Country Profile: Czech Republic

1. Political, institutional and economic framework and important actors

In recent years, the Czech economy has been growing above EU average due to its sound industrial base and fuelled by foreign direct investment (FDI), notably in certain medium- to high-technology sectors. Policy makers are determined to move from competing on the basis of low labour costs towards economic growth based on increased productivity and innovation.

Czech R&D intensity has grown continuously to 1.27% of GDP in 2004 (see Figure 1). This value is still below the EU25 average, but it represents already the second highest share in the new EU member states. The Private Sector accounted for 51.5% of total R&D expenditure.

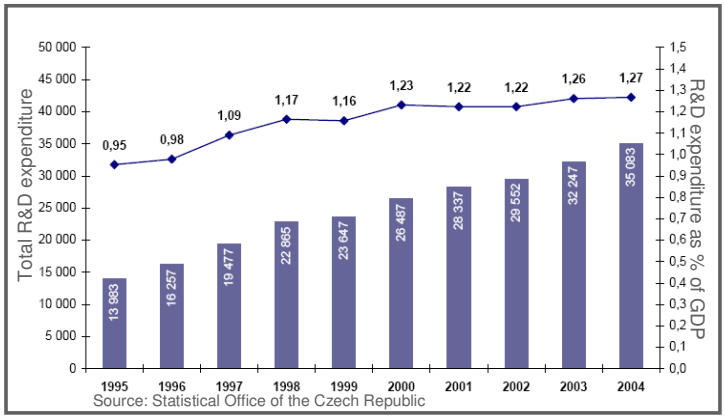

Figure 1: Evolution of R&D expenditure of the Czech Republic 1995 to 2004

In support of this development path, the Government has adopted a range of policies to promote research and innovation and has defined four strategic objectives: To strengthen research and development as the source of innovation; to establish Public-Private-Partnerships, to secure human resources for innovation and to improve the efficiency of public administration in support of research, development and innovation.

In January 2004, the Czech Government adopted the 2004 -2008 *National Research and Development Policy of the Czech Republic*. It is based on the analysis of fulfilment of the 2000-2004 national policy, as well as on the Lisbon strategy. But in order to realise these targets, the Czech Republic must overcome three important challenges: An inadequate supply of human resources for innovation, the imbalance in growth and innovation performance between FDI-based and indigenous enterprises (where the former perform much better) and an overall low level of research and innovation activities, notably in smaller locally owned firms. For example, the share of SMEs with in-house innovation activities is low in a European comparison.[1]

The major actors of the Czech Science and Innovation System are the following:

a. Political/ governmental authorities, advisory and intermediate bodies

Both chambers of the Czech Parliament have formed committees which are responsible inter alia for research: The *Committee on Education, Science, Human Rights and Petition* of the Senate (upper chamber) and the *Committee on Science, Education, Culture, Youth and Sport* of the Chamber of Deputies with its *Subcommittee for Science and Higher Education* deliberate on items such as draft laws, motions and briefings in relation to research and innovation policies.

The *Research and Development Council* (R&DC) acts as the key expert and advisory body to the Government in the field of research and development[2]. It identifies fundamental trends,

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1 Sources of data in the introductory section: European Trend Chart on Innovation, *Annual Innovation Policy Trends and Appraisal Report Czech Republic 2004-2005*; Eurostat News Release STAT/05/156, December 6, 2005, Statistical Office of the Czech Republic.

2 In a complementary role, the *Economic Council* and the *Council for the Development of Business Environment* advise the Government on economic policy issues and on ways how to develop the investment and business environment in the Czech Republic in order to improve the international competitiveness of the Czech Republic. This may also have an impact on innovation policies.

develops a mid-term draft outlook for the support of research and development and draws up schemes for the support of research and development in the Czech Republic through its advisory bodies, which have been established as professional commissions. The R&DC performs also regular annual analyses and assessments of the research and innovation situation in the Czech Republic, compares them with foreign countries and derives recommendations from this. In addition, the R&DC plays the role of administrator and approves the rules for the operation of the Research and Development Information System. The R&DC consists of fifteen members and is chaired by a high-level government representative. Its members are appointed by the Government on the basis of a proposal made by the Chairperson. They include representatives of Public and Private Sector institutions engaged in research and development, of the executing agencies, of local authorities and of the Private Sector. The Board of the Council, which consists of its Chairperson and of three Vice-Chairpersons which are elected from its members manages the activities of the Council between its sessions and coordinates activities carried out by expert commissions and advisory bodies to the Council. These draw up proposals of long-term basic trends and schemes of development for research and development in the Czech Republic. The R&DC participated intensively in the establishment of the Grant Agency of the Czech Republic and constantly co-operates with it.

