T2-3-5 Environment and health
	Information technologies for the knowledgeable society (TP3)	T3-1-1 Management of knowledge and informatics, especially for the support of the prevention and treatment of diseases T3-1-2 Open and mobile systems for the Internet and industrial applications T3-1-3 Security of information and cryptology T3-1-4 Information infrastructure, e-learning, and virtual workplaces T3-1-5 Elimination of language barriers with the means provided by information technologies
	Social-economic development in the Czech society (TP4)	T4-1-1 Aging Czech society T4-1-2 Modernising of the Czech public policy and administration within the EU context T4-1-3 Immigration issues and their affect on the Czech society T4-1-4 Modernising of public services T4-1-5 Institutional framework for the social-economic stratification processes T4-1-6 Interests of the Czech state and the Czech society in processes of the European integration

Provider	Sectional Programme	Topical areas
MEYS	Human resources (PP1)	P1-1 Target-oriented research for the better quality basic, secondary, and tertiary education, including the general development of human resources P1-2 Strengthening of research at universities and in other scientific workplaces P1-3 Improved attractiveness of the work and equal opportunities in research P1-4 Making research more popular P1-5 Support of migration
	International co-operation (PP2)	Research for the state administration, according to § 3, paragraph 1a), in the 3rd Act on the support of research and development, determined for the solution of intentions assigned to the Central Research and Development Administration Office by the government and for the procurement of international co-operation in research and development, and for the development of regional co-operation in this area.
	Support of preparations and the implementation of the National Policy, including the technical help (PP3)	Research for the state administration, according to § 3, paragraph 1a), in the 3rd Act on the support of research and development, determined for the solution of intentions assigned to the Central Research and Development Administration Office by the government and for the implementation of the current and preparation of the new National Research Policy and also for the performance of Central Administration Office's intentions, which result from the performance of the obligations given by the competency Act and by § 33 in the Act on the support of research and development. The only result user is, in this case, the state. The programme covers also the areas focussed on the solution of issues in the area of the utilisation of research and development results, the improvement of the assessment of research, and the support and procurement of the participation of state administration workers in forums and conferences organised in the area of research and development.

5.2.2. State budget expenditure

Expenditure on R&D from the State Budget has continued to rise over recent years. R&D is one of the Government's main priorities and it has increased spending in this area even during a period of public expenditure reform and public spending cuts in a number of other areas.

Government Resolution no. 793 of 27 June 2007 approved the proposed expenditure from the State Budget of the Czech Republic on research and development for 2009, and the forecast expenditure for 2010 and 2011 as follows:

- a total of 24,828.902 billion CZK for 2009
- a total of 26,780.944 billion CZK for 2010
- a total of 28,923.765 billion CZK for 2011

State Budget expenditure on R&D will be increased by approximately 8% annually in 2009 and 2010 and should rise to almost 29 billion crowns a year by 2011. This approved draft expenditure will be incorporated into the proposed State Budget for the Czech Republic for 2009 and into the medium-term Czech State Budget forecast for 2010 and 2011.

5.3 R&D evaluation

There is a high standard of evaluating proposals for research projects and plans in the Czech Republic. However, continuous evaluations are of a somewhat lower standard and final evaluations continue to be quite strongly administrative and formal in nature.

It has repeatedly been shown that the Ministries and central government authorities that perform the role of providers of target-oriented R&D funding are not sufficiently strict or objective in their evaluation of completed research programmes. Because of this, the RDC has carried out independent overall evaluations of the results of R&D programmes completed in 2005. The Government approved this evaluation in its Resolution no. 539 of 23 May 2007 and has required that the appropriate Government members and target-oriented funding providers implement those measures relating to their area of authority as set forth in the given documentation. This Resolution also required that the RDC Chair, in association with the MEYS, incorporate these measures into the draft amendment to Act no. 130/2002 Coll.

Evaluation of the results of research organizations that receive public funding was only begun after 2000. If any evaluation of research organizations and institutions was performed at all before that time, it generally only took the form of "self-evaluation", which certain research organizations and institutions did carry out independently. The National Innovation Policy of the Czech Republic for the period from 2005-2010 required that the RDC amend and continue to improve the method of evaluating research that was originally approved by Government Resolution no. 644 of 23 June 2004.

During the course of the period from 2004–2008, the Evaluation Methodology for Research and Development and their results was amended, with input from individual providers of R&D funding, universities and representatives of users of applied research results.

Since 2004, when the Evaluation Methodology had been adjusted and used for the first time, a number of changes have been gradually introduced. The Evaluation Methodology and the results of evaluations are available on the www.vyzkum.cz website. A simplified description of the gradual development of the Evaluation Methodology for R&D results follows:

- evaluations performed by the RDC. The evaluation uses the Register of Information on R&D Results (RIV) database,
- the creation of categories of recognized results and a scale of marks for their evaluation (articles in professional magazines, specialized books, articles in the journal, patents, prototypes, tested technology, utility and industrial models, research reports containing classified information as defined by a special regulation),
- evaluation of the overall performance of research organizations, institutions and individual R&D sectors (universities, AS CR, other Governmental R&D sectors, the private sector) on the basis of grades awarded during the period under evaluation,
- the performance spread according to the points awarded in terms of the public R&D funding provided to organizations, institutions or sectors,
- a higher grade for articles published in certain periodicals included in the Web of Science database held by the American company, ISI Thomson Reuters,
- efforts to use other internationally recognised databases and the creation of a group (list) of reviews of magazines published in the Czech Republic, in which the published articles are also awarded a grade,
- the methods and results of the evaluation met with strong, sometimes justified, objections from representatives from the subjects evaluated,
- On 14 September 2007 the Commission for R&D evaluation was established at the 235th session of the RDC and its statutes and rules of procedure were approved.

The reform of the system of research, development and innovation in the Czech Republic (Government Resolution no. 287 of 26 March 2008) has brought fundamental changes to the evaluation of R&D. Following on from the reform approved by the Government, the RDC approved the Methodology of evaluating R&D results for 2008 at its 234th session on 20 June 2008. The methodology was signed by the Chairperson of the RDC and the Prime Minister, Mirek Topolánek. The methodology has enjoyed wide distribution and is available on www.vyzkum.cz.

The following section only covers the main principles of the new methodology. When compared to the evaluation that has been carried out previously, the following are the main changes:

- no evaluations are made of the effectiveness of funding beneficiaries or providers (i.e. no comparison is made between the amount of public funding provided and the points received for the results achieved),
- no mutual comparison is made of research organizations, nor are these organizations placed in order of success,
- research organizations will be evaluated separately and R&D programmes completed in 2007 will also be evaluated separately,
- the evaluation will include all the results obtained by research organizations during the past five years, regardless of the source of their support,
- the evaluation of the results of research organizations will be one of the criteria for separating institutional funding between the relevant providers (administrators of the budgetary chapters). Another criterion for the provision of institutional funding will be compliance with the new National Research Development and Innovation Policy of the Czech Republic for the period from 2009–2015, the results of an international audit of R&D in the Czech Republic and, possibly, compatibility with the implementation of projects under the Research and Development for Innovation Operational Programme.

5.3.1. Evaluation of research organizations

The aim of the evaluation is to provide the Government, the professional public and possibly even the Lower House of the Czech Parliament, with comprehensive data on the results of research organizations and to create a system which will lay the foundation for the preparation of proposals for institutional funding of R&D.

In the Czech R&D sector, most R&D results appear in the form of articles in professional publications. In a number of cases, these articles are published in periodicals that are of a lower professional status. Before the 2008 evaluation, only articles published in scientific journals covered by the following databases will be included:

a) the Web of Science database run by the American company ISI Thomson Reuters (impacted journals),
b) the interdisciplinary database SCOPUS, www.scopus.com/scopus/home.url,
c) the ERIH (European Scientific Foundation), focusing on social sciences and the humanities,
d) a list of reviewed and non-impacted periodicals published in the Czech Republic.

The list referred to in d) also covers magazines focusing on individual areas of social sciences and the humanities and facilitates the objective evaluation of research on specific problems of the Czech Republic. Articles containing the results of this type of research were difficult to place in scientific magazines published abroad. The list currently contains more than 380 periodicals published in the Czech Republic. The databases referred to in b), c) and d) are available on www.vyzkum.cz.

The evaluation of research organizations is run in three stages. During the second stage, organizations and their founders to be evaluated will be offered the opportunity to express their opinion of the results. The results of the evaluation,

in the form of standardized tables published by the RDC to 31 January 2009 are available at www.vyzkum.cz.

The results of the evaluation will be used as one of the criteria to calculate proposed expenditure in the State Budget for R&D in 2010, and to forecast expenditure for 2011 and 2012. The RDC will submit the proposed expenditure from the State Budget to the Government at the latest by June 2009.

5.3.2. Evaluation of the results of R&D programmes completed in 2007

This evaluation will also be performed by the RDC. The aim of the evaluation is to provide the Government, and other interested parties, with comprehensive sets of information concerning the results obtained from the provision of public support to R&D in the form of programmes, in the same way as the evaluation of research organizations. Another, just as important objective, is to provide the RDC with information on how individual providers of R&D funding fulfil their programme objectives. The RDC will then apply this information when assessing proposals for new R&D programmes.

The effectiveness of the investment of public funds in all the projects run under the individual R&D programmes completed in 2007 will be evaluated. The main criterion will be the average value of the programmes' SR Index, which is the proportion of the grades for all the project results from all the completed programmes and the total public support invested in them. The evaluation will be performed by comparing the SR Index for each completed programme with the average SR Index for all the programmes.

The outcome of the evaluation will be a table in which the programmes will be divided into three groups:

a) above-average programmes, with an SR Index of over 130% of the average SR Index value of all the programmes,
b) average programmes, with an SR Index between 70% and 130% of the average SR Index value of all the programmes,
c) below-average programmes, with an SR Index of less than 70% of the average SR Index of all the programmes.

The results of the evaluation will be discussed by the RDC during its February session in 2009. The RDC will submit a summary of the evaluation of R&D programmes completed in 2007 to the Government by 31 March 2009. After being debated by the Government, the results of the evaluation will be published on the www.vyzkum.cz website.

5.4 Institutional changes in R&D

The National Innovation Policy of the Czech Republic for the period from 2005–2010 has decided, inter alia, on the following tasks:

- An extension of RDC tasks to incorporate the area of innovation (including personnel and support) first by a Government Resolution and, finally, by an amendment of Act no. 130/2002 Coll.
- The creation of an independent information system for innovation, similar to the R&D IS and using its know-how.

The authority of the RDC was extended by Government Resolution no. 1354 of 19 October 2005, which approved the RDC's amended status. However, the necessary and expected staff increases in the Council and its secretariat have not taken place. The amendment to Act no. 130/2002, which has been approved by the Government and submitted to the Lower House, expands the authority of the RDC to include innovations and also assumes staffing increases for the RDC secretariat. The design for a R&D and innovation information system for the period 2009 - 2012 was approved by the RDC at its 236th session on 10 October 2008. The proposal was submitted to the Government, which approved the design on 3.11.2008 in Resolution no. 1335. The design is available on the www.vyzkum.cz website.

The approved reform, which aims to increase the benefits from R&D and innovation for the economy and the society, assumes the necessity of improving management of the R&D and innovation system at all levels, including the public administration. However the reform does take account of the current political situation, which resulted from the 2006 elections, and other developments. The reform does not propose changes to the public administration as this would require an amendment of the law on jurisdiction. For this reason, the reform can only make changes that fall within the framework of Act no. 130/2002 Coll., on support for R&D from public funds. These enforceable changes were given a general framework in the reform and incorporated into a Government proposal for amendments to Act no. 130/2002 Coll. The draft amendments were approved by Government Resolution no. 1145 on 10 September 2008 and submitted to the Lower House of the Czech Parliament.

The following institutional changes are contained in the draft Act:

1) A simplification of the separation of areas of responsibility between the RDC and the MEYS
a) The MEYS will be responsible for:
   - the proper functioning of the central R&D administrative office
   - international cooperation in R&D
   - providing institutional funding for research at universities and other research organizations (with the exception of division of the AS CR institutes)
   - funding of major R&D infrastructure in the form of specific programmes[7]
b) The RDC will assume over responsibility for:
   - the preparation of the National Research, Development and Innovation Policy
   - the preparation of bills and other legal regulations
   - the implementation of R&D priorities
   - the implementation of measures in the area of innovation

2) The establishment of a Technological Agency of the Czech Republic (TA CR) as a division of the public administration, with its own budgetary chapter. The Technological Agency of the Czech Republic will support applied research, development and innovation projects that are to be brought into practical operation. The TA CR will organize public tenders in the area of applied research. The TA CR is due

[7] During an initial period, the MEYS will funding the operations and activities of research capacity constructed with EU funding from the Research and Development for Innovation Operational Programme through the National Research Programme III.

to be established in 2010 and it will gradually take on its areas of responsibility.

Paragraphs (1) and (2) above only contain the most important changes in the proposed Government amendment to Act no. 130/2002 Coll. The Government proposal may, obviously, be further changed during the course of its passage through the Czech Parliament.

The reform also assumes that somewhat different support will be given to four sectional and three sectoral areas of applied R&D in the new system of support for research, development and innovation:

a) **sectional (cross-disciplinary) areas:** international cooperation in R&D (MEYS, along with the MIT for the duration of the Enterprise and Innovation Operational Programme); safe application of R&D (MI); applied research and the development of a national and cultural identity (MC); funding of major R&D infrastructure (MEYS)
b) **sectoral areas:** R&D applications for agriculture (MA); R&D applications for defence (MD); R&D applications for healthcare (MH).

The reform assumes that draft programmes for the sectional and sectoral areas will be prepared by the specific ministries involved. Once the programmes have been approved, public tenders will be organized by the TA CR, which will presumably also include the funding of those R&D projects selected from the tenders.

Changes were also made to the membership of the RDC in connection with the reform, as well as for other reasons.

The Research and Development Council is presently composed of the following members[8]:

Ing. Mirek Topolánek ▪ Prime Minister, Chairperson of the Research and Development Council
PhDr. Miroslava Kopicová ▪ 1st Deputy Chairperson of the Research and Development Council
Ing. Jaroslav Doležal, CSc. ▪ Deputy Chairperson of the Research and Development Council, Honeywell, s r. o.
prof. Ing. Vladimir Haasz, CSc. ▪ Deputy Chairperson of the Research and Development Council, Chairperson of the Universities' Council, Electrotechnical Faculty, Czech Technical University
prof. PhDr. Petr Fiala, Ph.D. ▪ Rector, Masaryk University, Brno
Ing. Zbynek Frolik ▪ Managing Director, Linet, spol. s r.o., Slaný
prof. Ing. Jan Hron, DrSc., dr.h.c. ▪ Chairperson of the Czech Conference of Rectors, Rector of the Agricultural University, Prague
Ing. Martin Jahn ▪ Volkswagen, a.s., Mladá Boleslav
Ing. Miroslav Janeček, CSc. ▪ Entrepreneur, Pardubice
doc. Ing. Michal Korecký, Ph.D. ▪ Director of Development, ŠKODA HOLDING a. s.
prof. Ing. Jiří Málek, DrSc. ▪ Rector, Pardubice University
prof. PhDr. Petr Matějů, Ph.D. ▪ Director, Department of MEYS, Institute of Sociology of the ASCR, v.v.i.
Ing. Vladimir Nekvasil, DrSc. ▪ Institute of Physics of the ASCR,v.v.i.
Ing. Pavel Vlasák, DrSc. ▪ Deputy Chairperson of the AS CR, Institue of Hydrodynamics of the ASCR, v.v.i.

Curriculum vitae of Research and Development Council members and the membership of RDC expert commissions are available on the www.vyzkum.cz website.

8 Situation to 15. 11. 2008.

5.5 R&D policy links to activities by the European Union

As an EU Member State, the Czech Republic participated in the preparation and implementation of the EU R&D policy and Union policies that are directly related to R&D. Following on from the Lisbon strategy, the Czech Republic is participating in the creation and development of the European Research Area. The RDC and also, in a number of cases, the Government have reacted to documents issued by EU bodies and dealing with R&D and innovation, drafting opinions on them and sometimes even introducing related national measures.

The EU Cohesion Policy provides important opportunities for R&D and innovations in the Czech Republic during the financial period from 2007–2013. In compliance with the Lisbon strategy, the new cohesion policy also allows for the increased draw down of financing from the Structural Funds and the Cohesion Fund to develop R&D capacity. The following important documents that have been adopted recently ensuring follow from EU activities:

- **National Lisbon Programme 2005–2008: National Reform Programme of the Czech Republic**. The Government approved this document in its Resolution no. 1200 of 14 September 2005. The Government Resolution required coordination of the performance of this programme and its submission to the European Commission by 15 October 2005. The Programme is based on the Strategy for Economic Growth and the national Innovation Policy of the Czech Republic for the period from 2005–2010. The National Reform Programme sets out the commitments that arise from the transposition of the Lisbon strategy principles into Czech legislative environment. Its priorities, objectives and measures are in compliance with current developments within the EU, as declared in the updated Lisbon strategy.

- **National Development Plan of the Czech Republic for the period from 2007 to 2013**, which was referred to by the Government in its Resolution no. 175 of 22 February 2006. The extensive Resolution assigned a number of tasks, including the preparation of operational programmes to use financing from EU funds to support cohesion policies (the Structural Funds and the Cohesion Fund).

- **Proposal for a strategic reference framework for the Czech Republic to draw down financing from the Structural Funds and the Cohesion Fund during the period from 2007 to 2013**. The Government referred to this framework in its Resolution no. 684 of 7 June 2006.

- **Report on the progress in preparing draft operational programmes to draw down financing from the European Union Structural Funds and Cohesion Fund during the period from 2007 to 2013**. The Government referred to this proposal for a set of 18 operational programmes for the Czech Republic for the period from 2007 to 2013 in its Resolution no. 821 of 28 June 2006. The following three operational programmes are closely related to R&D and innovations:
  - Research and Development for Innovation (OP R&D for I)
  - Enterprise and Innovation (OP EI)
  - Education for Competitiveness (OP E for C)

- The Czech Republic's approach to Commission Recommendations on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. The Czech Republic's approach was approved by the Government in its Resolution no. 951 of 16 August 2006. The Resolution required that the relevant bodies follow this approach on an on-going basis.

- **Report on the implementation of the National Lisbon Programme 2005–2008 (National Reform Programme)**.

Government Resolution no. 1201 of 22 October 2007 approved the Report and contained a requirement for the submission of the National Reform Programme of the Czech Republic for 2008-2011 to the Government by 30 September 2008.

- **National Programme for 2008 – 2010** was approved by Government Resolution no. 1319 on 20 October 2008. This Resolution required that the National Programme be submitted to the Czech Parliament and the European Commission and that a report on the implementation of this programme be submitted to the Government by 30 September 2009.

The Czech Republic is expected to receive about 13 billion Czech crowns annually for R&D and innovation from EU Funds during the period from 2007 to 2013 under the operational programmes mentioned above – OP R&D for Innovation, OP Enterprise and Innovation and OP Education for Competitiveness. However, problems involved with establishing a new Government after the 2006 elections, as well as other problems in the relevant ministries, have resulted in a situation where these operational programmes were only approved by the European Commission in 2008, and the most important R&D operational programme, Research and Development for Innovation was approved as late as the third quarter of 2008. Calls for the submission of projects for this programme are to be announced on 15 December 2008. Project proposals will be accepted until 30 April 2009. The drawdown of finances from the EU Funds has been delayed for over a year.

At the beginning of April 2007, the European Commission published a Green Paper entitled "The European Research Area: new perspectives". This is a standard green paper, in other words a document intended for wide consultation. Its goal is to assess the first three-year period (2005–2007) of implementation of the renewed Lisbon strategy and to establish priorities and initiatives for the final three-year period of implementation (2008–2010). The Green Paper briefly outlines the development of the European Research Area (ERA). It focuses on six main aspects or requirements for future development. These aspects (needs) of the ERA are as follows:

- **an adequate flow of competent researchers** with high levels of mobility between institutions, disciplines, sectors and countries;
- **world-class research infrastructures**, integrated, networked and accessible to research teams from across Europe and the world, notably thanks to new generations of electronic communication infrastructures;
- **excellent research institutions**, engaged in effective public-private cooperation and partnerships, forming the core of research and innovation "clusters" including "virtual research communities", most specialised in interdisciplinary areas and attracting a critical mass of human and financial resources;
- **effective knowledge-sharing** notably between public research and industry, as well as with the public at large;
- **well-coordinated research programmes and priorities**, including a significant volume of jointly-programmed public research investment at European level involving common priorities, coordinated implementation and joint evaluation;
- **a wide opening of the European Research Area to the world** with special emphasis on neighbouring countries and a strong commitment to addressing global challenges with Europe's partners.

The RDC addressed the Green Paper at its 224th session on 8 June 2007. It also called on its members and permanent guests to send their opinions either directly to the European Commission, or to submit them to the MEYS within the framework of the public debate. The public debate was organized by the MEYS, with the help of the Technological Centre of the AS CR. The MEYS submitted its final position paper to the European Commission at the end of August 2007.

Some of the EU and OECD documents used to prepare the reform of the system of research, development and innovation in the Czech Republic and to prepare a draft National Research, Development and Innovation Policy for the Czech Republic for the period 2009–2015 are listed below:

- Commission Communication "Towards a more effective use of tax incentives in favour of R&D", COM (2006) 728
- European Commission. "Developing World-class Research Infrastructures for the European Research Area (ERA) & Report of the ERA Expert Group". Directorate General for Research, Office for Official Publications of the European Communities, Luxembourg, 2007
- OECD: "Innovation and Growth – Rationale for an Innovation Strategy". OECD, 2007.
- Commission Communication "Raising productivity growth: key messages from the European Competitiveness Report 2007", COM (2007) 666 of 31. 10. 2007
- European Commission. "Voluntary guidelines for universities and other research institutions to improve their links with industry across Europe". Commission staff working document SEC (2007) 449
- Report from the expert groups on the results of the public debate on the Green Paper. Directorate-General for Research, Office for Official Publications of the European Communities, Luxembourg, 2008
- Regulation (EC) no. 294/2008 of the European Parliament and of the Council of 11 March 2008, establishing the European Institute of Innovation and Technology; Official Journal of the EU L97/1 of 9. 4. 2008
- Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations, K(2008) 1329 of 10. 4. 2008
- "Better Careers and more Mobility: A European Partnership for Researchers". Commission Communication COM (2008) 317 of 23. 5. 2008
- Green Paper – "Copyright in the knowledge economy", COM (2008) 466 of 16. 7. 2008
- "A Strategic European Framework for International Science and Technology Cooperation", COM (2008) 588 of 24. 9. 2008

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5.6
Other important provisions for the public funding for R&D

Since 1 January 2005 a new tax deduction has been in force in the Czech Republic in accordance with Act no. 586/1992 Coll., on income tax, as amended, which basically enables R&D costs to be deducted twice from the tax base, which is the equivalent of a 24% subsidy for overall costs, without all the disadvantages entailed by a subsidy? This has introduced certain conditions similar to those practised by developed European countries for private investors in R&D. As far as the simplification of the tax regime and the reduction of corporate income tax are concerned, this will undoubtedly have a positive impact on business activities across the board.

The provisions of Section 34 paragraph 6 of the above-mentioned Act stipulates that if the deduction referred to in Section 34 paragraph 4 cannot be applied in the year to which it relates because the taxpayer reported a tax loss or the tax base (reduced by the non-taxable items in accordance with Section 15 and by the tax loss) is lower than the sum to be deducted in accordance with paragraph 4, the deduction or its remaining part may be applied in the next taxation period in which the taxpayer reports a tax base (reduced by the non-taxable items in accordance with Section 15 and by the tax loss), but not later than in the three taxation periods immediately following the taxation period during which this entitlement occurred.

Government Resolution no. 531/2007 required the Minister of Finance to prepare and to submit to the Government by 31 December 2008 a draft bill on income tax. It is expected that the new bill will retain the support for R&D projects by allowing project costs to be deducted from the income tax base. Additional indirect support will be provided in the form of tax benefits for increased R&D expenditure in comparison with the previous taxation period. It is assumed that companies purchased from universities and research organisations for research purposes will also be granted tax incentives.

As has already been mentioned, although the performance and effectiveness of R&D in the Czech Republic are gradually improving, a number of unresolved problems of a systemic nature still remain. After being transferred back under the Government's authority from the MEYS, and with a new management, the RDC has addressed the issue of reforming the system of public funding for R&D on a number of occasions. During its meetings, the RDC has dealt with the framework objectives and principles of reforms and their implementation. The principles of these reforms must be closely accompanied by the use of financing from the EU Structural Funds and ensuring the operation of new R&D facilities constructed using EU funding during the period after 2013, when domestic funding will have to be found for the operation of these facilities. The Government approved the reform proposal in its Resolution no. 287 of 26 March 2008. The tasks set out in this Resolution are gradually being performed. Additional details concerning the reform of the system of research, development and innovation are provided in Chapter 6 below.

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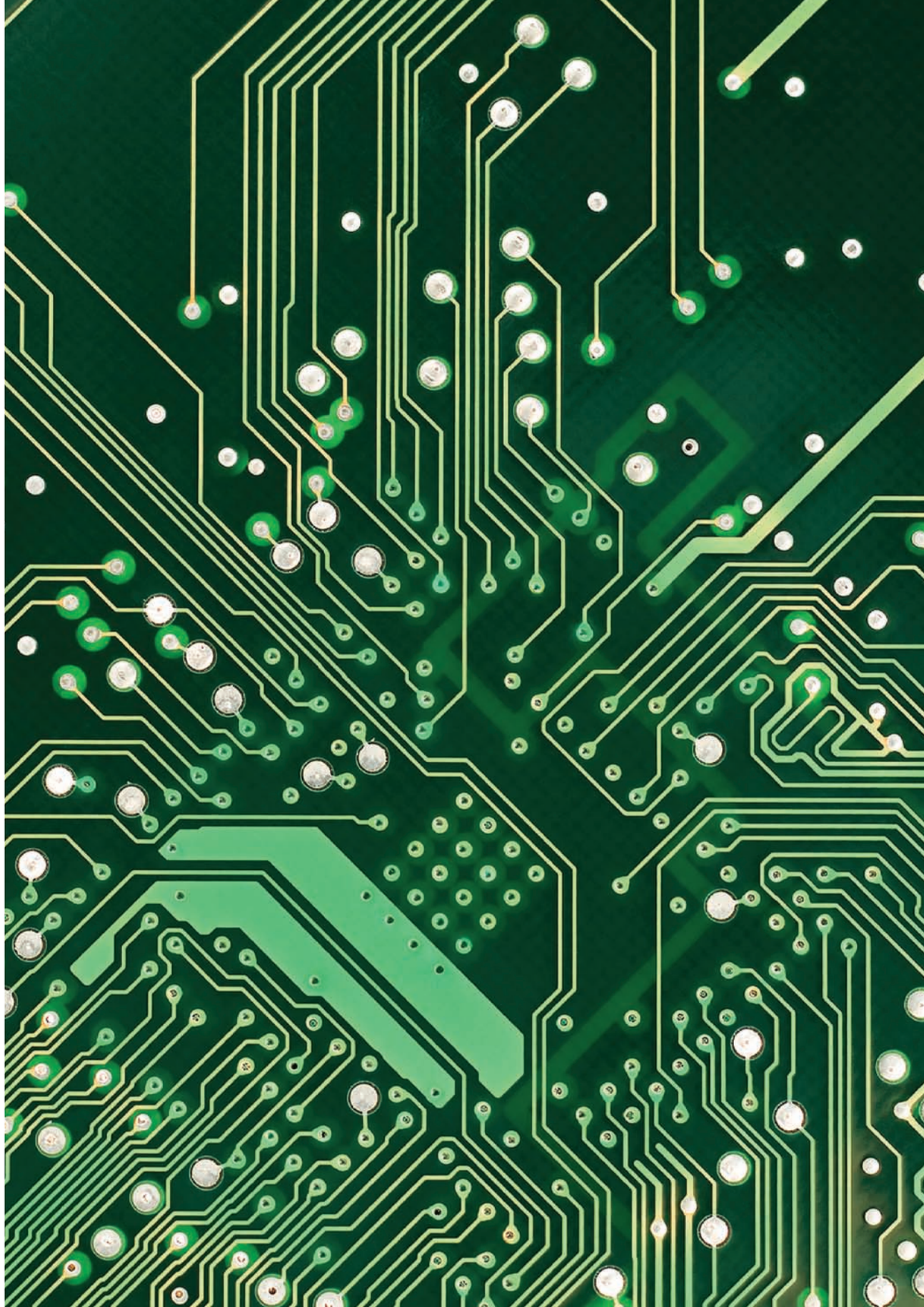


Reform of the system of research, development and innovation in the Czech Republic

6

6.1 Reasons and goals of the reform

Evaluation of R&D in the Czech Republic, repeatedly conducted on a national and an international level [9] shows that although the Czech Republic is approaching the EU-15 average in terms of increased expenditure on R&D, the number of researchers and other indicators of input to R&D, it is still lagging a long way behind as regards indicators of R&D outputs. These primarily include the number of publications and quotations in impacted scientific magazines, numbers of patents applied for and granted and numbers of technical, technological and organizational innovations that use results from R&D. A number of documents approved by the Government have repeatedly concluded that the benefits accruing to the Czech economy and society from R&D and innovation are extremely low.

Over recent years it has been generally acknowledged that the system of funding for R&D in the Czech Republic is too diversified and that R&D is supported from the budgets of too high a number of ministries and central administrative offices. Despite repeated efforts to simplify the system, the provision of support is unnecessarily demanding in terms of both administration and time. Over recent years the over-complicated system has failed effectively to provide timely support for R&D and effectively to use the EU financing that is available, primarily financing from the EU Structural Funds. Another serious problem, and this does not only apply to R&D, involves the tendency to settle for the average, to fail to strive for excellence and inadequate support for excellence.

The formation of a Government after the 2006 parliamentary elections was also accompanied by problems of an institutional nature. The RDC was moved from the authority of the Government to that of the MEYS. When the RDC had been transferred back to the Government and the Prime Minister, Mr Topolánek, appointed RDC Chairperson, a plan was formed to make fundamental changes to the overall system of R&D and innovation in the Czech Republic. The results of the elections, producing a very weak majority for the governing coalition in the Lower House of the Czech Parliament, and other reasons, resulted in certain limitations being placed on political moves for changes in R&D and innovation. One of the most significant of these was the failure to amend the "Competence" Act, which, apart from other things, indefinitely postponed any debate on the future creation of a new Ministry for R&D and innovation, or attaching it to some other area of responsibility, such as university education.

Within a relatively short space of time between 2007 and 2008, the RDC prepared a draft Reform of the system of research, development and innovation in the Czech Republic. After being subjected to an extensive review procedure, the draft reform was submitted to the Government. The Government approved the reform in its Resolution no. 287 on 26 March 2008. This Resolution assigned a number of tasks in order to implement the reform. The full text of the reform, as well as the Government Resolution referred to above, are available on the www.vyzkum.cz website.

The main goal of the reform is to ensure that public funds invested in R&D bring:

- new knowledge in a global context from basic research,
- concrete economic and other social advantages from applied R&D and innovations.

This generally expressed main goal of the reform was broken down into seven more specific partial goals:

1) Simplification of funding for R&D, funding for institutions to be based on results, individuals and project teams.

[9] Evaluation on a national level is mainly carried out through the annual Analysis of the status of research, development and innovation in the Czech Republic and its comparison with other countries, which is drawn up by the RDC and submitted to the Government. International evaluation is carried out through the annual European Innovation Scoreboard (EIS), which is drawn up by the European Commission.

2) Sharp reduction of the number of 22 funding chapters supporting R&D in the Czech Republic, simplification of the administration.
3) Support for excellence in research, emphasizing it and ensuring the use of results for innovation processes.
4) Making programme support for R&D conditional on cooperation between public R&D and users of R&D results, based on co-funding from private and public sources.
5) Introducing a more flexible organizational structure of public R&D.
6) Safeguarding personnel for research, development and innovation.
7) Increasing the intensity of international cooperation with the Czech Republic in R&D and innovation.

6.2 Scope of the reform

The reform approved by the Government has nine parts:

1.	Starting point for reform
2.	Links between research, development and innovation
3.	System of R&D support
4.	Public administration of R&D and innovation
5.	Excellence in R&D
6.	R&D programmes
7.	Research organizations
8.	Workers in R&D and innovations
9.	International cooperation in R&D

Changes to the evaluation of R&D introduced by the reform and changes that were incorporated into the Government's draft amendment to Act no. 130/2002 Coll., on support for R&D from public funds, were described in detail in Chapter 5.

1 **Starting point for reform.** This short introductory section outlines the main and partial goals of the reform, along with their reasons and principles. A particularly important principle is that decision-making on the paths and methods to choose for institutional funded research is transferred from the ministries and government offices to the research organizations. Institutional funding will no longer be provided on the basis of a formal assessment of over-generalized research proposals, but on the basis of an objective evaluation of achieved results in R&D. In the case of target-oriented R&D funding, decisions on what and who to support will be, to a large extent, transferred from the ministries and government offices to professional agencies – the Grant Agency of the Czech Republic and, under the amended Act no. 130/2002 Coll., to a newly established Technological Agency of the Czech Republic.

2 **Links between research, development and innovation.** This part describes how options for R&D and innovation funding linked to the Community Framework will be incorporated into Act no. 130/2002 Coll. The Act will also be supplemented with totally new ways of supporting innovation. Greater emphasis is laid in this part on the principles of effective coordination of funding within the framework of the R&D&I system in the Czech Republic and funding that is to be provided for R&D&I from EU sources during the period to 2013 within the framework of the Operational Programmes: Research and Development for Innovation (OP R&D for I), Enterprise and Innovation (OP EI), Education for Competitiveness (OP EC), Prague – Competitiveness, Prague – Adaptability. This section also gives a brief outline of the main stages of preparation for the period after 2015.

3 **System of R&D funding.** This part presents a more detailed picture of the new system of target-oriented funding, institutional funding and basic information on the somewhat different approaches in four topical and three sectional areas of R&D.

The Grant Agency of the Czech Republic and the Technological Agency of the Czech Republic will organize public tenders for R&D with the exception of four sectional and three sectoral areas. Sub-sections on target-oriented funding will also provide more details of the procedures governing public tenders for R&D projects.

Four areas are sectional in nature and each of these will be provided with target-oriented and institutional funding as one entity: International cooperation in R&D (MEYS and, temporarily, also MIT, MFA and MD), Security R&D (MI), R&D applied to national and cultural identity (MC), Support for major R&D infrastructure (MEYS).

Three areas have certain specifications that prevent them from receiving funds through the Technological Agency of the Czech Republic like other areas of R&D: Agricultural applied R&D (MA), Defence applied R&D (MD), Healthcare applied R&D (MZ).

4 **Public administration of R&D&I.** This part proposes a system for the public administration of R&D&I and the number of budgetary chapters for target-oriented and institutional funding. The new areas of responsibility of the RDC, MEYS, the Grant Agency of the Czech Republic (GA CR) and the Technological Agency of the Czech Republic (TA CR) are detailed. These changes will be introduced through an amendment to Act no. 130/2002 Coll. Basic information on these changes of responsibility has been given in Chapter 5.

Under the new system, target-oriented funding will be provided from 11 budgetary chapters, instead of 22 chapters as previously:

- The Government of the Czech Republic (RDC), GA CR, TA CR – 3 chapters
- MEYS, MI, MC – 3 chapters (target-oriented funding for sectional areas)
- MA, MD, MH – 3 chapters (target-oriented funding for specific sectoral areas)
- MIT – 1 chapter (co-funding projects with the Enterprise and Innovation Operational Programme).

The eleventh independent chapter was justified and enforced by the Ministry of the Environment during later meetings.

Under the new system, institutional funding will be provided from only 12 budgetary chapters, instead of the previous 22 budgetary chapters. All the bodies listed as target-oriented funders will provide institutional funding for R&D, a total of 11. An additional, twelfth chapter will be assigned to the Academy of Sciences of the Czech Republic to provide institutional funding to its divisions. The GA CR and TA CR will have institutional funding in their chapters to finance their administrative activities.

5 **Excellence in R&D**. This part deals with centres of excellence, major infrastructure projects for R&D and the evaluation of R&D results at all levels. More detailed information on changes in the method of evaluating R&D is provided in Chapter 5.

Amendments to Acts nos. 111/1998 Coll., on universities and 341/2005 Coll., on public research institutions will enable public universities, public research institutes and other research organizations to establish consortia that will comply with the conditions laid down under the Community Framework in order to apply for public support of R&D&I.

Under the conditions of the reform, standard infrastructure (R&D equipment and facilities that are only used by "owner" organizations) will be financed from institutional funds provided by organizations. The decision as to whether to purchase or to renew this infrastructure will be made by the relevant organization.

The reform establishes a series of conditions governing support for large R&D infrastructure, including support for the participation of the CR in major R&D infrastructure abroad. At the same time, major infrastructure implies R&D facilities that are used by a number of research organizations or consortia. The definition of the term "major infrastructure" is provided in Chapter 2. Definition and terms. Support will be provided by the MEYS, within the framework of funding for the "Support for major R&D infrastructure" sectional areas. When providing the support, the following will be required:

- excellence in R&D and in the results obtained, including links to a quality environment for institutions,
- a Europe-wide or national scope for the infrastructure, which must at least exceed the borders of the region.

Infrastructures that link in to the system of major R&D infrastructures in the EU (ESFRI Road map) will have preference in receiving benefits that follow on from the system of major infrastructures in EU R&D (ESFRI Roadmap) and guarantee a connection to international cooperation in R&D at a European or a global level.

6 **R&D programmes**. This part describes in detail the new system of applied R&D programmes (programme preparation, their evaluation and approval, programme implementation and evaluation of the results obtained). There will be three groups of R&D programmes:

- programmes funded from the TA CR budgetary chapters,
- sectional R&D programmes: International cooperation in R&D (MEYS), Funding of major R&D infrastructure (MEYS), Security research (MI), Applied research for a national and cultural identity (MC),
- sectoral applied R&D programmes (MA, MD and MH).

These sections also contain the general principles that apply to all the R&D programmes and proposals for expanding indirect (tax) incentives for R&D.

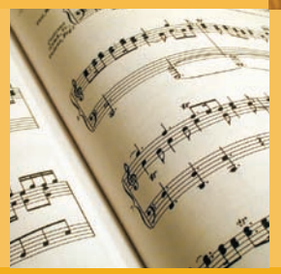
7 **Research organizations**. These parts set out, on the one hand the changes that have contributed to a greater transparency of the organizational structure of R&D in the Czech Republic and, on the other, the changes still required in the management and funding of universities and which are to be introduced in the Act on Tertiary Education that is under preparation[10].

10 The preparation of the reform of the system of R&D&I in the Czech Republic was linked to the preparation of the White Paper on tertiary education.

8 **Workers in R&D and innovations**. The education of R&D professionals will be funded from the Educational for Competitiveness Operational Programme, among other sources. All research organizations will have to have a career structure. In applied R&D projects that assume an increase in numbers of researchers, a condition will be introduced establishing a mandatory proportion of young researchers under the age of 35 and middle aged researchers with experience of working abroad. The implementation of the reform will simplify the employment of third country nationals (from outside the EU).

9 **International cooperation in R&D**. This part of the reform attempts to increase the benefits of international cooperation in R&D, which should also result from changes in the system of R&D&I funding, changes in the public administration of R&D&I, as well as a significant improvement in the use of European funding sources to support R&D&I. This part of the reform requires a revision of the existing R&D priorities (Long-term basic research directions), in order that the new priorities ensure the use of national and European support for R&D to create more value for the economy and society as a whole. The reform also introduces measures to eliminate the continuing inadequate involvement of the Czech Republic in the activities of EU bodies, commissions, working groups, etc.

Analysis of research and development support from public funds



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The levels of the total direct financial support of R&D and of the support from public funds are the main indicators for the R&D evaluation in individual countries. The public is aware that EU, as a whole, lacks behind USA and Japan with its level of R&D expenditures. The Lisbon Strategy, approved in the spring meeting of the European Council in Lisbon in 2000, established the target, according to which EU should become the most competitive economic entity in the world by 2010. The spring meeting of the European Council in Barcelona in 2002 presented the specific objective for R&D — to increase the total R&D expenditures to 3% of the gross domestic product (GDP) by 2010. One third (1%) should be paid from public sources, while the remaining two thirds (2%) should be covered from private (business) sources. The Lisbon Strategy was updated in 2005.

The Czech Republic also joined the updated Lisbon Strategy. The government approved the National Lisbon Programme for the period 2005—2008 in its Resolution No. 1200 of 14 September 2005: National Programme of Reforms in the Czech Republic. This national programme was evaluated in 2007 and the government approved this evaluation in its Resolution No. 1201 of 22 October 2007. The government asked for the presentation of the related Czech programme for the period 2008—2011 in 2008 (for details see the previous Chapter 5). The government approved the National Programme of Reforms in the Czech Republic by Resolution No. 1319 of 20 October 2008. The government appointed the Deputy Prime Minister for European Affairs to coordinate this Programme and to submit it to the Parliament of the Czech Republic and to the European Commission. The Report on the Programme fulfilment should be submitted to the government by 30 September 2009.

Table No. VIII presents values of the total R&D expenditures and R&D expenditures from public sources in 2006, according to the Organisation for Economic Co-operation and Development (OECD).

Table VIII. Total research and development expenditure in the Czech Republic and in EU-25 and EU-15 countries in 2006.

2006	R&D expenditures (% GDP)	
	Total	From public resources
Czech republic	1.54	0.60
EU-15	1.86	0.64
EU-27	1.76	0.61

Source: OECD, Main Science and Technology Indicators 2008/1

In EU, Sweden and Finland currently spend more than 3% of GDP in R&D. The highest R&D expenditures are reported by Israel — 4.65% of GDP in 2006. The Czech Republic repeatedly declared the goal of achieving R&D public expenditures at the level of 0.7% GDP. However, this level has not been achieved so far. If the Czech Republic succeeds in gaining the expected EU support of operating programmes for the implementation of EU Cohesion Policy, the public expenditures, the national ones supplemented with the ones from the Union, could reach the level of 1% of GDP by 2010.