The Act on the Support of Research and Development from Public Funds established three *expert commissions* which operate as advisory bodies of the R&DC and prepare for it, inter alia, proposals for long-term R&D objectives and schemes in the Czech Republic. Expert commissions consist of top researchers, the majority of them representing the Academy of Sciences and the universities. But there are also some representatives of industry, private research institutes and associations[3]. The commissions propose long-term objectives and proportions of research and development as a basis for the proposal of the National Policy of Research and Development of the Czech Republic. They evaluate also prospective orientations in the sphere of basic research, recommend support for priority orientations of applied R&D, work out standpoints in the course of the preparation work for the National Programme of Research and Development and comment on the results of this work, express their views on materials which are prepared by the Council and take part in the consultative procedure on the materials prepared by the council. Based on their analyses, the Ministry of Education, Youth and Sports draws up the National Research and Development Policy of the Czech Republic in cooperation with other institutions and submits it to the Government for approval.

On the government level, the responsibility is split between two ministries. In addition, the *Office of the Government of the Czech Republic* deals among its other duties also with innovation policy issues directly, mainly through its Division for Research, Development and Human Resources under the responsibility of the Deputy Prime Minister for the Economy. The Deputy Prime Minister for the Economy also chairs the Research and Development Council.

The *Ministry of Education, Youth and Sport* formulates the National Research policy and coordinates the National Research Programme. It is responsible for research at universities and provides so-called institutional financing related to research proposals submitted by both public and private legal entities (as opposed to project financing on the basis of research programmes). In a complementary role, the *Ministry of Industry and Trade* is responsible for innovation policy in the context of its overall responsibility for industrial and economic policies. This includes the promotion of industrial research and support for the development of technology- and engineering knowledge and for innovation-oriented activities of SMEs. In addition, other ministries and central Government authorities promote and support research and innovation within their resorts. And the *Office for Competition Protection* is in charge of assessing public support for research and development.

The Ministry of Education, Youth and Sports has set up the *National Research Policy Council* (NRPC) as its expert advisory body which proposes research policy objectives, new National Research Policy programme drafts and the allocation of funds for stimulation and support of

[3] For example: The chairman of the Expert Commission for Technical Sciences and Engineering, Milan Holl, is General Director of the Aeronautical Research and Test Institute and President of the Association of Aviation Producers

research. Furthermore, the council is also involved in the evaluation of the National Research Policy objective meeting, topical and cross-sectional research policies and drawing up the report on the assessment of the National Research Policy including recommendations for the follow-up programme. The NRPC consists of 9 members. It is chaired by the Vice-Minister for science and universities, the other 8 council members are appointed by the Minister. They include representatives of policy making and research institutions - ministries and universities. Currently, none of them is a representative of the Private Sector.

The NRPC can set up advisory bodies and working groups which prepare the expert, prognostic and conceptual statements for the NRPC. To fulfil these tasks, the Chairman of the NRPC or the chairman of the NRPC advisory body or working group can ask the Ministry to ensure co-operation with natural or legal persons who are specialists for relevant issues. These specialists can then be invited to attend NRPC sessions, to provide expert statements or to act as advisors to the working groups.

b. Intermediate bodies

The *Grant Agency of the Czech Republic* (GACR) was formed in 1993. By means of public tenders for standard research and development projects, it was the first agency to support projects from all branches, regardless of the legal form or appurtenance to a certain branch of the project holder. In addition, GACR performs the evaluation of project proposals by professional committees and funds the selected projects. Since 1997, GACR also publishes the tenders for grants for the graduates of doctorate studies to support young research workers.

The GACR acts as a central body of the state administration for budgetary (financial) purposes. It publishes tenders for the support of research and development projects proposed by physical or legal entities and for the support of projects implementing the programs of the GACR. The GACR provides the funds on the basis of the results of public tenders. The organisation of the GACR and the manner in which it publicises a public tender, are amended by a Statute approved by the Government.