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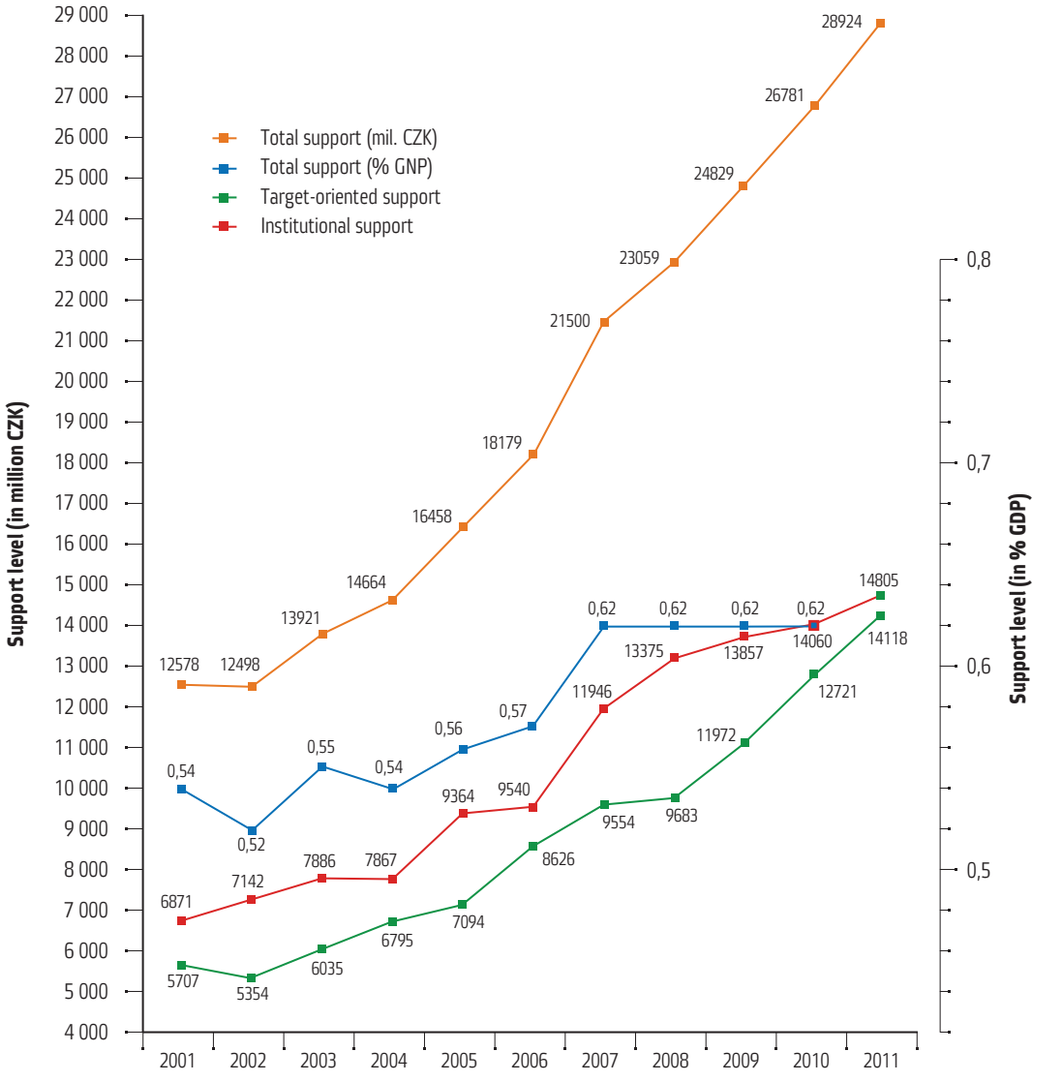
7.1
Development in R&D support from public funds

Figure 3. Development in the R&D support from public funds



Note: The data in million CZK until 2008 have been taken from the state budgets of the relevant years, while the data for the period 2009—2011 have been determined by the Government Resolution No. 793 of 27 June 2008. The expenditures in % of GDP have been determined by the Research and Development Council Secretariat from the data of the Ministry of Finance related to the real GDP level (till 2006) and the assumed GDP level in the period 2008—2011.

Figure No. 3 illustrates development in the total R&D support from public funds in the period 2000—2008 and the medium-term by the government approved forecast till the year 2011. It presents the development in:

- The total support from public funds, in million CZK
- The total support from public funds, in % of GDP
- Institutional support, in million CZK
- Target-oriented support, in million CZK

The target-oriented support is provided on the basis of public tenders to selected research projects as either grants, where the objectives and processes are established by researchers themselves, or programmes, where the projects try to achieve beforehand established objectives and directions. There are also research projects covering state needs (public research orders). The institutional support is provided to research organisations and larger research teams on the basis of approved research plans and specific research at universities. Institutional support means cover also some activities within the international R&D co-operation. Until 2003, the institutional support of R&D had been provided, on the basis of approved research plans, only to AS CR institutes, universities, and sector research workplaces. Since 2004, it could be granted also to research organisations of the enterprising character, which fulfil the determined conditions. Research must make a part of their founding or similar document and all profits, after tax, must be reinvested in R&D.
Figure No. 3 implies that:

- The total public R&D expenditures have been growing very dynamically in recent years, with the exception of 2002, when compared with 2001. The more detailed comparison with EU-27 member countries shows that the additions of public R&D expenditures in the Czech Republic were in the period 2001-2005 the fourth highest among the EU-27 member countries.
- The total public R&D expenditures, presented in % of GDP, have been recently stagnating. The stagnation of this indicator's value has been caused by the relatively high annual GDP gains. The repeatedly declared target of 0.7% GDP remains to be fulfilled. The expenditure indicators presented in % of GDP are uncertain for the period 2008-2001. Estimates of GDP development in the Czech Republic are with regards to the global financial crisis and its consequences, rather problematic and they constantly change. This uncertainty is of course not only applicable to the Czech Republic but also for other states. Therefore it is necessary to make allowances for the R&D expenditure value for 2010 at 0.62% GDP, stated in the graph. The value for the year 2011 is not stated in the graph.
- Since 2001, the institutional support has been higher than the target-oriented support. RDC tries to make the gap between the institutional and the target-oriented supports smaller. There are competition principles utilised more in decision- making on the target-oriented support, while the institutional support is often considered the entitled support.

The government approved reform of the research, development and innovation system (Government Resolution No. 287 of 26 March 2008) introduces a fundamental change in granting institutional support. The current research plans will be gradually completed and new ones shall not be published. Institutional support shall be provided on the basis of research organisations assessments. Assessment according to the new methodology shall be completed in January 2009. The results of the assessment shall be projected by the RDC into the proposal of the national budget for R&D for the year 2010 with the outlook to 2011 and 2012. Details are stated in Chapter 5.

The assessment shall not be the only criteria for the provision of institutional support. It is anticipated that the new R&D guidelines of

exceptional priority importance for the economy and society, which can be institutionally supported, will be determined within the new National Policy of research, development and innovation, which is to be submitted by the RDC to the government by 31 March 2009. This approach shall be implemented within the proposals of the national budget expenditure for 2010. The results of the international audit of research, development and innovation in the Czech Republic, which shall be carried out at the turn of 2010 and 2011 shall be implemented during the decision making on the value of institutional support within the 2012 budget.

7.2 Development in R&D support from public funds by selected providers

Fig. No. 4 represents the total value of support from public funds (target-oriented and institutional) by selected providers during 2006 – 2011.

Comments:

- The figure presents the development in the total support provided by the seven biggest providers. In addition to providers in this figure, R&D is supported also by other fourteen providers — ministries and central administrative authorities.
- The government approved Reform of the research, development and innovation system (Government Resolution No. 287 of 26 March) decreases the number of budget chapters, from which R&D is supported, from 21 to 12. The Reform further suggests that the Technological Agency of the Czech Republic will be established and it shall support a significant part of the applied research. Resources for this agency are so far included within the funds of the Grant Agency CR (GA CR).
- During 2010 and 2011the support provided to the MEYS and the MIT. Both Ministries shall during this time supplement the funding of large operational programmes "Research and Development for Innovations" and "Business and Innovation", which shall be in majority funded from EU resources.
- The funding of a part of the applied research and development in some sectors shall be undertaken by the Technological Agency CR (TA CR). Therefore support provided to the MH, MA and ME stagnates from 2009 until 2011 or it slightly drops.

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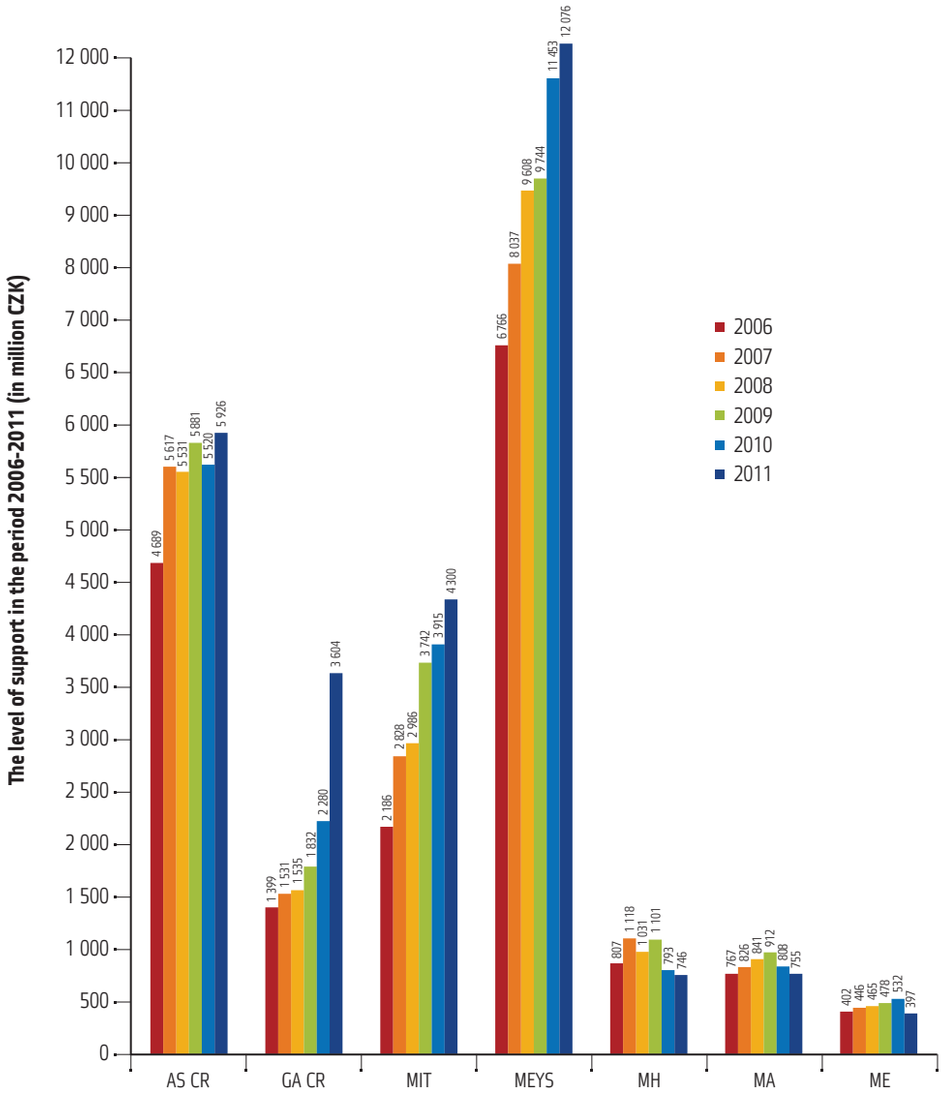
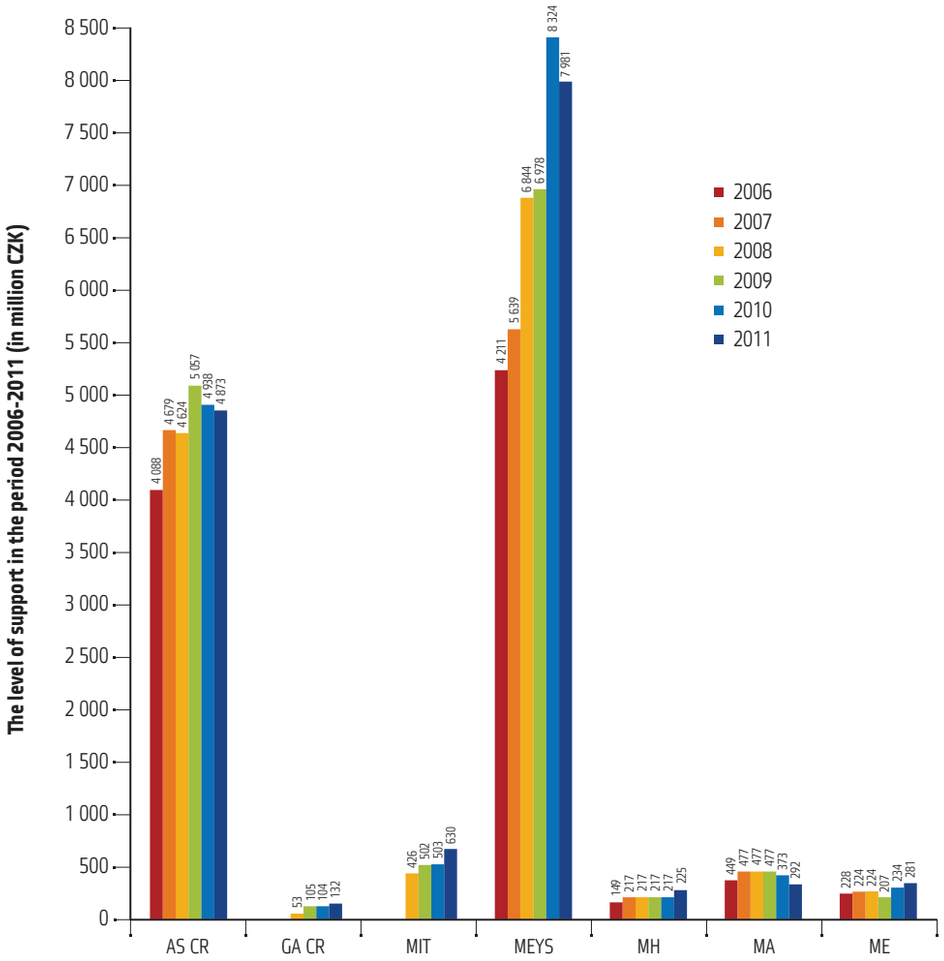
Figure 4. Development of R&D support from public funds by selected providers



Data source: Government Research and Development Council
Note: AS CR — Academy of Sciences of the Czech Republic, GA CR - Grant Agency of the Czech Republic, MIT — Ministry of Industry and Trade, MEYS — Ministry of Education, Youth and Sports, MH — Ministry of Health, MA — Ministry of Agriculture, ME — Ministry of Environment. The expenditures in million CZK are presented in current prices of the relevant years.

7.3 Development of R&D institutional support by selected providers

Figure 5. Development in the total support of R&D from public funds by selected providers



Data source: Research and Development Council

Figure No. 5 illustrates the level of institutional support from public funds by selected providers in the period 2006—2011.

Comments:
The decisive part of the institutional support is distributed by MEYS and AS CR. MEYS provides the institutional support of research intentions to universities and selected organisations in the business sector, to a specific research organised at universities, and it also funds selected activities within the international R&D co-operation. The institutional support by AS CR is determined for research intentions of AS CR institutes, which have become public research institutions since 1 January 2007.

- The institutional support of GA CR is determined for the coverage of costs incurred by the GA CR Office.
- The institutional support of the GA CR is determined to cover the costs of the GA CR Office. Since 2009, the costs of the gradually operating office of the Technological Agency CR have been included into the funds of the GA CR.
- The institutional support of MH, MA, and ME is determined for the institutional support of R&D done in the so-called "sector institutes" of these ministries.
- MIT has gained funds for the institutional support in 2007 for the first time. These funds are determined for the supplementary funding (the so-called co-funding) of projects, which are funded, in a substantial part, from the EU resources.
- Institutional support by stated providers shall stagnate or slightly decrease during the period of 2009 – 2011. RDC has enforced their objective for the increase of target-oriented support.

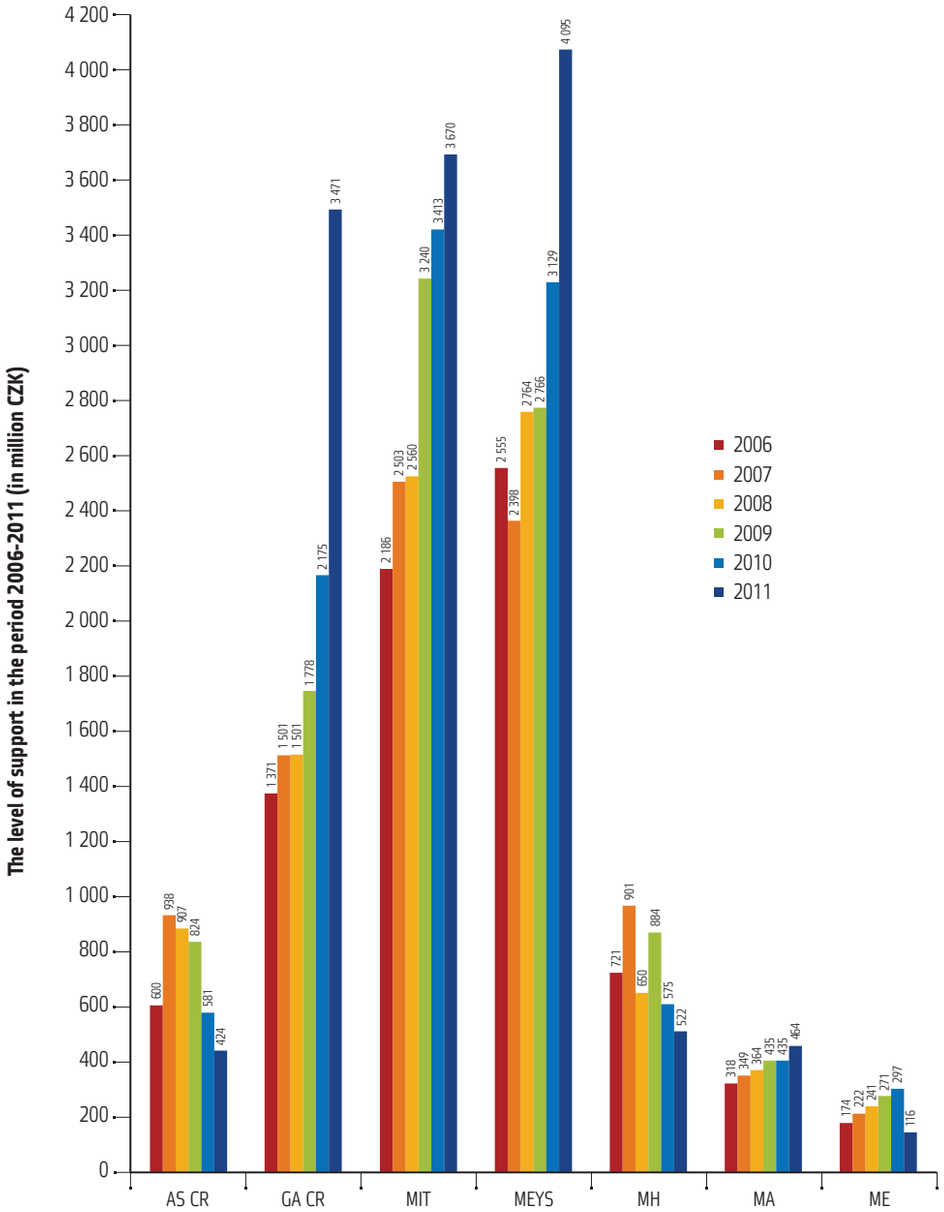
7.4 Development in the target-oriented support of R&D by selected providers

Figure No. 6 illustrates the level of target-oriented support from public funds by selected providers in the period 2006—2011.

Comments:

- The target oriented support of R&D is provided to programme R&D projects on the basis of public tender results. GA CR and AS CR provide for the support of grant projects. Other providers, including AS CR, support programme projects which make parts of R&D programmes by them published and public R&D orders.
- Resources for the gradually operating Technological Agency CR, which shall, as has already been stated, undertake a significant part of the target-oriented support of the applied R&D in CR, have been included in the target-oriented resources of the GA CR since 2009.
- The relatively fast growth in the level of the target oriented R&D support will continue after 2007 only in the case of MIT and MEYS. The growth will slow down, or will stagnate in the case of other providers in connection with the commencement of the Technological Agency CR activities.

Figure 6. Development in the target-oriented support of R&D by selected providers



Data source: Research and Development Council

7.5 Development in the total public funding of R&D in individual regions

The R&D support from public funds has been distributed very unequally in the Czech Republic. This imbalanced distribution of the public support of R&D has been caused by the imbalanced distribution of capacities involved in R&D in the Czech Republic. Establishment of new R&D capacities in the regions with the exception of the capital Prague should help to reduce the large differences. The establishment shall be supported by EU resources within the framework of the operational programme Research and Development for Innovations.

Development in the total public support of R&D in individual regions of the CR is illustrated in Fig. No. 7.

Figure 7. Development in the total public support of R&D in individual regions of CR (in million CZK)

Source: Research and Development Council. Analysis of the situation in R&D and innovations in the Czech Republic and its comparison with other countries in 2007.
Note: The total public support of R&D covers all target-oriented support. In the case of the institutional support, only support provided on the basis of research plans has been included. The institutional support of specific research at universities or the support of selected activities within the international co-operation in R&D has not been included.

Comments:

- The support has been divided very unequally throughout the Czech Republic. It has been strongly concentrated in the Capital City of Prague and in the South Moravian region.
- The following Table No. IX presents shares of the Capital City of Prague and the four regions with the highest support in the total support from public funds: Capital City of Prague, South Moravia, Central Bohemia, and the region of Olomouc.
- During the period 2002 -2007 the shares of the Capital City of Prague dropped from 63.3% to 57.6%. Shares of the two regions (Capital City of Prague and South Moravia) dropped less. The shares of four regions practically stagnate at around 82%. In 2007, still more than 55% of the total support of R&D from public funds went to the Capital City of Prague and to the four mentioned regions together more than 80% of the total support.
- The operating programme OP Research and development for innovations, funded mostly from structural funds of EU should reduce the differences in the support distribution. Within the framework of this programme there should be larger research capacities, located elsewhere outside the Capital City of Prague and Brno.

Table IX.

Regions	Shares in the total public support of R&D (in %)			
	2002	2004	2006	2007
Capital City of Prague	63.3	60.4	57.6	57.6
Capital City of Prague, South Moravia	76.8	73.0	71.6	72.4
Capital City of Prague, South Moravia, South Bohemia, Region of Olomouc	83.4	81.2	81.4	82.0

Research and development programmes of individual providers

8

Whereas the main objective of the "Guide to the system of state support of research and development in the Czech Republic" is to provide information about the opportunities and methods of acquiring state funding for participation in public tenders for the general public, the main focus here will be on target-oriented funding for research and development. Research and development programmes will then be presented from:

8.1. Academy of Sciences of the Czech Republic and its grant system (AS CR)
8.2. Grant Agency of the Czech Republic and its grant system (GA CR)
8.3. Research programmes of the Ministry of Industry and Trade (MIT)
8.4. Research programmes of the Ministry of Education, Youth and Sports (MEYS)
8.5. Research programmes of the Ministry of Health (MH)
8.6. Research programmes of the Ministry of Agriculture (MA)
8.7. Research programmes of the Ministry of Environment (ME).

The publication describes the situation in November 2008. It presents all those programmes that receive funding from public sources.

8.1 Academy of Sciences of the Czech Republic and its grant system (AS CR)

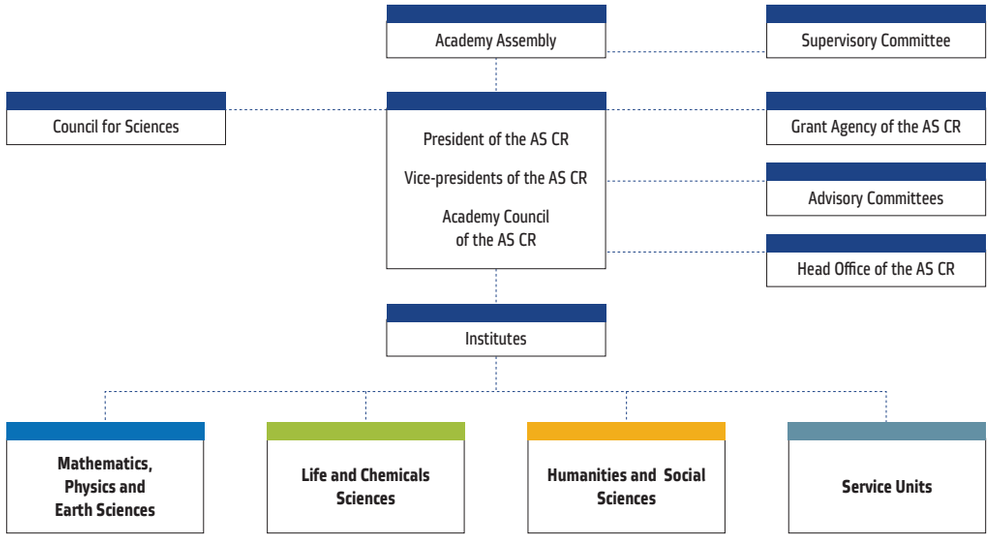
8.1.1. Basic characteristics of the AS CR

The Academy of Sciences of the Czech Republic was founded by Act no. 283/1992 Coll. as the Czech successor of the former Czechoslovak Academy of Sciences. It consists of 53 scientific institutes and 5 service centres, including the AS CR Administration. It employs almost 7,000 people and more than half of these are university educated. Since 1.1.2006, the scientific institutes and service centres have the legal form of public research institutions.

The main mission of the AS CR and its centres is the organisation of basic research within an extensive spectrum of natural, technical, and social sciences. This research — whether extremely specialised or interdisciplinary in nature — strives to develop knowledge at an international level, while respecting the current needs of Czech society and its national culture. The Academy of Sciences centres contribute to education, particularly by the training of young scientists following doctorate programmes, as well as through the teaching activities of their employees at universities. The Academy is also expanding its co-operation with applied research and industry. A number of joint international projects and employee exchanges with foreign partner institutions have reinforced the involvement of the Czech science in an international context.

The highest self-governing body of the Academy of Sciences is the Academic Congress, two thirds of which consists of representatives of all its institutes, as well as of representatives from universities, the public administration, the business world, and other distinguished figures. The Academic Council, headed by the Chairperson of the Academy of Sciences, is the executive body of the Academy. The Science Committee deals mostly with the Academy's scientific policy. These academic bodies are always elected for the period of four years. The Commission for the Evaluation of Research Activities in AS CR centres organises an independent assessment of the scientific work of the individual institutes and their research projects, corresponding to the Academy's individual scientific disciplines. The structure of the AS CR is shown in **Figure 8** below.

Figure 8. Organisational structure of the AS CR



The Academy of Sciences is mainly funded from the state budget (see Chapter 7). The funding of scientific work within the Academy complies with normal international standards. In addition to the institutional funding of AS CR centre research projects, target-oriented funding is playing an increasingly important role, in the form of scientific projects and grants selected by public tender. The Academy was the first institution in the Czech Republic to found its own Grant Agency (GA AS CR) to fund scientific projects selected on the basis of a peer-review system, which also involves also foreign assessors. Individual institutes obtain additional support through their participation in domestic or foreign programmes. The Academy has also been mandated to represent 71 specialised Czech scientific societies, grouped together in the Council of Scientific Societies, in budgetary matters.

8.1.2. Research Programmes of the AS CR

During 2009, work will take place on projects falling under the following research and development programmes:

- "Support for targeted research and development projects" (1Q)
- "Information society" (1E)
- "Nanotechnologies for society" (KA)

8.1.2.1. Support for Targeted Research and Development Projects (Code 1Q)

This is the second partial programme of the "Integrated research" sectional programme, which forms part of the National Research Programme (NRP I) announced for the period from 2004-2009 (see **Table VI**). The programme objectives are as follows:

1. To provide tools to target advanced stages of academic research towards achieving results that can be brought into practical use for the further development of innovation technologies, new materials and products with high added value, or for socioeconomic applications.
2. To help specific projects to reinforce the changeover between individual stages of research and development: academic research – target-oriented research – applied research and development.
3. To lay foundations to increase the economic value of the results of its own academic research in future by support more rigorous protection of intellectual property and rights to the results of research and development.

No further public tenders will be announced for this programme.

53 projects with a total value of 326.679 million CZK were accepted for this programme.
32 projects are due for completion in 2009.

8.1.2.2. Information Society (1E)

This is topical programme 2 from NRP I announced for the period from 2004 – 2009 (see **Table VI**). The programme objective is to funding research aimed at acquiring basic information to facilitate the development of information technology and to apply this knowledge, and the technology based on it, in the manufacturing, communication and management fields. The basic structure of the programme is as follows:

Partial programme no. 1: Intelligent systems for decision-making, management and diagnostics

- Automatic control and data gathering systems
- Artificial intelligence and its application
- Development of sensors, actuators and devices for interactive communications between man and machine
- Development of transport telematics and the construction of intelligent transport systems

Partial programme no. 2: Information and knowledge management

- Design, implementation and application of extensive distributed computer, database and information systems
- Medical information and knowledge systems including personnel systems
- Electronic documentation for the healthcare, social security and public administration systems

Partial programme no. 3: Communications infrastructure and technology

- Multi-functional communication network, including a security and data protection system
- Digital television and radio, providing interactive information services with the use of digital terrestrial television
- Devices and equipment working on the principles of quantum, statistical and wave optics, including devices and equipment for optical communications

Partial programme no. 4: Computer modelling and system and process designs

- Equipment for mathematical and computer modelling, simulation, system design and visualization
- Complex integrated circuits and systems, modelling, description and design, including complex systems on a single chip
- Software engineering

76 projects with a total value of 789.306 million CZK were accepted for this programme.
15 projects are due for completion in 2009.

No further public tenders will be announced.

8.1.2.3. Nanotechnologies for Society (KA)

The programme was announced on 14.12.2005. The main objective of the programme is to achieve significant progress in the development of research and in the practical application of nanotechnologies and nanomaterials in Czech society. At the same time, the programme aims to create a platform which would include the AS CR, universities and the Czech industrial sector, which would ensure long-term development of this area of science. An analysis of the current situation in this area of science has shown that only a specific, comprehensive and focussed programme to fund the development of research into nanotechnologies in the Czech Republic can reverse the current downturn in this area. This programme is expected to be completed in 2012.

Three public tenders were launched to call for submissions of project proposals during the period from 2006 – 2007 (the last on 30.5.2007). The results of these public tenders are available on www.avcr.cz and www.nanotechnologie.cz. Because the programme has been presented in detail in the "Short Guidebook 2007" and is available on www.nanotechnologie.cz, we will only give a short description here.

8.1.2.3.1. Structure of the "Nanotechnologies for Society I" programme

The programme is divided into 4 sub-programmes:

1. Sub-programme "Nanoparticles, nanofibres and nanocomposite materials".
2. Sub-programme "Nanobiology and nanomedicine".
3. Sub-programme "Nano-macro interface".
4. Sub-programme "New phenomena and materials for nanoelectronics".

8.1.2.3.2. Sub-programme "Nanoparticles, nanofibres and nanocomposite materials"

Sub-programme goals.

- To create new materials, to develop methods for their preparation, to optimise and achieve targeted modified and usable mechanical, electric and other material properties based on the unique characteristics of nanoparticles, nanofibres and composite and nanostructured materials.
- To extend the spectrum of industrially applicable technologies by the effective transfer of knowledge based on the practical use of nanoparticles, nanofibres, nanocoatings, nanostructures and nanocomposites in the manufacture of materials in the Czech Republic. In the case of free nanoparticles and nanofibres, to assess any potential negative impact on humans and the environment.

Sub-programme priorities.

The sub-programme has the following priorities:

- **Nanoparticles of metals and metallic oxides.**
- **Nanoparticles and nanolayers on a base of ceramic materials. Nanofibres based on carbon, special inorganic materials and polymers.**
- **Nanocoatings, nanostructures and nanocomposite materials.**

8.1.2.3.3. Sub-programme "Nanobiology and nanomedicine"

Sub-programme goals.

- To use nanostructures and nanocomplexes, including hybrid materials controlled by an external magnetic field, for new forms of pharmaceuticals, diagnostics, contrast agents and carriers providing targeted transport of these substances or the transfer of genetic information, their activation and biodegradation in the organism.
- To design new biosensors and diagnostic systems to enable the sensitive detection of molecular objects and to support the introduction of modern nanotechnology materials and methods into medical practice in the Czech Republic.

Sub-programme priorities

The sub-programme has the following priorities:

- **The targeted delivery of biologically active substances and nanosystems for diagnostics, therapies or radiotherapies, using, for example, polymers or "molecular vessels".**
- **Magnetic nanoparticles for medical purposes.**
- **Bio-functionalization of surfaces.**
- **Biosensors and diagnostic systems.**
- **Polymer nanocomplexes for the transfer of genetic information and gene therapy.**
- **Supramolecular creation of nanostructures.**

8.1.2.3.4. Sub-programme "Nano-macro interface"

Sub-programme goals.

- To design new devices, instruments and equipment for the creation of and characterisation of high-resolution nanostructures and to develop new methods for handling nano-objects and connected them into their micro and macro environment, particularly with microelectronics.
- In the case of technically interesting bulk and gradient materials, to create new metrological processes for the simultaneous description of the topography and chemical composition of their surfaces with high lateral resolution and to develop methods to optimise the usable mechanical, electrical and other characteristics of these materials.

Sub-programme priorities.

The sub-programme has the following priorities:

- **To develop devices, instruments and equipment for the creation and characterization of high-resolution nanostructures.**
- **To develop methods for the handling and connection of nano-objects with their micro and macro environment.**
- **To develop metrological methods and characterization of surfaces of technically interesting macroscopic materials with nm resolution.**
- **To study bulk materials whose properties are fundamentally influenced by their microstructure or nanostructure, and especially by nanometric grain boundaries.**

8.1.2.3.5. Sub-programme "New phenomena and materials for nanoelectronics"

Sub-programme goals.

- To design, prepare, describe and model new nanostructures suitable for detectors, photonic crystals and lasers and new semiconductor spintronic materials for the development of a new generation of nanoparts for the recording and transfer of information.
- To draft new methods for the preparation of nanostructures and nanomaterials with targeted management of object sizes or their self-organization, especially the preparation, characterization and optimization of new nano-carbonaceous and nano-diamond materials for bio-applications and nanoelectronics.

Sub-programme priorities.

The sub-programme has the following priorities:

- **Nanophotonics and particularly new types of laser.**
- **Semiconductor spintronics.**
- **Nanostructures on a base of carbon and nano-diamond layers.**
- **Nanotechnologies and nanophenomena on the atomic and molecular levels.**

38 projects with a total value of 1522.035 million CZK were accepted for this programme. 2 projects are due for completion in 2009 and work will continue on an additional 35 projects. A breakdown of project aims shows that 82% of projects (31) focus on research on nanomaterials, nanobiotechnologies, nanomedicine and nanoelectronics.

No further public tenders will be announced.

8.1.2.4. Contact details

AS CR Office, Department of Projects and Programmes
Národní 3, 117 20 Praha 1
Tel.: 221 403 361, fax: 221 403 521
e-mail: ozp@kav.cas.cz
http://www.avcr.cz → Výzkum a vývoj → Programy VaV

8.1.3. Grant Agency of the AS CR

The system of grants was introduced to AS CR in 1991 by the creation of the Grant Agency of the then Czechoslovak Academy of Sciences (CSAV), now the Grant Agency of the Academy of Sciences of the Czech Republic (GA AS CR).

Its mission is to distribute funds assigned to this purpose from the AS CR budget and other resources allocated for the target-oriented funding of grant projects on the basis of results of research and development public tenders. The GA AS funds top quality basic research projects and are based on proposals submitted by research teams and individuals. The activities of the GA AS contribute to the implementation of the Academy's Research and Development Concept, (hereinafter referred to as the "R&D development concept") which follows the National Research and Development Policy of the Czech Republic. The grant system is based on the GA AS Statutes, passed at the XVth session of the Academy Assembly on 18 December 2002 and the Principles of the Activities of the GA AS, approved at the 28th meeting of the Academy Council on 11 February 2003. Public tenders in research and development in relation to grant projects are announced by GA AS on behalf of the Academy of Sciences of the Czech Republic in accordance with the Act on Research and Development Support and Government Directive no. 461/2002 Coll. on target-oriented support of research and development from public funds and on public tenders for research and development based on the Research and Development Support Act. The provider of the target-oriented support is the Academy of Sciences of the Czech Republic.

Within the framework of the procedure stipulated in the Statutes of the GA AS, a new round of tenders is called each year, the type of grant project for a given round is selected and the conditions for the tender are established.

The GA AS organises public tenders for the target-oriented funding of the following types of grant programme:
A. Standard research grant projects (IA)
B. Junior research grant projects (KJ)

The basic characteristics of these programmes are as follows:

A **Standard research grant projects (IA).** These are purely research grants aimed at the wide range of research paths currently being followed by the AS CR. This programme, which was first announced in 1991, is relatively well-funded. The project subject is selected by the proposer. The project must concern basic research and its professional focus must comply with the National R&D Policy of the Czech Republic. The assigned researcher must work on the grant project him/herself or with a team of researchers. The project duration may be for a period of between 2 and 5 years (unless otherwise specified in relevant year). Members of the research team may also be students during their Masters or doctoral studies. Standard research grant projects may be sectoral or cross-sectoral. The list of completed grant projects, and their description, is available on www.avcr.cz. and www.vyzkum.cz. To date, 2,619 projects with a total value of 3411.098 million CZK have been accepted under this programme. The average value of a grant project is 1.3 million CZK. The last public tender was announced on 19.3.2008 and a similar time frame is expected for the tender in 2009.

B **Junior research grant projects (KJ).** The project subject is selected by the proposer. The project must concern basic research and its professional focus must comply with the National R&D Policy of the Czech Republic. The grant project is limited to applications from young researchers under the age of 35, who have graduated from or are attending doctoral studies or are at the last stage of a doctorate programme immediately before defending their thesis, or from a research team consisting of a majority of young researchers, where the average age of the team, including the applicant, does not exceed (given the assumed number of researchers) 38. The project duration may be between 1 and 3 years, in full calendar years. To date 435 projects with a total value of 471.669 million CZK have been accepted under this programme, which was first announced in 2003. The average value of a grant project is 1.1 million CZK. The last public tender was announced on 19.3.2008 and a similar time frame is expected for the tender in 2009.

Contact details

Secretariat: Grant agency AS CR
Národní 3, 117 20 Praha 1
e-mail: acadga@kav.cas.cz
http://www.gaav.cz

8.2 Grant Agency of the Czech Republic and its system of grants

8.2.1. Basic Information

The Grant Agency of the Czech Republic (GA CR) was founded by Act no. 300/1992 Coll. on State support of research and development in the mid 1992 as an independent institution to support basic scientific research in the Czech Republic. Since 2002, a new Act no. 130/2002 Coll. on support for research and development has entered into force. The task of GA CR has been to assign grants, on the basis of public research tenders, every year to the best basic research projects in all areas of science. Another task of the Agency is to monitor project performance and achievement of project goals at the end of each year and to evaluate the project results after its termination.

The GA CR provides grants or target-oriented funds from the state budget chapter assigned to it. According to information supplied by the CEP[11], a total of 10,862 projects have been funded since the Agency was established, to a total amount of 17.042 billion crowns of state support. The GA CR provides financial support to scientific projects within the framework of programmes of standard projects, doctorate projects, post doctorate projects, and projects under the Eurocores programme, which is organised by the European Science Foundation. The task of the GA CR is:

- To prepare and announce public tenders in research and development for grant project funding.
- To evaluate project proposals using the GA CR expert advisory bodies and to select the best projects to be awarded grants.
- To award grants to the selected projects within its budgetary limits, i.e. according to the amount received by the GA CR from the state budget, and to conclude agreements with the applicants.

11 CEP – Central Register of projects at www.vyzkum.cz

- To monitor project performance and the achievement of project goals at the end of the year on the basis of partial reports.
- To evaluate project results on termination on the basis of the final reports.
- To monitor financial management of funds assigned to the project, i.e. to check they are being spent suitably and in accordance with the applicable regulations and requirements.
- To cooperate with foreign research bodies and institutions, particularly with EC Member States.

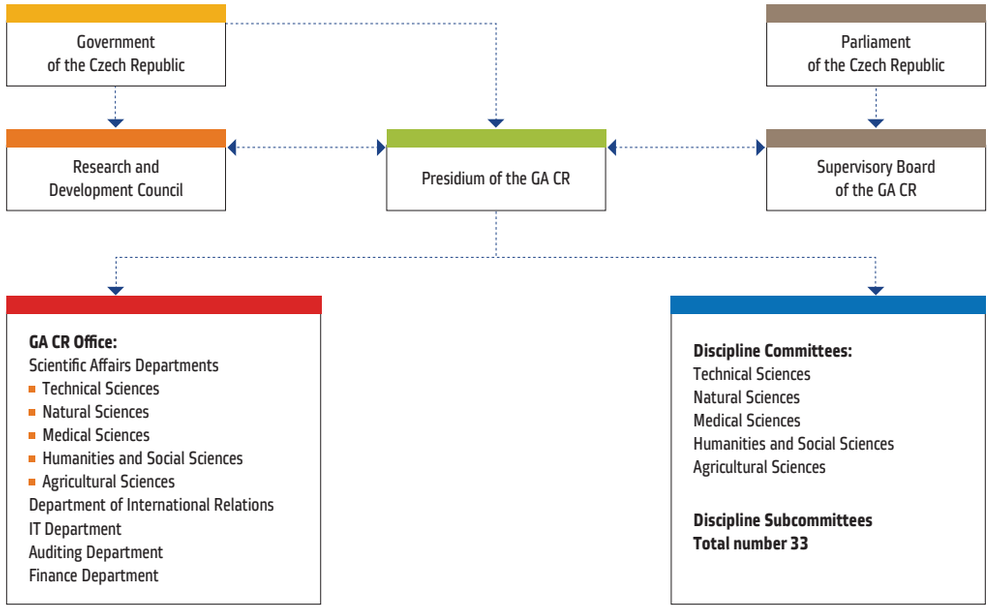
The GA CR has developed a detailed Grant system, which documents the rights and obligations of applicants and provides other necessary information.

8.2.2. Organizational Structure of the GA CR

The organizational structure of the GA CR is illustrated in **Figure 9** below.

- The Grant Agency bodies are the Chairperson, the Presidium and the Supervisory Board of the Grant Agency.
- The advisory bodies of the Grant Agency are the Grant Agency sector commissions.
- The Presidium of the Grant Agency (hereinafter referred to as the "Presidium") may establish sub-sector commissions as advisory bodies for the sector commissions.
- The organizational and administrative activities of the Grant Agency are performed by the Grant Agency Office.

Figure 9. Scheme of the GACR Structure



8.2.3. Sector and Sub-Sector Commissions

The sector commissions accept, evaluate and approve basic research projects. Members of the sector commissions nominate and remove the Presidium in accordance with the principles set forth in a special legal regulation. Membership of the sector commissions constitutes a function that is in the public interest.

Sector commissions have been established for the following fields:

- technical sciences,
- natural sciences,
- medical sciences,
- social sciences,
- agricultural sciences.

A summary of the sector and sub-sector commissions is presented in **Table X**.

Table X. The list of Advisory Committees and Subcommittees

1. Technical Sciences	101 - Mechanical engineering 102 - Electrical engineering and cybernetics 103 - Civil engineering, architecture and transport 104 - Technical chemistry 105 - Mining 106 - Metallurgy and material science
2. Natural Sciences	201 - Mathematics and information 202 - Physics 203 - Chemistry 204 - Cell and molecular biology 205 - Earth and space sciences 206 - General and ecological biology
3. Medical and Health Sciences	301 - Molecular biology, genetics, experimental oncology 303 - Biochemistry, metabolism and nutrition 304 - Morphology and experimental surgery 305 - Physiology, pharmacology, toxicology 309 - Neuroscience 310 - Microbiology, immunology, epidemiology and hygiene
4. Human and Social Sciences	401 - Philosophy and theology 402 - Economic Sciences 403 - Sociology 404 - Historical sciences, ethnography, art history 405 - Philology 406 - Psychology 407 - Legal sciences and politology 408 - Aesthetics and musicology 409 - History of the 19th and 20th centuries
5. Agricultural Sciences	521 - Plant production, genetics and breeding 522 - Phytopathology and plat physiology 523 - Animal production, genetics and breeding 524 - Animal physiology and pathology 525 - Agricultural products, food technology and eco toxicology 526 - Ecology, forestry, and soil sciences

The primary activities of the sector commissions are:

a) to accept project proposals and to assess their compliance with the conditions of the public tender,
b) objectively and impartially to assess and approve basic research project proposals in accordance with the rules announced and the criteria of the public tender and on the basis of the opinion of the assessors,
c) to draft a report on the results of the evaluation of each project proposal,
d) to propose that the Presidium establish or dissolve sub-sector commissions, and to propose the appointment and removal of their members,
e) to present their position regarding project organization and evaluation procedures to the Presidium.