The statutory body of the GACR is the President; the executive body is the Presidium. The President and the members of the Presidium are elected by the Government on the basis of a recommendation of the Research and Development Council of the Czech Republic. Standing advisory groups of the GACR Presidium are Committees oriented towards specific scientific disciplines, which ensure the consideration and evaluation of project proposals. The members of these Committees are nominated by the GACR Presidium, which selects them from candidates coming from scientific and technological institutions. The Discipline Committees create subcommittees of specialists who take care of the actual project evaluation, with the help of three external reviewers. Representatives of the Academy of Science, of universities and of research institutions, including Private Sector institutions, are involved in the committees and subcommittees. The GACR's Supervisory Board controls the allocation of GACR's financial means, supervises the activities of the GACR and submits opinions to the GACR Presidium. The opinions are binding for the Presidium. The Supervisory Board has ten members, who are appointed by the Chamber of Deputies of the Czech Republic Parliament based on proposals from legal entities engaged in research and development.

A number of other agencies provide complementary support for innovation activities. The *Investment and Business Development Agency* (CzechInvest) was set up by the Ministry of Industry and Trade to promote the development of the technological skill base through advice and support in this area for indigenous enterprises as well as foreign investors. CzechInvest acts as the intermediary for SMEs in the implementing the EU Structural Funds in the Czech Republic, in filing applications for investment incentives to the responsible government institutions and prepares drafts for policy measures to stimulate investment in this area.[4]

[4] In addition, a group of intermediate institutions promotes and supports entrepreneurship and innovation, especially in SMEs, see the description in the European Trend Chart's *Annual Innovation Policy Trends and Appraisal Report Czech Republic 2004-2005*, pages 2-5.

c. Research performing institutions

Research and development in the Czech Republic are performed by universities, by the institutes of the Academy of Sciences, in departmental research organisations and in Private Sector R&D. There are 28 universities in the Czech Republic.

The *Academy of Sciences of the Czech Republic* is the Czech Republic's leading non-university public research institution with approximately sixty research institutes and five supporting units which carry out fundamental and applied research. The work of the academy's three divisions[5] is dedicated to creating scientific knowledge which strengthens the Czech Republic's position in key scientific and technological areas. The Academy formulates its own scientific policy, provides advice on national R&D policy issues and administers national and international research programmes.

This structure is complemented by scientific and technological parks and business centres in which small firms concerned with high-tech production and services are being established and developed.

The formation of more favourable institutional conditions for more intensive and effective development of research and development is performed by the transformation of the unsatisfactory legal form of contributory organisations to public research institutions having similar position in principle and their activity being developed on similar principles as the public universities. Among other objectives, this reform aims also to encourage various forms of cooperation between universities and the Private Sector and to achieve a higher transparency of the utilisation of public funds.

d. Private Sector

The Private Sector's share of overall R&D expenditure has been slightly increasing in the last two years. At the same time however, Private Sector enterprises have oriented their R&D expenditures increasingly towards short-term research activities with immediate commercial use. This creates a barrier for adequate investments in R&D with a longer-term strategic perspective, limiting the development of high-technology sectors in the Czech science 'landscape'. Therefore, pursuant to the 2004-2008 National Research and Development Policy the types of financing from the public funds shall be distinguished more significantly than so far, focusing on the results of the R&D activities.

The major actors on the Private Sector side are the following:

The *Economic Chamber of the Czech Republic* is an association of businesses in regional chambers and trade associations. It is an independent legal entity. The Chamber's main task is to support the entrepreneurial climate and the development of trade. A comprehensive range of professional services in all areas relating to trade, industry and commerce is available to all representatives of the business community. Under the umbrella of the Chamber, various Sector Associations are united, including those which represent technology-intensive sectors and their R&D-intensive members[6]. The Chamber participates also in the consultative procedure preceding the introduction of legal bills and national policies, including the national research policy.

The *Association of Research Organizations* (ARO) represents and promotes the interests of applied research in the enterprise sector. ARO members include most Czech organizations with important R&D operations from a variety of branches of industry, building and architecture. ARO is a preferred partner for debates with the state administration during the creation of new legislation and policies in support of research and innovation.