8.2.4. Types of Grant Projects

The Grant Agency of the Czech Republic supports several kinds of projects, all of which concern basic research.

They are:

- Standard projects (GA) – 1993 –
- Post doctorate grants (GP) – 1998 –
- Doctorate grants (GD) – 2003 –
- EUROCORES (GE) - 2003 –
- International bilateral projects (GC) – 2007 – 2010

Most of the activities of the GA CR are concentrated in the programme of **standard projects**, which is open to any legal or natural persons from the Czech Republic. The applicants select the project topics themselves. To date, 9,418 projects with a total value of 14430.870 million CZK have been accepted by the programme, which was first announced in 1993. The average value of a grant project is 1.53 million CZK.

Apart from the standard projects, in 1997 the GA CR introduced a programme of **post-doctorate grants**, which is open to young researchers under the age of 35, who have completed their doctorate studies. The programme goal is to support those post-graduates who are interested in working for scientific institutions. The programme is designed to assist these institutions by creating financial conditions for young scientists that will encourage them to remain in the scientific field. It is also an attempt to make use of the potential of recognised experts and involve them in tackling problems raised by promising young scientists. To date 1,249 projects with a total value of 878.891 million CZK have been accepted under the programme. The average value of a grant project is 0.7 million CZK.

Another activity, which was launched in 2003, is the programme of **doctorate grants**, which is designed for teams of doctorate graduates combining specialists in a given area. The purpose of the programme is to raise the social image of doctoral programmes, thereby making scientific study more attractive for those holding Masters degrees. To date, 96 projects with a total value of 880.951 million CZK have been accepted under the programme. The average value of a grant project is 9.18 million CZK

Since 1999, the GA CR, together with the Academy of Sciences of the Czech Republic (AS CR) has been a member of the European Science Foundation (ESF) – which affiliates national scientific institutions from almost all the European countries. Within the framework of this grouping, the GA CR has been contributing to the funding of the **EUROCORES** international scientific programmes since 2003. To date, 17 projects with a total value of 56.053 million CZK have been accepted under the project. The average value of a grant project is 3.3 million CZK.

Since 2006, the GA CR has announced calls for public tenders under the **international bilateral project** programme. The programme is due to be terminated in 2010. On the basis of partnership agreements concluded with other agencies funding science and research, the GA CR supports collaboration between Czech and foreign entities working on joint projects in various areas of science and technology (see **Table X**). To date, 27 projects with a total value of 64.619 million CZK have been accepted under the project. The average value of a grant project is 2.4 million CZK.

8.2.5. Public Tenders

On 13.2.2008, a public call for tenders was announced for the submission of grant proposals under the GA, GC, GD and GP programmes.

On 20.2.2008 another public call for tenders was announced for the submission of grant proposals under the GE programme.

Announcements of public tenders relating to all types of grant commencing in 2009 can be expected to be made at a similar date.

8.2.6. Some Additional Information And Contact Details

a) Home page:
The home page of the GA CR website is http://www.gacr.cz, and contains up-to-date information and frequently asked questions, while forms can be downloaded for the submission of applications.
b) Publications by the GA CR Office:
GA CR publishes the GA CR Bulletin and an annual publication entitled "The Grant System of the GA CR", various lists of allocated and completed grants, some of which are in English.
c) Contact details:
Grant agency CR
Národní 3, 111 21 Praha 1
Tel. 224 403 111
e-mail: grantcr@gacr.cas.cz
http://www.gacr.cz

8.3 Research programmes of the Ministry of Industry and Trade (MIT)

In 2009 the MIT will provide funding for programme projects under the following research programmes:

- "PROGRESS" (1H)
- "TANDEM" (FT)
- "IMPULSE" (FI)
- "Permanent Prosperity" (2A)
- In January 2009 a new sector programme, "TIP" (FR) will be announced for the period from 2009 - 2014.

8.3.1. Progress Programme (1H)

The "PROGRESS" research and development programme forms part of the "National Research Programme I" and focuses on funding industrial research and development projects that will ensure the competitiveness of the Czech economy in sustainable development and to respond to the energy needs of this economy and the society.

The programme was announced by the Ministry of Industry and Trade in 2003 with funding for selected projects launched in 2004. The programme will be terminated in 2009.

Two NRP I topical programmes are implemented under the programme (see **Table VI**):

- Competitiveness in sustainable development (partial programmes: Manufacturing processes and systems, Building and construction, New materials, New technologies, Use of natural resources).
- Energy for the economy and society (partial programmes: Safe and efficient nuclear energy, Energy and non-energy use of coal and carbonaceous materials).

A total of 49 projects with a total value of 589.357 million CZK have been accepted under the programme. The average value of a grant project is 12.0 million CZK. 8 projects are due to be completed in 2009.

8.3.2. "Tandem" Programme (FT)

The programme was announced as a ministerial program by the Ministry of Industry and Trade in 2003 and funding for selected projects was released from 2004. Projects will be terminated in 2010 at the latest. The programme goal is to improve collaboration between industrial companies and research centres (academic, university and others), to provide theoretical and technological support for small and medium-sized companies, to improve the competitiveness of future products and technologies and significantly to improve the transfer of research results to industrial applications as well as to reduce the differences between the economic standard of the Czech Republic and other European Union Member States. The programme provides funding for projects involving research into the creation of new materials and materials with hitherto unknown properties, new technologies, systems and services, including the possible purchase and verification of samples and cutting-edge demonstration equipment, which will best comply with the criteria for this programme and improve the practical parameters. A total of 290 projects with a total value of 4230.401 million CZK has been accepted under the project. The average value of a grant project is 14.6 million CZK.

8.3.3. "Impulse" Programme (FI)

The programme was announced by the Ministry of Industry and Trade in 2003 and funding from selected projects was initiated in 2004. Projects will be terminated in 2010 at the latest. Under the terms of the programme, projects focusing on the research and development of new materials and materials with hitherto unknown properties, new or improved industrial products and equipment or improved industrial products and equipment, new or improved technologies, systems and services, new information and management products and technologies, including any purchase and verification of samples, prototypes, semi-finished or demonstration equipment, which is cutting-edge technology, will best comply the criteria set for this programme, improve the techno-economic, operational and ecological parameters, increase the utility and the level of value added, can be forecast to be completed within three years (36 months) of the date funding is released from the state budget and which will start to pay back on the money invested within a maximum of five years after termination. A total of 632 projects with a total value of 5279.385 million CZK has been accepted under the project. The average value of a grant project is 8.4 million CZK.

8.3.4. "Permanent Prosperity" Programme (2A)

The programme is topical programme 1 (TP 1) of the National Research Programme II (see **Table VII**). Its duration is from 2006 – 2011. Calls for public tenders have been completed.

8.3.4.1. Goals of the Continuing Prosperity programme

1. To prepare new materials and to ensure new procedures for the use of renewable and non-traditional sources of energy, including hydrogen energy.
2. To increase the reliability of equipment used for the transfer of electrical energy.
3. To develop new procedures for nuclear energy technology.
4. To reduce the energy demands of building operations.
5. To create non-conventional structures and construction of machinery.
6. To create new materials with new practical properties, including nanomaterials and new methods of material diagnostics.
7. To prepare new semiconductor parts for diagnostics and control.
8. To increase the efficiency of transport safety systems.
9. To introduce new procedures for selected areas of the chemical and pharmaceutical industry.
10. To develop new materials and new ingredients into products from other fields, new polymers and catalysers.

8.3.4.2. Topical areas of the "Permanent Prosperity" programme

The programme's topical areas are listed in **Table XI**.

Table XI. Topical areas within the topical programme 1 "Permanent Prosperity"

	Topical areas
T 1-1-1	Increased reliability of electrical high voltage networks and switching stations
T 1-1-2	Utilisation of hydrogen and fuel cells as energy sources
T 1-1-3	New nuclear technologies for the production of power, high potential heat, and hydrogen
T1-1-4	Lowering of energy demands of building operations
T1-1-5	Renewable energy resources
T1-2-1	New technologies and materials for the air protection
T1-2-2	Technologies for the protection of waters and the mineral environment
T1-3-1	New materials with new usable properties
T 1-3-2	Applications of new materials in machine design
T 1-3-3	Mechanical systems and robotics
T 1-3-4	New structures of manufacturing machines
T 1-3-5	New semiconductor sensors and nanoparts
T 1-3-6	Increased operational lifespan and reliability of machinery products and facilities of top technical parameters
T 1-3-7	New nanodiagnostic methods
T 1-4-1	Alternative energy resources in transport
T 1-4-2	Higher quality and increased reliability of the transport infrastructure
T 1-4-3	Transport equipment and systems for the public and individual transport
T 1-5-1	Chemical optimising and the development of new pharmaceutical technologies
T 1-5-2	Safety of chemicals
T 1-5-3	Nanomaterials and processes
T 1-5-4	Development of new chemical additives for products in other industries
T 1-5-5	Functional polymers
T 1-5-6	Organic syntheses for products with the high value-added
T 1-5-7	Catalysts for the protection of environment, the energy industry, the food industry, and for the low waste chemical technologies

8.3.5. "TIP" Programme (FR)

The "TIP" Programme (Technology, Information systems, Products) was approved by the Government of the Czech Republic in its Resolution no. 942 on 22.8.2007 and notification were received from the European Commission on 20.11.2008, over a year later.

The programme will run from 2009 to 2014. Completion of all projects is planned for 2017. The duration of the individual projects is restricted to a period of four years (48 months), and the projects must begin on the year the call for public tenders in research and development was launched. The exception is 2009, when projects selected by public tender

announced in January 2009 will be started the same year.

The Ministry of Industry and Trade wishes to use the TIP programme to assist research and development for future rational industrial manufacture, in order to strengthen production in the Czech Republic and, subsequently, in the European Union, and to ensure sustainable development in all areas, i.e. economic, social and environmental. This should facilitate a smooth and continuous output of research and development information to support industrial manufacture and ensure that it is applied in a fast and effective manner. Support from public funds is to be provided before these products face competitive market conditions.

The projects must have, inter alia, a strong incentive effect to encourage an increase in research and development activity, in the sense of Section 6 of the Community Framework for State Aid for Research and Development and Innovation no. 2006/C 323/26.

Participation in this programme, or the receipt of funding, is intended to assist manufacturers to adopt a market position that allow them to react rapidly to change and to share in or to shape it. This primarily concerns manufacturing companies that can guarantee a long-term presence on the Czech market. A significant amount of funding should go to research and development for small and medium-sized enterprises.

8.3.5.1. Support, its type and amount

Funding will be provided in the form of a targeted partial subsidy for a programme project. The proportion of the total eligible costs for a given project covered by the subsidy will be established in accordance with the Framework referred to above. Basic and applied research projects that receive 100% funding will not be subsidised. Nor will 100% funding be provided for individual stages of research and development projects.

8.3.5.2. Conditions for granting a subsidy

The condition for the provision of a subsidy is participation in a public tender for research and development that selects programme projects for this programme. These tenders will be announced in accordance with the Act on support for research and development and related regulations as amended, and compliance with the individual provisions of the Framework.

Subsidies for the support of a programme research and development project will only be granted only to those applicants that can provide at least 50% of the project performance through their own employees - this will be measured by spending on eligible project costs, defined as personal costs - or to consortiums whose share of the project performance, would be comparable in volume, through one of the participating parties (beneficiary).

The acquisition of long-term tangible assets is not allowed. The costs of the acquisition of long-term tangible and intangible assets in projects may be a maximum of 20% of overall eligible costs. The intangible assets must be specified in detail in the application as well as why they are essential for the project. Requirements for intangible assets will be assessed individually.

Project results are expected that should be applicable in practice, after a subsequent manufacturing preparation stage, or that will clearly lead, on the basis of further development and a subsequent manufacturing preparation stage, to practical applications, as well as results that can also be used in other organisations and enterprises and results that have a broader application.

8.3.5.3. Recipients of funding (subsidies)

Pursuant to the Act on support for research and development, recipients of aid or a subsidy for a programme research and development project from the State budget of the Czech Republic may be:

- enterprises – legal or natural persons who maintain accounting records in accordance with the Act on accounting in force and who are entered in the Commercial Register – in the field of industrial manufacturing, including small and medium-sized enterprises, who will perform and project independently or in collaboration with partners and who can prove their ability to co-fund the project from their own or other private resources,

- research organizations (research institutes, public research institutions), and schools may only receive aid as participants and recipients in this programme if they can provide evidence of sources of co-funding to cover eligible project costs from their own or other private resources,

- enterprises – legal or natural persons who maintain accounting records in accordance with the Act on accounting in force and who are entered in the Commercial Register – in the field of industrial manufacturing, including small and medium-sized enterprises and research organizations (research institutes, public research institutions) and schools may participate in the project as partners and co-recipients without restriction.

Persons wishing to participate as partners in the project must submit a legal agreement on their participation in the project.

8.3.5.4. Programme goals and their justification:

New materials and products:
In order to enable a manufacturer to succeed on the market, it must pay constant attention to its production, plans it, implement any changes required as quickly as possible and introduce it on to the market in a well-thought out manner.

Funding will be granted to research and development projects that ensure the incorporation of good ideas into new, competitive, materials and materials with hitherto unknown properties, nanomaterials, new or improved industrial products and equipment, including the purchase and testing of samples, prototypes, or demonstration equipment and the testing of new technologies. The research and development activities must focus on future market needs, must monitor the sustainability and conservation of resources and must respect ecological, energy and social considerations.

It can be taken as a fact that products based on the latest knowledge will have higher value added and will contribute to maintaining the manufacturer's market presence over the long term.

New progressive technologies:
The optimization of conventional manufacturing processes, the development of new ones and the use of progressive and better performing technologies are essential conditions for maintaining a market position when faced with global competition that is continually intensifying. When developing new manufacturing processes, the possibilities of their improvement must be broadly analysed and they must be used to the greatest possible extent.

The objective is to become competitive through internationally recognised values for precision, quality, production safety, speed of delivery, economic management, ecology and by using technologies that allow multiple applications, inter-sectoral technologies, biotechnologies, nanotechnologies, etc.

New information and management systems:
Extremely important factors in ensuring rational and progressive manufacturing, which have

a significant impact on it, involve optimising the management of manufacturing processes, maximising the amount of relevant information entering the manufacturing process, information on the course of technological operations, information on products and their use, on newly emerging requirements for products as well as maximising information assessing the entire course of the manufacturing process.

Research and development projects that result in the manufacture of cheaper, more ecological, safer, more flexible, faster, etc. products will be supported.

In terms of the research and development aspects, the most important factor concerns integration methods and tools to support effective planning, implementation, application and assessment of the manufacturing processes to respond to present needs, types of solutions for new and adapted production areas and production systems, reconfigurable management of manufacturing processes, management processes to structure products in response to present needs, having regard to flexible work organization and to new ideas for using operational models.

8.3.5.5. Criteria for evaluating project suitability for aid and a description of the programme goals:

Focus on the future:
An active focus on the research and development potential of universities, research centres and public research institutions to produce output that can be used by industry; cutting-edge technologies and products; biotechnologies; nanotechnologies and nanomaterials; global leader potential; products, technologies and services that meet people's needs at a massively higher level of quality; modernization of traditional manufacturing processes; evocation of new possibilities; solutions entailing risk-taking.

Economic importance:
Improving the competitiveness of Czech industry within the European area; increasing performance and reinforcing the importance of manufacturers; supporting small and medium-sized enterprises; creating and maintaining new jobs; environment-friendly (low waste technologies, recycling, improving the environment, ecological transport, liquidation and reduction of environmental burdens, using secondary raw materials, etc.); manufacturing forms that conserve resources, using them in a more effective way, or using non-traditional or renewable resources; socially profitable solutions.

Application of results:
Interdisciplinary nature – products and technologies with multiple uses; interdisciplinary technologies; complex technologies and innovations that respond to current needs, design, manufacture, distribution, application and production management; collaboration between science and the economy; projects leading to improving the level of cost management (controlling).

Scope of the goals:
Evidence of the application, or the opportunity of applying, the results of the research (project); transfer of knowledge (results of the research and development) into practical use; possibility of its use by enterprises in different areas of the economy and its suitability (also) for small and medium-sized enterprises.

8.3.5.6. Assessment criteria and expected advantages of the projects and the programme

The programme will mainly provide aid to smaller **industrial research and development** projects from the whole spectrum of Czech industrial production. It is assumed that the projects will perform research and development of new products, improved technologies and more environmentally-friendly processes, which will contribute to improving the competitiveness of the Czech economy while also promoting the creation of new jobs. The criteria for their selection in open competition — public tender — are the inventiveness of the projects and their suitability and relevance in terms of the advantages they will bring to the economy of the Czech Republic, or EU Member States or to the European Union as a whole. For this reason, RIV (Register of information on results – www.vyzkum.cz) methods are used to assess the programme benefits.

Each funded project must produce at least one of the types of result listed below and coded **P**, **Z**, or **S**, or possibly **X**:

- **P** patent or other result protected in accordance with special legal regulations
- **Z** pilot project, tested technology (used in manufacture, etc.), species or breed
- **S** prototype, applied methodology, operational sample, authorised software, results of applied research transposed into legal regulations and standards, utility model, specialised maps with professional content
- **X** other results that comply with RIV but cannot be included in any of the types of result listed above.

8.4 Research programmes of the Ministry of Education, Youth and Sports (MEYS)

The Ministry of Education, Youth and Sport is the central administration authority responsible for research and development. The Ministry currently organises the following activities:

a) Preparation of the National Research and Development Policy of the Czech Republic in accordance with international agreements and the monitoring of its implementation in the form of position papers on the compliance of research and development programmes presented by providers with the National Research and Development Policy of the Czech Republic before their approval by the government.
b) Preparation of priorities in the form of National Research Programme.
c) The implementation of research priorities in areas that do not fall under the remit of the providers, in the form of organisation of parts of the National Research Programme.
d) Preparation of legal regulations covering research and development and the assessment of impacts of other legal regulations on research and development.
e) International co-operation of the Czech Republic in research and development, including dealings with bodies and institutions of the European Community and of individual countries within the European Community having responsibility for research and development, with the exception of the international co-operation in defence research and development, which is the responsibility of the Ministry of Defence.
f) In cases when the Czech Republic is represented in the relevant international bodies and organisations by the Ministry, it presents the government with a report on the operation and results of this co-operation after their approval by the Research and Development Council. The report is then published.

The MEYS1 has a specific position in relation to ministries involved in state-supported research and development, which is supported by the following departments.

- "Department of international relations in research and development" organises

the extensive area of research and development at the international level, including the creation of ideas for international co-operation in research and development— see Chapter 9.

- "Department of research and development programmes" manages research programmes at universities, research projects falling under the authority of the ministry and other specific research programmes.

In 2009, the MEYS will provide targeted funding for the research programmes listed below (apart from programmes to support regional and international collaboration in research and development – see Chapter 9):

- "Research centres" (1M)
- "Basic Research Centres" (LC)
- "A healthy and quality lifestyle" (2B)
- "Information technology for a knowledge society" (2C)
- "The social and economic development of Czech society" (2D)
- "Human resources" (2E)
- "INFOZ – Information resources for research and development" (VZ)

8.4.1. "Research Centres" Programme (1M)

The "Research Centres" Programme is a partial programme under the DP1 Sectional programme PP2 — "Integrated research" National Research Programme I (see **Table VI**). The programme was announced for the period from 2005—2009, but will probably be extended. The centres' activities were defined by the subject of their research activities in applied research and development, although they could also have links to basic research, and they had to provide their goals, their strategies for attaining these and their expected results over a period of 5 to 7 years. The centres' activities had to be specifically comprehensive in nature, research activities that had been run separately and had little in common were not admitted. The subject of the research activities had to relate to the main area of research activities of the founding entities and they had to have already achieved demonstrable results. As this programme is extremely important for the Czech research environment, we have provided a list of 36 completed projects – centres in **Table XII**.

Table XII. List of projects from the "Research Centres" projects, which were initiated on 1.1.2005

	Project ID	Project name	Beneficiary	Coordinator
1	1M0501	Centre of aeronautical and cosmic research	VUT-FSI Brno	A. Píštěk
2	1M0505	Centre of targeted therapeutics	ÚJV Řež a.s.	V.Viklický
3	1M0506	Centre of molecular and cellular immunology	ÚMG AS CR, Prague	V.Hořejší
4	1M0507	Research into mechanical engineering manufacturing methods and technologies	ČVUT-FS, Prague	J.Houša
5	1M0508	New antivirus and antineoplasty programmes	ÚOCHB AS CR, Prague	A.Holý
6	1M0510	Research centre for cardiovascular diseases	FÚ ASCR, Prague	B.Ošťádal
7	1M0512	Research centre for powdered nanomaterials	UP-PřF Olomouc	M.Mašláň
8	1M0517	Centre for neuropsychiatric studies 2005-2009 (Clinical application of neurobiology)	Psychiatric centre Prague	C.Höschl
9	1M0519	Research centre for track vehicles	ZČU Pilsen	P.Heller
10	1M0520	Centre of applied genome research	ÚMG AS CR, Prague	V.Pačes
11	1M0524	Research centre for the competitiveness of the Czech economy	MU Brno	A.Slaný
12	1M0528	Dentistry research centre	MU Brno	J.Vaněk
13	1M0531	Research centre for musical acoustics	AMU Prague	V.Syrový
14	1M0538	Centre for cell therapy and tissue substitutes	UK-2LF Prague	E.Syková
15	1M0545	Institute of theoretical informatics	UK Prague	J.Nešetřil
16	1M0553	TEXTIL II research centre	TU-FT Liberec	A.Richter
17	1M0554	Advanced sanitation technologies and processes	TU-FM Liberec	J.Maryška
18	1M0556	Ecocentre for applied research on non-ferrous metals	VÚK Panenské Břežany	V.Očenášek
19	1M0567	Centre of applied cybernetics	ČVUT-FEL Prague	V.Kučera
20	1M0568	Josef Božek II research centre for combustion engines and automobiles	ČVUT-FS Prague	J.Macek
21	1M0570	Research centre for the study of barley and hops	Mendel agricultural and forestry university, Brno	J.Ehrenbergerová
22	1M0571	Bioindication and revitalization of toxic anthropogenous substrates and water sources: use of cyanobacteria, algae, soil bacteria and symbiotic mushrooms	Botanical institute AS CR, Průhonice	M.Vosátka
23	1M0572	Data, algorithms, decision-making	ÚTIA AS CR, Prague	M.Mareš
24	1M0577	Research centre for nanosurface engineering	Advanced Technology Group, s.r.o., Prague	F.Peterka
25	1M0579	Integrated design centre for progressive building constructions	ČVUT-FSv, Prague	J.Šejnoha
26	1M06002	Optical structures, detection systems and related	UPOL, Olomouc	M.Hrabovský
27	1M06005	Integrated research centre for inorganic composites	Research institute for construction materials,a.s., Brno	J.Knězek
28	1M06007	Research centre for integrated systems using mining by-products, adaptation and processing of energy raw materials	VŠB – Technical university Ostrava	V.Slivka
29	1M06011	Centre of molecular methods of monitoring diffuse environmental pollution	Biotechnological Institute AS CR, v. v. i., Prague	J.Pěknicová
30	1M06014	Centre of biomedical informatics (CBI)	Institute of informatics AS CR, v. v. i., Prague	J.Zvárová
31	1M06030	Functional research on genomes and proteomics in cultivated plants	Mendel agricultural and forestry university, Brno	B. Brzobohatý
32	1M06031	Materials and components for environmental protection	West Bohemian university Pilsen	P. Šutta
33	1M06032	Research centre for moulding technologies	West Bohemian university, Pilsen	B. Mašek
34	1M06039	Centre for neuropsychiatric research into traumatic stress	Charles University, Prague	J. Raboch
35	1M06047	Centre for product quality and reliability	ČVUT - FS	G. Dohnal
36	1M06059	Progressive technologies and systems for energy	ČVUT - FS	J. Nožička, CSc.

Projects 1-25 ran during the period from 2005-2009, and the remaining projects from 2006-2009.

A total of 36 projects – centres were accepted under the programme with a total value of 4096.880 million CZK. The average value of a project was 113.8 million CZK.

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8.4.2. "Basic Research Centres" Programme (LC)

The objective of this ministerial programme is to support collaboration between centres in the Czech Republic in order to improve their competitiveness within the European Research Area and to help train young researchers. The Centres are formed from individual research centres that participate on an equal basis to achieving the project goals. Research centres have to combine with a foreign research centre or centres to work on a joint research programme.

The programme was announced for the period from 2005 – 2011. As this programme is extremely important for the Czech research environment, we have provided a list of 51 completed projects – basic research centres in **Table XIII**. Projects 1-18 ran during the period from 2005-2009, projects 19-49 during the period from 2006-2010 and the remaining 4 projects during the period from 2007-2011.

A total of 51 projects – centres were accepted under the programme with a total value of 2643.681 million CZK. The average value of a project was 51.8 million CZK.

Table XIII. List of projects for the "Basic Research Centre" programme

	Project ID	Project name	Beneficiary	Coordinator
1	LC505	Eduard Čech centre for algebra and geometry	▪ Masaryk University Brno ▪ Mathematical Institute AS CR ▪ Charles University Prague	J.Slovák
2	LC506	Recent Earth dynamics	▪ Geodetic, topographic and cartographic research institute ▪ Czech Technical University Prague ▪ Institute of mineral structure and mechanics AS CR ▪ Astronomical Institute AS CR	J.Kostelecký
3	LC510	Centre of nanotechnology and materials for nanoelectronics	▪ Physics Institute AS CR ▪ Charles University Prague ▪ Jaroslav Heyrovký Institute of physical chemistry AS CR	J.Kočka
4	LC512	Centre of biomolecular and complex molecular systems	▪ Institute of organic chemistry and biochemistry AS CR ▪ Physics Institute AS CR ▪ Palacky University Olomouc ▪ University of Pardubice ▪ Chemistry-technological university Prague	P.Hobza
5	LC521	Christianity and Czech society in the middle ages: norms and facts (Czech topic in a European context)	▪ Philosophical Institute AS CR ▪ Charles University Prague	P.Sommer
6	LC522	ICHTYOPARASITOLOGY – basic research centre	▪ Masaryk University Brno ▪ Parasitology Institute AS CR ▪ Vertebrate biology Institute AS CR	M.Gelnar
7	LC523	Prospective inorganic materials	▪ Pardubice University ▪ Institute of inorganic chemistry AS CR	M.Frumar
8	LC527	Centre for particle physics	▪ Physics Institute AS CR ▪ Charles University Prague ▪ Czech Technical University Prague	J.Chýla
9	LC528	Centre for laser plasma	▪ Physics Institute AS CR ▪ Czech Technical University Prague ▪ Plasma physics institute AS CR	K.Jungwirth
10	LC531	Centre of molecular biology and the physiology of yeast species	▪ Charles University Prague ▪ Microbiological Institute AS CR ▪ Physiological Institute AS CR ▪ Institute of organic chemistry and biochemistry AS CR	Z.Palková
11	LC535	Dynamics and organization of chromosomes during the cell cycle – normal and pathological	▪ Charles University Prague ▪ Masaryk University Brno ▪ Biophysics Institute AS CR ▪ General Teaching Hospital Prague	I.Raška
12	LC536	Integrated centre of natural language computer processing	▪ Charles University Prague ▪ Masaryk University Brno ▪ West Bohemian University Pilsen ▪ Institute for the Czech language AS CR	J.Hajič
13	LC538	Centre of bible studies	▪ Charles University Prague ▪ Philosophical Institute AS CR	P.Pokorný
14	LC542	Centre for advanced political and economic studies	▪ Economics Institute AS CR ▪ Charles University Prague	J.Švejnar
15	LC544	Functional technical research on the creation and operation of works of music	▪ Academy of Music Prague ▪ Masaryk University Brno	I.Kurz
16	LC545	Centre for the function organization of cells	▪ Institute of experimental medicine AS CR ▪ Charles University Prague ▪ Institute of molecular genetics AS CR ▪ Microbiological Institute AS CR	P.Hozák
17	LC546	Research centre into developments in old and middle-age Czech (from its Slavic origins to the present-day)	▪ Institute for the Czech language AS CR ▪ Masaryk University Brno ▪ Palacky University Olomouc	H.Karlíková
18	LC554	Centre for neurosciences	▪ Institute of experimental medicine AS CR ▪ Physiological Institute AS CR ▪ Institute of clinical and experimental medicine ▪ Charles University Prague	J.Syka
19	LC06002	Doppler Institute for mathematical physics and applied mathematics	▪ Czech Technical University Prague / Faculty of nuclear and physical engineering, ▪ Institute of nuclear physics AS CR, v.v.i., Řež-Husinec ▪ Hradec Králové University, Pedagogical faculty	P.Exner
20	LC06004	Integrated research into plant genomes	▪ Biophysical Institute AS CR, v. v. i., Brno ▪ Biological centre AS CR, v.v.i., České Budějovice ▪ Institute of experimental botany AS CR, v.v.i., Prague ▪ Charles University Prague, Faculty of natural sciences	B.Vyskot
21	LC06007	Centre of modern optics	▪ Palacky University Olomouc / Faculty of natural sciences ▪ Institute of machine technology AS CR, v.v.i., Brno	J.Fiurášek.

	Project ID	Project name	Beneficiary	Coordinator
22	LC06008	Centre of computer graphics	▪ Czech Technical University Prague / Electro-technical faculty ▪ Masaryk University Brno, Faculty of IT ▪ West Bohemian University Pilsen, Faculty of applied sciences ▪ Czech Technical University Brno, Faculty of information technology	J.Žára
23	LC06009	Centre of molecular ecology of vectors and pathogens	▪ Biological centre AS CR, v. v. i., Prague ▪ Institute of molecular genetics AS CR, v.v.i., Prague ▪ Charles University Prague, Faculty of natural sciences ▪ South Bohemian University České Budějovice, Faculty of natural sciences	J. Kopecký
24	LC06010	Centre of biocatalysis and biotransformation	▪ Microbiological Institute AS CR, v. v. i., Prague ▪ Institute of system biology and ecology AS CR, v.v.i., České Budějovice ▪ South Bohemian University České Budějovice, Institute of physical biology ▪ Masaryk University Brno, Faculty of natural sciences	V.Křen
25	LC06013	Centre for global studies	▪ Philosophical Institute AS CR, v. v. i., Prague ▪ Charles University Prague, Philosophical faculty	M.Hrubec
26	LC06014	Centre for theoretical astrophysics	▪ Astronomical Institute AS CR, v. v. i., Ondřejov ▪ Charles University Prague, Mathematical-physical faculty ▪ Silesian University Opava, Philosophical-natural science faculty	J.Palouš
27	LC06023	Integrated bioanalytical technologies for microanalysis and diagnostics using LIF and mass spectrometry	▪ Masaryk University Brno, Faculty of natural sciences ▪ Brno teaching hospital ▪ Institute of analytical chemistry AS CR, v.v.i., Brno	Z.Glatz
28	LC06024	Jaroslav Hájek centre for theoretical and applied statistics	▪ Masaryk University Brno, Faculty of natural sciences ▪ Charles University Prague, Mathematical-physical faculty ▪ Technical University Liberec, Pedagogical faculty	I.Horová
29	LC06027	Basic research centre for monoclonal gammapathy and multiple myeloma	▪ Masaryk University Brno, Faculty of medicine ▪ Brno teaching hospital ▪ Biophysical Institute AS CR, v.v.i., Brno	R.Hájek
30	LC06030	Biomolecular centre	▪ Masaryk University Brno, Faculty of natural sciences ▪ Research institute for veterinary medicine, v.v.i., Brno ▪ Biophysical Institute AS CR, v.v.i., Brno	V.Sklenář
31	LC06034	Regulation of the morphogenesis of plant cells and organs	▪ Institute of experimental botany AS CR, v. v. i., Prague ▪ Institute of photonics and electronics AS CR, v.v.i., Prague ▪ Charles University Prague, Faculty of natural sciences ▪ Masaryk University Brno, Faculty of natural sciences ▪ Chemical-technological University Prague, Faculty of food and biochemical technologies	E.Zažímalová
32	LC06035	Centre of biophysical chemistry, bioelectrochemistry and bioanalysis. New tools for genome, proteome research and biomedicine	▪ Biophysical Institute AS CR, v. v. i., Brno ▪ Charles University Prague, Faculty of natural sciences ▪ Masaryk University Brno / Faculty of natural sciences ▪ Pardubice University, Faculty of chemical technology ▪ Masaryk oncological institute, Brno	M.Fojta

	Project ID	Project name	Beneficiary	Coordinator
33	LC06040	Structures for nanophotonics and nanoelectronics	▪ Technical University Brno / Faculty of machine engineering ▪ Physical Institute AS CR, v.v.i., Prague	T.Šikola
34	LC06041	Preparation, modification and characterization of energy radiating materials	▪ Institute of nuclear physics AS CR, v. v. i., Řež-Husinec ▪ Institute of inorganic chemistry AS CR, v.v.i., Řež-Husinec ▪ University of John the Evangelist Purkyně in Ústí nad Labem, Faculty of natural sciences ▪ Czech Technical University Prague, Institute of theoretical and experimental physics ▪ Chemical-technological University Prague, Faculty of chemical technology ▪ Czech Technical University Prague, Electrotechnical faculty	V.Hnatowicz
35	LC06044	Centre of experimental haematology	▪ Charles University Prague / 1st medical faculty ▪ Institute of haematology and blood transfusion, Prague	E.Nečas
36	LC06046	Basic research centre for school education	▪ Charles University Prague / Pedagogical faculty ▪ Masaryk University Brno, Pedagogical faculty	E.Walterová
37	LC06052	Jindřich Nečas centre for mathematical modelling	▪ Charles University Prague / Mathematical-physical faculty ▪ Mathematical Institute AS CR, v.v.i., Prague ▪ Czech Technical University Prague, Faculty of nuclear and physical engineering	J.Málek.
38	LC06053	Lexicon of Czech avantgarde and parallel projects relating to research into modernism and avantgarde artistic trends in the region of the Czech Lands and Central Europe	▪ Charles University Prague / Philosophical faculty ▪ South Bohemian University České Budějovice, Pedagogical faculty	P.Bílek
39	LC06058	Centre for studies of materials using synchrotronic radiation	▪ Charles University Prague / Mathematical-physical faculty ▪ Physical Institute AS CR, v.v.i., Prague	V.Matolín
40	LC06061	Centre of cell invaziveness in embryonic development and metastatic tumours	▪ Institute of molecular genetics AS CR, v. v. i., Prague ▪ Institute of organic chemistry and biochemistry AS CR, v.v.i., Prague ▪ Charles University Prague, 1st medical faculty	M.Dvořák
41	LC06063	Fluorescent microscopy in biological and medical research	▪ Jaroslav Heyrovský Institute of physical chemistry AS CR, v. v. i., Prague ▪ Physiological Institute AS CR, v.v.i., Prague ▪ Institute of molecular genetics AS CR, v.v.i., Prague ▪ Charles University Prague, Faculty of natural sciences	M. Hof
42	LC06066	Centre for environmental microbiology	▪ Microbiological Institute AS CR, v. v. i., Prague ▪ Biological centre AS CR, v.v.i., České Budějovice ▪ Charles University Prague, Faculty of natural sciences	F.Nerud
43	LC06070	Structure and synthetic application of complexes of temporary metals	▪ Chemical-technological University Prague, Faculty of chemical technology ▪ Jaroslav Heyrovský Institute of physical chemistry AS CR, v. v. i., Prague ▪ Institute of chemical processes AS CR, v.v.i., Prague ▪ Charles University Prague, Faculty of natural sciences	D.Dvořák

	Project ID	Project name	Beneficiary	Coordinator
44	LC06071	Centre for quasioptical systems a terahertz spectroscopy	▪ Chemical-technological University Prague, Faculty of chemical technology ▪ Jaroslav Heyrovský Institute of physical chemistry AS CR, v. v. i., Prague ▪ Czech Technical University Prague, Electrotechnical faculty ▪ Technical University Brno, Faculty of electrotechnology and communications technology	Š.Urban
45	LC06073	Centre for research into biodiversity	▪ Institute of system biology and ecology AS CR, v. v. i., České Budějovice ▪ Biological centre AS CR, v.v.i., České Budějovice ▪ Botanical Institute AS CR, v.v.i., Průhonice ▪ Institute of vertebrate biology AS CR, v.v.i., Brno ▪ Charles University Prague, Faculty of natural sciences ▪ South Bohemian University České Budějovice, Research Institute for fishing and hydrobiology ▪ Masaryk University Brno / Faculty of natural sciences	P.Kindlmann
46	LC06075	Basic research centre for dynamic economy and econometrics	▪ Economics University Prague / Faculty of finance and accounting ▪ Institute of theoretical information and automatization AS CR, v.v.i., Prague ▪ Charles University Prague, Faculty of social sciences ▪ West Bohemian University Pilsen, Faculty of economics	J.Kodera
47	LC06077	Centre of chemical genetics	▪ Biotechnological Institute AS CR, v. v. i., Prague ▪ Biological centre AS CR, v.v.i., České Budějovice ▪ Institute of organic chemistry and biochemistry AS CR, v.v.i., Prague ▪ Institute of molecular genetics AS CR, v.v.i., Prague ▪ Masaryk University Brno, Faculty of medicine ▪ Chemical-technological university Prague, Faculty of chemical technology	J.Králová
48	LC07017	Centre for neoplastic proteomics	▪ Palacky University Olomouc, Faculty of medicine ▪ Microbiological Institute AS CR, v.v.i., Prague ▪ Institute of animal physiology and genetics AS CR, v.v.i., Liběchov	M.Hajdúch.
49	LC07032	Centre of functional genetics	▪ Charles University Prague, Faculty of natural sciences ▪ Biological centre AS CR, v.v.i., České Budějovice ▪ South Bohemian University České Budějovice, Faculty of natural sciences	J.Tachezy
50	LC07048	Centre of physics and ultra-relativistic nuclear fusion	▪ Czech Technical University in Prague / Faculty of nuclear and physical engineering ▪ Institute of nuclear physics AS CR, v.v.i., Řež-Husinec	V.Petráček
51	LC07050	Centre for experimental nuclear astrophysics and nuclear physics	▪ Institute of nuclear physics AS CR, v. v. i., Řež-Husinec ▪ Silesian University Opava, Philosophical-natural science faculty ▪ Czech Technical University Prague, Institute of theoretical and experimental physics	A.Kugler

8.4.3. Programmes In The National Research Programme II

The MEYS has been entrusted with the management of the NRP II TP2 (code 2B), TP3 (2C) and TP4 (2D) topical programmes and the PP1 (2E) sectional programme – see **Table VII**. Work began on the selected projects on 1.7.2006. A summary of the subject areas of the topical programmes referred to above is given in **Table XIV**. Whereas work on projects falling under the 2B, 2C, and 2D programmes will continue until 2011, work on projects falling under the 2E programme will terminate in 2009. No further calls for tenders have been announced.

- A total of 115 projects with a total value of 2372.053 million CZK were accepted under programme 2B. The average value of a project was 20.6 million CZK.
- A total of 17 projects with a total value of 281.139 million CZK were accepted under programme 2C. The average value of a project was 16.5 million CZK.
- A total of 16 projects with a total value of 187.342 million CZK were accepted under programme 2D. The average value of a project was 11.7 million CZK.
- A total of 35 projects with a total value of 193.286 million CZK were accepted under programme 2E. The average value of a project was 5.5 million CZK.

Table XIV. Subject areas of the TP2-TP4 topical programmes and the PP1 sectional programme

MEYS	**Healthy and quality life (TP2) (2B)**	T2-1-1 Healthy and sound food T2-1-2 Systems and methods for the assessment of the healthy status of food materials, foodstuffs, and feeds T2-1-4 Non traditional utilisation of agricultural produce T2-2-1 Development of new diagnostics based on molecular–biological methods T2-2-2 Molecular genetics and biotechnologies for new drugs T2-2-3 Nanomaterials in biology and medicine T2-2-4 Biomaterials for the transplanting medicine T2-2-5 Genomics, proteomics and pathophysiology of cardiovascular diseases T2-2-6 Genomics and proteomics in the cell differentiation in oncological diseases T2-3-1 Limitation of the contamination of surface waters T2-3-2 Bio-remedy of the environment with the aid of micro-organisms T2-3-3 Modernisation in the waste management T2-3-4 Biodiversity T2-3-5 Environment and health
	Information technologies for the knowledgeable society (TP3) (2C)	T3-1-1 Management of knowledge and informatics, especially for the funding of the prevention and treatment of diseases T3-1-2 Open and mobile systems for the Internet and industrial applications T3-1-3 Security of information and cryptology T3-1-4 Information infrastructure, e-learning, and virtual workplaces T3-1-5 Elimination of language barriers with the means provided by information technologies
	Social-economic development in the Czech society (TP4) (2D)	T4-1-1 Aging Czech society T4-1-2 Modernising of the Czech public policy and administration within the EU context T4-1-3 Immigration issues and their affect on the Czech society T4-1-4 Modernising of public services T4-1-5 Institutional framework for the social-economic stratification processes T4-1-6 Interests of the Czech state and the Czech society in processes of the European integration

8.4.4. The Infoz Programme – "Information Resources For Research" (VZ)

The INFOZ Programme was approved by Government Resolution no. 171 on 25.2.2008. At the time this document was published, the notification proceedings were still in process at the European Commission. Therefore any information provided here must be regarded as provisional. Up-to-date information is available from the provider's website: http://www.msmt.cz/vyzkum/dotace-granty. The duration of the programme is expected to be from 2009 – 2011.

8.4.4.1. Programme characteristics and general goals

The programme focuses on providing aid for essential research and development infrastructure (hereinafter referred to as R&D) and is not specifically concerned with research. It provides targeted funding to facilitate access to important national and professionally aimed information resources for research as an integral part of R&D, using R&D information infrastructure. Its goals reflect the complex requirements for information support from Czech science and research.

The programme's main task is to provide Czech researchers with continuity in their access to information through R&D information resources such as important national and professional research databases, scientific periodicals and specialised electronic and classical documents. Emphasis will be laid on updating them as required, on ensuring a comprehensive and modern service that is essential for the provision and use of R&D information resources through a modern technical and technological infrastructure and on ensuring rational, efficient and cost-effective use of public R&D facilities. Any research, development and innovation processes are totally dependent on up-to-date and high quality scientific observations, on the intensive, but effective, transfer of knowledge, and on the fast and high quality dissemination of specific scientific information. The current Programme provides indirect, but targeted, support for the process of integrating Czech research and development centres into the European Research Area.

8.4.4.2. Programme specific goals

- providing access to information from the fundamental and most important updated information sources for individual scientific fields (such as Chemical Abstracts), including essential services; ensuring continuity and updating R&D information sources;
- providing access to information sources by interconnecting the already existing information channels, building and extending the existing national and professional networks of scientific information to the "desk researcher";
- ensuring targeted use of research and development information sources by the implementation of new technologies and services with the aim of maximising the level of quality of access for the end-user/researcher;
- acquiring and securing blanket licences and multiple licences for comprehensive information sources (e.g. Web of Science), which would not be possible without funding from public sources.

Specific programme goals will be further defined or modified on completion of the notification process, on the basis of requests from the European Commission.

8.4.4.3. Contact details

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8.5 Research programmes of the Ministry of Health (MH)

In 2009, the MH will provide target-oriented funds for project solutions under the following research programmes:

- "Population Health" (1A)
- "Sectoral research and development programme" (NR) – 2004-2009. The programme was described in the "Short Guide 2006" and in the "Short Guide 2007". The last public tender was announced on 5.4.2006 and no others are due to be announced.
- "Sectoral research and development programme MH-II" (NS) – 2008-2011.

8.5.1. "Population Health" Programme (1A)

The "Population Health" Programme is a partial programme in the "Quality lifestyle" topical programme under National Research Programme I announced for the period from 2004 – 2009 (see **Table VI**). It covers the five key research paths – priorities – listed below:

- Molecular biological and genetic procedures and funds for the prevention, diagnostics and treatment of the most serious diseases
- The use of new technological and information access and equipment for the prevention, diagnostics and treatment of the most serious diseases
- Mechanisms governing the effect of medication and how it works on the organism
- Health and its determinants, including environmental factors

A total of 51 projects with a total value of 192.902 million CZK were accepted under the programme. The average value of a project was 3.8 million CZK.

8.5.2. "Sectoral Research And Development Programme Of The MH" (NR)

The R&D sectoral programme of the MH was announced for the period from 2004—2009. No further public tenders are due to be announced. The programme is made up of the following partial programmes:

XA. Cardiovascular and cerebrovascular diseases
XB. Metabolic and feeding disorders, endocrinal disorders including diabetes mellitus
XC. Neoplastic diseases
XD. Diseases of the connective tissue, bones and joints; trauma
XE. Age-specific aspects of health and sickness
XF. Nervous and psychological diseases
XG. Reproductive disorders
XH. Infectious diseases and failure of the immune system
XI. Relationship between health and the environment — preventive measures in healthcare
XJ. Current problems in other areas of medicine
XK. Pharmacology and pharmaceutics
XL. Healthcare systems and management
XM. Current problems in nursing and non-medical areas of healthcare
XN. Information and imaging technologies in healthcare

A total of 732 projects were accepted under the programme with a total value of 2425.847 million CZK. The average value of a project was 3.3 million CZK.

8.5.3. "Research And Development Sectoral Programme – MH II For The Period 2008 – 2011" (NS)

Given the delays in the approval proceedings, the public tender for the provision of target-oriented funding for projects in the "R&D sectoral programme MH-II" was only announced on 16.7.2008. The results of the public tender are due to be announced on 19.12.2008. The programme has 6 main goals:

- To develop new diagnostic methods based on the genetic identification of diseases

- To develop complex diagnostic and treatment methods to enable the fastest and most accurate recognition of the early stages of life-threatening conditions
- To specify the most effective diagnostic and therapeutic methods for chronic diseases
- To verify the validity of new treatment algorithms, particularly in the area of cardio-vascular and oncological diseases; in surgery paediatrics and gerontology
- To identify health risks related to lifestyles and the living or working environment
- To determine the most important preventable risk factors and thereby to create conditions for the effective prevention of socially damaging diseases.

8.5.3.1. Research areas within which the programme goals will be met

1 Cardiovascular and cerebrovascular diseases

Ischaemic heart disease (ICHS) and athero-thrombotic cerebro-vascular accident (CVA) must be priority areas for research into cardiovascular diseases, because these are the most frequent complications of atherosclerosis and continued to represent the most frequent causes of death in the Czech population (over 50% of all deaths in the country). Improvements in the diagnostics, therapy and, particularly, the prevention of these conditions will reduce morbidity, improve the quality of patients' lives and produce financial rewards by lowering numbers of sick leaves and disability pensions.

Priorities

- To identify new and effective methods of prevention and treatment for the most frequently occurring cardiovascular diseases (coronary diseases, cerebrovascular diseases) and incorporate them in a nationwide model of prevention.
- To standardise diagnostic procedures for systolic and diastolic dysfunctions of the left ventricle.
- To unify treatment procedures for athero-thrombotic cerebro-vascular accident.
- To compare the economic impact of introducing prevention measures to deal with risk factors for cardiovascular disease (treatment of hypertension, dyslipidemia, smoking, etc.) with the social impact and with the costs of treating acute cardiovascular accidents.

Expected benefits:

- Improving the treatment of hypertension, dyslipidemia, obesity, stopping smoking and reducing cardiovascular risk. Arresting the rise in cases of obesity and metabolic syndrome, arresting the rise in diabetes type 2.
- Improving the diagnostics and treatment of chronic cardiac failure.
- Improving the diagnostics and treatment of CVA.
- Implementing preventive measures, which will significantly reduce treatment costs.

2 Metabolic and feeding disorders, endocrinal disorders including diabetes mellitus

Metabolic syndrome, obesity, diabetes mellitus type 2 and a number of neuroendocrine, immunoendocrine and degenerative conditions are associated with an aging population. These are conditions with major medical and socio-economic impact. The occurrence of metabolic syndrome, which increases the risk of cardiovascular and other mortality, is around 25-30% in the Czech Republic and its prevalence is continuing to rise. This rise goes hand in hand with an epidemic of obesity and diabetes type 2, where the Czech Republic has one of the highest rates worldwide. Obesity, metabolic syndrome and diabetes mellitus show strong associations with other important social diseases such as depression or certain oncological conditions, whose incidence is also rising sharply. A similar rise can be seen in the occurrence of neuroendocrine and immunoendocrine disorders, including their subclinical forms. Information is currently being gathered on the pathophysiological links between these diseases. Improvements in standards of health care lead to longer life expectancies and an aging population. An understanding of the humoral, metabolic and nervous factors involved in the pathogenesis of these conditions will open up new possibilities for their prevention and treatment.

Priorities

- To develop genetic diagnostic procedures for subclinical forms of neuroendocrine and immunoendocrine diseases.
- To use new information concerning the role played by humoral, metabolic, nervous and immune factors in the pathogenesis of metabolic syndrome to support its effective prevention and treatment.
- To introduce targeted searches for individuals with metabolic syndrome into clinical practice and to compare the effect of intensive intervention on the basis of recognised risk factors with treatment costs.

Expected benefits

- Obtaining up-to-date information on the occurrence of metabolic syndrome, its individual components in the Czech population and its etiopathogenetic context.
- Proposing procedures to enable the early identification of individuals with an increased risk of metabolic syndrome.
- Discovering links between selected metabolic disorders (obesity, metabolic syndrome, diabetes mellitus type 2) and other diseases with strong social impact (oncological diseases, mental disorders).
- Establishing new preventive and therapeutic modalities that have a beneficial effect on the whole range of these diseases.
- Revising diagnostic procedures for the prevention and treatment of the above-mentioned accumulated metabolic conditions and the diseases related to them.

3 Oncology

Oncological diseases are among the most frequent causes of death in our population. A third of the inhabitants of the Czech Republic die from oncological diseases. The Czech Republic lags far behind other European Union member states in the early diagnosis and on long-term treatment outcomes (particularly survival). In terms of priorities, it will be essential: to use innovative (molecular-biological, functional and other) methods to study the pathogenesis and early diagnosis of oncological diseases, dissemination and complications, with the aim of optimizing and individualizing treatment procedures.

To focus on studies of mechanisms of cancerogenesis in order further to expand the options for molecular-targeted treatment using the existing as well as new molecules. To find ways of reducing the cost of oncological treatment by optimizing clinically recognised treatment algorithms and optimizing indications for molecular targeted drugs.

Priorities

- To improve the focus of oncological diagnostics for the early detection of oncological disease, enabling medical intervention at a time when the tumour can still be completely treated by a local procedure (e.g. breast tumours).
- To establish optimum algorithms for early detection of dissemination (metastasis), enabling targeted treatment and improving treatment outcomes.
- To apply pathophysiological knowledge of the pathogenesis of oncological diseases in the clinical application of molecular-targeted treatment of cancers.
- To reuse the clinical possibilities of combining molecular targeted therapy with standard treatment procedures (surgery, radiotherapy, cytotoxic chemotherapy, hormonal treatment).
- To innovate algorithms of the use of molecular targeted therapy on the basis

of the results of retrospective analyses and prospective monitoring of predictive changes (molecular-biological, biochemical immunological, functional and clinical) in factors during treatment.
- To use gene and protein expression as predictive and prognostic indicators of responses to oncological therapy and prognoses, with the aim of narrowing and individualizing the treatment regimen for individual patients. To introduce new proteomic findings into clinical algorithms. The expected benefit is the possibility of establishing optimal procedures, particularly as regards toxic and costly medication.
- To affect the development of oncological diseases by manipulating the immune system.
- To improve evaluation of the course, prognosis and treatment outcomes in patients with tumours (including the rarer forms of cancers) and to specify multidisciplinary standard and individualised treatment procedures depending on age, the overall condition and other clinical parameters.
- To optimise diagnostic and therapeutic algorithms for rarer forms of oncological conditions (where no extensive prospective studies can be expected) using a thorough retrospective analysis of the clinical data and laboratory findings.
- To evaluate the quality of life and the social and economic impact of various therapeutic methods for oncological diseases, focusing on an analysis of undesirable side effects from individual cancer drugs related to the type of tumour, age, gender and other relevant factors.

Expected benefits
- Increasing the percentage of tumours, cancer complications and treatment complications that are detected early.
- Improving treatment outcomes for cancer patients, and in particular improving the comparison of outcomes (especially mortality) with neighbouring countries (Austria, Germany).
- More economical use of modern diagnostic medication.
- Creating conditions for the development of new therapeutic and preventive methods (e.g. cancer vaccines).
- Extending innovative diagnostic and therapeutic methods through academic centres.

4 Surgery

The area where surgical interventions are becoming increasingly important is oncosurgery. Surgical oncology has intensified demands for less traumatizing procedures and more effective interventions: new treatment methods such as brachytherapy, immunization and robotization are used. Microsurgical procedures including nanotechnologies, laser therapy, phototherapy, radio ablation and chemo ablation techniques and other methods have been introduced in a number of areas. The introduction of new technologies requires close interdisciplinary cooperation with other specialised fields. Procedures to assess the seriousness of the condition (and the rapid indication of emergency procedures) must be improved in the area of traumatology.

Priorities
- To introduce new surgical procedures and to develop new algorithms for the diagnostics, therapy and prevention of surgically treatable diseases by improving the quality of interdisciplinary cooperation.
- To develop and expand diagnostic and therapeutic algorithms by applying new knowledge on the role of cytokines in the pathogenesis of diseases accompanied by systemic inflammatory response syndrome (SAR) in surgically treatable diseases.
- To improve predictions of the development of serious traumas accompanying overall serious conditions by the routine use of inflammation markers.
- To specify the importance of changes in the plasma free nucleic acid levels to improve the quality of medical care for the critically ill.

Expected benefits
- Improving the quality of surgical care, improving the quality of life, extending survival times for cancer patients by the application of new technologies, tested in clinical practice.
- Reducing the risk of nosocomial infections and blood loss, reducing the need for blood transfusions, thereby lowering the risk of HIV infection and hepatitis by the introduction of mini-invasive procedures,
- Lowing the number of post-operative complications, reducing hospitalization and convalescence times – producing a positive social impact,
- Ensuring that diagnostics of surgically treatable diseases are faster and more accurate,
- Improving outcome predictions for surgically treatable diseases,
- Bringing radical changes to current diagnostic procedures on the basis of research into the diagnostic and prognostic cost of determining free nucleic acid levels.

5 Paediatry and genetics

The reduction of neonatal morbidity and mortality, increased quality of paediatric medical care, improved health in the younger generation and teaching for early recognition and prevention of the development of serious complications and the deferred onset of chronic and genetically dependent diseases, are some of the main priorities in the area of paediatrics and genetics.

Priorities
- To gather and evaluate new information on the combined influence of molecular mechanisms and external environmental factors on the development, course and prognosis of the diseases analysed on a “polygenic inherited disease” model with the aim of developing new diagnostic algorithms for the early identification of patients.
- To use studies of the impact of etiopathogenic and pathophysiological mechanisms on the “natural course of the disease” on a “rare disease” model with Mendelian or mitochondrial inheritance and low prevalence of less than 1:2000 of the population, which still represents a group of over 5,000 different diseases, not only to improve the quality of diagnostics for individual nosological types, but also to improve the currently unsatisfactory medical care for affected children.
- To propose and to develop “quality control parameters” in current therapeutic-preventive care of children, and to use this to improve the organization of medical care for the younger generation in the Czech population.

Expected benefits
- Reducing neonatal (paediatric) morbidity and mortality.
- Reducing average hospitalization periods in paediatric wards.
- Introducing new diagnostic methods and therapeutic procedures for the early diagnosis, prevention and treatment of serious diseases having a negative impact on the condition of children.
- Expanding genetic counselling for families affected, optimizing methods for the future introduction of prenatal diagnostics.

6 Neurology, psychiatry, psychological and social problems

Neuropsychiatric disorders represent the largest medical social burden in our present modern world when measured by years of life lost by premature death or invalidity. Because of this the problem of mental disease has to be addressed in a complex manner, respecting a biopsychosocial model; systematically to improve current understanding of the cause, progression and end of neuropsychiatric disorders in order to provide more effective treatment to neuropsychiatric patients on the one hand and to analyse their social and economic impact on the other.

Priorities

- To prevent late diagnosis and treatment of brain function disorders in effective disorders. To focus on providing a complex approach at the genetic, sub-cellular and development levels using imaging and electrophysiological methods.
- To improve the quality of diagnostics and treatment of selected diseases using micro-satellite DNA markers from defined areas or using stem cells.
- Gathering data relevant to the occurrence of neuropsychiatric disorders in the Czech population.
- Quantifying the economic impacts of various preventive, diagnostic and therapeutic procedures and psychosocial care for the most frequent and most serious mental diseases (e.g. addiction to habit-forming substances, dementia).
- Optimizing the structure of the care currently provided in the area of neuropsychiatric disorders.

Expected benefits

- Improving the quality of complex care for patients with neuropsychiatric disorders.
- Improving the quality of life for individuals suffering from mental diseases, improving prevention of fatalities

7 Gynaecology and obstetrics

In gynaecology, methods that enable routine diagnostic and preventive examinations to be performed on an outpatient basis (hysteroscopy using miniature probes) are coming to the forefront of medical interest. Ovarian cancer remains a problem in gynaecological oncology (frequently identified too late) as does preventive screening for the early diagnosis of cervical cancer, which has not yet brought the expected results. Because of this it is essential to improve the quality of prevention: the benefits of vaccination will be validated. Improved diagnostics is expected from the systematic application of knowledge from the fields of molecular biology and genetics and improved medical care from the individualization of tumour chemotherapy. Problems relating to the care of the elderly and handicapped patients have still not been resolved.

Progress has been made in obstetrics through the monitoring of foetuses during birth (intrauterine foetal oxymetry), which resulted from general efforts to ensure safe births.

Priorities

- To acquire new information allowing predictions to be made concerning the development of diseases, particularly on the basis of studies into gene expression of congenital predispositions, thereby allowing the establishment of groups of individuals at risk with a high probability of being affected.
- To propose effective measures to prevent the most serious diseases in the area of gynaecology and obstetrics.
- To develop diagnostic and therapeutic procedures using new imaging methods, molecular biology methods and genetics.
- To minimise any adverse impacts of examination and surgical procedures on patients by restricting their invasive and radical nature.
- To establish principles of individualised treatment for oncological diseases (analysis of the sensitivity of tumour cells to chemotherapy) to achieve a higher level of effectiveness.
- To specify care for patients with medical handicaps (oncological diseases, urinary or bowel incontinence).

Expected benefits

- Continued improvements in perinatal mortality and morbidity.
- Reducing the length of hospital stays and sick leave.
- Extending survival times for oncological diseases.
- Improving the quality of life for disabled people.

8 Infectious diseases, microbiology, epidemiology and immunology

Infectious diseases remain a significant cause of sickness and death in the world and in European countries and, according to the WHO, represents a serious global problem. New diseases are appearing, but those that had existed in the past are also re-emerging. The past decade has witnessed increased numbers of people with weakened immune systems – it is estimated that these now represent over 1% of the world's population. The aging population represents a high-risk group. Also alarming is the growth in the resistance of etiological microorganisms to antibiotics. Preventive and therapeutic possibilities involving vaccination and the use of imuno-based preparations for passive immunization are promising. The issue of the importance of microorganisms in the formation of immunological competence of individuals and for the development of immunopathological conditions is attracting increasing interest.

Priorities:

- To analyse the causes and conditions for the emergence and spread of resistance of microorganisms to antibiotics.
- To clarify the pathogenesis of infectious processes focusing on the preparation of new and the innovation of existing vaccine preparations for both prevention and therapy.
- To verify new possibilities for immunological intervention in complex therapies for infectious processes, particularly in high-risk patients.
- Modern diagnostic and therapeutic options for patients with primary and secondary immunodeficiencies, with autoimmune diseases and allergic reactions.

Expected benefits:

- Perfecting (improving, accelerating and reducing costs) diagnostics and monitoring infectious processes as a starting point for the objective assessment of the epidemiological situation and rationalizing treatment.
- Adjusting antibiotic treatments in response to the occurrence and emergence of resistant microorganisms.
- Translating new findings on the use of vaccines, immunoglobulin preparations or immunomodulating preparations into treatments for patients at risk of infection.
- Creating conditions (new diagnostic and therapeutic methods) for close collaboration with other areas of medicine to provide complex care for patients with disorders of the immune system.

9 Relationship between health and the environment, preventive measures in healthcare

The "Health for all in the 21st Century" project addresses problems concerning the relationship between health and the environment and provides certain solutions: compatibility with the average achieved by the original EU Member States has to be achieved, differences have to be reduced within the country, the healthy development of individuals from birth to old age must be ensured, the prevalence of illness and accidents must be reduced, improvements have to be made in mental health, a safe and healthy environment must be provided and support given for a healthy life style. The research should focus on questions concerning the support and protection of health and find the causes underlying long-term changes in the state of health of the population.

Priorities

- To identify health risks arising from ways of life and the living or working environment. To find and to test new sensitivity biomarkers for exposure and effect.
- To determine individual (physiological – age, gender, nutrition, disability, ethnicity) behavioural (high-risk activities, employment, education, perception of risk), socio-economical (poverty, unemployment), environmental (physical, chemical, biological, social, financial) and institutional (quality of medical care, politics – laws, goals, limits, priorities) factors affecting health.

Expected benefits:
- Groups of the population most at risk, characterised by inadequate access to health arising from socioeconomic inequalities will be identified. (New policies arising from the Action Plan for the Environment and Health for the period 2004 – 2010).
- Measures needed to compensate for undesirable differences in health between individual population groups will be formulated. Positive factors determining health will be identified and advocated.
- A better state of health for the population and improved quality of life will be achieved.

10/I Other areas of medicine I (gastroenterology, haematology, nephrology, pathology, rheumatology)

Emphasis is laid on the development of modern diagnostic methods, based on molecular biology, including microchip diagnostics of oncological diseases, in all of the specialised fields mentioned above. Immunohistochemical diagnostic methods must be developed to address problems concerning the pathomorphology of oncological diseases. A revolutionary turn-around in diagnostics can be expected from analyses of mRNA expression profiles, which will be of fundamental importance, particularly in haematology, nephrology and gastroenterology. A very topical issue in therapy concerns biological treatments. The development of screening programmes is aimed at the prevention of oncological disease, particularly in the area of the digestive tract.

Priorities
- To clarify diagnostics of pre-cancerous conditions and diagnostics, therapy and prognosis of malignant neoplastic processes using genetic markets.
- To determine the importance of genetic polymorphism for the diagnostics and treatment of diseases of the locomotory system (degenerative joint conditions), the gastrointestinal tract or certain kidney diseases.
- To determine the clinical relevance of mRNA expression profiles for the clinical diagnosis of disease processes.
- To establish conditions for the application of "biological treatment" of certain inflammatory diseases of the locomotory apparatus (rheumatoid arthritis, ankylosing spondylitis and systemic lupus erythematosus).
- To develop input criteria to assign patients to various forms of treatment, taking account of the cost of new diagnostic and therapeutic methods. To establish medical procedures for the most frequently occurring inflammatory conditions of the gastrointestinal tract and kidneys, based on an assessment of both short-term and long-term effectiveness of treatment and on an assessment of their impact on the patient's quality of life and long-term survival.

Expected benefits:
- Making diagnostics of individual disease process more accurate and faster.
- Introducing new, modern medical methods and procedures.
- Defining economic parameters for individual medical procedures.
- Clarifying the etiopathogenesis of those disease processes under investigation

10/II Other areas of medicine II (otorhinolaryngology and head and neck surgery, dentistry, ophthalmology, dermatology including venerology)

Just as in the area of MEDICAL FIELDS I, the development of molecular biological diagnostic methods is the focus of attention. Results obtained by these methods should be crucial for the standardization of diagnostic and therapeutic procedures. In ophthalmology, the way to improve the quality of surgical treatment is to develop imaging techniques to analyse the morphology of the retina and to analyse aberrations of the vision analyser.

Priorities
- To find effective and cost-effective treatment protocols for the treatment of otorhinolaryngological diseases.
- To contribute to the development of algorithms for dental examinations of patients with psychological or physical handicaps (cleft palates as well as treatments for dental defects for example).
- To determine the clinical relevance of preblastomata changes in the membranes of the oral cavity, identified using simple detection methods.
- To develop an imaging technique to analyse the morphology of the retina, with the aim of identifying early stages of macular diseases (age-dependent macular degeneration, cystoid macular oedema of different etiologies, diabetic retinopathy).
- To discover rational diagnostic procedures for patients with glaucoma, focusing on eliminating superfluous treatment.
- To use imaging analyses of aberrations of the vision analyser to optimise surgical procedures (lens interventions, refraction surgery).
- Pharmacoeconomics of dermatovenerological diseases, especially recurrent dermatosis.
- Epidemiology of dermatovenerological diseases (which do not have a reporting obligation).
- Quality of life of patients with chronic skin diseases.

Expected benefits:
- Introducing new molecular biology procedures into the diagnostics of patients with hearing disorders and patients with head and neck tumours.
- Introducing modern technologies into treatment protocols for otorhinolaryngological diseases.
- Introducing new molecular biological procedures into the diagnostics and treatment of diseases of the head and neck.
- Developing a model of systemic dental care for handicapped patients with psychological and physical disorders.
- Setting standards of detection of preblastoma changes in the diagnosis of orofacial diseases.
- More effective and cheaper treatment of patients in the early stages of macular disease.
- Reducing the costs of corrective optical aids (for astigmatism, more serious types of optical defects, presbyopia).
- Increasing the effectiveness of treatment for dermatovenerological diseases, particularly recurrent dermatosis and improving the quality of life for patients.

11 Pharmacology

The development of this field is dependent on developments of molecular biological methods focusing on pharmacogenomics and its use in clinical practice. Quality control models (for example in drug prescriptions) are sought, based on cooperation with the insurance companies. The introduction of new instrumental analytical methods for pharmacokinetic and bioequivalence studies is a pre-condition for the stability of tests and the identification of degradation products.

Priorities
- To improve treatment effectiveness and safety (while at the same time reducing costs) by establishing clinically relevant polymorphisms of individual CYP isoenzymes using microchip methods.
- To validate biomarkers as predictors of the benefits and toxicity of pharmacotherapy (to ensure greater benefits by facilitating an individual approach and greater cost-effectiveness of treatments).
- To identify pharmacokinetic techniques to prevent undesirable treatment side-effects, to reduce hospitalization times and morbidity, and possibly to lower mortality.
- To develop and introduce analytical methods to identify drug addiction.

Expected benefits
- Increasing the effectiveness and safety of treatment.

- Enriching and improving the range of drugs used.

12 Nursing, healthcare systems and it

One of the primary tasks facing scientifically based nursing care as a component of healthcare in a hospital and community environment is the rationalization and scientific analysis of the effectiveness of financial and IT tools in the management of the healthcare system. As regards healthcare systems, research will focus both on the healthcare system and on the area of healthcare in the wider sense as defined in the Health 21 programme. The development of services provided by healthcare information systems to all healthcare personnel by the application of knowledge gained through the study of telemedicine, new communications (particularly remote) and software applications.

Priorities

- To provide patients, individual at risk and individuals from minority groups with holistic care.
- To develop a nursing model for hospital and community care, aimed at the provision of top quality nursing care.
- The state of health of the population and its social contingency.
- Basis, principles, tools and criteria of healthcare policies.
- Economic and legal tools for healthcare system management.
- Development of systems for the description, classification and statistical processing of healthcare services, including effectiveness and quality indicators.
- Development of knowledge and database systems to manage and use data verifying the effectiveness of individual medical procedures and drugs.
- Medical ethics.
- New research methods in social medicine.
- Research and provision of telemedicine support to current medical information systems to help expand them to wider groups of medical personnel using small intelligent mobile HW equipment.
- Research and application of middleware software to ease communications between individual information systems in healthcare facilities and between healthcare facilities.
- Research and implementation of patient appointment bookings in healthcare facilities and enabling two-way communication between them, using modern and secure communication equipment accessible by the general public.

Expected benefits

- The provision of holistic care to patients who are at risk or disabled and members of selected minority groups, including the creation of standards for nursing care.
- Developing a complex nursing model for hospital and community care.
- Better use of scarce healthcare resources (money, equipment, staff and their qualifications).
- The rigorous application of the Health 21 programme during the healthcare transformation process in the Czech Republic.
- Finding an optimal system of on-line communication between medical information systems and their users.
- Improving communications between individual information systems.

8.5.4. Internal Grant Agency of the MH (IGA MH)

Under the terms of Section 21 of Act no. 130/2002 Coll., the Internal Grant Agency of the Ministry of Health is a professional advisory body of the ministry. It proposes areas where target-oriented funding can be provided by the Ministry of Health for programme medical research and development projects. Its objective is to use target-oriented funding for medical research to perfect the diagnostics, therapy and prevention of the most serious diseases and to improve the health and quality of life of the Czech population, to manage medical care, to make Czech applied medical research and development more effective and to increase the proportion of its contributions on an international level and, at the same time, to stimulate the creative abilities of researchers. The activities of the IGA MH are regulated by statute (a new statute was approved on 18.7.2008). IGA MH bodies include: the Scientific Council and the Supervisory Committee. Its professional bodies are the Field Commissions of the IGA MH and the Economic Commission.

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8.6 Research programmes of the Ministry of Agriculture (MA)

In 2009 the MA will provide funding for projects in the following research programmes:

- The "Use of Natural Resources" Programme (1G) – 2004-2009.
- The "Research Programme of the MA 2005-2009" (QG)
- The "Research Programme in the Agrarian Sector 2007 – 2012" (QH)
- The "VAK – Research in the Agrarian Sector" Programme (QI). The programme will run during the period 2009 – 2014.

The preparation of materials, organization of public tenders and other essential work is performed by the National Agency for Agricultural Research (NAZV) on behalf of the MA - see 8.6.5.

8.6.1. The "Use Of Natural Resources" Programme (1G)

This programme is a partial programme of the 6th topical programme TP3 "Competitiveness in Sustainable Development" of the National Research Programme I (see **Table VI**). The programme was announced for the period from 2004 – 2009. 67 projects for a total of 475.216 million CZK were recommended for funding through the call for tenders. The remaining 15 projects will be completed during 2009.

The programme focuses on six key research directions (KVZ):

- To reinforce competitiveness by developing better quality foods for consumers
- To develop technologies for the non-food use of agricultural materials, exploiting the production potential of agricultural products
- Genetic methods of improving the biological potential of productive organisms
- Competitive production systems for a sustainable and multi-functional agriculture
- Development of technological improvements and water sanitation and the rationalization of water management in rural areas
- The long-term sustainable maintenance

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of forests, productive and non-productive functions of forestry

8.6.2. The "Research Programme of the MA 2005—2009" (QG)

This sectoral programme primarily focuses on current problems of prevention and environmental protection as a whole. 38 projects for a total of 173.085 million CZK were recommended for funding through the call for tenders. The remaining 26 projects will be completed during 2009.

The programme is divided into two sub-programmes, which are further divided into topical areas:

Sub-programme – Agricultural Research

- Production and processing of agrarian products
- Supporting the development of the countryside and water management infrastructures
- Forests and forest management
- Protection of the soil, the quality of water sources and the organization of agricultural land
- The socio-economic impacts of EU access on the quality of life of the agricultural and rural population

Sub-programme – Other research in the agrarian sector

- Agrarian technology and products
- New research directions

8.6.3. "Research Programme in the Agrarian Sector 2007 – 2012" (QH)

The "Research Programme in the agrarian sector 2007 - 2012" focuses in particular on the prosperity of the agrarian sector, while observing an environmentally-friendly and ethical attitude to natural resources and proportional development in the countryside. An environment-friendly attitude to the utilisation of natural resources is a globally recognised and financially important requirement, which impacts the economy in the entire area for which the government is responsible. The agrarian sector means the area of agriculture, food industry, water and forestry management, including the issues related to the countryside development in accordance with improvements in the quality of life. Three public tenders have been announced to date (1.11.2006, 2.5.2007 a 7.5.2008). The results of the third tender were announced on 12.11.2008.

The programme consists of two sub-programmes: "Effective processes in the agrarian sector" and "Environmentally-friendly and protective management processes". Research and development projects are funded up to a level of 100% from the budget of the Ministry of Agriculture.

8.6.3.1. Sub-programme "Effective processes in the agrarian sector"

Characteristics

The sub-programme is open to projects that deal with effective biological processes in production, which lead to the improved competitiveness of the agrarian sector worldwide. The use of new research knowledge will ensure improvements in the use of resources for the overall development of the countryside. It is expected that, after the accession of the Czech Republic to the EU, the application of individual rules of the common market and of the Joint Agricultural Policy will be beneficial both from the point of view of supplying food to the population at reasonable prices and in terms of ensuring an acceptable standard of living for farmers. In essence, this means the application of innovative charges of creativity and co-operation to create profits while following ethical business methods in the agrarian sector.

Research directions

1. Multifunctional management systems in agriculture

Partial goals

a) The innovation of cultivation technologies and animal and fish breeding methods for different objectives and at an intensity corresponding to agroecological environmental conditions. Optimising plant nutrition and fertilisation and the feeding of farm animals, evaluating interactions between humans, animals and robots in farm animal breeding, and reducing energy requirements in production processes.
b) The innovation of systems of integrated production of fruits, vegetables, and vines in compliance with the highest international standards for these systems as regards the quality of products and the protection of environment.
c) The creation of effective and low-energy technological systems for the storage and processing of products in primary agricultural enterprises.
d) The establishment of processes to increase the multifunctional potential of the Czech agriculture at an enterprise level, and particularly by the systematic utilisation of the European Agrarian Fund for Regional Development (EAFRD) for the period 2007 - 2013.
e) The assessment of influences of global chains on the Czech agrarian sector and the development of the countryside, including proposals for the removal of negative influences.
f) The establishment of methods assessing the efficiency of agricultural production and the competitiveness of the principle business forms in Czech agriculture.
g) The creation and expansion of plant cultivation technologies for energy purposes and for the processing industry.

2. Protection of plant and animal health

Partial goals

a) The innovation of means and methods of plant protection against complex harmful organisms for a particular plant or group of plants for different cultivation systems and in stored supplies.
b) The innovation of diagnostic methods also relating to strains and phyla, detecting and quantifying harmful organisms, especially the quarantined and economically important ones and the creation of protection measures to prevent their spread and transfer, including their application to systems to certify the health of cultivated plants.
c) The establishment of measures to minimise the risk of pesticide residues and natural contaminants occurring in the technological processes used in the agrarian sector.
d) The improvement of diagnostics, prevention and therapy of infectious animal diseases. (The establishment of their etiology and epidemiological importance and the preparation of methods for their suppression and healing.)
e) The improvement of diagnostics and the prevention of genetic and reproductive animal diseases.
f) The determination of risk factors in the reproductive abilities of farm animals.

3. Biotechnological procedures

Partial goals

a) The use of genetic markers in the agrarian sector (to clarify assessments of animal values, to identify forest wood populations, etc.).
b) The use of biotechnological processes to restore the reproductive abilities of plants and farm animals, removing any pathogens, and the improvement of plant and animal production.
c) The use of biotechnological methods to increase the resistance of cultural plants to adverse abiotic and biotic influences.
d) The use of biotechnological procedures and equipment to minimise or to replace chemical additives in food, or the use of chemicals in technological processes.

e) The establishment of methods assessing benefits and risks of GMO used in the agrarian sector, the assessment of the possibility of coexistence between conventional and ecological agriculture with GMO cultivation.
f) The use of farm animals as model organisms in cell therapies.
g) The development and application of new methods for breeding, seed management, species controls, and quality controls of production.
h) The improvement and use of the biological potential of productive organisms in the agrarian sector to improve the quality of raw materials and food, while ensuring highly effective production and limiting any negative impacts on the environment.
i) The characterisation of the genetic structures of autochthonous and other important partial forest populations.

4. The sustainability of water sources, their improvement and restricting the impact of climate change

Partial goals

a) The development of methods to assess the effectiveness and cost of measures to improve water sources and to ensure their sustainable utilisation.
b) The proposal of procedures to eliminate the impact of climatic change on water sources, their need and sustainable utilisation, including the establishment of financial tools.
c) The optimisation of water management in the countryside, including the draining of urban areas, and the system of flood prevention, while increasing the retention capacity of the countryside.
d) The development of efficient procedures to limit the eutrophication of surface waters and the proposal of a technology to eliminate their negative influences on the quality of drinking water.
e) The optimisation of aerobic and anaerobic methods of waste water treatment from small sources of contamination (between 5 and 200 residents) on the quality of ground and surface waters.
f) The proposal of procedures to improve the commercial use of fishponds and the hydromorphologic conditions of riverbeds for fishes in terms of the quality of the water in the watercourse.

5. Permanently sustainable forest management

Partial goals

a) Ensuring the sustainable management of forests using environmentally-friendly technologies, while balancing their productive and non-productive functions and protecting biodiversity.
b) Solving issues relating to relations between wild animals and other agrarian areas, gamekeeping and fisheries.
c) Preparing a system to assess forest functions, including the establishment of criteria and polyfunctional forest management indicators.
d) Quantifying the potential of individual functions under the specific conditions of different kinds of forests.
e) Establishing methods to assess the effectiveness of forest management.

8.6.3.2. Sub-programme "Protective and environmentally-friendly management procedures"

Characteristics

The sub-programme is open to projects focussed on procedures that respect ecological requirements that are friendly to the countryside and the environment. The application of these procedures in the agrarian area develops the multifunctional focus of agriculture, improves relations between living organisms, and increases the value of life in the society. It contributes to the maintenance of a high-quality and balanced lifestyle, while requiring minimal investment in agricultural while allowing the introduction of efficient and effective co-operation at different levels. This could become a prerequisite for the expansion of human abilities to develop favourable conditions for the elimination of harmful environmental features.

Research directions

1. Interactions between water, soil and the environment

Partial goals

a) Ensuring improvements of non-productive soil functions in interactions with productive functions and with impacts on the quantitative and qualitative protection of soil and water.
b) Establishing options for increasing water retention and accumulation in the countryside.
c) Establishing limiting factors for soil use that affect its protection against degradation.
d) Applying measures to reduce soil losses through erosion and to restrict topsoil runoff.
e) Establishing limits and standards for soil degradation and contamination as a basis for soil use and management.
f) Establishing procedures for soil recultivation and their application to the protection of surface and ground waters.
g) Proposing optimal management methods in protected water source areas.
h) Optimizing systems of rational soil use, including agrotechnologies contributing to soil protection.

2. Support for sustainable development in the countryside (the rural environment)

Partial goals

a) Establishing procedures to ensure balance between the productive and landscaping functions of the agrarian sector.
b) Preparing methods to use bees and other pollinators to develop a living environment in the countryside.
c) Establishing procedures and indicators for the permanently sustainable development of agricultural activities and care for the countryside.
d) Proposing models to support the development of settlement structures in relation to a multifunctional agriculture.
e) Proposing strategic measures to arrest depopulation trends and to support diversification and the creation of jobs and conditions to support life in the countryside.
f) Applying integrated logistic methods and information technology in the management of technological processes and the management of enterprises and farms in the Czech agrarian sector.

3. Biodiversity of useful organisms in the agrarian sector

Partial goals

a) Using genetic and biotechnological procedures to protect and use biodiversity in agricultural products, wood and farm animals.
b) Establishing new conservation methods for the genetic resources of plants, microorganisms and animals.
c) Using agro-biodiversity to improve the quality and stability of production and to eliminate any adverse influences from the agrarian sector on the environment.
d) Using new and neglected plant species for products with specific qualities.
e) Selecting and proposing the use of suitable species and varieties of cultivated plants for alternative and technological use and proposing planting methods to limit the negative impacts of agriculture on the environment.

4. Nature-friendly management - welfare and permaculture

Partial goal

a) Proposing optimal use of nature's natural abilities by planning a garden and commercial ecosystem, e.g. by planting suitable combinations of plant species.

b) Improving the system of plant cultivation and animal breeding in ecological agriculture for the production of BIO quality food.
c) Using the gene funds of selected plant species (regional strains and original species), optimizing their financial and landscaping functions.
d) Establishing welfare criteria for intensive and extensive animal breeders.
e) Establishing environmental criteria for intensive and extensive animal breeders.

5. Changes in agrarian sector ecosystems caused by multifunctional management

Partial goals

a) Establishing procedures for the assessment and positive application of changes in the ecosystems of the agrarian sector caused by multifunctional forest management.
b) Establishing procedures and methods to eliminate negative impacts of climate change and anthropogenic influences on forest ecosystems.
c) Proposing environmentally-friendly management technologies in forestry (logging and transport of wood products).
d) Limiting negative factors affecting the level of the ecological burden from technological processes for their effective management and to minimise them.
e) Optimalizing technological system in less favourable production areas (LFA).

8.6.4. "VAK – Research In The Agrarian Sector" Programme (QI)

The VAK programme is a complex expression of the research needs of the agrarian sector. Public tenders for projects that will commence in 2009 were announced on 19.11.2008.

The programme consists of two complementary sub-programmes:

- Sub-programme I: "Sustainable development of the agrarian sector"
- Sub-programme II: "Development of the countryside through sustainable management of natural resources".

8.6.4.1. Sub-programme I – Sustainable development of the agrarian sector

Sub-programme goals

1. To improve the biological potential of cultivated organisms and the method of their use for the effective production of food.
2. To develop new procedures and tests for the production and processing of agricultural products and food and to improve their quality and safety.
3. To optimise methods of soil use and protection.
4. To propose management procedures in unfavourable areas and procedures for ecological farming.
5. To propose procedures for exploiting local resources and to innovate food production procedures for small and medium-sized enterprises

Expected benefits

- The use of organisms with new properties or organisms capable of effectively producing new, quality products, including new methods of assessing the benefits and risks involving in products from new biotechnologies.
- The application of new procedures in breeding, reproduction and disease prevention in plants and farm animals.
- Increasing the economic effectiveness of exploiting the land and increasing product quality while supporting the stabilization of the countryside with the application of new products and technologies.
- Improving the health of agricultural products, improving the quality of raw materials and plant products and stored products and reducing consumption of synthetic pesticides, particularly those posing a threat to the environment.
- Improving the economy of animal production, including fish breeding, and raising its level of competitiveness among the EU Member States.
- Improving the health of farm animals as a fundamental pre-condition of high-quality animal products.
- Improving the quality and safety of domestic food products and minimizing the occurrence of allergenic substances in agricultural products and foods by changing plant cultivation and product storage technologies.
- Expanding the selection of foods having a positive influence on the health of consumers.
- Limiting soil degradation, particularly through erosion, a fall off in organic matter, compacting, contamination and a drop in biological differentiation
- Improving the system of fishpond management by ensuring reasonable stock levels and ecological variety and improving water quality.
- Improving the quality of products and the economic effectiveness of ecological farming.
- Creating new financial opportunities in unfavourable areas for commercial activities.
- Improving business conditions and developing small and medium-sized agricultural companies, increasing their innovation activities, their fast and effective adaptation to the changing conditions of the agrarian sector.
- Increasing consumption of domestic foodstuffs and raw materials for food and expanding the selection of products and improving their quality.
- Expanding regional specialities and other local products, as well as services and other non-productive functions of agricultural production.

8.6.4.2. Sub-programme II – Development of the countryside through sustainable management of natural resources

Sub-programme goals

1. To develop commercial procedures to support the required functions of forests and to support the biodiversity of forest ecosystems.
2. To develop water management procedures given the risk of assumed climate changes and to find new methods of cleaning waste waters.
3. To evolve new systems and procedures for processing agrarian sector products for non-food use and to process waste as a source of energy and a raw material for industrial use.
4. To establish conditions and measures to support the development of the countryside.

Expected benefits

- Reinforcing the non-productive functions of managed forests, protecting the biodiversity of forest ecosystems as an important factor for rural landscaping.
- Minimizing the impact of climate change and minimizing the harmful effects of technologies used in forest management.
- Limiting the threat of flooding and drought by increasing the retention ability of the countryside through land modification measures, revitalizing river systems, renovating small water reservoirs and fishponds and appropriate methods of agricultural and forest management.
- A problem-free supply of clean water for the population and other subscribers and the effective disposal of waste water without having a negative impact on the environment.
- Reducing the dependence of the Czech Republic on fuel and energy imports by increasing proportions of biomass used as a renewable source of energy
- Restoring the natural function of the countryside, raising income levels in the countryside and using local resources to make the countryside more attractive.
- Improving relationships between agriculture and individual elements of the environment, maintaining and cultivating the countryside, creating job opportunities in the countryside and reinforcing the human and social capital of the countryside.
- Increasing the economic competitiveness of agricultural enterprises and farms.

8.6.5. National Agency for Agricultural Research – NAZV

The National Agency for Agricultural Research (NAZV) was founded by the Ministry of Agriculture of the Czech Republic (MA) in March of 1994, initially as part of the Institute of Agricultural and Food Information, to develop market relationships in the area of research and development (R&D) for the MA. Since 1.7.2002, it has been put under the authority of the Department of Research, Education and Founding Activities of the MA and became an independent department in this division. On 10.6.2003 it relocated to the MA building at Těšnov 17, 117 05 Prague 1. Since July 2008, after a reorganization of the MA, it became part of the Department of Science and Research.

The NAZV provides the organizational, technical and staffing for the selecting, control and management of documents dealing with R&D projects funded from the MA's target-oriented sources. It provides services associated with the organization and management of agricultural, food, forestry and water management research and performs a range of other tasks.

Address:
Těšnov 17, 117 05 Praha 1, Building of the MA
Tel.: 221 812 349 (Ing. Blanka Černá — NAZV Manager)
Fax: 221 812 962 (NAZV)
E-mail: nazv@mze.cz
Internet: www.nazv.cz

8.7 Research programmes of the Ministry of the Environment (ME)

In 2009 the ME will provide funds for projects in the following sectoral programme

- "Sectoral programme for research under the authority of the ME 2007 – 2013" (SP).

8.7.1. Sectoral Programme for Research under The Authority of the ME 2007 – 2013 (SP)

The Sectoral Research Programme by the Ministry of Environment (SRP ME) is based on the National Innovation Policy of the Czech Republic for the period 2005 - 2010 and on the long-term fundamental research directions, which transpose the goals and tasks contained in strategic EU documents. Within this context, the objectives of the SRP ME follow on from the objectives of the 7th European Community Framework Programme for research, technical development and demonstrations and the National Research Programme II of the Czech Republic. Individual partial programmes and research areas of the SRP ME specify these objectives according to the principles contained in the conceptual and strategic documents applicable to the Czech Republic and having regard to its international obligations. This will thus solve problems linked to the territory of the Czech Republic, problems which are especially important for sustainable development in the Czech Republic, and problems the Czech Republic has committed to resolve.