The *Association of Innovative Entrepreneurship of the Czech Republic* (AIP ČR) aims at the creation of prerequisites for the development of innovative entrepreneurship, i.e. research,

[5] Division of Mathematics, Physics, and Earth Sciences; Division of Chemical and Life Sciences; Division of Humanities and Social Sciences

[6] For example, the Car Industry Association as a member of the Economic Chamber represents the R&D-intensive firms of this sector

development and innovations, technology transfer, new materials and technologies, building of science and technology parks and support of activities of innovative firms. For this purpose, the association promotes the creation of innovative infrastructures and markets and the development of conditions for an efficient functional exchange of technology. According to its memorandum of association, AIP ČR has a minimum of nine members which are delegated by the *Science and Technology Parks Association of the Czech Republic* (3 members), the *Society for Technology Transfer Support* (3 members) and the *Czech Society for New Materials and Technologies* (3 members). The members are appointed by the steering organs of these societies for a four year period. As of April 2006, AIP ČR consists of 27 members, including the major associations of research institutions, scientific and technological societies and universities. AIP ČR partners range from the Czech parliament and government to important national and international enterprises[7].

The *Science and Technology Parks Association* (STPA) is a union of natural persons and legal entities supporting the innovation process from research to the application of research results in practice, assisting in setting up innovative SMEs and technology transfer. It started its activities in 1990 and it has been assisting in the activities of a number of Czech science and technology parks.

2. National research policy decisions, Private Sector involvement, possible barriers and current initiatives

The *National Research Programme* was approved by the Government decree No. 417 from 28 April 2003. It aims at a progressive transition from a 'remote' type research approach which is not connected with Private Sector-driven innovation to a project-oriented policy which fosters applied research in priority areas with a high potential to create value for the Czech economy and society and which encourages the seamless and efficient transfer of research results to innovation and commercial use.

For this purpose, the new policy approach addresses traditional weaknesses of the Science and Innovation System, e.g. the lack of flexibility and incentives in professional career frameworks for Public Sector researchers, the fragmentation and low level of research and technology awareness of indigenous SMEs which create significant barriers for improving their innovation performance and international competitiveness, knowledge deficits in the area of intellectual property and the need to improve infrastructure and processes for technology transfer.

The *Act No. 130/2002 Coll. on the Support of Research and Development from Public Funds* has been the first Parliamentary Act on R&D. The Act has regulated the system of R&D support from public funds, public tenders in R&D, procedures of research objective assessment, the provision of information on R&D, and it has stipulated the rights, obligations and assignments of bodies, authorities and institutions involved in R&D. The Act was supplemented by three subsequent *implementing Government Regulations* – on the research and development information system (No. 267/2002 Coll.), on targeted support of research and development from public funds and on public tenders in research and development (No. 461/2002 Coll.) and on the institutional support of research and development covered from public funds and on the assessment of research objectives (No. 462/2002 Coll.). Since September 2005, a next important act is in force – the Act No. 341/2005 Coll. on Public Research Institutions.

The commitment to the Lisbon process, approved by the Government March 19, 2003, became a major driving force for the formulation of the Czech national science and innovation policy. A range of measures resulting from the Action Plan for Europe was used during the preparation of the National Research and Development Policy of the Czech Republic for 2004–2008.

[7] See http://www.aipcr.cz/eng/partnerituz.asp for details.

Instigation and design stages

In May 2002, the Government had set a task to prepare the *National Research Programme* (NRP). Under the auspices of the Ministry of Education, Youth and Sports which was in charge to elaborate the draft programme, the Technology Centre of the Academy of Sciences in co-operation with the Engineering Academy, has established research priorities for the national programme. Experts from universities, research institutes and from Private Sector enterprises were involved in this process through expert panels. The NRP was approved by the Government decree No. 417 on 28 April 2003.

In a similar way, the *National Research and Development Policy for 2004–2008* was prepared in close interaction with the professional public. The draft document was discussed in the Research and Development Council (whose members include representatives of the Private Sector). And it was submitted to stakeholders and the public for comments. Based on this experience, research and development policy will continue to be prepared and implemented in an open approach with broad participation of industry and sector organisations and other stakeholders, e.g. from the research community. For Public Sector institutions which organise such processes, an important guideline is that they have to be objective and transparent, to enable free and timely access to all relevant information and to prevent improper lobby group influences. To reach this and to achieve a broad level of consensus and acceptance, the 2004-2008 National Research and Development Policy recommends the use of working groups and of coordination and steering groups. This requires a careful design of the interaction to make sure that the decision power remains with the authorities which are responsible for policy making.