In contrast to the National Research Programme II of the Czech Republic, which focuses on topical priorities and sectional programmes that are more or less interdisciplinary, the SRP ME focuses on specific areas within the scope of the Ministry's remit for the administration of which the Ministry of Environment has high quality professional potential. Topics have been selected in the area of renewable energy sources, which supplement the research in this area included in the National Research Programme II.

The SRP ME focuses on the priorities set by the environmental sector in the following areas:

- Protection of natural water accumulation,
- Protection of water sources and the protection of the quality of ground and surface waters,
- Protection of the atmosphere,
- Protection of nature and the countryside,
- Geological exploration in accordance with Section 2 of the Act on geological works,
- Protection of minerals, including the protection of mineral resources and ground waters,
- Waste management,
- Assessment of the impact of activities and their effects on the environment,
- Changes in environmental factors from the point of view of their impact on interactions between organisms, including humans,
- Rational use of natural resources and renewable energy sources.

Public tenders for projects launched in 2007 were announced on 8.11.2006 and 4.7.2007. The public tender for projects launched in 2008 was announced on 12.9.2007. Within the framework of the public tenders, details are provided of the goals that are to be achieved by the projects in the individual sub-programmes under the areas of research listed below.

The programme consists of four sub-programmes:

- SP1 – Climate change, restricting pollution and risks
- SP2 – Sustainable use of resources
- SP3 – Research into environmental technologies
- SP4 – Observations of Earth and assessment tools

8.7.1.1. Sub-programme SP1 – Climate change, restricting pollution and risks

Characteristics
The "Climate change, restricting pollution and risks" sub-programme basically follows the basic research area of "sustainable development (the biological and ecological aspects of sustainable development)" and it also relates to basic research into "molecular biology" and "security research into the environment". These basic research directions were approved in Government Resolution no. 661 of 1 June 2005 on long-term basic research directions. The sub-programme focuses on solving the following problem groups:

- Negative impacts on the environment and on the climate: the operation of climatic and Earth-based systems, provisions for adjusting to and alleviating the impact of these changes, atmospheric, soil and water pollution, changes in the composition of atmosphere and in water circulation, mutual interaction between the climate and the Earth surface, impacts of anthropogenic/industrial effects and risks.
- The environment and health: The interaction of environmental causes of stress to the human health, including the identification of sources, emerging risk factors, methods of integrated risk assessment for toxic compounds, the quantifying and analysis of the costs and benefits of eliminating environmental health risks, and indicators for prevention strategy.
- Natural risks: improvements in forecasting and the integrated assessment of threats, the sensitivity and risk of catastrophes related to geological hazards (e.g. landslides, rock falls and earthquakes) and the climate (e.g. storms and floods), the development of early warning systems, and the improvement in the strategy for the prevention and alleviation of consequences.

Research areas
The sub-programme consists of three research areas:

- SP1a – Impacts of anthropogenic influences and measures to alleviate climate change
- SP1b – Environmental health determinants and high-risk situations
- SP1c – Protection against the negative effects of natural disasters

8.7.1.2. Sub-programme SP2 – Sustainable use of resources

Characteristics
The "Sustainable resource utilisation" sub-programme basically follows the basic research area of "sustainable development (the biological and ecological aspects of sustainable development)" approved in Government Resolution no. 661 of 1 June 2005 on long-term basic research directions. It focuses on the following problem groups, which relate to the protection and sustainable use of natural and artificial resources:

- Ecosystems, the monitoring of their status and the optimising of their functions, the protection of biological diversity, balancing protection for biodiversity with human activities, the environmentally friendly management of the regions, forest management, the sustainable management and planning of urban environments,
- Protection and utilisation of water resources and soil protection,
- Waste management, biotechnology for the processing and recycling of waste, prevention of waste creation.

Research areas
The sub-programme consists of three research areas:

- **SP2d** – Ecosystems and the protection of biological diversity
- **SP2e** – Protection of water, soil and the mineral environment
- **SP2f** – Waste management and the prevention of waste creation

8.7.1.3. Sub-programme SP3 – Research into environmental technologies

Characteristics
The "Research of environmental technologies" sub-programme follows the long-term basic research direction "sustainable development (the biological and ecological aspects of sustainable development)" and the environmental aspects of the long-term research direction "energy resources (support for the long-term sustainable organisation of energy resources)". These basic research directions were approved in Government Resolution no. 661 of 1 June 2005 on long-term basic research directions. The sub-programme focuses on solutions to the following problem groups:

- Production of power from renewable sources (e.g. the development and demonstration of technologies suitable for different regional conditions), rational energy utilisation, and the assessment and verification of technologies from the point of view of environmental risk and life cycles,
- Processing biomass for energy purposes, different kinds of bio-fuels, and reduced CO_2 emissions,
- Optimising the co-ordination of individual renewable resources within combined applications, resource backups, and increasing the reliability of energy supplies.

Research area
The sub-programme consists of the following single research area:

- **SP3g** – Environmental technology, the rational use of energy and renewable energy sources (OZE)

8.7.1.4. Sub-programme SP4 – Observations of Earth and assessment tools

Characteristics
The sub programme "Observations of Earth and assessment tools" follows the long-term basic research direction "sustainable development" and the environmental aspects in the basic research direction "Information Society". These basic development directions have been approved by Government Resolution no. 661 of 1 June 2005 on long-term basic research directions. The sub-programme focuses on the solution of the following problem groups:

- *Earth observation:* The development and integration of observation systems from the point of view of environmental questions and sustainability issues (e.g. within the Global System of Earth Observation - GEOSS), interoperability of systems and the optimising of information for understanding, modelling and forecasting environmental phenomena, new information and communication technologies, new systems and services in areas of public interest that increase quality and effectiveness and improve access to environmental information with the goal of supporting sustainable development, mitigating the consequences of natural disasters and ecological accidents, and increasing the efficiency and openness of the state administration (see the research area "Interoperability of systems and the optimising of information, including the research of applications for better performance of the state administration and the general accessibility of information").
- *Forecasting methods and assessment instruments:* The modelling of relations between the economy, the environment, and society, including market tools (the external factors, barriers, and the development of a knowledge base and methodologies for the assessment of impacts on the sustainability in key issues, for example, soil use, social and economic tension relating to climate changes), socio-economic models, economic and social cohesiveness with regard to environmental protection (see the "Methods of the forecasting and assessment instruments, including the modelling of economic and social relations within the sustainable development" research area).

Research areas
The sub-programme consists of the following two research areas:

- **SP4h** – Optimizing information including research into applications for higher performance and for generally accessible information
- **SP4i** – Methods and tools for forecasting and assessment, including the modelling of economic and social relations in sustainable development

8.7.2. Contact details

Ministerstvo životního prostředí
(Ministry of the Environment)
Voluntary Instruments Section
Department of Research and Development
Vršovická 65, 100 10 Praha 10
tel.: 267 122 490 (Ing. Jiří Fereš);
e-mail: jiri.feres@env.cz

http://www.env.cz, click on „Politika a nástroje ochrany ŽP" and then on „Výzkum a vývoj".

International cooperation of the Czech Republic in the area of research and development (IR&DC)

9

The Ministry of Education, Youth and Sports of the Czech Republic is, according to the Act No. 21/1993 Coll. (the so-called Competency Act), a guarantor of the international co-operation in research and development, including conclusions of relevant contractual documents. From the procedure point of view, international contractual documents related to research and development in the Czech Republic must be approved by the Czech government in the form of resolutions requiring the approval of the Czech Parliament and ratification by the President. This applies in all cases, when contractual parties agree on co-operation rules differing from the existing legal adjustments.

The international co-operation in research and development (IR&DC) takes place on the basis of a long-term conception updated in 2007 and leading to the development of prosperity in the country through the added value created by the international co-operation. The bases and main parts of international co-operation in R&D are always formed by joint projects of research and development works, or by the participation in international multilateral projects (activities). In some cases, bilateral co-operation agreements are reduced to the support of research and development personnel mobility — see the co-operation with specific countries.

Priorities of the Czech Republic focus on the involvement in research and development structures of the European Union, especially on the most effective participation in Framework research and development programmes by EC and in EURATOM in the period 2007 - 2013. However, some projects could run until 2017. This relates also to the participation in the 7th Framework Programme by EC and in EURATOM as well as to the building and structuring of the European Research Area and the participation in the so-called Lisbon Strategy and Ljubljana Process. Independent projects of multilateral and bilateral co-operation are also considered important. Some of them are selected for public tenders on the financial support and for the support of participation in important international governmental and nongovernmental organisations and activities.

Similarly as the National Research and Development Policy, the policy in the area of international co-operation (which makes also a part of the National Research and Development Policy as an independent sub programme) should correspond with policies by EU member countries related to this area at least as it is required by the EU legislature. It relates especially to the application of Articles 169 and 171 in the European Union Treaty in the Amsterdam wording, which allows to the European Community to prepare, together with the member countries, programmes of European research and development and to participate in their funding and to contribute, in this way, to the co-ordination of national research and development policies. After the required level of integration is achieved in the EU research and development area, it will be favourable to progress in accordance with the general patterns existing in advanced EU countries and to achieve the legislative environment, which would support this integration as much as possible.

Apart from the area of advanced European countries, the preparation of the international co-operation in research and development policy should consider also the legislative environments existing in countries within the central European region, but also the R&D policies existing in USA, Canada, and advanced Asian countries.

9.1 European research and innovation area

The European Research and Innovation Area (ERA) was created by the decision of the European Council and its basic idea relates to the creation of the unified European research and development environment with the aim to achieve better cohesiveness in this area and to contribute to the better European competitiveness, when compared with the United States of America and some Asian countries. There are considerations with regard to the lowering research expenditures and investments (especially the private ones) in Europe, to the fact that a career of a researcher does not belong among the attractive life or work opportunities, to the unsatisfactory participation of women in research, and to the fact that precious resources are unsatisfactorily and not suitably utilised in research for the benefit of the society and the personnel mobility within Europe is too low. There are also ethical problems in science (e.g. in the research of stem cells). The creation of the European Research Area should contribute to the solution of these problems. This new environment should provide grounds for new framework programme proposals. ERA includes framework programmes, national policies of the EU member countries and their co-ordination, and European research organisations. All this should result in the real European research and development policy. The most important fact is that the framework programmes are prepared with the aim of contributing to the creation and structuring of the European research and innovation area. The European Research Area, its structuring and strengthening should contribute to better quality of life in the European Union and in Europe generally, and to increased competitiveness of Europe, when compared with USA and Japan. This should be achieved by better utilisation of means put into research and development (not only of the public ones, but also and especially of the private ones, including the so-called Private-Public Partnership) and by better effectiveness of research and development and the support of research infrastructures. These objectives should benefit from the so-called modified Lisbon Strategy, which commenced in 2000, the objective of which is "to speedily achieve the creation of the European Research Area, while the sustainable economic growth and social cohesiveness are considered with the final goal to make the Union the most competitive and dynamic economy based on knowledge by 2010" and the Ljubljana Process.

The Lisbon Strategy has resulted, for example, in the so-called Barcelona Goal - to achieve the situation in which the share of research and development expenditures in EU GDP will be 3% on average by 2010 (while 1% should come from public resources and 2% from the private sector).

In the first half of 2009, the Czech Republic will have the presidency of the European Council, out of which tasks for research and development arise. The basic priority is considered to be the contribution to the removal of all barriers, which could have an adverse affect on the knowledge triangle: research – education – innovation and the so called 5th freedom, which is freedom of education and research. The presidency of the Czech Republic proposes to dedicate priorities in the first half of 2009 to the areas of mobility, assessment of national consequences of coordinating European research and research infrastructure of European and global importance. Meetings and negotiations regarding these subjects, involving the whole of Europe shall be conducted in the Czech Republic during the presidency.

9.2 Framework EU programmes in the area of research and development and EURATOM

9.2.1. General relations of the importance and benefit of the Czech participation in framework programmes for research and development

Co-operation in the area of research and development occurs in the European Union on the basis of the so-called Framework programmes. Their preparation and funding are based on the European Union Treaty. The Framework EC programme is based on Chapter XVIII in the European Union Treaty and in Articles 163 and 171. In 2007 the 7th Framework Programme commenced. The main co-operation guarantor in the European Commission is the Directorate General for Research (General directorate for research).

9.2.2. 7th EU Framework Programme

The proposal of the 7th Framework Programme was presented to the EU Council in April 2005 as a Proposal of the Decision of the European Parliament and Council related to the 7th Framework Programme of the European Community in research, development and demonstrations. The proposal was discussed in all EU bodies and approved within the so-called Partial General Approach (i.e. without budgetary relations) by the Competitiveness Council in November 2005. The proposal was also discussed in bodies of the European Parliament. There was the understanding that all approving procedures would finish at such time that the first calls on project proposals presentation could take place at the beginning of 2007. As the so-called financial perspective of EU for the period 2007 - 2013 (the budget) was approved only in the second half of December 2005, the budgetary data of framework programmes are made only the witness of the European Commission's intentions – EUR 72.726 for the 7th FP and the Framework Programme EURATOM. However, the final approved budget of the 7th Framework Programme is EUR 50 521 and the FP EURATOM budget is EUR 2 751 million. FP is included in the European Commission's document COM (2005) No. 119 final of 6 April 2005, also in the Czech language (http://cordis.europa.eu/fp7). At the same time, there were proposals of specific programmes and regulations for the tasks of the Joint Research Centre - direct actions in the nuclear and non nuclear areas discussed and published.

9.2.2.1. Structure of the 7th EU Framework Programme

The 7th EU Framework Programme has been divided, according to the approved proposal and the contents, into four areas: **Cooperation, Ideas, Capacities, and People**.

Cooperation: This will include main research activities and it relates to the entire area of research activities taking place within the trans-national co-operation. There are the following priorities:

- Health, food, agriculture, and biotechnology
- Information and communication technologies
- Nanoscience, nanotechnologies, materials, and new manufacturing technologies
- Energy
- Environment (including changes in the climate)
- Transport (including aeronautics)
- Social-economic science and humanities
- Safety
- Space

Ideas: They relate to the support of the basic research of the "investigator-driven" — from the bottom up — research implemented in all disciplines by individuals or trans-national teams. They should make a base for the applied research and innovations on the "from the bottom up" principle and for the establishment of the European Research Council.

Capacities: Key aspects of the European research and innovation capacities like, for example, research infrastructures, clusters at the regional level, and the development of the full potential of the convergence within the Community and in and outside regions shall be supported. They will also

support research done for the benefit of small and medium-size enterprises, the development of relations between science and the society, the development of policy coherences, and horizontal activities within the international co-operation. European research infrastructures shall also be supported within this part of the EU Framework Programme (the Strategic forum for research infrastructures ESFRI – see further below), their construction and operation.

People: This is about the strengthening of the quantitative and qualitative aspects of the human potential in research and technical development in Europe. It will support human resources in research and development, including the support of researchers' careers, the support of young researchers and women working in research. This will also include the "Marie Curie activities".

9.2.2.2. Participation rules and instruments in the 7th EU Framework Programme – financial support of the projects within the Framework Programmes

All topics will be implemented through the following: collaborative research, cooperative research, joint technological initiatives (JTI), co-ordination of national research programmes (Article 169 of the Treaty), and the international co-operation.

The following instruments will continue to be used for the support: "grants for the integration" (the excellence networks) and "grants supplementing the budgets" (cooperation projects, sometimes called the integrated projects). The European Commission does not define categories of the recognised costs anymore; maximum contribution from the EC is allocated according to the type of activities, type of organisation and the type of project – the so called funding scheme. Teams gain funds for project solutions in the form of advances (prior financing) and in the form of interim payments. Partnership changes in solutions (additional partners or leavings) can be decided directly by partners in accordance with the provisions of the Consortium Agreement and each proposed change in the structure shall be notified to the EC, who can raise an objection within 45 days. The European research organisations (e.g. CERN, ESA, EMBOP, etc.) will be considered legal persons from the member countries. The rights related to the intellectual property will be formulated directly by the partners in the so-called Consortium Agreement (if the general principles determined by the Rules of participation are adhered to), the conclusion of which makes one of the conditions on the gaining of a contribution from the European Commission. The costs modules known from the 6th FP have been abolished.

The amendment of the Act No. 130 on the Support of Research and Development 2007 (Act No 171 Coll.), allows projects in Framework Programmes to be partially supported from national public funds of the CR, providing that the project has gone successfully through international assessment, acquired support from the EC funds and fulfils the criteria determined by the Framework of the Communities for state support in research, development and innovations. The procedures of financial support of projects in Framework Programmes are secured by the MEYS, international cooperation in research and development department Mgr. Monika Šlajerová
tel.: +420 257 193 739
e-mail: monika.slajerova@msmt.cz
further information is available at:
http://www.msmt.cz/

Who may participate? The answer is that each legal person can or even a natural person can. The two associated accession states (Croatia and Turkey) and the accessioned countries of EFTA will participate under the same terms as the member countries. International European interest organisations can participate as teams of the member countries.

The minimal number of partners will be as follows: three partners for indirect projects and for the networks of top workplaces — they must be from the EU member countries or associated countries and no two partners can be based in the same member country or an associated country. For special projects of cooperation dedicated to the international cooperation of partner countries these are two participants from a member country or an associated country and two from partner countries within the international cooperation framework. The participation of a single participant is possible in the case of scholarship or a specific supporting activity. The minimal number of participants can be amended in work programmes.

The following instruments will be utilised in the implementation of the framework programmes:

- Workplaces' integration in the form of Network of Excellence;

The instrument "Network of Excellence" shall be implemented in the form of a joint programme covering a part or all research capacities of the participants in the given area with the objective to achieve the critical level of expertise and the European value added. The joint programmes can focus on the creation of independent virtual centres. The objective is to achieve a significant integration of research capacities and long-term and multi-disciplinary goals. It would be beneficial if a certain level of autonomy management was achieved with the aid of the progressive integration of work programmes.

- Integrated projects/ large cooperation projects

Cooperation projects (in some subject areas the title Integrated project is used) must include a number of parts in the form of activities, the size and structure of which can change, according to the kind of tasks. Large cooperation projects include research, technical development and/or demonstration activities supporting innovations. The projects should support competitiveness or they should focus on main social needs. The integrated projects should result in useful products, processes, or services.

- The ERA-NET and ERA-NET PLUS

They are jointly implemented programmes (the joint implementation of national or regional programmes — Article 169 of the Treaty), e.g. with the aid of harmonized work programmes, joint or co-ordinated calls on the presentation of project proposals. Specific implementation structures will be important for the implementation. This instrument can be utilised in all activities within the framework programmes.

- Specific target-oriented research projects (cooperation projects, earlier called STREPs)
- Research and technological projects, demonstration projects,
- Specific research projects for small and medium-size enterprises (SME) (the research in cooperation)
- Collective research projects for consortia of small and medium-size enterprises
- Support and development actions related to human resources and the mobility
- Co-ordination actions
- Specific support actions
- Integrated initiatives within the infrastructure
- Community participation in programmes organised by several member countries (Article 169 of the Treaty).

9.2.3. 7th Framework Programme EURATOM

The European Commission presented the proposal of the 7th Framework Programme EURATOM in April 2005, similarly as the 7th EU Framework Programme. However, it has been determined for the period 2007 - 2011. The Framework Programme EURATOM was not subjected to the joint decision of the European Parliament and the Council. It was decided by the Council only. With regard to the budget, the same information, as presented for the EU Framework Programme, applies also on the Framework Programme EURATOM the originally proposed budget — Framework Programme EURATOM: 4,734.621 million Euros and, after modification, 2,751 million Euros.

9.2.3.1. Structure of the 7th Framework Programme EURATOM

The programme contains one specific programme and direct actions by joint research centres.

- The specific programme "Nuclear Research and Education"
- Topical priority "Research of the energy gaining from the nuclear fusion"

The objective is to develop the knowledge base for ITER (International Thermonuclear Experimental Reactor) and to implement ITER as the safe prototype reactor for power plants. The priority will cover the following activities: Implementation of ITER, the research of the preparation of ITER operations, technological activities within the DEMO preparation, the research activities of long-term character, human resources, education and training, the infrastructure, and the responses to possible not envisaged political aspects.
There has been an agreement concluded on the founding of the international organisation ITER, as an independent legal person. The agreement participants are EU, USA, Japan (specific conditions have been created for Japan), the Russian Federation, India, China and the Korean Republic.

- **Topical priority "Nuclear fission and the protection against radiation"**

The objective is to support the safe utilisation of a nuclear fission and other radiation utilisation within the industry and medicine. The priority will cover activities within the following areas: Management of the radioactive waste, reactor systems, the protection against radiation, the support of the infrastructure for the research and access, human resources and training, including the support of mobility.

- **Direct actions by Joint Research Centres (JRC)**

In the consequence of the Lisbon Agenda and requests made by many clients, JRC will organise significant effort in the area of education, training, and knowledge dissemination. JRC will implement research activities in the areas related to the waste management, the impact on the environment, and also traditionally in the area of the nuclear safety.

9.2.4. Framework programme committees — Programme Committees and National Contact Points

As in the previous years, the EU member countries (and up to a certain level also the associated countries) participate in programme management mostly by being in a number of permanent or ad hoc committees and expert groups. The so-called Programme Groups belong among the most important ones - PG. The programme committees participate, together with the European Commission, in the creation and updating of working programmes of individual topical priorities, discuss calls on presentation project proposals and their members get informed about project evaluation results, or they are consulted in some disputable or consulting requiring decision-making cases on the acceptance or refusal of project proposals (the European Commission legally decides on proposals on the conclusion of contracts on project solutions). The programme committees' structure follows the topical structure of framework programmes. Members and their deputies in programme committees were appointed on the basis of a discussion between the Research and Development Council and MEYS, after receiving suggestions from the Czech Chancellors' Conference, the Academy of Sciences of the Czech Republic, the Association of Research Organisations, and the University Council for the 7th Framework Programme (the appointments are within the exclusive rights of the member countries). Workers responsible in the Czech Republic for the National Programme contact points were determined at the same time.

Table No. XV lists members of the Programme Committees (academic and pedagogical titles have been omitted to make the list simpler). The Table also lists the workers responsible for individual National Contact Points (NCPs) and their workplaces.

Table XV. Members of the programme committees, their workplaces and the National Points of Contact

Programme Committee	Member name	Workplace	NPC	Address
Cooperation				
Cooperation	Vladimír Albrecht	TC AV CR		
Cooperation/health	Pavel Anzelbacher	UP Olomouc	Judita Konkorová	TC AS CR
Cooperation/health	Radim Šrám	ÚEM AS ČR		
Cooperation/food	Jana Hejšlová	FGU AS ČR	Naďa Koníčková	TC AS CR
Cooperation/ICT	Jiří Kadlec	ÚTIA AS CR	Eva Hillerová	TC AS CR
Cooperation/ICT	Eva Hajičová	UK-MFF		
Cooperation/NANO	Karel Šperlink	AIP ČR	Alexandr Prokop	TC AS CR
Cooperation/NANO	Ivan Stibor	VŠCHT Prague		
Cooperation/energy	František Pazdera	ÚJV Řež	Zdeňka Šustáková	TC AS CR
Cooperation/energy	František Hrdlička	ČVUT-FS		
Cooperation/environment	Bořivoj Šarapatka	UP Olomouxc	Zdeňka Šustáková	TC AS CR
Cooperation/transport	Libor Beneš	University Pardubice	Martin Škarka	TC AS CR
Cooperation/transport	Václav Fencl	Centre for the transport research Brno		
Cooperation/SOCIO	Ladislav Rabušič	MU-FSS Brno	Michal Pacvoň	TC AS CR
Cooperation/SOCIO	Petr Kratochvíl	AS CR		
Cooperation/security	Václav Jírovský	UK-MFF	Eva Hillerová	TC AS CR
Cooperation/Universe	Jan Kolář	ČVUT-FSv	Alexandr Prokop	TC AS CR
Ideas	Jan Hrušák Jaroslav Koča	AS CR MU-PřF	Emil Kraemer	TC AS CR
People	Zuzana Došlá František Turnovec	MU-PřF UK-FSV	Emil Kraemer	TC AS CR
Capacity/infrastructures	Jan Palouš	AS CR	Lenka Havlíčková	TC AS CR
Capacities/infrastructures	Ladislav Kozubek	MU Brno		
Capacities/MSP	Miroslav Janeček	AVO Praha	Martin Škarka	TC AS CR
Capacities/MSP	Petr Porák	MPO Praha		
Capacities/ regions of knowledge	Václav Sklenička	ÚFM AS CR	Lenka Havlíčková	TC AS CR
Capacities/ regions of knowledge	Mikuláš Bek	MU-Fil.fakulta		
Capacities/ Science and the society	Adolf Filáček	FÚ AS CR	Michal Pacvoň	TC AS CR
Capacities/ Science and the society	Jiří Kulhavý	MU Brno		
Capacities/int. cooperation	Ivan Netuka	UK-MFF	Michal Pacvoň	TC AS CR
EURATOM/Fusion	Pavel Chráska	ÚFP AV CR	Pavlo Pavol	ÚFP AS CR
EURATOM/Fusion	Milan Tichý	UK-MFF		
EURATOM/Fission	Ivo Váša	ÚJV Řež	Miroslav Hrehor	UJV Řež
EURATOM/Fission	Ladislav Musílek	ČVUT Praha		
Finance issues			Kateřina Slavíková	TC AS CR
JRC			Naďa Koníčková	TC AS CR

9.2.5. Information treatment of the framework programmes

The management of this extensive and complex research and development programme - the Framework EC Programmes – can not function without information background.

Information materials issued by EC are published in hard copies and they are also available in the electronic form on the Internet.

- Basic information can be found in the brochure "7th Framework Programme (FP7) – the shift of European research into the forefront of interests", which is available in Czech on http://ec.europa.eu/research/fp7/pdf/fp7-brochure_cs.pdf.
- Well known printed periodicals include:
  research eu – the magazine of the European research area
  research eu – results supplement
- Electronic information about the European research and development is available especially at:
  - http://ec.europa.eu/research
  - http://cordis.europa.eu. CORDIS (Community Research and Development Information Service) is the most extensive and probably the best electronic information system on the European research and development.
    The 7th Framework Programme has got a special web page: http://cordis.europa.eu/fp7 and www.fp7.cz in the Czech Republic.
- ECHO — a magazine for the European research, development and innovations. It has been published six times a year by the Technological Centre of AS CR since August 2004 and it is also available online at www.tc.cz.

The Technological Centre of AS CR, v.v.i. is a National Contact Organisation for the 7th Framework Programme. Detailed information on the National Contact Organisation for individual programmes of the 7th FP and information on the programme in Czech language are available at: http://www.fp7.cz .

9.2.5.1. National Information Centre for the European research — NICER

NICER is a project by the Technological Centre of AS CR (OK 448) providing complex support of workplaces in the Czech Republic, when they wish to get involved in the European Research Area (ERA).

The Technological Centre of AS CR does the following activities within the NICER project:

- It looks after activities of national contact workers (in NCP) within the 7th Framework EU Programme, who organise mass information and training actions about the 7th FP and provide professional consulting of individual teams participating in preparations and solving of specific 7th FP projects, while a special attention is paid to small and medium-size enterprises,
- It administers the system of financial support of preparations of large 7th FP projects,
- It issues ECHO — the bimonthly journal focussed on information about ERA, and publications focussed on issues of the European research and of framework programmes,
- It maintains the portal CzechRTD.info that informs foreign workplaces about research and development structures in the Czech Republic and allows Czech teams making public suggestions with regard to the European co-operation in specific area of research, development and innovations (www.czechrtd.info.cz),
- It is interconnected, through NCP activities, with the European network of national contact points of the 7th FP (see Chapter 9.2.4) and with the National Information Network NINET and other contact points in the Czech Republic. It also contributes to the creation of relations between domestic and ERA workplaces,
- It co-operates with the European Commission and with representatives of the Czech Republic in programme committees of the 7th FP and in the programme COST,
- It looks for partners for research and scientific workers and organisations in both the Czech Republic and abroad to allow them participation in framework programmes,
- It organises the so-called CZEDER every year
  - the conference about the Czech participation in the European research.

More detailed information is available at http://www.nicer.cz.

9.2.5.2. Czech National Information Network for EU framework programmes – NINET

The National Information Network, the infrastructure for the 6th Framework EC Programme NINET commenced its activities for the successful participation of the Czech Republic in projects of international co-operation in R&D during 2000. Activities NINET continue also with regard to the 7th FP. NINET, the Czech national information network for framework EC programmes currently associates regional and professional contact organisations (RCO, PCO) from the entire Czech Republic. The task of the NINET network is the provision of information and consulting services related mostly to framework programmes of EC research and development. This network is financially supported from MEYS resources. Further information is available at www.ninet.cz.

NINET associates regional and professional contact organisations (RCO, PCO) the list of which is presented in **Table XVI**.

Table XVI. National Information Centre for the European research, RCO and PCO

National Information Centre for the European research, NICER		
Praha OK 448	**Technological Centre AS CR** Rozvojová 135 160 28 Prague 6	Ing. Nađa Koníčková Tel.: +420 234 006 109, Fax: +420 220 922 698 e-mail: konickova@tc.cas.cz
Regional Contact Organisations (RCO)		
OK 481 RCO South Moravia	**Brno University of Technology** Antonínská 1 601 90 Brno	Prof. RNDr. Jan Vrbka, DrSc. Tel.: +420 541 145 201 E-mail: vrbka@ro.vutbr.cz
OK 473 RCO South Bohemia	**Institute of Systemic Biology and Ecology of AS CR** Poříčí 3b, 603 00 Brno	Prof. RNDr. Michal Marek, DrSc. Tel.: +420 602 545 221 E-mail: emarek@brno.cas.cz
OK 477 RCO Liberec II	**Research Institute of Textile Machines Ltd.** U Jezu 4 461 19 Liberec	Ing. Jaromír Ficek Tel.: +420 485 302 486 E-mail: jaromir.ficek@vuts.cz
OK 482 RCO North-West Bohemia	**Research Institute of Brown Coal, Joint Stock Comapany** Budovatelů 2830 434 37 Most	Ing. Alena Milotičová Tel.: +420 476 208 602 E-mail: seidl@vuhu.cz
OK 486 RCO Ostrava	**BIC Ostrava, Ltd.** Mostárenská 1156/38 703 00 Ostrava – Vítkovice	Ing. Marek Valdmann Tel.:+420 595 957 458 E-mail:valdman@bicova.cz
OK 479 RIKoC Pardubice	**VÚOS, Joint Stock Comapany, Pardubice** (Research Institute of Organic Syntheses) 532 18 Pardubice 20, Rybitví 296	Ing. Vratislav Černý Tel.: +420 466 825 646 E-mail: vratislav.cerny@vuosas.cz
OK 474 RCO West Bohemia	**University of West Bohemia in Plzeň** **Department of management, innovation, and projects** Husova11, 306 14 Plzeň	Ing. Jiří Vacek Tel.: +420 377 633 204 E-mail: vacekj@kip.zcu.cz
1P OK 463 RCO Central Moravia	**Palacký University in Olomouc** Křížkovského 8 771 47 Olomouc	Mgr.Gabriela Pokorná Tel.: +420 585 631 400 E-mail: stoselo@risc.upol.cz
OK 480 RCO Prague and Central Bohemia	**Czech Technical University in Praha** **Technological and Innovation Centre** Plzeňská 221/130, 150 00 Prague 5	RNDr. Milan Press Tel.: +420 257 199 912 E-mail: press@tic.cvut.cz

Professional Contact Organisations (PCO)		
OK 475 PCO for industrial research and development	**Confederation of Industry and Transport of CR** Jankovcova 1569/C, 170 00 Prague 7	Ing. Stanislav Lička, CSc. Tel.: +420 234 379 500 E-mail: slicka@spcr.cz
OK 471 PCO for materials and technologies CR	**Czech Society for New Materials and Technologies** Novotného lávka 5, 116 68 Prague 1	Doc.Ing. Karel Šperlink, CSc. Tel.: +420 221 082 326 E-mail: sperlink@aipcr.cz
OK 470 PCO aircraft and cosmic research	**Aircraft Research and Testing Institute Ltd.** Beranových 130, 199 05 Prague	Ing. Karel Paiger Tel.: +420 225 115 332 E-mail: paiger@vzlu.cz
OK 470 PCO Prague	**Sociology Institute of AS CR** Jilská 1, 110 00 Prague 1	PhDr. Marcela Linková Tel.: +420 222 222 322 E-mail: marcela@zenyaveda.cz
1P OK 437 NKC Women and Science	**Association of Research Organisations** Novodvorská 994, 142 21 Prague 4	Ing. Václav Neumajer Tel.: +420 239 041 998 E-mail: avo@avo.cz
OK 439 PCO International cooperation	**Engineering Academy of CR** Národní 3, 117 00 Prague 1	Ing. Ivan Dobiáš,DrSc. Tel.: +420 286 890 383 +420 286 890 391 E-mail: idob@it.cas.cz
OK 476 PCO Information system	**Institute of Theory of Information and Automation of AS CR** Pod vodárenskou věží 4, 182 08 Prague 8	Ing. Jiří Kadlec, CSc. Tel.: +420 266 052 216 E-mail: kadlec@utia.cas.cz
1P OK 458 PCO IST Prague	**VIP park.cz, Ltd.** Bulharská 37 612 00 Brno	Ing. Vlastimil Veselý Tel.: +420 541 147 250 E-mail: vesely@firsttuesday.cz
OK456 OKO Brno	**BIC Brno** Příkop 4 602 00 Brno	Ing.Vít Hřiba Tel.: +420 545 176 130 E-mail: bicbrno@bicbrno.cz circ.rko@bicbrno.cz.
1P OK 460 OKO MICEP	**Charles University, Prague - MICEP** Karlovo nám. 40 – Faustův dům 120 00 Prague 2	Doc.Ing. Miloslav Špunda,CSc. Tel.: +420 224 963 010 E-mail: spunda@cuni.cz
OK 464 Liaison Office of the Czech Rep. for the European research	**CZELO. Czech Liaison Office for R&D** Rue de Trone 98 1050 Brussels, Belgium	Mgr. Anna Vosečková Tel: +32 (0) 2514 36672 E-mail: voseckova@tc.cz
1P OK 465 OKO Mobility Centre	**Centre of Joint Activities of AS CR** Vodičkova 40 110 00 Prague 1	Ing. Robert Hrubý, MBA Tel: +420 221 403 480, +420 739 249 048 E-mail: hruby@ssc.cas.cz
OK 485 OKO KAMPUŠ - research teams' participation in the 7th FP	**Institute of Chemical Technology in Prague** Technická 5, 166 28 Prague 6	Ing. Anna Mittnerová Tel: +420 220 443 806 E-mail: anna.mittnerova@vscht.cz
OK 472 OKO Science and media Prague	**Caneton, Ltd.** Vinohradská 100 130 00 Prague 3	Stanislav Štěpánek Tel: +420 267 311 032 E-mail: stepanek@ceskahlava.cz
OK 08004 OKO Companies participation in international cooporation	**Siemens, Ltd.** Evropská 2588/33a 160 00 Prague 6	Petra Peterková Tel: +420 545 105 950 petra.peterkova@siemens.com

9.2.6. European Research Council

The European Research Council is the first institution providing funding, which has been established to support boarder research determined by scientists – investigator-driven. Its main objective is to stimulate scientific expertise by supporting the best, really creative scientists, students and specialists, so that they have the courage to take on the risk of their research. Scientists are motivated to cross the current knowledge boundaries and discipline limits. The ERC is a supplement of the other funding activities within Europe (it has been established within the framework of the 7th Framework Programme), such as national research funding agencies and it represents the flagship of the programme Thought of the 7th Framework Programme. With regard to the fact that the ERC uses only the "bottom-up" mechanism during the selection process, it allows scientists to identify new opportunities and directions in any department of science rather than just watching priorities, which are set by politicians. The ERC grants are within public tenders provided to projects, which are led by beginners' scientists or the experienced ones, with no regard to their origin, who are working or are moving to Europe – which is the only criteria for the selection of scientific excellence. The Chairman of the ERC Scientific Council is Prof. Fotis Kafatos. The Czech Republic acquired one of the ERC grants within the first call.

Basic information:
MEMO/07/586-Statistics
http://erc.europa.eu/pdf/memo.pdf

22 members of the ERC Scientific Council:
http://erc.europa.eu/index.cfm?fuseaction=page.display&topicID=62

Contacts:
Prof. Fotis C. Kafatos, ERC President and Chairman of its Scientific Council
kafatos.erc@imperial.ac.uk

Prof. Ernst-Ludwig Winnacker, ERC Secretary General
rtd-erc-secgen@ec.europa.eu

More information:
Madeleine Drielsma/Gianpietro van de Goor, ERC-DIS
Tel.: +32 (0)2 298 76 31 or +32 (0)2 295 74 74,
Fax: +32 (0)2 299 3173
rtd-erc-press@ec.europa.eu
http://erc.europa.eu

9.3 Liaison information office of the Czech Republic in Brussels – CZELO

There has been a Liaison Office of the Czech Republic, the so-called CZELO, established in Brussels in 2005. This office should improve the information flow between the European Commission and the Czech research professionals. Many other member countries have got similar offices in Brussels. The address of the office is as follows:
Czech Liaison
Office for R&D, Rue du Trone 98,
B-1050 Brussels, Belgium.
The Office Manager is
Mgr. Anna Vosečková
tel.: +32 (0) 2514 6672
voseckova@tc.cz

CZELO is a project by the Technological Centre of AS CR supported by MEYS. The main task of CZELO is to help in the successful involvement of the Czech research in the European research co-operation, especially through framework programmes. The office provides for services to researchers from all different areas and research organisations in the Czech Republic. For further information, see the web: http://www.czelo.cz.

9.4 Research fund for coal and steel (RFCS)

With the accession of the Czech Republic to the European Union the country has become automatically also a member of the European Society of Coal and Steel. The original focus of the Society – RFCS - (The Society was established for 50 years and its activities ceased on 23.7.2002) transferred progressively (especially its funds) into a research programme in the area of coal and steel. The guarantors of the Czech membership in the Society are MIT and MEYS. More information is available from MIT (Ing Martin Karfus), but especially in the European Commission it is Directorate of Research and Innovation - http://cordis.europa.eu/coal-steel-rtd/.

The Research Fund for Coal and Steel is a Fund from which the funding is determined for the support of science and research in the area of coal and steel, outside the EU framework programmes. The financial support is there to assist in achieving competitiveness and to contribute to its sustainable development. Within the framework of this programme – published by the Research Fund for Coal and Steel under the umbrella of the European Commission– two types of research and technical development projects are recognised: research, pilot, demo projects and supporting measures, support and preparation activities. The global aim of this programme is to increase competitiveness of European coal and steel industry and to contribute to its sustainable development. Specific goals: **developing projects** – to cover research and experimental work with the aim to gain deeper knowledge in order to create new products production processes and services in a simpler way, **pilot projects** – construction manipulation and development of installations and support of commercial use of technologies, **supporting measures** - to supplement and coordinate research activities in connection with this programme. Supported target groups: research centres and institutes, subjects operating in the area of coal and steel.

Generally, this programme serves to improve the know-how and to improve international communication in the area of mining coal and steel and to implement the results in practise. The programme was published by the Research Fund for Coal and Steel and it further continues to accept proposals for this programme.

Key criteria: Applicants: especially MSP, other enterprises and research institutes, for potential applicants the following conditions also apply: they must be persons in ex ECCS (European Communities of Coal and Steel) countries or subjects from accessing countries or subjects from third countries, providing that they will bring desirable effect in relation to the programme objectives. The applicant does not necessarily have to relate to coal and steel but the research and technical development proposals must be within the framework of this programme.

Supported activities: research work leading to simplifying production, installation at a satisfactory level, widening research results and promoting this knowledge, for example also training programmes for scientists. Recognised costs: Financial limits: regarding research projects, the maximum funding is in the amount of 60% of recognised costs, regarding pilot projects, the maximum funding is in the amount of 40% of recognised costs, regarding demo projects, the maximum funding is in the amount of 40% of recognised costs, regarding supporting measures, support and preparation activities, the maximum funding is in the amount of 100% of recognised costs. The public fund can be used only for the purpose and for the activities determined in the contract and only necessary costs connected with the programme are covered by the fund. The budget for a general calendar year ranges somewhere around EUR 53 mil. The Fund call for submitting project proposals is continual with an annual deadline of 15th September.

Limits: The projects intentions are inspected from the point of view of conformity with the intentions of the European Communities. Projects characterised with its coordination complementarities and synergies between various research programmes are preferred and projects characterised by a mutual exchange of information between projects which are financed by this programme and by the 7th Framework Programme are prioritised.

9.5 Competitiveness and innovation program - CIP

This Programme was published by the European Union in order to increase competitiveness and support of innovation in 2006. The Programme is administered by the Ministry of Industry and Trade, where additional information can be found - http://www.mpo.cz/cz/podpora-podnikani/cip/. The Framework Programme Competitiveness and Innovation (CIP) addresses supporting innovations, inclusive of eco-innovations, entrepreneurship, information and communication technologies and energy. 60% out of the whole budget is allocated for small and medium enterprises. Practical Guide to EU Funding Opportunities for Research and Innovation has been published - http://www.mpo.cz/dokument51229.html. The European Commission published a call for submission of proposals for the community programme Competitiveness and Innovation - sub programme Entrepreneurship and Innovation. The topic of the call is Global Sector Approaches. Another call was published for the sub programme Entrepreneurship and Innovation. This call is on behalf of the European Commission administered by European Investment Fund.

9.6 International cooperation within the framework of the EU – STCU, ISCT

Support of research and development in the Russian Federation and in Ukraine forms a part of activities of cooperation in research and development. There are two agreements, which are determined by the so called International Science and Technology Centre – in the Russian Federation and the Science and Technology Centre in Ukraine. These workplaces organise scientific – technological cooperation between workplaces from member countries (the so called ISTC and SRCU partnership) and from the Russian Federation and Ukraine. More information is available from the web pages of the European Commission Research Directorate (i.e. http://ec.europa.eu/research/nis/en/istc.html), CORDIS (i.e. http://www.istc.ru/). ISTC/STCU (international scientific and technical centres) are intergovernmental organisations established in Russia and in Ukraine. These organisations were established in 1992 on the basis of an agreement between EU, USA, Japan and the Russian Federation (Ukraine). Their objective is to offer to the very highly qualified scientists working in military research programmes in the former Soviet Union an opportunity to redirect their talents to peace activities. As a consequence of decreasing defence budgets and the closing of military research institutes, it was of life importance to prevent a rapid increase of expert activity and technologies in weapons of mass distraction.

9.7 Financial mechanisms of the EEA/Norway

In accordance with the Government of the CR Decree No. 1011 of 13 October 2003 the Agreement on the participation of the Czech Republic in the European Economic Area (EEA) was signed. A new financial mechanism was introduced within this Agreement. During the period 2004 – 2009 the member states of EFTA (Republic of Island, the Principality of Liechtenstein and the Kingdom of Norway) will through this mechanism provide support to countries accessing EFTA in projects in the enlarged internal market. Norway will also contribute through a bilateral, the so called special Norwegian finance tool (Norsk finansieringsordning). On the basis of the both stated mechanisms the EEA countries/ Norway commit to support economically weaker countries within the European Economic Area by providing grants for investment and development projects in priority areas, such as conservation and restoration of cultural inheritance, protection of the environment, support of judicature, health care or child care, research and development in priority areas, etc.

The amount allocated for the Czech Republic, a total of 110.91 million EUR for a five-year period 2004 – 2009 (of which 48.54 million EUR under the Agreement on the participation in the EEA and 62.37 million EUR in accordance with the Agreement on the Norwegian Financial Mechanism). The securing of co-financing of projects in the minimum required amount of 15% shall be the responsibility of intermediary subjects: the central authority of government, regional authorities or other subjects appointed by the National Contact Organisation following an agreement with the Financial Mechanisms Office. In case of using budgets of central authorities of government or regional authorities, these funds must be part of the corresponding budgets.

All the basic principles and guidelines relating to the financial mechanism of the EEA, respectively Norway are determined in the stated Agreement on participation in the European Economic Area (Protocol 38a), respectively in the attached Agreement between the Kingdom of Norway and the EC on the Norwegian Financial Mechanism for the period 2004-2009. This is essentially a total amount of the investment and development projects, the purposes and priorities for spending allocated funds , the necessary amount of co-financing projects, the assessment rate, or the redistribution of unused funds, etc. – Source: Ministry of Finance at: http://www.mfcr.cz/cps/rde/xchg/mfcr/xsl/fm_norska_vo.html, or http://www.eeagrants.cz/ - where more information can be found. Further queries can be sent to: CZP@mfcr.cz .

9.8 Multilateral intergovernmental co-operation

9.8.1. Programme COST (OC)

The European Co-operation in the Field of Scientific and Technical Research (COST) is the European multilateral co-operation in the area of research and development with the focus on exploratory and applied research. The Czech Republic became a COST member in 1993. COST co-ordinates research and development in the form of the so-called Actions, which could be joint by scientific and research workers from the COST member countries with their own projects. The principles of the organisation and work within the COST programme are "bottom up" and "a la cart" – the actions are proposed by scientists and researchers in a two round system – a so-called open call is published by the COST Office. The highest body is the Committee of High COST Representatives in which all COST member countries, the European Commission, the EU Council (its secretariat makes up the so-called COST secretariat respectively), and the European Science Foundation are represented. The highest COST authority is the conference of member countries' ministers responsible for the area of research. Conferences are organised usually every five years. The conference 1997 was in Prague and the last conference took place in Croatia, in Dubrovnik, in May 2003. The 2009 conference is expected to be in Portugal.

The total number of actions exceeded 200 in 2006 (the number varies throughout a year because some actions finish and others are newly approved of). There were about 40 000 scientists from 32 European member countries and 50 scientific-research institutions from 14 other countries participating. Albania has applied for membership in 2006, however the negotiations have not concluded yet.

COST has been co-operating closely with the European Science Foundation on the basis of an agreement concluded between COST and ESF since 2003. ESF has gained funds from the 6th and 7th Framework Programme on the basis of a project supporting the COST Office (the COST Office address: 149 Avenue Louise, 1050 Brussels, Belgium, Office Director: Dr. Martin Grabert, tel.: +322 533 38 10, fax: +322 533 38 93, e-mail: mgrabert@cost.esf.org. The COST Secretariat is organised by the General Secretariat of the EU Council, the web pages of COST and other COST activities – http://www.cost.esf.org).

Selection of new actions takes place in two rounds with the assistance of a mechanism called the "open call". There are various themes presented as the so-called expressions of interest in the first round (on the published date - see the web pages of COST). The proposals are assessed by domain committees (see further) and the selected proposals are then worked out to full proposals. These proposals are assessed by independent experts. The success rate of proposed actions in the first published open call was about 5%, when compared with the total number of sent expressions of interest.

Action managing committees: Actions are co-ordinated by the so-called Management Committees. Management Committee members are the representatives of member countries which accessed the Action in the form of signing the so-called Memorandum of Understanding (see further). Participation of the member countries in actions takes place in the form of projects. When an action commences, the action proposing party assesses the projects. When there are more accession applications, the Management Committee decides (one year after the action commencement).

Domain committees: The so-called Domain Committees (DC) have been established. DC members (including experts) who represent the Czech Republic make up an ad hoc COST Committee in the Czech Republic. The Committee decides on proposals and recommendations suggesting the distribution of funds as COST projects' subsidies for the given financial year and on the conception of scientific or also organisational activities within the participation of the Czech Republic in the COST programme.

There have been the so-called domain committees created in the following areas since June 2006 (we do not present academic and pedagogical titles of the members):

1. Biomedicine and Molecular Biosciences — BMBS, Member of DC: Jaroslav Veselý, Olomouc and Vladimír Bencko, Prague
2. Food and Agriculture - F&A, Member of DC: Zdeněk Opatrný, Prague, Expert: Tomáš Vaněk, Prague
3. Forests, their Products and Services — FPS, Member of DC: Petr Kuklík, Prague, Expert: Bohumír Lomský, Prague
4. Materials, Physical and Nano-sciences — PHYMANO, Member of DC: Jiří Švejcar, Brno, Experts: Václav Sklenička, Jarmila Kodymová, Brno and Prague
5. Chemistry and Molecular Science and Technologies — CHEMOL, Member of DC: Zdeněk Wimmer, Prague, Expert: Jaroslav Cihlář, Brno
6. Earth System Science and Environmental Management — ESSEM, Member of DC: Michal Marek, Ceske Budejovice, Brno, Expert: Petr Havránek, Prague
7. Information and Communication Technologies — ICT, Member of DC: Jan Šimša, Prague
8. Transport and Urban Development — TUD, Member of DC: Olga Krištofíková, Prague, František Wald, and Jan Spousta, Prague
9. Individuals, Society, Culture and Health — INSOCH, Member of DC: František Turnovec, Prague, Expert: Václav Beran, Prague

There are more than 200 actions (research programmes) currently running in nine areas. In addition, COST organises activities also in the areas of nanotechnologies and biomaterials. There have been special working groups established in COST for these fields.

Memorandum of Understanding (MoU): It is a document having the character of an international agreement. It formulates, in the so-called Technical Annex, actions from both the professional point of view and the legal point of view. MoU binds its signatories also to provide all results achieved during solutions to all other signatories of the relevant MoU. The Memorandum is undersigned (when the regulations of a specific case require that) on behalf of the Czech Republic by the Head of the Permanent Czech Representation in the European Community on the basis of authorisations made by MEYS CR (Department 32).

Participation in COST actions is possible either in the form of accession to the existing COST action (especially at the action beginning) or by suggesting COST action (in such a case, the time between the proposal and the action approval is about one year). Details are presented on web pages of MEYS, http://www.msmt.cz/mezinarodni-vztahy/cost-evropska-spoluprace-ve-vedeckem-a-technickem-vyzkumu on the page related to the international co-operation in research and development and on the COST page, on the page "How to enter COST". COST is special by its non-bureaucratic approach, the forms are very simple – basically just a project in English and two other forms, the proposing person must then ensure the decision from the Management Committee of the action relating to the suitability of the action. There are no deadlines set and the proposals can be submitted continually. It is possible to describe the process schematically, as follows:

1. selecting a suitable action (proposal of a new action)
2. downloading forms
3. project wording
4. applying for the decision of the Management Committee
5. sending the proposal to the COST Secretariat in CR – MEYS, waiting for the MoU signature
6. commencing research and entering a public tender.

The funding of research always takes place at the national level. COST at the international level does not have any means for the funding of research, only the means for the research co-ordination - for the coverage of COST authorities' meetings - funds for the coverage of personal costs, COST Office and Secretariat activities, and also for the coverage of the so-called Short Scientific Mission. Czech projects have been partly funded as target-oriented from the state budget since 1993. The funds are provided by MEYS according to the results of public tenders and on the basis of the recommendations by the COST advisory body in the Czech Republic. COST projects' evaluation is done by the COST Action Management Committee.

9.8.1.1. Representation of the Czech Republic in the Committee of High COST Representatives

National cost coordinator:
RNDr. Miloš Chvojka, CSc.
COST Secretariat in the Czech Republic, MEYT CR
Karmelitská 7, 118 12 Prague 1
tel.: +420 257 193 511, fax: +420 257 193 713
e-mail: milos.chvojka@msmt.cz

Member of the Committee of High COST Representatives:
Prof. RNDr. Jaroslav Cihlář, CSc.
Technická 2, 601 90 Brno
tel.: +420 541 321 277, fax: +420 541 211 309,
e-mail: cihlar@umi.fme.vutbr.cz

9.8.1.2. Administrative Management of the COST Programme

The Administrative Management of the COST Programme operates from Technological Centre AS CR, Rozvojová 135, 165 02 Prague 6.
The responsible workers are Ing. Bedřich Pekárek.
Tel.: +420 257 193 708, fax: +420 257 193 713
e-mail: bedrich.pekarek@msmt.cz

and RNDr. Josef Janda (MEYS)
telephone: +420 257 193 720, fax: 257 1937 13,
e-mail: josef.janda@msmt.cz .

9.8.1.3. COST - Internet addresses

http://www.cost.esf.org/
http://www.msmt.cz

9.8.2. Programme EUREKA — the European co-operation in the area of applied and industrial research and development (OE)

The programme EUREKA was created in 1985 with the aim to support co-operation in between industrial companies, research institutes and universities in order to create conditions for the increased technical advance and performance of the European industry, to develop its joint infrastructure, and to resolve problems related to several countries. The EUREKA projects serve civil purposes and focus on the area of both private and public sectors. The results are top products, technologies and progressive services that are competitive in the market. The objective is the active involvement of research and development in market economy mechanisms and this requires commercial utilisation of solution results.

The programme EUREKA does not determine topical tasks and does not centralise funding or the project selection. It is governed by the principle that proposals and initiatives must be of the bottom-up kind — from individual companies and research institutes, which are interested in the co-operation. These are the reasons why there are no limits, for example, for the total financial requirements, the time for project solutions, the number of solvers, etc.
In 2008 the Czech Solving Organisation received the highest prize awarded in the programme EUREKA – the Lynx Award for the achieved technical contribution.

EUREKA currently associates 39 European countries, while the 40th proper member is the European Union. The following countries from the Central and Eastern Europe are the EUREKA members: The Czech Republic, Estonia, Croatia, Lithuania, Latvia, Hungary, Poland, Romania, Russia, the Slovak Republic, and Slovenia. The Czech Republic was admitted as a proper member in 1995. Albania and Bulgaria, which are yet not the proper member countries in the EUREKA programme, the National Information Points (NIP) are the organisational centres for the programme. The Czech Republic chaired the EUREKA programme in the period from July 2005 to June 2006. The conference of ministers, held in Prague, has confirmed the acceptance of Ukraine and Malta as the proper members of the EUREKA programme at the end of that period. The next chairing country, after the Czech Republic, became Italy and Slovenia has taken over in 2007.

9.8.2.1. Focus of the EUREKA projects

The topical focus of projects has not been basically limited and it results from the priority development directions in industries. The projects are directed into the following areas:

- Information technologies
- Environment
- Biotechnologies and technologies in healthcare
- New materials
- Robotics and automation
- Communication technologies
- Transport
- Energy industry
- Lasers

9.8.2.2. Preparation and co-ordination of EUREKA solutions

Parties interested in project solutions within the programme EUREKA could utilise one of the two available options. The party can suggest an idea and the project's topic with the aim to find other partners for the solution, or it can enlist in the solution of an approved project, when the party fulfils requirements of the proposing party.

Quality preparation of an international project requires the period of 6 to 8 months. Each project is designed and governed independently by its participants and it is subjected to minimal administration.

Project proposals, presented on the relevant international forms, must be filed through the secretariat of a National Programme Co-ordinator at any time of the year.

9.8.2.3. EUREKA projects' criteria

- Co-operation of companies and research organisations from at least two member countries,
- Achievement of recognisable progress (higher class innovation) in the technical and usable value of the developed product, technology, or service,
- Perspectives for the market utilisation or a financial profit from the project completion,
- The solution and commercial utilisation of projects must be determined for the civil sector,
- Project participants must have technical, financial and management skills and competences for its solution.

9.8.2.4. Funding of EUREKA projects

EUREKA does not create any joint financial fund supporting project solutions. Participants pay for their participation in the projects by themselves, but the co-operation within EUREKA allows for

the fast accumulation of funds from private resources and subsidies or loans from public funds because most member countries, including the Czech Republic, have financial possibilities for the support of participation in the EUREKA programme related to both public and other resources.

The government of the Czech Republic has decided on financial support of the participation of industrial companies, research organisations and universities in the EUREKA projects from the state budget. The support of individual solutions could reach 50% of financial costs of the research part of a solution.

9.8.2.5. Organisational structure of the EUREKA programme

The secretariat of the EUREKA programme in Brussels organises all necessary activities co-ordinating the EUREKA programme like, for example, the circulation of new projects or searches of suitable foreign partners for co-operation, the issuing of information materials, and the administration of the public database. The secretariat of EUREKA pays big attention also to the issue of protection of information, intellectual property, industrial rights, and standardisation.

Activities within the EUREKA programme are governed by National Programme Co-ordinators in individual member countries. They organise all related activities and provide for all necessary information, consulting and advising services, ensure the international projects' evaluation, and transfer project proposals to the international network of the EUREKA programme. They also organise the financial support of project solutions.

EUREKA Programme Council of the Czech Republic acts also as an advisory body of MEYS. Its members are independent experts from the area of industry and research. The Programme Council discusses new project proposals, in which Czech organisations wish to participate, and presents its opinion on presented requirements with regard to the co-funding of the projects from the state budget. Members of the Programme Council act also as the projects' supervisors, when the solvers are Czech entities.

A group of high representatives is the governing board of the EUREKA programme. The group consists of high government officers from the member countries and a representative of the European Commission. This board is responsible for the preparation of basic strategic documents, exchanges of information on possible co-operation areas among the member countries. It also approves new project proposals and grants them the status of EUREKA projects.

The conference of ministers is the top body of the EUREKA programme. It is attended by ministers of the member country governments and by the representative of the EU Commission, who are responsible for the decision-making related to the development, directing and programme objectives and for the acceptance of new members.

9.8.2.6. EUROSTARS

EUROSTARS is a new European research and development programme belonging in the group of instruments taking advantage of Article 169 of the EU Treaty. It provides the chance of co-funding of project solutions from the budget of the European Community. It is support based on regulations governing the EUREKA programme and on the utilisation of the bottom-up principle together with the 7th Framework Programme, within the understanding of Article 169 of the Treaty. The aim of this programme is the creation of new project activities participated in by international consortia, for the benefit of mutually co-operating SME or with research organisations, or with large enterprises. The objective is also supporting European SME, especially those having a high growth potential, the creation of new market utilisation, and activities based on research and development results. It relates to new products, technologies, or services, which should be utilised in the market faster than it is usual. The programme EUROSTARS was officially announced on 2 October 2007 and it is determined, together with the framework EC programmes (Article 169 of the Treaty), for the support of small and medium-size enterprises, which need to organise research and development. For further details see the web pages EUREKA: http://www.eureka.be.

The first contact point for gaining information about the EUROSTARS programme is the National Co-ordinator of the EUREKA Programme.

9.8.2.7. Contact addresses

National co-ordinator of the EUREKA programme (NPC) IN Czech Republic:
Ing. Josef Martinec
Ministerstvo školství, mládeže a tělovýchovy
(Ministry of Education, Youth and Sports)
Karmelitská 7, 118 12 Prague 1
Tel.: +420 257 193 512
Fax: +420 257 193 713
E-mail: josef.martinec@msmt.cz

Member of the High Representatives Group (HLG) of the EUREKA programme representing CR:
Doc. Ing. Karel Šperlink, CSc.
President of the Association on Innovative Entrepreneurship in CR
Novotného lávka 5, 116 68 Prague 1
Tel./fax: +420 221 082 326
E-mail: sperlink@aipcr.cz
http://www.eureka.be
http://www.msmt.cz

9.8.3. Scientific NATO programmes (civil research)

In June 2006 NATO decided to create a new scientific committee. **Science for Peace and Security Committee (SPS)** was established by joining the Science Committee and the Committee on the New Challenges of Modern Society for the support of international co-operation in science and innovation. The objective of the SPS is to contribute to security, sustainable development, stability and solidarity among nations through co-operation, creating infrastructure, support of democratic development and economic growth. The SPS programme includes activities, which are funded from NATO resources – on the basis of applications submitted by scientists or proposals created by the SPS Secretariat and on the national level on the basis of proposals created by the individual countries. The SPS Committee has 4 expert panels available: Chemistry/Biology/Physics (CBP) Panel, Environmental Security (ES) Panel, Human and Societal Dynamics (HSD) Panel, Information and Communication Security (ICS) Panel.

Countries able to participate in scientific activities:

NATO countries (26): Belgium, Bulgaria, Czech Republic, Denmark, Estonia, France, Italy, Iceland, Canada, Latvia, Lithuania, Luxembourg, Hungary, Germany, the Netherlands, Norway, Poland, Portugal, Romania, Greece, Slovak Republic, Slovenia, Spain, Turkey, United Kingdom and USA.

Partner countries (15): Albania, Armenia, Azerbaijan, Belarus, Georgia, Croatia, Kazakhstan, Kyrgyz Republic, the former Yugoslav Republic of Macedonia, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

Other partner countries (5): Finland, Ireland, Austria, Sweden, Switzerland – participate on self funding basis. Countries of the Mediterranean Dialogue (7): Algeria, Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia.

Applications submitted by scientists: the SPS Programme offers grants to scientists from NATO countries, Partner countries and countries from the Mediterranean Dialogue. Grants are also offered to assist the academic community

in Partner countries to set up computer infrastructure and to optimise their use of electronic communication. The collaboration must be between scientists in NATO countries on the one hand, and scientists in eligible Partner countries or Mediterranean Dialogue countries on the other. The completed applications are submitted to NATO Headquarters, where they undergo assessment. Individual scientific areas are managed by international scientific advisory panels, who meet three times a year to review received applications.

Priority: Collaborative Grants: **Defence against terrorism** – rapid detection of Chemical, Biological, Radiological and Nuclear (CBRN) agents and weapons, rapid diagnosis of their effects on people, novel and rapid methods of detection (e.g. biosensors, gene chips), physical protection against CBRN agents and decontamination of CBRN agents, destruction of CBRN agents and weapons, medical countermeasures, explosives detection, eco-terrorism countermeasures, computer terrorism countermeasures. **Countering of other threats to security** – environmental security (e.g. desertification, land erosion, pollution), reducing the environmental impact of military activities, water resources management, management of non-renewable resources, modelling sustainable consumption (e.g. food, energy, materials), disaster forecast and prevention, food security, information security, human and societal dynamics (e.g. economic impact of terrorist actions, risk studies, priorities in science policy), conducting regional studies including cross-border activities, preventing conflicts in relation to scarcity of resources, non-traditional threats to security.

Partner country's priorities: Applicant from a Partner country can submit a proposal within the framework of priorities of his country. Applications from a Partner country, which include priorities of NATO and priorities of the Partner country concurrently, shall be prioritised. **Computer Networking and Electronic Communication Grants:** these grants have a different purpose from grants for co-operation and therefore they are not included among the priority areas. The aim of the grants is to improve electronic communication between scientific communities in a Partner country.

Grant mechanisms and forms: Collaborative Grants in Priority Research Areas, Advanced Study Institutes – ASI, Advanced Training Courses – ATC, Collaborative Linkage Grants – CLG, Science for Peace Projects – SFP, Reintegration Grants – RIG, Computer Networking and Electronic Communication Support for Partner Countries, Advanced Networking Workshops – ANW, Networking Infrastructure Grants – NIG.

Applicants: scientists and specialists from NATO countries, from Partner countries and from countries of the Mediterranean Dialogue can apply for grants. The application must be submitted jointly by a submitter from NATO and by a submitter from a Partner country or from a country of the Mediterranean Dialogue. Applications usually also include other partners from NATO countries, Partner countries or countries of the Mediterranean Dialogue in relation with the topic of the collaboration.

Deadline for submitting applications: applications can be submitted at any time, individual rounds have a deadline of: 1 March, 1 July and 1 November.

Activities funded from national resources: applications for funding from national resources are prepared by individual countries in accordance with the guidelines and they are focused on key priorities defined by the SPS Committee. **The Priorities** are divided into three main categories: Defence against terrorism, Countering of other threats to security and Priorities of Partner countries.

Grant mechanisms: Pilot Studies - PS: studies lasting 3-5 years, Short-term Projects - STP: specifically focused projects lasting 12 to 24 months, Topical Workshops – WS. Support Grant serves the purpose of a financial support for the participation of foreign specialists in national projects.

NATO - Russia Scientific Cooperation: NATO - Russia Scientific Council (NCR). This is a specific programme of support for cooperation between scientists and experts from Russia and from NATO in seven priority areas: explosives detection, psychological and sociological consequences of terrorism, forecast and prevention of catastrophes, CBRN protection, cyber security, transport security including border security, defence-related environmental issues. Grant mechanisms, guidelines and forms: NATO - Russia Advanced Research Workshops - NR ASW, NATO - Russia Advanced Study Institutes - NR ASI, NATO - Russia Collaborative Linkage Grant - NR CLG, NATO - Russia Science for Peace Project - NR SFP. Deadlines for submitting applications: applications can be submitted at any time, individual rounds have a deadline of: 1 March, 1 July and 1 November.

Contacts:
Science for Peace and Security Programme, Public Diplomacy Division (PDD)
NATO, Bd. Leopold III, 1110 Brussels, BELGIUM,
Fax PDD: 32 2 707 4232
Queries regarding the programme please send to e-mail: science@hq.nato.int.

Activities Funded by NATO: NATO SPS Programmes: Chemistry/ Biology/Physics (CBP) Programme Director: Dr. Fausto Pedrazzini, tel.: 32 2 707 5096, Environmental Security (ES), Programme Director: Dr. Deniz Beten, tel.: 32 2 707 4668, Human and Societal Dynamics (HSD) Programme Director: Prof. Fernando Carvalho Rodrigues, tel.: 32 2 707 4231, Information and Communication Security (ICS), Programme Director: Dr. Hadassa Jakobovits, tel.: 32 2 707 4668, NATO Programme Director responsible for applied R&D projects ("Science for Peace") in all stated areas: Dr. Chris De Wispelaere, tel.: 32 2 707 4619. Nationally funded SPS Activities, Programme Director: Dr. Deniz Beten, tel.: 32 2 707 4846, Programme Assistant: Ms. Martine Deweer, tel.: 32 2 707 4850. Further information also at: http://www.amvis.cz/nato.htm.

9.8.4. The European Space Agency – basic information

The European Space Agency (hereafter only referred to as "ESA") is an intergovernmental organisation for the development of space research and technology as well as their application, determined by the Convention on Establishment of the European Space Agency and opened for signing in Paris on 30 May 1975, which came into force on 30 October 1980 (hereinafter only referred to as "Convention")

The main purpose of the ESA is mainly to:

- coordinate and harmonise European strategy and policy on space
- sustain and develop European transport for access to space, to ensure technological base and capacity of European industry, which is able to design, produce and operate space systems and supporting ground-based infrastructure,
- widen scientific knowledge on our planet, solar system and space as well as on materials and living organisms with the utilisation of International Space Station, satellites and interplanetary probes
- to utilise acquired technical skills and founding in order to satisfy the ever more demanding requirements of the society and market.

The content scope of ESA activities and their range given by the financial framework is determined by the ESA Ministerial Council. The Council meets every three years and it is

formed by appointed ministers of member state governments. It determines the main strategy of ESA activity, programme priorities and also approves announcements for new optional programmes and also determines the basic structure of the budget for the next period. The last ESA Ministerial Council met in The Hague from 25 to 26 November 2008.

The continuous activity of the ESA is managed by the ESA Council and it's Committees (IPC – Industrial Policy Committee, SPC – Scientific Programme Committee, AFC – Administration and Finance Committee, IRC – International Relations Committee and IPC – Industrial Policy Committee). The activities of ESA optional programmes are managed by their programme councils. All stated bodies are formed by delegated representatives of member states, respectively countries participating in a given optional programmes. Decisions approved within these management bodies are implemented by the ESA executives.

The Government of the Czech Republic expressed an agreement with the Czech Republic's accession to the ESA by Decree No. 835 of 2 July 2008 and in September 2008 the Parliament of the CR decided on consenting with the ratification of the accession Agreement by the president. The Ratification process shall be concluded by the deposition of the ratification documents with the Government of the French Republic.

By the accession Agreement coming into force the Programme of the European Cooperating State shall conclude. This Programme ceased to accept projects in the first half of 2008.

The Czech Republic shall participate in the so called mandatory ESA programme. The involvement in related optional programmes of the Agency is still being assessed.

9.9 Other multilateral co-operation

9.9.1. The European Science Foundation — ESF

ESF supports the high quality scientific activities throughout Europe. It is a European association of national organisations responsible for the financial support of scientific research (e.g. grant agencies). It was founded in 1974 and in 2005 it had 78 member organisations (scientific institutions, academies, grant agencies, etc.) from 30 countries. ESF is a nongovernmental institution even if its members are often organisations funded mostly by governments. ESF closely co-operates with the European Commission in the area of scientific interests.

ESF has got the task to mediate and make easier contacts of scientists from different countries, their co-operation in important projects of common interest, and to make utilisation of big and costly facilities better. The co-operation on the basis of results should also allow for determination of new research directions.

ESF, in co-operation with member organisations, continuously develops science policies that are strategically important for Europe. In the area of international co-operation in research and development, ESF deals with scientific projects with international participation in the form of the so-called EUROCORES, scientific projects with international participation.

The Grant Agency of the Czech Republic and the Academy of Sciences of the Czech Republic have been ESF member organisations since 1999.

ESF also closely co-operates with COST and organises activities of the COST Office - see also information about the COST programme.

The membership fee of the Czech Republic (i.e. of GA CR and AS CR together) is about EUR 45 000 a year. Membership costs of the Czech Republic in the European Science Foundation are covered from the subsidy of the Ministry of Education, Youth and Sports, from the budget of the international co-operation in research and development.

Detailed information on the European Science Foundation is available on the home page of ESF: www.esf.org and http://www.gacr.cz/gacr/Zakl_ramec.htm

9.9.2. INTAS

INTAS - the International Association for the Support of co-operation in the area of science and research conducted with former states of the Soviet Union and Russia - was dissolved in 2006.

9.9.3. EMBC

EMBC - The European Molecular Biology Conference. The Czech Republic entered the agreement founding EMBC in 1994 and it has been its proper member since 1995.

EMBC is an intergovernmental organisation organising the co-operation of European states in the basic research in molecular biology and related sciences. The agreement founding EMBC was executed, in February 1969, by France, West Germany, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, Austria, and Denmark. Other European countries and Israel enlisted in the agreement later. EMBC has got currently 27 members. EMBC activities are governed by the General Programme that covers mostly assignments of research scholarships and the preparation of course programmes, workshops, and symposia.

Study stays - the long-term, one or two-year long, or short-term ones - make the most important form of co-operation for the Czech scientific community. Each candidate interested in any form of study stays must present his or her own project which is then professionally assessed. The acceptance or rejection of the candidate is exclusively governed by the importance and originality of the project. The Czech Republic is also participating in a number of other programmes supported by EMBO/EMBC.

Application forms, more detailed information, and minutes from EMBC meetings are available in the Department of international co-operation in research and development, MEYS, from RNDr. Jana Bystřická, jana.bystricka@msmt.cz, Karmelitská 7, 118 12 Prague 1, tel.: 257 193 242, fax: 257 193 713. Further information is also at the web page of EMBC: http://www.embo.org/embc/

9.9.4. OECD

OECD — Organization for Economic Co-operation and Development. The executive body of the OECD in the research and development area is the Directorate for the Science, Technology, and Industry (DSTI). It manages the following three closely co-operating committees: the Committee for Science and Technology Policy (CSTP), the Industry Committee (IC), and the Information, Computer and Communications Policy (ICCP).

Basic priorities of DSTI for the near future include the trends in the scientific and technological policy of the OECD member countries, the knowledge base economy, globalization, and international co-operation.

The CSTP work programme includes especially the preparation of regular science, technology and industry outlooks of member countries, country reviews of scientific and technological policies, thematic reviews of specific issues in member countries, and co-ordination in the area of statistical data related to science and technology, monitoring of structural changes in economic performances, competitiveness and innovation systems of the member countries.

Main activities within the MEYS participation, related to the co-operation with OECD in the area

of research and development, concentrate on CSTP activities and on works done in working groups of this Committee: the Working Group on Global Science Forum, the Working Group on Innovation and Technology Policy, and the Working Party on Biotechnology.

At the same time, MEYS participates, in the co-ordination with other central bodies, in the following working groups within CSTP: National experts on science and technology indicators organised by the Czech Statistical Office, Joint Expert Group on Technology, Productivity and Job Creation, organised by the Ministry of Labour and Social Affairs.

There was a meeting of the CSTP Council organised at the level of ministers on 29 - 30 January 2004. The Council prepared the three key topics for all member countries attending the ministerial meeting: "Managing the science - innovation interface", "Meeting the challenges for human resources in science and technology", and "International co-operation in science and technology".

With contribution of the initiative by workers from University of Technology, the activity International Neuroinformatic Co-ordination Facility (INCF) commenced at the end of 2005. It associates important world experts on the issue and on the technical security applications. In addition, there have been activities in the area of nuclear security running and supported for a number of years, e.g. the Czech participation in the programmes ROSA, HALDEN, and others.

More information is available at http://www.oecd.org.

9.9.5. CERN and SUJV Dubna

The Czech Republic is also a member of CERN and SUJV Dubna, the international organisations for research in the area of nuclear and sub nuclear physics and the physics of elementary particles and high energies. The co-operation is organised by the Committee for the co-operation with CERN and the Committee for co-operation with SUJV Dubna.

The CERN Committee Chairman is Prof. Ing. Jiří Niederle, DrSc. from the Institute of Physics of AS CR and the SUJV Dubna Committee Chairman is Ing. Rostislav Mach, DrSc. from the Institute of Nuclear Physics of AS CR. The operation of the largest accelerator LHC (Large Hadron Collider) in the world was inaugurated in 2008. Both memberships have been funded, since 2004, by the Ministry of Education, Youth and Sports, the Department 32 - International co-operation in research and development by MEYS, and by the Ministry of Foreign Affairs. CERN and SUJV Dubna projects are also partly supported from the INGO programme.

Since January 2004, the participation of Czech institutions in the following important CERN programmes has been financially ensured: ATLAS, ALICE, KOMPAS and others. This international co-operation in research and development has been supported with the target-oriented funds of MEYS. Information is available from RNDr. Miloš Chvojka, CSc. (milos.chvojka@msmt.cz - the organisational issues), Mgr. Martina Hanžlová (martina.hanzlova@msmt.cz- the financial support). Further information is available at http://www.cern.ch and http://www.hep.fzu.cz/.

9.9.6. Central European Initiative (CEI)

Science and technology projects (a very limited number) resolving issues typical for the region of Central Europe are supported within the Science and Technology Working Group. The Sub Committee is chaired by Italy and the Czech representative is RNDr. Josef Janda (josef.janda@msmt.cz) from the Department of international co-operation in research and development of MEYS. The Sub Committee is placed in Trieste, in Italy. The Sub Support is available from the programme KONTAKT.

Contact address:
http://www.ceinet.org/index.php
http://www.ceinet.org/view/07/07_05.htm .

9.9.7. Visegrad Group

The Visegrad Group has also got the science and technology working group. The Working Group meets (usually with an invitation extended to the Slovenian Republic) once a year in one of the member countries at the ministerial level or deputy ministerial level. They cover topics relating to exchange of experience and proposals of joint procedures in participation in programmes and projects of the EU. The Group last met in 2007 in Salzburg, with the participation of Austria, Bulgaria and Romania. They met to negotiate the possibilities of closer cooperation in the area of research infrastructures. Since then the Group has been gathering for an informal meeting, always on the day of the Council for Competitiveness meeting. Bilateral cooperation in research and developments projects is implemented within the framework of the programme as standard.

Contact. Other information:
http://www.visegradgroup.org/.

9.9.8. The European South Observatory (ESO)

Since January 2007 the Czech Republic is a full member of the European organisation for astronomic research, in the south hemisphere known also as the European South Observatory, where research in the areas of astronomy and astrophysics is conducted. The head office of ESO, which is an administrative, technical and science centre and the European centre for observation using the Hubble cosmic telescope, which is also its part, has been developed in Garching near Munich.

Further information is provided by RNDr. Jana Bystřická, the Department of international co-operation in research and development of MEYS, tel.: +420 257 193 242, fax: +420 257 193 713, e-mail: jana.bystricka@msmt.cz.

9.10
Bilateral co-operation

The Czech Republic has currently got the most important undertakings related to the co-operation in research and development with the following countries (the so-called agreements on scientific and technological co-operation): USA, France, Germany, Italy, Japan, Mexico, Greece, Slovenia, Spain, the Korean Republic, the Slovak Republic, the People's Republic of China, Hungary, and Poland. In addition, there are a number of other agreements existing. They are, especially, the so-called cultural agreements or agreements on trade, industrial and science and technology co-operation - see farther. The guarantor of the agreements' fulfilment within the science and technology co-operation is the Ministry of Education, Youth and Sports of the Czech Republic.

Undertakings, resulting from the so-called governmental agreements on trade, industrial and science and technology co-operation, relate to the following countries: Belgium, Bulgaria, Finland, France, North Korea (the agreement is not utilised because of understandable reasons), Hungary, Poland, Romania, and the United Kingdom. The guarantor of the undertakings' fulfilment resulting from these agreements is the Ministry of Industry and Trade of the Czech Republic. The agreements are progressively superseded by new agreements and there is the trend to treat the area of research and development independently. The fulfilment of similar agreements in the area of science and technology co-operation is sometimes resolved with the invitation of a representative from MEYS to bodies of these agreements.

The government of the Czech Republic has concluded some new agreements on the trade, industrial and science and technology co-operation with several countries of the former USSR since 1993: the Russian Federation, Kazakhstan, Tajikistan, Uzbekistan, Lithuania, Latvia, and Estonia. The so-called "net agreements" on the science and technology co-operation have been concluded after 1993 with, e.g. the People's Republic of China, the Korean Republic, Mexico, Slovenia, USA (a new agreement), the Slovak Republic, Poland, and Hungary. Agreement with the Republic of South Africa is under negotiations. Negotiations were conducted or still are even with some countries of Latin America – Brazil, Argentina and Chile. These negotiations either have not finished and agreement has not been reached or the negotiations stagnate for various reasons. Special situation arose with the United Kingdom – the United Kingdom does not consider it suitable for arranging special agreements in such areas as research and development, therefore cooperation is solved within a level of individual workplaces and the British Council – see for example: http://www.britishcouncil.org/czechrepublic-about-us-contact-us.htm. cooperation with Switzerland at a governmental level is not being implemented. Cooperation is made available through programmes such as COST or EUREKA and EU Framework Programmes.

In addition to the sectors of education and AS CR, bilateral agreements on the science and technology co-operation are open to all sectors and to all other legal persons involved in research and development.

The undertakings, in the area of research and development that also imply from the so-called agreements on cultural and scientific co-operation, belong among the responsibilities of the Ministry of Foreign Affairs, in co-operation with MEYS (education and science) and the Ministry of Culture. The situation in implementation plans of cultural agreements (PPKD) that include parts adjusting the scientific co-operation is a bit more complicated. The preparation of PPKD is participated by MEYS and the Ministry of Culture and in the past also by the Czechoslovak Academy of Sciences in the role of an organisational state unit, with the Ministry of Foreign Affairs in the role of a guarantor of cultural agreements. AS CR has got a new position in these PPKD and the different scope of competences of MEYS in the areas of education and research has related to the programme possibilities in supporting the international research and development co-operation.

In this place, we should mention contractual undertakings concluded by the Academy of Sciences of the Czech Republic. However, these agreements do not have the character of governmental agreements and they are considered sector agreements or agreements of nongovernmental organisations. A number of them had been concluded before 1989, when they had the character of inter-sector contractual documents oriented more on the area of basic research.

9.10.1. EU countries

Countries of the Western Europe put the stress on multilateral co-operation in research and development and on the co-operation within the European Union rather than on the bilateral co-operation. It reflects in programmes and organisation like, for example, EUREKA, COST and others. However, there are bilateral agreements concluded between countries within the European Union. The biggest role is played by direct contacts between subjects, or the co-operation is not based by proper legal actions of an international character. The framework research and development co-operation programmes have got a very specific role. A special chapter has been assigned to these programmes.

9.10.1.1. Germany

The bilateral agreement on science and technology co-operation between the Czech and Slovak Federative Republic and Germany was executed in 1990. By succession, it has transferred to the Czech Republic. The German Ministry of Education and Research (BMBF) initiated more intensive co-operation in 1996 and there was the Execution Protocol concluded which has anchored some necessary adjustments. Meetings of the Mixed Commission for the Science and Technology Co-operation took place regularly and works on joint bilateral projects of bilateral Czech – German science and technology cooperation have been taking place.

The standard co-operation with Germany was terminated on the proposition by Germany and after the agreement of both parties in 2007. Any further co-operation will mainly take place within the European Community (Framework Programmes). Further information is available from Mgr. Monika Šlajerová, Department of international cooperation in research and development of the MEYS, email: monika.slajerova@msmt.cz, tel. +420 257 193 739

Bilateral cooperation is currently implemented through DAAD – Deutcher Akademischer Austausch Dienst – http://www.daad.cz. In accordance with the Agreement between the Ministry of Education, Youth and Sports and the Academy of Science Czech Republic the joint projects are discussed by AS CR (http://www.kav.cas.cz/hledat.php?os=152-45) and DAAD and they are subsequently funded by the KONTAKT Programme under the conditions of a public tender.

9.10.1.2. France

France is the country with one of the biggest research potential in Europe. Because of historical and some other current reasons (the effort to strengthen its position in Europe), it has been always very interested in broad co-operation with the Czech Republic. There has been a co-operation agreement related to science and technology concluded in 1965. The so-called Programme of Integrated Actions BARRANDE started in 1996. This programme funds exchanges of workers within joint projects, but, thanks to its scope and way of co-ordination

(CNRS, INRA, CNES, and others), administration (by the French agency EGIDE), and experience from similar programmes running in a number of countries, it is a big step forward. The bilateral co-operation with France focuses on the support of state institutions, during which contacts are made with the most important French agencies like, for example, CNRS, INSERM, INRA, and others. The co-operation allows also the involvement in framework programmes and it supports transfers of research results into practice.

A public tender call within the programme "BARRANDE 2009 - 2010" was announced in 2008.

The programme "BARRANDE 2009 - 20010" is open to all research workplaces, university teams and other organisations involved in research or development and focussing on any field of science. The programme base financially supports two-year joint projects of Czech and French research teams in different fields of science. Each project must have responsible solvers on both Czech and French sides.

Project proposals are assessed and selected for a financial support by a Czech-French selection commission after evaluation by experts.

When a project is accepted by the Czech-French selection commission, short-term exchanges of researchers and doctor students are financially supported.

This form of co-operation is supported with a target-oriented subsidy on the Czech side and the Czech solvers use it for the stay of a French worker and their own travel expenses, including the insurance of their trips to France. French partners organise the stays of Czech workers, their own travel expenses, and the insurance of their trips to the Czech Republic.

The funding takes place every year. This requires the presentation of a partial report on the project solution at the end of the first solution year and the financial settlement. When a project is finished, there must be a report prepared which describes scientific results, includes a financial report and presents the co-operation perspectives.

In November 2008 a meeting of the Mixed Commission took place for the selection of projects for the 2009-2010 period.

The relevant forms, including terms and conditions and basic information, are available at www.msmt.cz .

Contacts:
For French participants:
Agency EGIDE, Paris, tel.: 00 31 1 40 40 57 48

For Czech participants:
Association of Innovative Enterprising
Mgr. Věra Mísařová
Novotného lávka 5
116 68 Prague 1
Tel.: +420 221 082 274
Fax: +420 221 082 276
misarova@aipcr.cz

9.10.1.3. Italy

There has been the Agreement on co-operation in science and technology of 1990 concluded with Italy. A Co-operation Programme accompanying this Agreement was concluded in 1998. The first project selection took place. The second project selection took place in the first half of 2001 and the selection of joint projects for the period 2002 - 2004 took place at the beginning of 2002. The publicising of the next call on presentation of the joint Czech-Italian projects was expected in the second half of 2005. However, the Italian party was interested in extending the existing projects until the end of 2007. Presently, signing of an Agreement between the Government of the Republic of Italy and the Government of the Czech Republic in the area of culture, education, science and technology is being anticipated. This Agreement should replace the Agreement on science and technology co-operation and the Culture Agreement from 1990. Following its signing it is possible to anticipate a new call for submission of Czech-Italian science and technology projects. More information is available on the web pages of MEYS - http://www.msmt.cz.

9.10.1.4. Austria

Austria is a country with a strong sense for the Central European region and despite its research potential not belonging among the leading ones in Europe, it makes involvement in European structures easier through joint efforts with Austrian workplaces.

The Czech Republic concluded with Austria the extension of co-operation programme AKTION in 1997. Both parties started specific co-operation in the form of announcement of joint research and development projects which are accepted on the basis of decisions made by the joint scientific sub commission established for that purpose. The co-operation guarantor on the Austrian side is the Ministry of Education, Science and Culture. Projects last for two years. The project administration is shared by the AKTION Office Czech Republic - Austria (the preparation and organisation of calls on presentation of proposals and meetings of the joint scientific sub commission) and the Association of Innovation Enterprising in the Czech Republic (the coverage of travel and accommodation expenses).

A tender for 2008 was announced with the deadline on 15 October 2008. The following criteria have been determined:

- Proposals of new co-operation with the involvement of young scientists up to 35 years of age
- The potential for submitting the project to the KONTAKT Programme
- Coherence with the topical areas of the EU research programmes, which the solvers plan to participate in
- More women involvement in the scientific teams

The submitted project proposals shall be assessed by a mixed Czech- Austrian committee in February 2009.

Contacts:
Place for project proposals submission:
AKTION Czech Republic - Austria, DZS MEYS
Senovážné náměstí 26, Prague 1
Post: P.O. Box 8, 110 06 Prague 06
Statutory representative:
Ing. Helena Hanžlová
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224 398 234, 224 398 202
fax: 00420-224 229 697
e-mail: aktion@dzs.cz
internet: www.dzs.cz

Contact address in Austria:
ÖAD - Österreichischer Austauschdienst
Büro für Akademische Kooperation und Mobilität
ACM
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fax: 0043-1-4277-28194
e-mail: agnieszka.molozej@oead.at
internet: http://www.oead.at/wtz

9.10.1.5. Greece

There was a bilateral science and technology co-operation agreement with Greece concluded in 1984. It has been performed in accordance with two-year operating protocols listing joint projects.

The Czech party provides the solvers of joint projects means for their mobility. They are covered through the Association of Innovative Entrepreneurship in the Czech Republic (AIP CR). Researchers can apply for support of their projects through public tenders. The funding

of projects on the Czech side within the framework of a public tender does not include salary resources and its maximum amount can come to CZK 200 000 for the whole solving period.

Further information is made available on web pages of MEYS.

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E-mail: kofron@aipcr.cz

9.10.1.6. Belgium – Flemish Community

The co-operation with the Belgian Flemish Community in research and development supporting joint projects has started in 2003. This co-operation takes place on the basis of the Co-operation Agreement concluded between the government of the Czech Republic and the Flemish government undersigned in 2002.

Another call for the period 2006 - 2007 was made public in spring 2005. The meeting of the bilateral selection committee took place in December 2005. There were 29 joint projects in the total accepted during these two periods. More negotiations were expected also for the following period.