However, there are indications that awareness and commitment of the Czech enterprise sector still need to be increased in order to ensure that this process leads to the desired Private Sector inputs. The Research and Development Council had opened a public debate about a draft amendment to the Act No. 130/2002 Coll. on the Support of Research and Development from Public Funds in February - March, 2006. In reaction to this, 190 proposals were submitted, but the vast majority of them by natural persons. Thus, the Private Sector input in this case was again mostly limited to the membership in the R&D Council.

Implementation stage

Public R&D support consists of various types of financing – ranging from institutional funding for work programmes of research organisations to targeted grants for research projects in the context of thematic and cross-sectional programmes of the National Research Programme or of departmental programmes. Following the principles of the NRP, thorough criteria for the evaluation of proposals and for the assessment of the achievements of projects, funding programmes and the entire national programme were established. These criteria ensure a fair and transparent selection process and form the basis for a later evaluation to assess if the policy measure has achieved the programme objectives and made the desired contributions to the national programme as a whole.

Under Act No. 130/2002 Coll., the defined research policy priorities are implemented through the National Research Programme. Based on a limited number of priorities and needs, identified by the NRP, research policy measures are structured in the form of thematic and horizontal programmes. In the case of non-targeted fundamental research, the academic community enjoys a high degree of autonomy in the selection of research themes, processes and methodologies. This is different for target-oriented, mainly applied research. Here, the priorities are established on the basis of perceived needs of society and economy and on the basis of ‘demand and offer’ for research and development as expressed by the representatives of the research and the business communities, for example in debates of the Research and Development Council.

Increasing competition for external funds between research institutes forces them to enhance their communication with the Private Sector, to re-orient their research portfolio towards attractive areas, to improve their skills and approaches in knowledge and technology transfer and to develop links with Private Sector partners. This trend is further enhanced by the fact

that since 2004, R&D results and achievements gain importance as a basic criterion for the allocation of public funds for research. The aim is to obtain an instrument for enforcing a high degree of effectiveness and efficiency of individual research projects and funding programmes and of other research policy measures though an internal competition.

Under the auspices of the Ministry of Industry and Trade, complementary programmes have been launched to promote industrial research and development, to stimulate Private Sector R&D investment and to foster collaboration between research institutes and Private Sector enterprises. These include the programmes TANDEM (promoting research co-operations between research institutes and enterprises) and IMPULS (providing support for R&D with a strong focus on projects with a short-term application and commercialisation potential).

One of the areas which require further attention is the establishment of improved conditions to stimulate an enhanced national horizontal mobility of researchers and of technology-oriented staff, which is still scarce. Until present, Government attention and policy measures have concentrated on international staff mobility.

Assessment/revision stage

Increasing emphasis is put on the monitoring and evaluation of the success and effectiveness of research policy measures. For example, the implementation of the National Research Policy will be monitored through regular reports which will assess the applied methods and achieved results of all programmes. The assessment of the process of utilisation of research results and its achievements within the National Research Policy programmes is treated in a separate part of this reporting. The objective is to identify needs for changes in applied research policy measures and their implementation and to develop appropriate proposals for these in a timely manner. The report on the National Research Policy assessment shall be elaborated biannually. The NRPC shall transmit the elaborated report on the National Research Policy assessment to the Minister of Education, Youth and Sport who shall submit it to the Government.

Regularly, the R&DC prepares and submits to the Government an analysis and assessment of the situation of R&D in the Czech Republic. This study *Analysis of the Existing State of Research and Development in the Czech Republic and Its Comparison with the Situation Abroad* is annually published by the Office of the Government of the Czech Republic. Among the editors of the 2005 edition, there are representatives of the Association of Research Organizations as well.

The legal basis for evaluations is provided by Act No. 130/2002 on supporting research from public funds or by EC regulations, if for example research and innovation policy measures are (co-) funded from the EU Structural Funds. Evaluations of schemes/programmes financed from the state budget are conducted internally. Ministerial departments are responsible for conducting the evaluation of the schemes/programmes for which they are in charge. Evaluations are mostly carried out internally by ministries and submitted to the Council for Research and Development, to the Government or to the Parliament in the form of reports. So far, independent external evaluators have been employed only occasionally. An important example of this type was a study *Barriers to the Growth of Competitiveness of the Czech Republic* assigned on the basis of a public tender by the Ministry for Regional Development. This study was conducted by independent experts and involved stakeholders, including the Private Sector, in a series of meetings of a working group to assess barriers to the improvement of competitiveness in the Czech Republic and to identify good practices for improvement.[8]

[8] For a detailed description of this process see the European Trend Chart's *Annual Innovation Policy Trends and Appraisal Report Czech Republic 2004-2005, pages 13-14*.