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9.10.1.7. Hungary

Thanks to the funding way, bilateral international research projects can be subsidised in Hungary from public funds only, on the basis of a concluded intergovernmental agreement. The Agreement on Science and Technology Co-operation with the Czech Republic was executed in Prague in June 2001. Co-operation is on the Czech side co-ordinated by the Ministry of Education, Youth and Sports, on the Hungarian side it is National Authority for Science and Technology. A mixed Czech-Hungarian committee meets annually, alternately in Prague and Budapest, selecting new joint projects. Calls for project submission are announced every year and the approved ones are solved during a period of two years. A total of 19 projects were submitted in 2007 for the period 2008-09 and eight of these have been approved for funding. A total of 25 proposals were sent upon a call in 2008. These proposals shall be assessed by the mixed committee in the fourth quarter of 2008 in Prague.

Interested parties can receive more detailed information from the Department of international co-operation in research and development of MEYS CR, Karmelitská 7, 118 12 Prague 1, tel.: +420 257 193 720, fax: +420 257 193 713, RNDr. Josef Janda, e-mail: josef.janda@msmt.cz .

9.10.1.8. Poland

The Agreement on Science and Technology Co-operation concluded between the governments of the Czech Republic and the Polish Republic on 13 January 2000 allows for acceptance of proposals made by any research and development sectors. The projects' duration is two years and relates to joint research activities. The Agreement allows different forms of co-operation, from joint projects and exchanges of researchers, information, documents, or organisation of joint meetings to the joint use or exchanges of technology.

Funding requirements of Czech solvers could relate, according to the Agreement, especially to mobility costs (accommodation and travel expenses). It is expected that the Polish partner would present the relevant project proposal also on the Polish side.

Projects on science and technology co-operation, which had been approved for 2006 – 2007, were being solved during 2007. 5th conference of the Czech – Polish committee for science and technology co-operation was held in Warsaw at the beginning of 2008. 19 joint projects have been approved for funding during this conference.

Interested parties can receive more detailed information from the Department of international co-operation in research and development of MEYS CR, Karmelitská 7, 118 12 Prague 1, tel.: +420 257 193 720, fax: +420 257 193 713 - RNDr. Josef Janda, e-mail: josef.janda@msmt.cz .

9.10.1.9. Slovenia

The agreement was executed in autumn 1995. This agreement has also formally replaced, for Slovenia, the Agreement on Science and Technology Co-operation with the former Yugoslavia of 1989. Slovenia has been an advanced country with industrial and research traditions. Meetings of the mixed committee took regularly every alternative year, but they have been organised every year since 2002. Calls on the presentation of new joint projects have been also announced annually since 2002. The last call was made in 2007. The presented project proposals were assessed at the end of 2007 and the mixed committee has approved selected projects for the support in the period 2008 - 2009. The next joint call was in 2008.

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9.10.1.10. Slovak Republic

The Agreement on Science and Technology Co-operation with the Slovak Republic was executed in June 1999. This has been an important supplement of relations with the Slovak Republic which allowed the official co-operation of experts from both countries.

The mixed Czech- Slovak committee meets once every two years alternately in both countries and makes a selection of projects from all fields of research and development with a solving period of two years. The Agreement allows two kinds of activities, from joint projects and exchanges of researchers, information, documents, and organisation of joint meetings to the joint use or exchange of technology. Financial requirements of Czech solvers could relate, according to the Agreement, especially to mobility costs (accommodation and travel expenses).

The Slovak partner presents the relevant project proposal, at the same time as the Czech partner, to the Ministry of Education of the Slovak Republic, according to published instructions.

The last meeting took place in Prague in 2007, where a total of 42 projects on science and technology co-operation for the period 2008-09 have been approved. The next meeting of the Mixed committee is planned for the second half of 2009 in Slovakia.

Interested parties can receive more detailed information from the Department of international co-operation in research and development of MEYS CR, Karmelitská 7, 118 12 Prague 1, tel.: +420 257 193 720, fax: +420 257 193 713, RNDr. Josef Janda, e-mail: josef.janda@msmt.cz.

9.10.2. USA

The support of joint Czech-American projects is based on the Agreement on Science and Technology Co-operation concluded by the

Czech and American governments in 1998. A new Agreement on Science and Technology Co-operation was concluded and ratified in 2008. The American Science Information Centre, o.p.s. (AMVIS) has been authorised for collection of applications for the support of this bilateral co-operation, for organising the evaluation and preparation of materials for meetings of the Joint Agreement Council.

The Joint Council recommends individual project proposals, on the basis of evaluation, for their consideration within public tenders announced by MEYS annually.

Kind of activities:

- Joint research project (of the maximal duration of 4 years) prepared by a Czech solver together with his American partner
- Joint scientific conferences, workshops, courses, or seminars can be organised either in the Czech Republic or in USA. The actions must be precisely determined and participated in by 10 scientists from each party at the maximum. Their usual duration is 3 - 5 days and they can include the relevant visits of research workplaces. Scientists from other countries can participate on their own expense and on the basis of invitations by the action organisers.

Each party covers all basic expenses spent on activities taking place in their own country. The co-operation scope covers all science and technology areas: natural science, mathematics, and technical sciences; healthcare and medical sciences; energy; agriculture; protection of the environment; standardisation; the utilisation of natural resources; transport, and science policy.

Financial means only supplement resources of both parties and they are determined for the support of mutual co-operation. All Czech research institutions, university and academic ones as well as the resort and private ones can apply for the support.

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The Protocol on the Science and Technology Co-operation was concluded between the National Science Foundation of USA and MEYS CR in 1994. It has replaced the Protocol on Co-operation in Basic Fields concluded between the National Science Foundation and the Czechoslovak Academy of Sciences. The Foundation is responsible for the co-ordination of all American participation, while the Academy of Sciences of the Czech Republic is authorised to co-ordinate the Czech participation. Both parties implement, according to this Protocol, also the involvement of universities, research institutions and other science subjects in their activities. AS CR has established, in co-operation with MEYS, the Commission for the co-operation of the Czech Republic with the American National Science Foundation. The Commission acts as the top body evaluating and accepting joint research projects. There are currently more than 30 joint projects solved. Czech solvers may apply for the support within public tenders of the programme KONTAKT.

The Czech Republic participates also in the research done in the area of high energies and elementary particles in the FERMILAB laboratory - the experiment D0. More detailed information is available from RNDr. Miloš Lokajíček, CSc. from the Institute of Physics of AS CR — lokajicek@fzu.cz. This co-operation is also financially supported from the national resources.

Negotiations, related to a new agreement on science and technology co-operation between the Czech Republic and USA, were finished in 2007. The agreement was executed in autumn 2007 and transferred to the Czech Parliament for further approvals - the ratification approval.

These issues are within the competence of
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9.10.3. Russian Federation

This country puts a significant emphasis on bilateral agreements on the co-operation in research and development and prefers especially contractual co-operation in trade, industry, science and technology. The area of international co-operation in research and development is managed by the Ministry of Education and Science of the Russian Federation. Russia is very much interested in bilateral agreements on the science and technology co-operation because of the release of additional government resources in connection with concluded documents. It also offers the access to the formerly closed areas of space and strategic research and it makes critical technologies accessible. Simultaneously, co-operation in the science and technology area is determined by the Agreement on Science and Technology Co-operation between the ministries of education of both countries. Currently, there are more than 50 joint projects accepted for solving, which were approved by the Czech-Russian Commission for science and technology co-operation.

Since 2003, the International Innovation Centre (MIC) supporting projects related to transfers of technologies between the Czech Republic and the Russian Federation has started operating, after representatives of the Chairmen of the national parties in the Czech-Russian Commission met in November 2003. They mutually approved of new bilateral projects and accepted important decisions related to the structure and working ways of MIC.

In September 2005, there was the meeting of the Czech-Russian Intergovernmental Commission for the economic, trade, science and technology co-operation organised in Prague, according to the newly concluded intergovernmental agreement after the accession of the Czech Republic into the European Union. Meetings at intergovernmental level and at interdepartmental level have been held every year since then. Approved joint Czech-Russian projects are included in the Programme for Science and Technology Co-operation, which is updated annually and is divided to projects of basic research, applied research and innovation projects. Currently, there are 9 projects of basic research being solved, 36 projects of applied research and 7 projects of innovation character are being solved

Solvers of the projects approved by the Intergovernmental Commission may apply for subsidies within public tenders organised in the programme KONTAKT. A programme supporting Russian solvers has been created also in the Russian Federation.

Parties interested in any form of the bilateral science and technology co-operation with the Russian Federation can contact the Department 32 in MEYS, RNDr. Josef Janda,
tel. +420 257 193 720
e-mail: josef.janda@msmt.cz .

9.10.4. Asian Countries

9.10.4.1. Japan

There was an agreement on the science and technology co-operation concluded with Japan in 1978, which allowed for exchanges of researchers' stays, but its performance stagnated after 1992 because of its obsolete character. That was the reason why a number of meetings were organised on the initiatives of both parties. They related to the agencies JICA, JISTEC, JSPS and other ones resulting in making working contacts with the Japanese Science and

Technology Agency (STA) and JSPS. There was the Japanese-Czech intergovernmental workshop on the co-operation in research and development organised in January 1998. It selected and accepted for solution more than 60 joint projects from all research and development areas. Another call on the presentation of project proposals for the period 2002 - 2004 was announced in 2001. In addition to these activities, there were negotiations taking place with regard to the preparation of an agreement between MEYS and the Japan Society for the Promotion of Science (JSPS) and AS CR. The agreement aimed at a large extension of joint projects of Czech and Japanese researchers. MEYS initiated meetings with the Academy of Sciences of the Czech Republic the objective of which was the extension of co-operation between AS CR and JSPS with joint projects and for workers of all kinds of research and development organisations. This had resulted in a meeting of MEYS, AS CR and JSPS in Tokyo in May 2005 which reached an agreement on the extension. The agreement has been really extended, but with only two projects annually. This agreement can be utilised from 2007. The Japanese party did not count on another round of negotiations related to joint projects in 2005, but further negotiations were expected in 2006 or 2007. However, no negotiations took place in 2007 or in 2008.

There are science and technology days organised alternatively in Japan and the Czech Republic every year. Scientists, researchers and industry representatives participate in these days. In 2006, this event took place in the Czech Republic, while the information day of 2007 took place in Japan and in 2008 in Prague. These events are organised by CzechInvest, with the authorisation given by the Czech government.

9.10.4.2. People's Republic of China

The Czech Republic had become a successor with regard to the Agreement on Science and Technology Co-operation concluded with the People's Republic of China in 1952. The Chinese party insisted on this Agreement performance even after the recent political changes. It put a big emphasis, for example, on the visits of Chinese technicians in Czech companies even if they were not involved in research. That was the reason for the conclusion of a new more up-to-date agreement which has replaced the agreement of 1952. Currently, there have been a number of high quality results coming out of joint projects and there has been an expectation that further advantageous co-operation possibilities will occur in the fast-growing China. Meetings of a mixed commission take place once every two years and project proposals can be presented on the basis of calls (expressions of interest) publicised in the Czech Republic on web pages of MEYS. The last meeting of the Joint Council took place in May 2007. It has approved new joint projects. The next meeting has been mutually agreed for the year 2009 and with regard to the Czech Republic's presidency of the European Council, the meeting will take place in the autumn of 2009. The call for submission of project proposals shall be announced at the beginning of 2009. The projects will be usually implemented in periods of three years at the maximum. The list of approved projects, solvers of which can apply for the financial support within a public tender, is available at http://www.msmt.cz/mezinarodni-vztahy/cinska-lidova-republika.

9.10.4.3. Korean Republic

The agreement with the Korean Republic was concluded at the beginning of 1995. There are several joint research projects being solved, which have been approved of by a diplomatic way. The Czech Republic is interested in the revival of the co-operation and it proposed a co-operation programme to the Korean party. The Czech Republic is interested in top technologies in all research and development areas. In 2004, the Korean Republic expressed its big interest in the extension of the science and technology co-operation. The call on submission of project proposals (expressions of interest) was announced at the end of 2004. The meeting of the Joint Commission of the Czech Republic and the Korean Republic took place in May 2005 and approved of two joint projects. The next meeting should take place at the second half of 2009.

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9.11 Funding of IR&DC projects by MEYS

The assignment of subsidies to IR&DC project solutions in the form of public tenders takes place every year in the five following programmes - COST, EUREKA, EUPRO, KONTAKT, and INGO. The programmes COST, EUREKA, EUPRO, KONTAKT, and INGO were progressively approved of during the previous years and they are successfully notified by the European Union. As the National Research Programme I, which covered these programmes of international co-operation in the years 2004 and 2005, has finished, MEYS has started announcing the five original programmes since 2006. There is now an expectation that they will be repeated every year by MEYS. After the year 2012 there shall be negotiations on the extension of these programmes for a further period.

The programmes COST and EUREKA have been described in Parts 9.8.1 and 9.8.2.

9.11.1. EUPRO

The objective of the EUPRO programme is to contribute to the integration of the Czech research and development in networks of EU workplaces, especially in the form of participation in framework research and development programmes of EU (see Chapter 9.2). The main purpose of the programme EUPRO is the support of preparations of project solvers from the Czech Republic, especially when it comes to the organisation of these preparations. The National Information Infrastructure - NINET and NICER, i.e. National Information Centre for the European Research are funded by MEYS within the framework of the EUPRO Programme. A number of Regional contact organisations and Professional contact organisations commenced their activities in 2000 - see **Table XIV.** The programme EUPRO has not been closed to this kind of activities.

Since 2004, individual solvers preparing or presenting their project proposals, within

the EU framework programmes of research and development can also get some financial support. Further information of the support of project preparation for the framework programmes is available from the National Contact Organisation in the Technology Centre of AS CR. Procedures for the support of projects in framework programmes pursuant to Act No. 171/2007 – see above – chapter 9.2.2.2.

9.11.2. KONTAKT (ME)

KONTAKT enables the provision of support of the participation of Czech researchers in multilateral research programmes ESA, CEI (the Central European Initiative), OECD, and NATO and in some important bilateral programmes in countries with which the Czech Republic has concluded agreements on research and development co-operation, and also in programmes by National Science Foundation (NSF). Activities based on intergovernmental programmes of exchanges of scientists within science and technology co-operation projects are administered by the Association of Innovative Enterpreneurship.

The objective of the KONTAKT Programme is to ensure necessary conditions for the research and development co-operation of Czech organisations for research and development with their partners in those countries, with which the Czech Republic has a valid international agreement on science and technology co-operation. Concurrently, the objective of the Programme is also the support of integration of Czech organisations into the European research and innovation area and to prepare them for the participation in solving projects within the EU Framework Programmes. This will also contribute to the implementation of the Lisbon strategy, the objective of which is, apart from other, for Europe to have by the year 2010 a competitive economy, which relies on knowledge.

By the membership of the Czech Republic in the EU, the significance of international science and technology co-operation increases, not only in collaboration with the member countries of EU, where national research programmes of individual countries are gradually being opened to other member countries of EU, but also with other countries of the world. The aim of the KONTAKT Programme is also the support of the participation of Czech institutions dealing with research and development in intergovernmental activities of research and development, which are the result of membership of the Czech Republic in OECD, SEI, ESA (not falling under the PECS "Plan for European Cooperating States" programme), ERA-NET and ERA-NET PLUS and NATO.

The KONTAKT Programme is not time limited: it is governed by the validity of individual international agreements (the wording of the stated agreements are publicised in the Collection of Laws) and it includes international programmes of multilateral co-operation (e.g. SEI, ESA – not falling under PECS, OECD, ERA-NET and ERA-NET PLUS, NATO Programmes) and also some selected international programmes of bilateral co-operation (e.g. co-operation with Germany – DAAD, France – the BARRANDE Programme, Austria – the AKTION Programme, USA – participation in NSF programmes and with Japan –JSPS etc.).

The provider determined for applicants in a public tender regarding research and development for the KONTAKT (ME) Programme some further conditions pursuant to provision of Section 17 (5) on the Support of Research and Development, they are e.g.:

- The KONTAKT (ME) Programme is determined for the support of projects in basic and industrial research (note: a maximum of 95% of projects in basic research and a maximum of 5% of projects in industrial research shall be funded from public funds within the KONTAKT Programme)
- The time limit for solving of projects is a maximum of 4 years and it must end on 31 December 2012 at the latest.
- An applicant for a purpose support within this public tender can be any organisation, organisation unit of the Ministry of Defence or the Ministry of Interior, which deals with research and development, any legal or a natural person whose main subject of activity is research and development. This activity must be in the case of a legal person included in the constitutional or foundation charter, articles of association, articles or other foundation document of the applicant, which is required by law or it must be determined by a special law, if the applicant is constituted by it – the relevant document, which unambiguously records the subject of activity in the area of research and development, it is necessary to append it to the project proposal (compulsory attachment of an electronic application)
- The proposed project must form a part of some international activity based on a valid international Agreement on Science and Technology Co-operation, concluded between the Czech Republic and another state, with Japan Society for the Promotion of Science (JSPS), National Science Foundation (NSF) or Deutscher Akademischer Austausch Dienst (DAAD – German Academic Exchange Service), or it must form a part of multilateral intergovernmental activities of research and development, which are in connection with the membership of the Czech Republic in OECD, SEI, ESA (not falling under the Programme PECS "Plan for European Cooperating States"), ERA-NET and ERA-NET PLUS and NATO
- In case of project proposals of international co-operation, based on international Agreement on Science and Technology Co-operation, the project proposals must be approved by a intergovernmental mixed committee – applicants for support of a R&D project within the KONTAKT Programme framework can also be solvers/receivers, who implement the KONTAKT – mobility project (activities, which are based on intergovernmental programmes of exchanging scientists within the projects of science and technology co-operation and are administered by the Association of Innovative Entrepreneurship CR) for the second year already or they have completed this project for the support of mobility of research workers in the previous year. This means that the R&D project of the KONTAKT Programme directly follows on to the project KONTAKT – mobility (in this case it is necessary to attach a confirmation on the continuous co-operation with the partner institution to the application, which is for the minimum period of solving the relevant R&D project of the KONTAKT Programme, which is submitted to the public tender in R&D).
- The project proposal must contain a list of all funding resources, which the applicant shall use for the financial securing of the project implementation.

From the history of the KONTAKT Programme:

- The KONTAKT Programme was first announced in 1996 and it wasn't time limited
- During 2004 and 2005, new projects of international co-operation in R&D were initialised within the National Research Programme I framework (Cross-sectional Programme 3 – Regional and International Co-operation: PP3 –DP2). Within the Programme of international co-operation in R&D, which were in the scope of MEYS – the KONTAKT Programme – projects, which commenced before the acceptance of the National Research Programme I (hereinafter as "NRP") and the solving of which was implemented under the support of an independent budget indicator, continued

to be supported (these projects gradually ended during 2006 and 2007).

- In the next period the Programme KONTAKT was not included in the National Research Programme II (hereinafter as "NRP II") however, it continued in the original form of an independent programme under the scope of a provider.

- This programme under the scope of a provider was consequently extended for the period 2009 – 2012 and the purpose aimed funds from the state budget for the provision of its activities were assigned to MEYS as an independent budget indicator.

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9.11.3. INGO (LA)

The International Non Governmental Organisation (INGO) programme has commenced in 1998.

The objective of INGO activities is to make membership of research and development institutions, but also of individuals in international nongovernmental organisations, which are involved in research, easier. INGO supports the active participation of Czech scientists in managing bodies of international nongovernmental scientific organisations on the basis of the government Resolution No. 560/2003, which ensures participation projects of the Czech Republic in international organisations CERN (European Nuclear Research Organisation) and SUJV Dubna (Joint Institute of Nuclear Research).

INGO activities are announced in accordance with the Research and Development Support Act No. 130/2002 Coll. in the form of public tenders. Individual project proposals related to all mentioned activities are assessed by the advisory body of the Deputy Minister of Education, who can also ask other experts for their opinions.

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9.11.4. Public Tender 2008

Public tender for the above mentioned programmes was announced on 18 June 2008. The competition deadline was on 1 September 2008. Conclusion of an Agreement (issuance of a decision) on the support of solving selected projects is anticipated to be drawn up by 13 February 2009. Similar procedure is also anticipated in the year 2009.

Support of R&D from the EU Structural Funds

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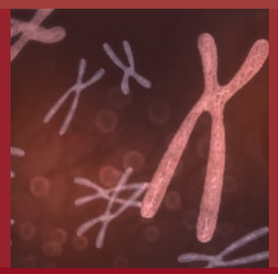

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10.1 Structural Funds and the Czech Republic

Programmes for the support of R&D in the Operational Programme of Entrepreneurship and Innovation (OP EI) provided by MIT were described in detail last year. An update of calls and a framework limitation were carried out for this Programme. A deeper characteristic of the last year yet not so clear OP Research and Development for Innovation (OP R&D I) provided by MEYS, was carried out this year. More detailed information on the OP Education for Competitiveness (OP EC) provided by MYES is stated below. Glossary of the most important terms within the OP with respect to the OP R&D I has been extended.

The EU Funds are instrumental for the implementation of the Policy on the economic and social cohesion of the European Union, whose objective is to reduce differences between the levels of development of regions and the EU member countries and to reduce the level of the most disadvantaged regions fall back.

The Czech Republic is currently ranked among the poorer countries of the European Union and in the period of 2007 – 2013 it can make use of about EUR 26.7 billion (which is about 668 billion CZK) from the EU funds to improve the living standard of its population. For comparison: the 2007 budget in CR is 1 040.8 billion CZK. The support from EU funds, which the Czech Republic can utilise in the period between 2007 – 2013, therefore equals to 74% of the CR budget for 2007. In order to successfully utilise the funding, our State must supplement approximately extra 118 billion CZK from the national resources for the co-funding of projects, as the EU funds a maximum of 85% of justifiable costs.

Projects can be submitted by towns, regions, ministries, entrepreneurs, owners of an infra-structure, non-profit organisations, schools, research centres etc.

Resources are divided into three funds:
- European Regional Development Fund (ERDF)
- European Social Fund (ESF)
- Cohesion Fund (CF)

Projects co-funded from EU funds are implemented through thematic and regional operational programmes and in form of a European territorial co-operation.

10.1.1. Key strategic programme documents of the Policy

The highest strategic document for the imple-mentation of the Policy of Economic and Social Cohesion (ESC) are on the European level the

Community Strategic Guidelines (CSG), where the principle priorities of the ESC Policy for the period 2007 – 2013 are defined.

Each member country defines their own National Development Plan (NDP), which describes the main developmental issues of the country.

The National Development Plan of the Czech Republic 2007 – 2013 defines the strategy of development of the CR for the period 2007 -2013. It is derived from the wordings of regulations for structural funds and the Cohesion Fund, its strategy relies on the key European (Community Strategic Guidelines) and also internal (Strategy of Sustainable Development, Strategy of Economic Growth, Strategy of Regional Development for 2007 – 2013 and other valid departmental and regional strategies) strategic documents.

It ensures the concurrence of the Community Strategic Guidelines and national strategic documents, which means duties arising from the wording.

Priority centre lines and objectives of the NDP are based on the defined strategy and are subsequently reflected in the structure of the operational programmes.

The National Development Plan 2007 – 2013 further describes the set up of the co-ordination system of the Policy on Economic and Social Cohesion. The key points of this system shall be reflected in the National Strategic Reference Framework.

The highest formal institute for co-ordination of preparation of the CR for the next programming period 2007 – 2013 is the Management and Coordination Committee. There are state administration bodies represented on the Committee (subject related ministries, the Office of the Government), CR Regions of Cohesion, Czech Chamber of Commerce, CSA – Czech Statistical Authority and other subjects (universities, entrepreneurs, non-profit sector).

The NDP represents the most important starting point for the processing of the National Strategic Reference Framework (NSRF) CR for the period 2007 – 2013. In connection with this, the NDP also serves as a foundation material for negotiating the NSRF with the European Commission (EC).

The document representing a unity of the NDP and the CSGC and therefore specifying the method of implementation of the Policy on ESC on the territory of a member country is the National Strategic Reference Framework (NSRF).

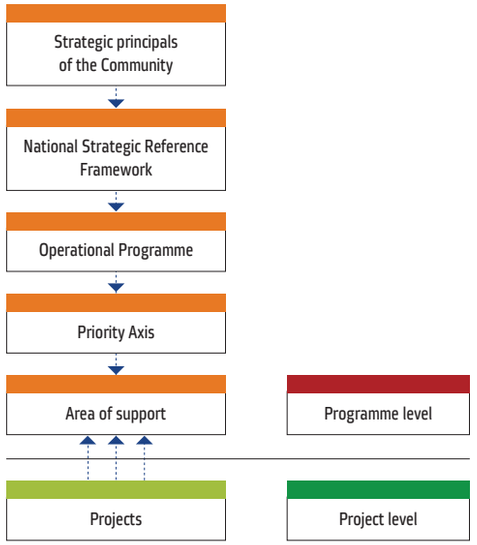
The Czech NSRF describes strategic aims, method of management and coordination of the Policy on ESC in the Czech Republic and it represents the system of the financial flow of the EU funds in CR and it also represents operational programmes for the implementation of the Policy on ESC.

The NSRF represents a primary programme document of the Czech Republic for the utilisation of EU funds in the period between 2007 and 2013. The National Strategic Reference Framework sets out the system of the operational programmes of the Policy on Economic and Social Cohesion for 2007 – 2013, through which the individual priority central lines shall be implemented.

10.1.2. How are the operational programmes inserted in the system of strategic documents?

Within the system of the programme documents - **Fig. No.10** – the most important documents for applicants and subjects implementing the projects are just the operational programmes (OP), which are thematically and regionally defined and they specify objectives, which they aim to achieve with the help of the implemented projects.

Figure 10. The system of programme documents



10.1.3. Operational Programmes and objectives of the Regional Policy

In the period between 2007 – 2013, 26 operational programmes shall be utilised in the Czech Republic. They are divided between three objectives of the Policy on ESC:

The Convergence Objective
The Objective is to support the economic and social development of less developed regions and member states. In the Czech Republic all regions of cohesion fall under it with the exception of the Capital City of Prague and it is implemented through eight thematic operational programmes and seven regional operational programmes. EUR 25.89 billion is allocated to the Czech Republic for the Objective of Convergence.

Seven regional operational programmes (ROP) are on the level of regions of cohesion NUTS II – **Fig No. 14** (EUR 4.66 billion). They are for example:

- ROP NUTS II Northwest
- ROP NUTS II Central Moravia
- ROP NUTS II Southwest

The following are the eight thematic operational programmes (EUR 21.23 billion):
- OP Transport
- OP Environment
- OP Entrepreneurship and Innovation
- OP Research and Development for Innovation
- OP Human Resources and Employment
- OP Education for Competitiveness
- Integrated Operational Programme
- OP Technical assistance

Regional Competitiveness and Employment Objective
This Objective ensures the support of regions, which do not fall under Convergence. In the Czech Republic it is the Capital City of Prague with two operational programmes. EUR 0.42 billion is allocated to the Czech Republic for the Objective of Regional Competitiveness and Employment.
- OP Prague Competitiveness
- OP Prague Adaptability

European Territorial Co-operation Objective
This is cross-border support, inter-regional and multinational co-operation of regions. All regions of the Czech Republic fall under it and support can be utilised from nine operational programmes.
EUR 0.39 billion is allocated to the Czech Republic for the Objective of European Territorial Co-operation. They are for example:

- OP Cross-border Co-operation CR – Bavaria
- OP Interregional Co-operation (all EU countries, Norway and Switzerland)
- OP Multinational Co-operation (CR, Austria, Poland, part of Germany, Hungary, Slovenia, Slovak Republic, part of Italy and from non-member countries Ukraine)
- Network Operational Programme ESPON 2013 (all member countries, Norway, Switzerland, Liechtenstein, Iceland and EU candidate countries)
- Network Operational Programme INTERACT II (all member countries)

10.2 OP Research and Development for Innovation – MEYS (R&DI)

The Operational Programme for Research and Development for Innovation is aimed at strengthening the research and development pro-innovative potential of the CR, mainly through universities, research institutes and their co-operation with the private sector. It supports equipping research workplaces with modern technology, building new research workplaces and increasing the capacity of tertiary education.

The global Objective of the OP R&DI is strengthening the research, development and innovation potential of the CR, which will contribute to growth, competitiveness and to the creation of a very highly qualified workplaces so that regions of the CR become important places of concentration of these activities in Europe.

The Operational Programme Research and Development for Innovation (OP R&DI) falls under the thematic operational programmes in the Convergence Objective and from the financial resources point of view it is the fourth biggest Czech Operational Programme: EUR 2 billion is allocated for it from EU funds, which is approximately 8% of all resources determined for the Czech Republic from EU funds.

Support shall be provided by means of grants (100% is anticipated). The grant is purposely determined to cover justifiable costs arising in connection with the fulfilment of the subject of the project.

The Operational Programme Research and Development for Innovation contains 5 axis, dividing the operational programme to logical units and these are further specified through the so called area supports, which define, what type of projects can be within the framework of a relevant priority axis supported (see **Fig. No. 11**).

Calls for submission of projects for the first and second axis in the first instance are anticipated in 2009.

The further stated information has been taken from the officially publicised documents of the provider (MEYS) and they are valid as of 24.11.2008.

Further information is available from http://www.strukturalni-fondy.cz/vavpi and http://www.msmt.cz/eu/erdf .

10.2.1. Division of the priority axis in the OP R&DI

Priority Axis 1 – European Centres of Excellence

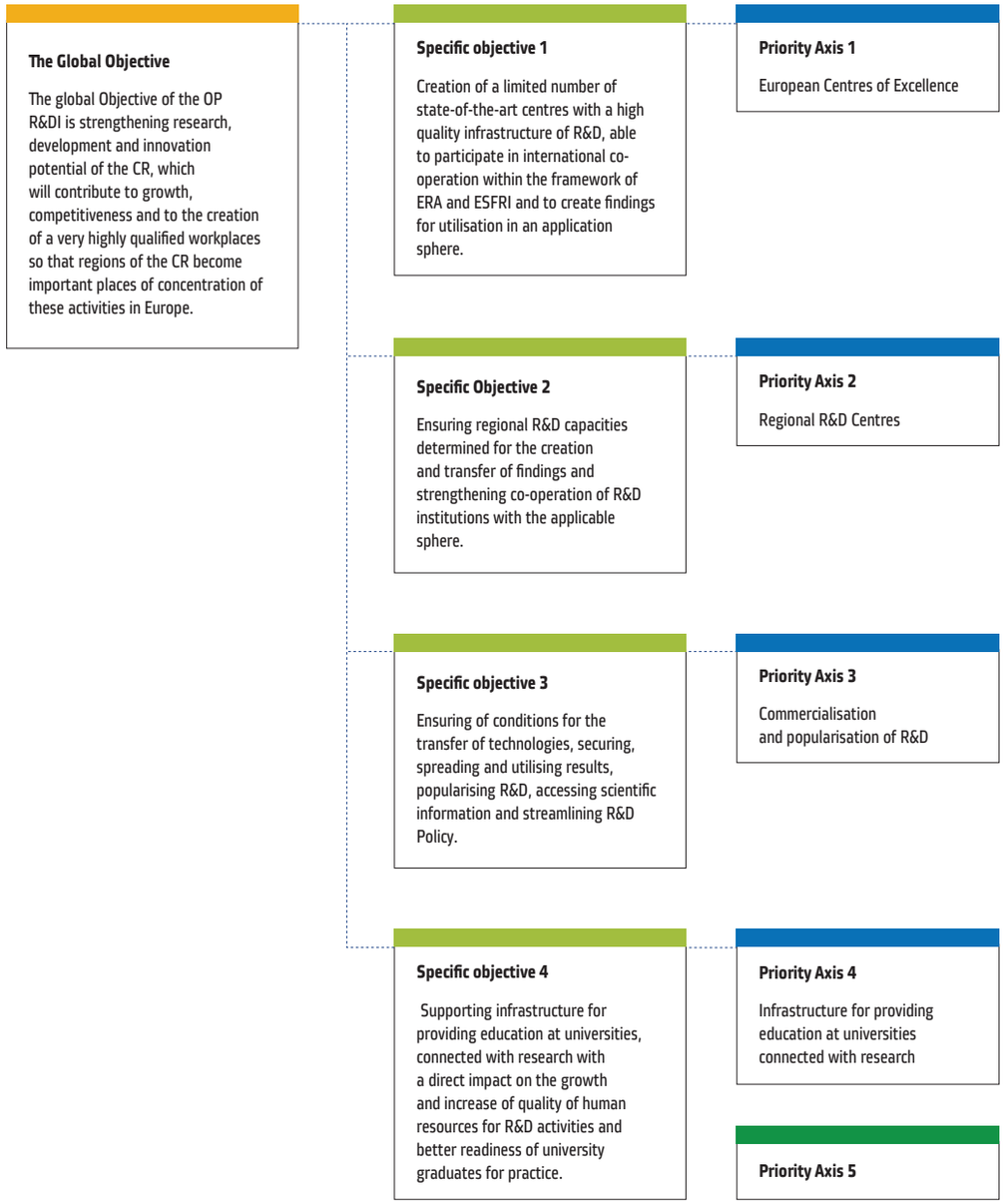
Area of support 1.1. – European Centres of Excellence

The global objective in the area of support is creating a limited number of centres of excellence, quality equipped R&D centres with state-of-the-art and in justified cases a unique infrastructure of R&D and of a crucial size, so that the centres are able to contribute to interconnection and greater integration of front Czech R&D teams with front international research organisations and European research infrastructures.

The main specific objectives are:

- Supporting and strengthening the best research teams, who acquire the best material conditions for their growth and development and concurrently they gain the opportunity to research and study new topics and an opportunity to make new contacts and strategic partnerships with front international partners (private and public ones).
- Creating and developing unique infrastructures of R&D, this will be utilised by a greater number of partners in a given field/ fields (in case of infrastructures with an interdisciplinary utilisation) in the Czech Republic and from abroad.

Figure 11. Division of priority Central Lines in the OP R&DI



- Strengthening of the vertical integration and concentration of R&D in a given field in the CR – support of interconnection and greater integration of front Czech R&D teams and concurrently the strengthening of their integration in the European research territory and co-operation with front international research organisations and European research infrastructures.
- Strengthening of R&D orientation on the needs of application sphere and in justified cases co-operation with field clusters, technological platforms and other institutions, creating long-term partnerships with the application sphere.
- Providing quality education to students (especially postgraduate study) and to young researches (up to 35 years of age), interconnection of the education system with the research activities of the centres, training of a new generation of researches with the experience of an international R&D co-operation.
- Accelerating the transfer of findings resulting from peak research into practise and into education activities, interconnection of research with educating and innovating activities (the so called knowledge triangle).
- Increasing of the attractiveness of a given area from an investment point of view (foreign and domestic) and of technological entrepreneurship in a given field.

For example: the reconstruction and expansion of R&D capacities, or economically justified construction of new capacities. This includes any necessary project documentation, acquiring of apparatus, laboratorial and informative equipment and the infrastructure for research, technological development, projects of top R&D with relevance to the market and social and economical development of the Czech Republic in form of a start-up grant, which will allow a smooth start and operation of a new infrastructure etc.

The area of 1.1 support shall be fully funded from public funds, being 85% from the resources of ERDF and 15% from the state budget of the CR. For the period between 2007 -2013, there is 33.1% of the overall OP R&DI allowance allocated for this area of support, which is about EUR 806 million.

After the OP R&DI ends, the centres of excellence shall gain funds for their activities from national public funds for the support of research and development, and at the same time diversification of income is anticipated, especially with a marked share of funds gained from international co-operation, especially from European resources (EU Framework Programme) and with a share from private resources (upon making provisions for field specifications).

Priority Axis 2 – Regional R&D Centres

Area of support 2.1. – Regional R&D Centres

The global objective in the area of support is the creation and development of quality equipped, application focused workplaces with a developed co-operation and strong links with partners from an application sphere (companies, especially SME's and other subjects), who's activity will be strengthened by the competitiveness of a region and its potential for export of goods, services and know-how.

The main specific objectives are:

- Supporting thematically specialised centres (there are organisations of applied R&D, specialised university workplaces or sections of AS CR etc.) with quality research teams, who have a promising potential from the production of applicable results point of view, which could shorten the innovation cycle.
- Strengthening of co-operation with the application sphere by means of joint R&D projects, respectively projects providing direct outputs/ results for application sphere, inclusive of creating partnerships with innovative small and medium businesses (SME) and clusters.
- Increasing the number of students and young researches (up to 35 years of age) with an experience from R&D co-operation projects with the application sphere.
- Accelerating the transfer of new findings and technologies into practice, especially into SMEs).
- Accelerating the transfer of new findings from the application sphere into the education process and education activities.
- Creating institutionalised platforms for continuous and long-term co-operation between public research organisations and the application sphere (including co-operation of regional R&D centres with clusters and national technological platforms).

For example: creation and development of quality equipped R&D workplaces focused on applied research, strengthening their co-operation with the application sphere (companies, hospitals etc.) according to the needs of a region.

The area of 2.1 support shall be fully funded from public funds, being 85% from the resources of ERDF and 15% from the state budget of the CR. For the period between 2007 -2013, there is 33.1% of the overall OP R&DI allocation allocated for this area of support, which is about EUR 806 million.

After the OP R&DI ends, the regional centres shall gain funds for their activities from national public funds for the support of research and development, and at the same time a significant share of funds gained from private resources is anticipated (upon making provisions for field specifications) and also from international co-operation, especially from European resources (EU Framework Programme). A part of support provided by form of a start-up grant shall be used for the creation of conditions for successful provision of private resources and resources from abroad.

Priority Axis 3 – Commercialisation and popularisation of R&D

The area of support 3.1 – Commercialisation of the research organisations' results and the protection of their intellectual property

The global objective of the area of support is the support of commercialisation of R&D results in research institutions, especially through the support of the commercialisation systems and the protection and utilisation of intellectual property, including establishing and developing centres for the transfer of technologies (CTT) within the framework of research institutions.

The main specific objectives are:

- Improving, developing and extending activities for commercialisation of R&D results, including developing centres for transfer of technologies within universities and other research institutions with the aim to increase the number of commercial application of R&D results.
- Improving the system of protection and utilisation of intellectual property.
- Improving the support for researchers and students who manage the outputs with commercial potential and have a potential to participate in their finalisation to a commercially utilisable phase.
- Increasing the economic relevance of the Czech research organisations activities, strengthening their systematic co-operation with the enterprise sphere and with the users of the results generally (with the application sphere).

For example: supporting commercialisation of R&D results in research institutes, especially by financing the phase from R&D findings to the phase of the subsequent commercial utilisation (proof of concept stage) and by supporting the commercialisation system and protection of intellectual property, including the creation and development of centres for the transfer of technologies in research organisations etc.

The area of 3.1 support shall be fully funded from public funds, being 85% from the resources of ERDF and 15% from the state budget of the CR. For the period between 2007 -2013, there is approximately EUR 114 million allocated for this area of support.

After the OP R&DI ends, the regional centres shall gain funds for their activities from national public funds for the support of research, development and innovation, and also from own resources of the establishers (especially from the resources of universities, SRI or from local and regional local government), in combination with the revenues of co-operation with the application sphere.

Mainly synergies with the area of support 1.1 – European Centres of Excellence are anticipated within the OP R&DI and also with the 2.1 area – Regional R&D Centres. It is concerning mainly the necessity of creating a mechanism for R&D Centres, which shall guarantee the system of commercialism of R&D results arising from their activity.

With regard to the OPEI the operational programmes assume the creation of two types of synergies. A vertical and a horizontal synergy. The horizontal synergy shall be established between both operational programmes, especially by form of consequential projects (they are prepared in a different time scale, which means that projects submitted to the OPEI concur with the outputs of projects in OP R&DI) and concurrently prepared projects (they are prepared in the same time scale and mutually refer to each other). The vertical synergy is established within the framework of OP R&DI by means of the projects being prepared in partnership with the application sphere.

Priority Axis 4 – Infrastructure for Education at Universities Connected with Research

Area of support 4.1 – Infrastructure for education at universities connected with research

The main objective of this priority is to support the development of a quality infrastructure of universities with the aim to increase the capacity of tertiary education and creation of conditions for improvement of education quality so that material conditions for the preparation of university students improve, especially from the point of view of their readiness for research and development and for practising basic creative skills for their future use in R&D. The objective is also to make use of intervention in order to strengthen internal reforms within universities framework, in the direction of an overall modernisation and the strengthening of the relevance of university education in the direction determined in the White Paper of the tertiary education.

The main specific objectives are:

- Supporting the development of quality universities infrastructure.
- Increasing the capacity of tertiary education and creating conditions for improvement of quality in education of future R&D workers.
- Supporting internal reforms of universities by investment, with emphasis on complementarities with interventions from OP EC and on the strengthening of the "third role" of universities.

For example: investment in infrastructure for research connected with R&D at universities, especially infrastructure connected with scientific training of students, classrooms of educational laboratories, reconstructions and modifications of current capacities (buildings and equipment), modernisation and expansion of the infrastructure of universities for research, development and education etc.

For the period of 2007-2013 there is 20% of the total allocation for OP R&DI allocated for the area of support, which is about EUR 487 million.

Priority axis 5 – Technical assistance

In conformity with the regulations of the Council (especially the General Regulation) the objective of the axis 5 is Technical assistance in contributing to improve the implemented provisions, which means to provide effective management of the operational programme, its advertising, assessment and thus provide the MA OP R&DI sufficient Technical assistance in order to manage the OP R&DI responsibly and effectively.

The global objectives are:

- Continual monitoring and improving the implementation of the OP R&DI. Activities shall be focused on updating or improving methodical processes of the implementation, the instructions and guidelines securing the implementation of OP R&DI.
- Processing of professional expert's reports, analysis, studies and methodologies with the aim of setting up or assessing the functionality and affectivity of systems of management, control, rules and procedures of the programme's implementation.
- The subject of activities shall also be securing of the needs of the implementation structure from the administrative capacities point of view (including provision of qualified human resources and their stabilisation) and from the point of view of professional development of workers responsible for the implementation of the OP.

The amount of justifiable costs from ERDF for the area of 5.1 support is 87% out of the allocation for Technical assistance OP R&DI, which is a total of about EUR 74 million.

10.2.2. OP R&DI Genesis

First preparation works on the OP R&DI began in 2005. Five rounds of screening were carried out in 2006 within the framework of these works. Their aim was to establish the interest of future potential applicants. Many other events took place, with the ministry of Education, Youth and Sports introduced their intentions to the representatives of research institutes and other future Beneficiaries of funds within the framework of this Operational Programme.

The Programme was first officially submitted to the European Commission on 8.3.2007. The MEYS received the Commission's comments, the so called Positional Document, on 13.7.2007. The EC raised a number of serious comments. The most significant comment related to the question of a possible overlap between the OP R&DI and the Operational Programme Entrepreneurship and Innovation (OP EI), which is sponsored by the Ministry of Industry and Trade. Following the confirmation of the programmes not overlapping, the next question was raised. Whether there is a guarantee of mutual synergies between the programmes, which support the transfer of practical outputs of the OP R&DI into practice and whether the research works will respond to the specific needs of the business sphere. On the basis of a request from the European Commission a document called the System Mechanisms for Achieving Synergy Effects between OPEI and OP R&DI (the so called Synergies) has been created which explains this question and also solves it. The document was sent to the European Commission and on 2.10.2007 was negotiated with the European Commission by the representatives of MIT, MEYS and MRD. The European Commission accepted and confirmed the Synergies document by its letter of 5.10.2007. Currently, the wording of the OP R&DI has been amended according to the comments of the EC; the descriptions of individual priority axis have been amended.

The Working Group of the MEYS has been significantly involved in this process. This Group congregates the representatives of research institutions, universities, regions, associations, unions and other subjects.

Discussions of the MEYS Working Group were held at the end of 2007, regarding the adaptation of the OP R&DI. The condition for finalising the amendments to the OP R&DI were up-to-date data on the prepared projects, which were possible to acquire only by carrying out another screening process (only regarding priority axis 1, 2 and 4).

The OP R&DI was approved in April 2008 on the session of the Government CR and subsequently submitted for approval to the European Commission and on 1 October 2008 it was officially signed.

In the meantime, the "pre-call" for large projects took place in May 2008 and in October the first results of the pre-selection were announced. Seminars and supporting events have also been implemented.

The Rules of Justifiable Costs and the Detailed Document, which describes the roles of sub participants in the implementation process and the implementation itself. The final form should be approved by the end of 2008.

10.2.3. The Beneficiaries of support

All Beneficiaries in the priority axis 1 must fulfil all below stated conditions deriving from the definition of a research organisation in accordance with Article 2.2 (d) of the Framework:

1. The main purpose is:
   a) to carry out basic research, applied research or experimental development, (or)
   b) to spread the results of activities stated in a) through teaching, publicising or transfer of technologies;

2. All profit gained by the subject from activities stated in point 1 is re-invested into these activities;

3. Companies (who are subjects carrying out economic activities), which can apply influence on such a subject, for example as interested partners or members, do not have within the framework of their economic activity any priority access to research capacities of this subject or to the results of research created by this subject;

4. Economic or non-economic activities are within the framework of the subject divided in the accounts and there is no financing of economic activities from non-economic activities (including the obligation to utilise the profit from these non-economic activities only for these activities).

10.2.4. Management of the OP and its implementation

The Section of Management of EU Operational Programmes was by the Minister within the MEYS framework assigned to secure the management of the OP R&DI, specifically the Department 45 – Department of Management of the OP R&DI in the following structure:

- **The Coordination Department:** (main areas of responsibility: strategic management, coordination of the preparation of programme and implementation documents, the set up and interpretation of methodologies of the implementation procedures of the OP R&DI, processing and revision of the Operational Manual, financial management of the programme, co-operation in the implementation of Technical assistance, preparation of supporting documents for audits at all levels).
- **The Implementation Department:** (main areas of responsibility: preparation of calls, continuous monitoring of the implementation of the projects of the OP R&DI, monitoring and evaluation of the programme, management of the information system, guaranteeing the priority axis, communication with the European Commission and other relevant institutions, activity of the Monitoring committee, preparation of the supporting documents for conception materials of the Government and other bodies etc., publicity of the programme).
- **Large Projects Department:** (the main areas of responsibility: coordination of large projects, communication with applicants, supervision of due administration of large projects).

The following departments are also involved in the implementation: Department 46 – CERA, Department 42 – Department of Technical assistance, Department 18 – Department of the primary accounting and the methodology of accounting, Department 17 – Department of the budget administration and methodology of the managing control and the Department M1 – Department of internal audit and control, which oversees implementation.

10.2.5. Indicative overview of large projects

The MEYS management introduced in the middle of September 2008 the strategy of constructing the research infrastructure in CR. On the basis of a report of the evaluation board of front international experts the Ministry recommended six ambitious research projects (in the category of large projects), which have thanks to their high quality a big chance to acquire tens of billions of Crowns within the framework of a priority axis 1 "European Centres of Excellence", the so called short list.

The selected large projects are the following:

ELITPALS has an aim to construct a new laser type in the CR, which does not so far exist in the given level of quality. A wide spectrum of partners and users across the EU agreed on needing it. The implementation of the ELIPTALS project in the CR therefore represents a unique opportunity to put the CR on the map of European research in the area of laser physics. The project has potentially important links with the Czech optic and electronic industry. The submitter is the Academy of Sciences Czech Republic (AS CR).

BIOCEV in Vestec near Prague should become a Centre of Functional Genomics with a national scope. According to the opinions of international experts, BIOCEV is with regard to the phase in which it is within the OP R&DI, in a good position to become a successful large project. The submitter is AS CR.

IT4Innovations has an aim to build a supercomputer centre in Ostrava and at the same time create a research team focused on applied informatics and computing. The project is submitted by the VSB - Technical University Ostrava with Ostrava University and Silesian University Opava.

Centre for Research of Energetic Utilisation of Lithosphere (CREUL) is focused on research of energetic utilisation of geothermal energy of lithosphere. This area of research of alternative source of energy is still in its beginnings and requires a significant start-up investment into geological research (expensive bore holes), through which it is possible to verify the potential for other possible economic utilisation of this source. The implementation of this project should according to the evaluators lead to significant corporate assets and it could place CR among the frontal countries, which strive for the economic utilisation of this type of energy. The project is submitted by the Centre for Research of Energetic utilisation of Lithosphere, v.v.i., the founder of the Corporate Town of Liberec.

CEITEC has the aim to integrate the best quality research capacities in the area of material research and research in life sciences from a number of universities and institutions of the AS CR in Brno. Foreign evaluators valued the effort for integration in form of a clearly structured research programmes, which interconnect teams from partner organisations and create groundwork for interdepartmental integration and co-operation. They also find a significant scientific potential of the research team.

Sustainable energy is concerning the strengthening of research capacity in the area of energy, especially the nuclear energy. Its submitter is a consortium of teams from the Institute of Nuclear Research Rez, a.s. and Skoda Research s.r.o. Plzen, which has undeniable competence in this area and also shows very good results from the point of view of commercial co-operation with the enterprise sphere.

Projects included in the indicative list of large projects of the OP R&DI (with a total budget of over EUR 50 million), were those so called large projects, which have successfully gone through evaluation in the framework of the so called pre-call for large projects between May and August 2008.

Final decision on the implementation of specific projects from the indicative list of large projects is conditioned by a successful evaluation of projects within the framework of an actual call, which is planned for the year 2009, and also by a successful ending of negotiations between the Managing Authority of the OP R&DI and the applicant, by the approval of large projects by the European Commission and the subsequent issuing of a Decision on the provision of grants. Specific financial and technical parameters of these projects shall be the subject of further discussions and they have not yet been finalised.

Table XVII. Indicative overview of large projects

Priority axis 1 – European Centres of Excellence		
Project	**Placement NUTS II/ NUTS III**	**LFDR (Long-term Fundamental Direction of Research)**
BIOCEV – Biotechnological and Biomedicine Centre of the Academy of Sciences and Charles's University	Central Bohemia, Region of Central Bohemia	Molecular Biology
IT4Innovations	Moravia Silesia/ Region of Moravia-Silesia	Research of material Competitive Engineering Informative Community Safety-related research
ELITPALS: Extreme Light Infrastructure ELI	Central Bohemia, Region of Central Bohemia	Research of material (unique laser infrastructure for research in the area of materials)
CEITEC: Central European Institute of Technology Brno	Southeast/ South Moravia	Molecular Biology Research of material Informative Community
Priority Axis 2 Regional R&D Centres		
Project	**Placement NUTS II/ NUTS III**	**LFDR (Long-term Fundamental Direction of Research)**
Centre for the research of energetic utilisation of lithosphere	Northeast/Region of Liberec	Sustainable development Energy Resources
Sustainable Energy	Central Bohemia, Southwest/ Central Bohemia, Region of Plzen	Energy resources Competitive Engineering

10.3 OP Education for Competitiveness - MEYS (OPEC)

The Operational Programme Education for Competitiveness (OP EC) is a multi-annual thematic programme under the sponsorship of the Ministry of Education, Youth and Sports CR (MEYS). Within the framework of this Programme it is possible to use funds from the European Social Fund (ESF), one of the Structural Funds of the EU, in the programming period 2007 – 2013.

Among the main priorities, on the basis of which the member countries apply for and acquire financial support from the European Social Fund, are most of all priorities for the improvement of the education system and the quality of primary education, development of science, research and technical education, development of expert and support of further education.

The OP EC focuses on the area of development of human resources through education in all various forms, with the emphasis on a complex system of life learning, creating a suitable environment for research, development and innovation activities and stimulation of co-operation of participating subjects.

The information on OP EC is available from the EMYS web pages www.msmt.cz and also from the web pages of individual regions CR or from the central web pages of the ESF in the CR www.esfcr.cz. Any queries can be sent to opvzdelavani@msmt.cz.

The Operation Programme Education for Competitiveness (OP EC) falls under multi-objective thematic operational programmes. It is mainly funded from the resources of the Convergence Objective, but in the case of projects creating a system framework of life learning it is also funded from the resources of the Regional Competitiveness and Employment Objective and a suitable territory in this area is therefore also the Capital City of Prague. EUR 1.83 billion has been allocated for the OP EC, which is about 6.8% of the total resources determined from the EU funds for the Czech Republic. The funding of the programme should be increased by financing from the Czech public funds by an extra EUR 0.32 billion.

The further stated information has been taken from the officially publicised documents of the provider (MEYS), who implements this OP and they are valid as from 24.11.2008.

10.3.1. Specification of the OP EC objectives

In accordance with the Detailed Document of the 24.10.2008, the OP EC shall focus in the area of R&D support on the support of mutual interconnection of the education constitution, the research and development area and the business sphere. It is necessary to create a suitable environment and conditions, so that effective process of production, transfer and utilisation of knowledge is achieved and so that support of innovative solutions at all levels can be provided.

The global objective of the OP EC 2007-2013 is the development of a well educated society in order to improve competitiveness of the CR through modernisation of the primary, tertiary and further system, their interconnection into a complex system of life learning and improvement of the conditions in research and development.

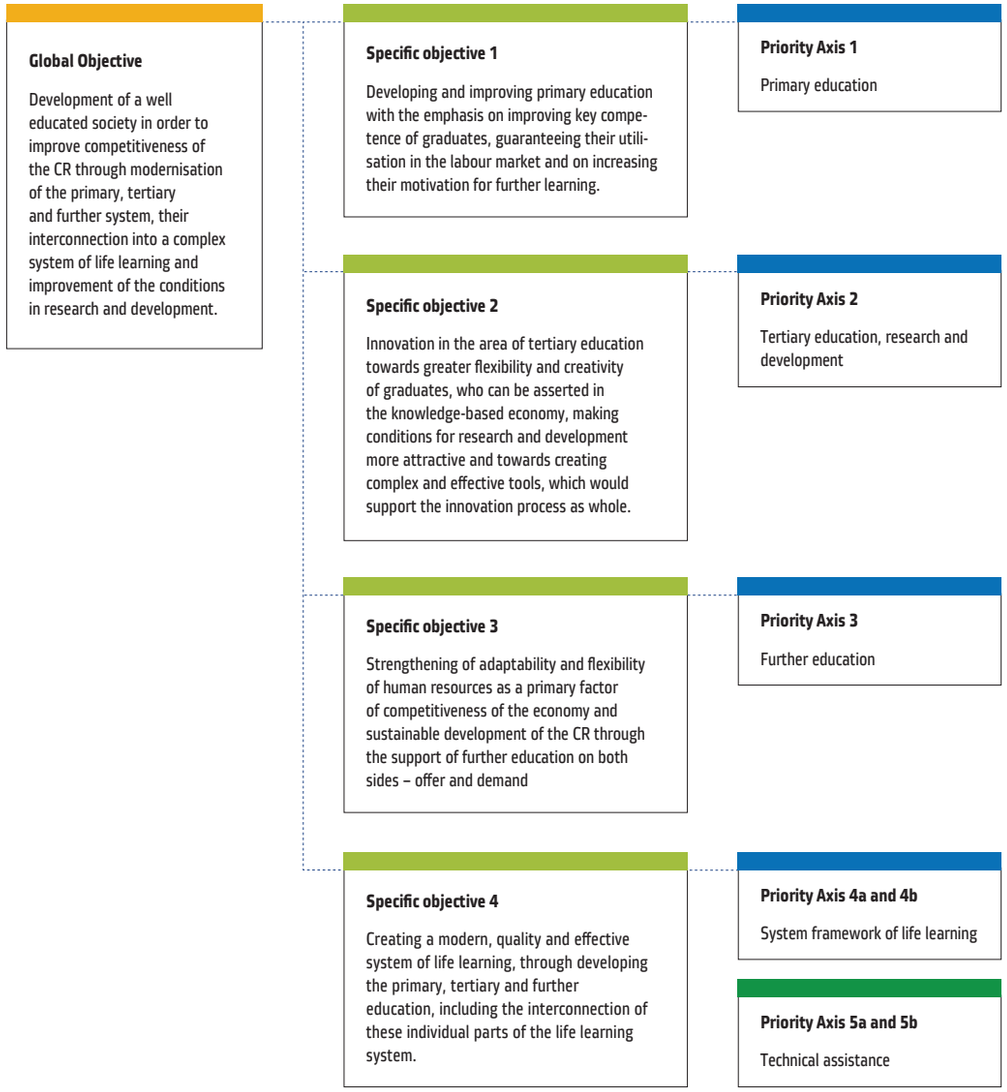
The specific objectives are represented by 4 ways, which will lead to the fulfilment of the global objective and are implemented through 5 priority axis (**Fig. No. 12**).

Only the Priority Axis 2 shall be described below, as it fulfils the second specific objective of the OP EC and it is focused on the modernisation of the tertiary education, including making the system of higher education more attractive. The Priority Axis is further

focused on making the area of research and development more attractive and on strengthening partnerships and networks between the public and private sector.

The description of other priority axis' and up-to-date information can be found on http://www.msmt.cz/eu/esf or http://www.esfcr.cz/.

Figure 12. Global and specific Objectives of the OP EC



10.3.2. Priority Axis 2 – Tertiary education, research and development

The Priority Axis 2 fulfils the second specific objective of the OP EC and it is focused on the modernisation of the tertiary education, including making the system of higher education more attractive. The Priority Axis is further focused on making the area of research and development more attractive and on strengthening partnerships and networks between the public and private sector.

The global objective of the Priority Axis 2

Innovation in the area of tertiary education towards interconnection of research and development activities, towards greater flexibility and creativity of graduates, who can be asserted in the knowledge-based economy, towards making conditions for research and development more attractive and towards creating complex and effective tools, which would support the innovation process as whole.

Specific objectives of the Priority Axis 2

1. Improving education in higher vocational schools
2. Improving quality and elaborating diversification of universities with emphasis on requirements of knowledge – based economy
3. Improving personnel availability in research and development, including improving expert preparation and worker's conditions and utilising suitable motivating and advertising tools.
4. Strengthening relationships between institutions of tertiary education, research institutions and subjects of the private sector and public administration (inclusive of advertising activities).

Four areas of support are formulated within the Priority Axis 2:

2.1 Higher vocational education
2.2 University education
2.3 Human resources in research and development
2.4 Partnerships and networks

Mainly the last two stated areas are most suitable for the purpose of R&D support.

10.3.3. Area of support 2.3 – Human resources in research and development

The 2.3 area of support is focused on improving attractiveness and conditions for workers in research and development in universities as well as in institutions dealing with research and development. Activities implemented in this area shall support the development of human resources in areas, in which within the framework of other operational programmes (mainly R&DI) the extension of infrastructure of research and development shall be supported. Individual activities should result in the fact that individuals with prepositions to work in scientific fields have a sufficient motivation, they do not leave the scientific fields and have relevant conditions for their activities. In the same way the conditions for the work of foreign workers shall be created and also the inclusion of research and development institutions in international networks which shall result in increasing attractiveness of the research and development environment in the Czech Republic and in increasing the level and impacts of research and development.

The Global Objective:
Improving the provision of personnel in research and development including improvement of expert preparation and worker's conditions and

utilising suitable motivating and advertising tools.

Specific objectives:
- Increasing attractiveness and improving conditions for workers in research and development.
- Making research and development and its result more popular.

Supported activities:
- Further specific and vocational education of workers in research and development.
- Further education of workers in research and development in the area of managing research and development. Popularisation and communication, spreading the results of science and research into practice, transfer of technologies and gaining knowledge on the protection, evaluation and management of intellectual property of workers from the area of research and development.
- Support of the creation of quality teams in research and development and their further development, especially initialisation working positions and start-up working positions.
- Preparation of inclusion of individuals and teams into international networks in the area of research and development.
- Support if inter-sector mobility, especially the mobility between research institutions and the private and public sector.
- Activities directed to the popularisation of research and development and its results for the society.
- Support of a systematic work with students in the area of introduction to R&D.

The method and level of support
Support is provided in form of a non-returnable financial help (grant). The measure of co-funding of the OP EC with the ESF shall reach 85% of the total public costs and the remaining 15% of resources shall be covered by national public funds. Contribution from ESF shall be calculated in relation to the total justifiable public costs. If support is provided outside the regime of public support, the level of co-funding from the OP EC shall reach up to 100% of justifiable costs. In cases of providing support in the regime of public support, the level of co-funding shall be determined from own resources of the recipient on justifiable costs on the basis of the rules of public support.

The maximum length of the project running is 3 years.

Beneficiaries:
- Universities, in accordance with the Higher Education Act No. 111/1998 Coll., as amended (Higher Education Act)
- Higher vocational schools (which is a legal person performing the activities of a higher vocational school, registered in the Schools Register)
- Institutions of science and research in accordance with the Act No. 130/2002 Coll., Support of Research and Development from Public Funds as amended
- Development and Innovation Centres
- Other institutions fulfilling the condition stated in the Act No. 130/2002 Coll., Support of Research and Development from Public Funds, as amended
- Public health institutions in accordance with the Act No. 483/2006 Coll., Constitutional non-profit public health institutions and on the amendment of other laws and legal persons who operate health institutions in accordance with the Act No. 160/1992 Coll., Health care in private health care institutions, as amended.

Target Groups
- Academic and other workers in universities
- Research and development institutions workers
- University students
- Persons interested in science and research work

10.3.4. Support area 2.4 – Partnerships and networks

For the education system to react to the requirements of the labour market and the challenges of the technological development and the well-educated community swiftly, it is conditioned by intensive partnership of various subjects in a widest spectrum of activities. For this purpose, the tertiary education, research and development area of support, which is focused on partnerships and networks, is a part of the priority axis. Main emphasis is on the implementation of joint projects, creation of partnerships and co-operation in networks between educational and research and development institutions and the public and private sector. Concurrently it is necessary to pay attention to the publicity of their mutual co-operation including advertising of the technological and scientific fields and research and development. One of the main targets of this area of support is to create a better interconnection of the labour market requirements and the offer of educational institutions in the system of tertiary education through a closer contact and joint activities. The next target is to support, through partnerships and joint activities, effective transfer of findings, results of research and development and innovative solutions from educational and research and development institutions into the entrepreneurs sphere.

The Global Objective:
Strengthening of relationships between institutions of tertiary education, research institutions and subjects of the private sector and public administration (including advertising activities).

Specific Objectives:
- Increasing the affectivity of the transfer of findings of research and development activities to their utilisation
- Increasing the ability of educational institutions to react to the labour market requirements.

Supported activities:
- Preparation of human resources for the creation and operation of technological platforms, technologically orientated clusters etc.
- Working and study stays and vocational work experience of students, teachers, academic workers and scientists in the private and public sectors.
- Support of co-operation between tertiary education institutions, research and development workplaces and the business and public sectors including creating communication and interaction platforms.
- Support of educational and training activities, which lead to improving mutual co-operation between educational institutions, research and development workplaces and the business and public sectors.
- Creation and support of contact places of tertiary education institutions and research and development institutions, determined for the public and business sectors.
- Creation and support of contact places of R&D popularisation

Methods and the level of support are identical with the previous support area.

Beneficiaries:
- Universities, in accordance with the Higher Education Act No. 111/1998 Coll., as amended (Higher Education Act)
- Higher vocational schools (which is a legal person performing the activities of a higher vocational school, registered in the Schools Register)
- Schools and education institutions (which is a legal person performing the activities of a higher vocational school, registered in the Schools Register)
- Other organisations operating in education and career advisory service
- Institutions of science and research in

accordance with Act No. 130/2002 Coll., Support of Research and Development from Public Funds as amended
- Research and innovation centres
- Directly managed organisation of the central authority of Government
- Regions in accordance with Act No. 129/2000 Coll., Regions (Regional formation), as amended
- Municipalities and Associations of Municipalities, in accordance with Act No. 128/2000 Coll., Towns (Municipal formation) as amended
- Public health institutions in accordance with the Act No. 483/2006 Coll., Constitutional non-profit public health institutions and on the amendment of other laws and legal persons who operate health institutions in accordance with Act No. 160/1992 Coll., Health care in private health care institutions, as amended.
- Non-state non-profit organisations (established or founded in accordance with Act No. 83/1990 Coll., the Association of citizens as amended, Act No 248/1995 Coll., the General companies and amending certain laws, Act No. 3/2002 Coll., on Freedom of religion and the status of churches and religious societies and amending certain laws (Law on Churches and Religious Societies), as amended and Act No. 227/1997 Coll., onnadacích a nadačních fondech ao změně a doplnění některých souvisejících zákonů Foundations and amending certain related Acts (Law on Foundations), as amended (zákon o nadacích a nadačních fondech), ve znění pozdějších předpisů (nadace).
- Union organisations and employer's organisations, professional and field associations
- The Chamber of Commerce in accordance with Act No. 301/1992 Coll. The Chamber of Commerce and the Agrarian Chamber of the Czech Republic
- Employers, providing that they in compliance with the subject of their activity provide fulfilment in connection with the activities, which can be the subject of the OP EC support or with the creation of necessary conditions for such activities

Target Groups:
- Students of Higher vocational schools
- University students
- Teachers of Primary and Secondary schools (in case of built partnerships of tertiary education institutions or research and development institutions with the relevant schools)
- Teachers and non-teaching staff of Higher vocational schools
- Academic and other workers of universities
- Other workers dealing with education, research and development
- People interested in studying at a higher vocational school or a university

10.3.5. Framework of finance allocation for the whole period

2.3 Human Resources in research and development - EUR 243 million
2.4 Partnerships and networks - EUR 146 million

10.3.6. Justifiable costs

- Personal costs connected with the implementation of the project
- Travel expenses connected with the implementation of the project
- Cost of purchased equipment connected with the implementation of the project
- Local office costs
- Purchase of services connected with the implementation of the project
- Representation costs, for example meetings of Municipal Committee, conferences and coordination meetings of the implementation teams
- Small building modifications connected with the implementation of the project
- Direct support
- VAT regarding VAT registered and non-registered

10.3.7. OP EC calls plan

The call for the Support area 2.3 was announced in September 2008 with the option to submit projects by 12.12.2008, with the total allocation of CZK 1.1 billion. The call for the Support area 2.4 is prepared for December 2008 with the total allocation of CZK 625 million. Other calls are anticipated following the assessment of project proposals, which means approximately in the horizon of one year from the announcement of previous calls.

10.4 OP Entrepeneurship and Innovation – MIT (OPEI)

The Operational Programme Entrepreneurship and Innovation (OPEI) is focused on the support of development of the entrepreneurial environment and the support of transfer of results of research and development into the business practice. It support the establishment of new and development of current companies, their innovation potential and utilisation of modern technologies and renewable energy sources. It allows improvement of infrastructure and services for entrepreneurship and establishing co-operation between companies and science and technology institutions.

Up-to-date information is available at
http://www.mpo.cz/cz/podpora-podnikani/oppi/
and
http://www.czechinvest.org/podnikani-a-inovace.

10.4.1. Support Beneficiaries

Entrepreneurs, entrepreneurs associations, research institutions, universities and other educational institutions, non-profit organisations, natural persons, territorial self administrative bodies and organisations established and created by them, CzechInvest, CzechTrade and others.

10.4.2. Management of the OP and its implementation

The managing body of the OPEI is the Ministry of Industry and Trade CR.

10.4.3. The OPEI financing and division into priority axis

The OPEI is funded from the European Fund for Regional Development (ERDF). The Operational Programme Entrepreneurship and Innovation

(OPEI) falls under thematic operational programmes in the Convergence Objective and from the financial resources point of view it is the third biggest Czech operational programmes: EUR 3.04 billion is allocated for it from the EU funds, which is about 11.4% of all resources determined for the Czech Republic from the EU funds. Funding of the programme should be further increased from the Czech public resources by extra EUR 0.54 billion.

The OP Entrepreneurship and Innovation contains 7 priority axis dividing the operational programme into logical units and these are further specified through indicative programmes (areas of support), which specify, which types of projects can be supported within the framework of a relevant priority axis (**Table No. XVIII**).

Table XVIII. Operational Programme Entrepreneurship and Innovation

	Title of the Priority Axis/area	Indicative programmes
1	**Establishment of companies**	
1.1	Support for starting entrepreneurs	START
1.2	Utilisation of new financing tools	Financial tools/JEREMIE
2	**Development of companies**	
2.1	Banking tools of support of MSP	PROGRES (inclusive of currently known Credit + EPC for energy services)
		GUARANTEE
2.2	Support of new production technologies, ICT and selected strategic services	DEVELOPMENT
		ICT and strategic services
		ICT in companies
3	**Affective energies**	
3.1	Energy saving and renewable sources of energy	Eco-energy
4	**Innovation**	
4.1	Increasing innovation efficiency of companies	INNOVATION (including support of patent activities)
4.2	Capacities for industrial research and development	POTENTIAL
5	**Environment for Entrepreneurship and Innovation**	
5.1	Co-operation platforms	CO-OPERATION
		PROSPERITY (including support of entrepreneurial incubators)
5.2	Infrastructure for the development of human resources	TRAINING CENTRES
5.3	Infrastructure for entrepreneurship	REAL ESTATE
6	**Services for the development of entrepreneurship**	
6.1	Support of advisory services	ADVISORY (+ The Trendy project)
6.2	Support of marketing services	MARKETING (including joint participation on specialised trade fairs and exhibitions abroad + the Internationalisation project)
7	**Technical assistance**	

10.4.4. Summary characteristics of the priority axis

Priority Axis 1 – Establishment of companies

EUR 79.1 million, which is about 2.6% of the OPEI, is allocated from the EU funds for the Priority Axis 1. It is determined for example for the purchase and reconstruction of a long term tangible assets and intangible assets, tangible property and land, purchase of stocks, including small tangible assets, small investment focused assets with the emphasis on differentiation of the support character, especially for the purpose of innovatively focused projects of spin-off companies, etc.

Priority Axis 2 – Development of companies

EUR 663.0 million, which is about 21.8% of the OPEI, is allocated from the EU funds for the Priority Axis 2. It is determined for example for the purchase and reconstruction of a long term tangible assets and intangible assets, tangible property and land, purchase of stocks, purchase of a company in time of bankruptcy, financing or receivables until their pay by date, development of information and communication technologies, etc.

Priority Axis 3 – Affective energy

EUR 121.6 million, which is about 4.0% of the OPEI, is allocated from the EU funds for the Priority Axis 3. It is determined for example for the purchase and reconstruction of the machinery and distribution of electricity and heating energy produced from renewable sources, introduction and modernisation of the systems of measuring and regulation, modernisation, reconstruction and reducing losses in the distribution of electricity and heat, etc.

Priority Axis 4 – Innovation

EUR 680.2 million, which is about 22.4% of the OPEI, is allocated from the EU funds for the Priority Axis 4. It is determined for example for the protection of industrial ownership rights, increasing technical and utilisable values of products, technologies and services, introduction of new methods of organisation of company processes and co-operation with companies and public institutions, establishment or extension of development centre focused on research, development and innovation of products and technologies, etc.

Priority Axis 5 – Environment for entrepreneurship and innovation

EUR 1 168.9 million, which is about 38.4% of the OPEI, is allocated from the EU funds for the Priority Axis 5. It is determined for example for the support of creation and development of territorially concentrated line or filed groupings of entrepreneur subjects , science and technology groupings, educational and other supporting institutions, support in involving Czech research institutions and enterprises in the international technological platforms, establishment and development of entrepreneurial incubators and entrepreneurial innovation centres (BIC, PIC, etc.), which operate an incubator, infrastructure for education and development of human resources of entrepreneurial subjects, preparation of a business zone, conversion of Brownfield in to business zone, etc.

Priority Axis 6 – Services for the development of entrepreneurship

EUR 239.9 million, which is about 7.9% of the OPEI, is allocated from the EU funds for the Priority Axis 6. It is determined for example for the development of advisory service in the area of eco-technologies and environmental systems of management, individual SME projects and projects of SME grouping supporting the SMP's entry in foreign markets, joint participation in specialised exhibitions and trade fairs abroad, etc.

Priority Axis 7 – Technical assistance

EUR 89.6 million, which is about 2.9% of the OPEI, is allocated from the EU funds for the Priority Axis 7. It is determined for financing activities connected with the management of the programme, for example: salaries of workers participating in OPEI management, selection of projects, monitoring of projects and the programme, working out of studies and analysis, programme publicity, support of the ability of potential Beneficiaries to draw from the financial resources for the programme, etc.

10.4.5. Up-to-date overview of the calls of programmes in OP EI

The up-to-date overview of the calls of programmes in OP EI is shown in **Table No. XIX**.

10.4.6. OPEI Programmes in the area of research and development

The Programmes POTENTIAL, PROSPERITY, CO-OPERATION and INNOVATION can be included among the OPEI programmes which support various aspects of research and development.

Potential has an objective to strengthen entrepreneurial capacities of research and development with the connection of the production activities of companies. Mainly establishment and development of technological centres and in-house departments of research and development are supported.

Prosperity is focused on the support of mutual co-operation between science and research institutions, universities and companies by a way of constructing and developing science and technology parks, entrepreneurial incubators and centres for the transfer of technologies.

Co-operation supports creation and development of co-operational groupings (clusters, poles of excellence and technological platforms), in which companies, universities and research institutions co-operate.

Innovation contributes towards implementation of developmental innovation projects and allows the provision of grants for the use of protection of intangible assets in times of patents, usable designs and industrial designs and trademarks.

10.4.6.1. Programme POTENTIAL

The Programme POTENTIAL helps entrepreneur subjects to establish and increase capacity needed for the implementation of research, development and innovation activities. It is possible to gain support for investment in establishing or extending of a development centre (department) focused on research and development of products or technologies, inclusive of a development of specific software needed for the innovation of production. The centre should contribute to introducing technologically new or innovated products, production lines, production processes and technologies. However, there must be a preposition that the results of the centre's work will be truly utilised in production.

On 19.6.2008 the Ministry of Industry and Trade CR approved the mark-up of the allocation for the first call for submission of projects within the framework of the support POTENTIAL to CZK 1.1 billion. The planned allocation was CZK 600 million (at exchange rate 25.25 CZK/EUR). Provision of funding for quality projects was ensured by the marking-up of the allocation, projects which have gone through the evaluation process on the basis of a submission of a full application for funding. More information is available from documents at http://www.czechinvest.org/potencial.

Table XIX. Up-to-date overview of the calls of programmes in OP EI

Area of support	Support Programme	Up-to-date call	Acceptance of RA	End of acceptance of RA	Acceptance of FA	End of acceptance FA	Next Round*
1.1	Start	I.	Ended	–	–	31.1.2008	
2.1	Progress	I.	Ended	–	–	19.10.2007	
2.1	Guarantee	I.	2.7.2007	–	–	28.11.2008	
2.2	Development	I.	Ended	–	–	31.7.2007	October 2009
2.2	ICT and Strategic services	I.	3.3.2008	30.6.2008	15.7.2008	31.10.2008	January 2009
2.2	ICT in companies	II.	15.7.2008	28.2.2009	14.11.2008	31.5.2009	
3.1	Eco—energy	II.	14.11.2008	28.2.2009	15.1.2009	30.4.2009	
4.1	Innovation — Project	II.	15.7.2008	30.9.2008	14.11.2008	28.2.2009	
4.1	Innovation— Patent	I.	3.3.2008	31.12.2008	9. 9. 2008	31.3.2009	
4.2	Potential	II.	3.3.2008	30.9.2009	15.7.2008	30.11.2009	
5.1	Co-operation — Technological platforms	I.	15.7.2008	1.10.2008	14.11.2008	31.12.2008	
5.1	Co-operation — Clusters	I.	1.10.2008	28.2.2009	14.11.2008	30.4.2009	
5.1	Prosperity	I.	9.9.2008	31.7.2009	10.12.2008	31.12.2009	
5.2	Training Centres	I.	3.3.2008	Temporarily suspended 14.5.2008	15.7.2008	30.4.2009	February 2009
5.3	Real Estate	I.	1.4.2008	Temporarily suspended 15.9.2008	–	Within 10 months from the establishment of justifiable costs	
6.1	Advisory Service	–	1.10.2008	28.2.2009	1.1.2009	31.7.2009	
6.2	Marketing	I.	Ended	–	–	31.12.2007	February 2009

* Anticipated date (guide)
RA Registration Application
FA Full Application

10.4.6.2. Programme PROSPERITY

One of the barriers of the development of the CR economy is insufficient communication and co-operation between the area of research, represented for example by universities or research institutions and the entrepreneur's sphere. The creation of a friendly environment for co-operation of both parties is the objective of the Programme PROSPERITY.

Among supported activities are establishing and development of science and technology parks, entrepreneurial incubators, and centres for the transfer of technologies and also the creation of networks of business angels, who encourage establishment and development of innovative companies.

- Science and technology parks – are subjects, which provide needed space and services to companies with a longer history of entrepreneurship. The presence of mature companies inside such park supports the inclusion of the less "experienced" ones in to the world of business.

- Entrepreneurial incubators – provide a background for the settlement of companies starting their business, which have a good idea. These "newcomers" can gain a grant for the rent of office space, laboratories and other premises from the operator of an incubator and also a grant for consultation services, training or requalification. Other benefit of the settlement in an incubator is the joint sharing of premises and laboratories, which improves mutual co-operation and communication with other companies.

- Centres for the transfer of technologies – in co-operation with the research institutions and with universities, they help the transfer of new, so far unutilised technologies into companies. They further provide expert advisory service and advisory in the area of the protection of intellectual and industrial property.

- The business angels networks – are a tool for the provision of capital to entrepreneurs in the first stage of entrepreneurship, which is connected with a higher level of risk and thus to widen the options of financing their business ideas. The fundamental activity is therefore the interconnection of investors (= business angels) and companies with interesting business plans.

More on the Programme and up-to-date information is available at http://www.czechinvest.org/prosperita.

10.4.6.3. Programme CO-OPERATION

The Programme Co-operation is determined mainly for smaller companies, wishing to co-operate with other companies in the field and to establish a cluster grouping, or a technological platform.

The following subjects may also participate in the Programme:

- Large companies, wishing to co-operate with universities and science and technology institutions and to support their own innovation abilities
- Regional local government looking for a successful tool of regional development, which would bring economic growth and a better specialisation to their region
- Universities or science and technology institutions, which strive to deepen co-operation in specific projects with the private sector and try to speed up the transfer of technologies into practice and to use the results of their research in commerce.

This programme and connection with other regional subjects from the field, by form of a cluster, offers the option to acquire valuable experience and knowledge to all. Mutual co-operation and participation in joint projects allows to improve mutual connections and to establish a long-term broadly beneficial partnership of companies, universities, research institutes, regional local-governments and other institutions in a region. Up-to-date information on the programme are available from http://www.czechinvest.org/spoluprace.

10.4.6.4. Programme INNOVATION

The Programme shall support two types of projects:

- **Innovative projects** – for projects applying new, original solutions, the programme will allow Czech companies to purchase modern machinery, equipment, know-how and licences needed for their implementation. A similar programme supported in the period between 2004 and 2006 more than 100 companies and contributed thus to their long-term growth. A number of successful applicants established their new products on the European and global market and they continue to develop successfully.
- **Projects for the protection of industrial property rights** – in this case the programme shall contribute to the protection of intangible assets in form of patents, usable designs, industrial designs and trademarks.

Calls for both types of projects shall be announced individually.

The Programme Innovation - Projects for the protection of industrial property rights supports acquiring industrial-legal protection of intangible assets in form of patents, usable designs, industrial designs and trademarks. Interested parties shall be able to acquire support for the expenses connected with patent representatives, administration fees and translations within the framework of the programme.

Up-to-date information on calls is available from http://www.czechinvest.org/ochrana-prav.

10.4.7. Selected basic terminology used in the OP

Block Exemption. It is a Regulation of the European Commission. If the conditions determined by the relevant regulation are fulfilled, such support can be provided, without being subject to approval by the Commission. However, the provider has an obligation to send to the Commission an overview of information relating to the provision of public support on the basis of the block exemption. Block Exemption is regulation regulating public support for small and medium enterprises, public support for employment, public support for education, regional development and others.

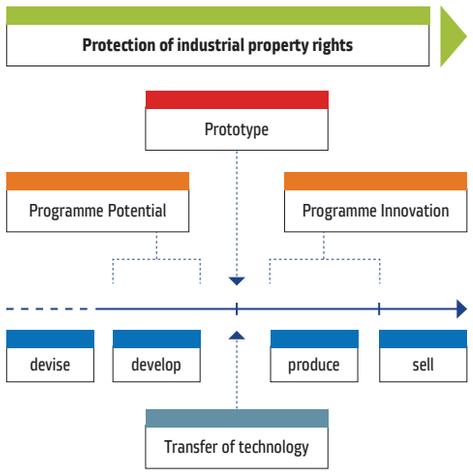
Centre of Excellence – one clearly field profiled workplace of research and development (example, Institute of Universities, research institute or its clearly organisationally specified and account separated part). The Centre of excellence is active in research activities, often of interfiled character and by programmes it interconnects research and development (hereafter only as R&D), education (especially postgraduate students and young research workers) and innovation activity. Centre of excellence is reaching a critical size in it field, it achieves important results on international level and by form of long-term strategic partnerships co-operates with front foreign R&D workplaces, as well as with subjects from the application sphere and with other significant workplaces in a relevant field on a national level.

Innovation – restoration and extension of the range of products and services and with them connected markets, creation of new production methods, supply and distribution, introduction of changes in management, organisation of work, working conditions and qualification of work force.

Innovation process in a company includes a wide range of activities implemented from the actual initial idea up to its birth. Therefore it

includes research and development, industrial-legal protection, placing in production and also final utilisation of the innovation in practice. A simple illustration of the innovation process with an example of areas of the operation of two programmes OPEI is represented in the following chart in **Fig. No. 13**.

Figure 13. Innovation process chart



Notification. A duty to notify the European Commission the intention to provide a new support and further to notify of the changes of the current support. The notification is carried out by the provider of the public support using notification forms, through the Office for the Protection of Competition and the Permanent Representation of the Czech Republic in the European Union. The provider is entitled to provide public support only upon the approval of the Commission.

Support de minimis (or a small scale support). De minimis represents support, which cannot, together with other supports "de minimis" provided to a single beneficiary within the period of the last three years, exceed the amount of EUR 200,000. This financial ceiling applies with no regard to the form or purpose of support de minimis provided in the previous three year period. Three year period is considered as fiscal years used for tax purposes.

Regional map of public support. Determines the maximum value of public support (percentage from suitable investment costs), which can be provided to a beneficiary in a given region of cohesion NUTS II – **Fig. No. 14**.

Small enterprises can receive a maximum level of public support marked –up by 20%, medium enterprises by 10%. In a case, that Block exemption is applied for SME, a single bonus amount of 15% is provided for certain activities.

In a case of the OP R&DI the exemption from public support shall be applied in accordance with the framework and 100% funding of a framework defined applicant is allowed.

Framework – Framework of Communities for state support of research, development and innovations (2006/C323/01).

Regional R&D Centre - one clearly field profiled workplace of R&D (for example, Institute of Universities, research institute or its clearly organisationally specified and account separated part). Regional R&D Centre is active in research activity, it creates strong partnership links with companies and other partners from the application sphere, who are actively involved in strategic directing of its activities, it is successful in production of applicable results and it is involved in education and training of human resources for R&D (especially Master study students). Revenues from the co-operation with application sphere (with a provision made to field specifics) significantly participate in the total R&D budget of the Centre and also in overall operational costs of the Centre.

Figure 14. Regional map of public support intensity for the CR approved by the European Commission – valid from 1.1.2007

Regions NUTS II	Small enterprise	Medium enterprise	Large enterprise
Central Moravia, Northwest, Central Bohemia, Moravia-Silesia, Northeast, Southeast	60 %	50 %	40 %
*Southwest (1. 1. 2007 - 31. 12. 2010)	56 %	46 %	36%
*Southwest (1. 1. 2011 - 31. 12. 2013)	50 %	40 %	30%

Spin –off company – is a company, which utilises tangible and intangible assets of another legal subject for the commencement of their entrepreneurship with the aim of commercialising the R&D results. This term is often used in connection with universities, where spin-off companies are established by teachers, researchers, students and young research workers with the support of the university and with a long-term co-operation with them.

Start-up grant – resources provided to a beneficiary, determined for the covering of costs for research activity and a part of operational (inclusive of salary part) costs of a project applied in the priority axis 1 or 2, with the aim to secure the initial phases of research activities and activities of a Centre of excellence or a Regional R&D Centre, so that after the completion of an implementation of a project within the framework of the OP R&DI there are conditions for easy continuation of activities of

the Centres with the utilisation of a combination of national financial resources, private resources and resources from abroad.

Large Project (LP) – is a project, financed from the European Fund for Regional Development, the total costs of which are more than EUR 50 million.

Public support. By Public support is understood each support provided in any form by a state or from state funds, which corrupts or may corrupt the economic competition by giving preferential treatment to some companies or some production sectors and if it has an effect on trade between member states. On the basis of the Jurisdiction of the EC other public resources are also considered as state resources. Support, which fulfils the above stated criteria, is incompatible with joint market and therefore forbidden. An exemption from the general ban on providing public support can be allowed on the basis of the so called block exemptions or on the basis of a decision of the European Commission. The de minimis support does not have impact on the economic competition nor does it influence trade between EU member countries (with regard to its limited amount) and therefore it is not considered as public support, provided that all provisions determined by a relevant Regulation of the EC are adhered to.

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Conclusions

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The submitted publication provides information on the current system of public support of research and development in the Czech Republic. It is generally accepted that the system of R&D support in the CR is too diversified: R&D is supported from the budget of a too many Ministries and Central Authorities of the Government. Despite a repeated effort to simplify the system, the provision of support is unnecessarily administratively and time demanding. The exceedingly complicated system was not able to provide resources for R&D effectively and on time in recent years and the system was not able to effectively utilise the available resources from the EU, especially the resources from the EU Structural Funds. Another serious issue, and this is not only in R&D, is satisfaction with just an average, not striving for excellence and insufficient support of excellence.

Assessments of R&D in the CR, carried out repeatedly on a national and on an international level, show that although the CR is gradually getting closer to the amount of costs on R&D, to the number of research workers and in other indicators of inputs to the R&D average of the EU-15 countries, but it is still very much behind on the level of R&D output indicators. Among these are primarily the number of publications and quotations in impacted science magazines, the number of applications of patents and awarded patents and the number of technical, technological and organisational innovations, in which the results of R&D are utilised. It has been repeatedly stated in a number of documents, passed by the Government, that R&D and innovation benefits are too low for Czech economy and society.

The intention to carry out fundamental changes in the whole R&D and innovation system in the Czech Republic was created in 2006. The Council for Research and Development prepared a proposal of a Reform of research, development and innovation in the CR in a relatively short time at the end of 2007 and beginning of 2008.

The Government approved the Reform by its Decree No. 287 of 26 March 2008. A number of tasks for the implementation of the Reform have been set by the Decree. The full wording of the Reform and the stated Government Decree is available at www.vyzkum.cz.

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Short Guidebook 2009

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