3. Other important examples of policy decisions with Private Sector involvement

Governance of regional science and innovation systems

14 regions have been constituted in the Czech Republic as units of public administration, including the Capital City of Prague. Within their own competence, these develop and implement programmes for their regional development and co-ordinate related activities. But in many regions, such regional strategic plans for the development of research and innovation are still in their beginnings, except where their development pas part of larger exercises co-funded by the EU. The National Innovation Policy (2005 - 2010) foresees a stronger emphasis on the development of research- and technology-oriented clusters as a key instrument for regional development and for boosting innovation. Through this, adequate structures for technology transfer and the application of research results shall be developed on a regional level.

For the development of direct relations between local research institutes, Private Sector enterprises and other actors, this regional level is of high importance. Therefore, an important part of the role of regional offices within the self-governing competency is to arrange the horizontal cooperation between local and regional actors. Other important activities focus on support for entrepreneurial and spin-off activities, on the establishment of scientific and technology parks and the creation and development of networks.

4. Overview: Types and extent of Private Sector involvement

The 2000 National Research and Development Policy stressed the necessity of an effective communication between the state administration, research organisations, the 'users' of research results and a broader public. Therefore, the duty to inform on spending of research and development funds and on attained results was included in the Act on research and development support from public funds (Act No. 130/2002 Coll.). Public discussions are used for the preparation of fundamental research policy documents. The public is increasingly informed about the results of such discussions.

With its members representing also the Private Sector, the Research and Development Council is an established form of institutionalised involvement. The same is true for the expert commissions which operate as advisory bodies of the Research and Development Council. Research institutions, including Private Sector institutions, are represented in committees and subcommittees of the Grant Agency of the Czech Republic which performs the evaluation of project proposals.

The main actors of the Private Sector which take part in related decision processes, especially in consultative procedures, are

- the *Association of Research Organisations* and the *Association of Innovative Entrepreneurship of the Czech Republic*, both promoting the interests of Private Sector R&D, especially of applied research. They are the most important partners for debates with the state administration during the creation of new legislation and policies in support of research and innovation;
- the *Economic Chamber of the Czech Republic* which unites all important Sector Associations, including the representatives of R&D institutions in each sector;
- the *Science and Technology Parks Association* as a union of natural persons and legal entities, assisting in technology transfer and in setting up innovative SMEs.

The Private Sector was also involved in the preparation of the National Research Programme. In co-operation with the Engineering Academy, the Technology Centre of the Academy of Sciences has established research priorities for the national programme. Experts from universities, research institutes as well as from Private Sector enterprises were involved in this process through expert panels. In a similar way, the draft National Research and Development Policy for 2004–2008 was discussed in the Research and Development Council, whose members include representatives of the Private Sector.

Nevertheless, the Czech Republic still needs to enhance and broaden platforms for communication and for preparation of highly professional analytical and conceptual inputs to the National Research and Development Policy. Co-operation between public research institutes and their Private Sector counterparts in main research and technology sectors is improving, but it is still considered as unsatisfactory. Main obstacles are a lack of awareness on both sides and of professionally managed structures for knowledge and technology transfer and cooperation.

5. Selected useful examples of transferable approaches and experiences

As explained, the Czech Science and Innovation System is still in a very early development stage. Therefore only few examples for successful interaction have emerged. Some of them are described in the following paragraph.

5.1 Foresight study in preparation of the National Research Programme

The preparation of the draft *National Research Programme* (NRP) is based on the first national foresight exercise which was conducted in 2001. This project involved several hundreds of leading representatives of research, industry, services, civil service and other organizations who participated in the work of 18 panels and of expert groups. Tow types of panels were used:

- *Thematic panels* suggested in a first step a relatively broad list of about 600 important research directions. This large number was reduced using a complex prioritization procedure based on an electronic voting procedure via Internet. Prioritization resulted into a reduced list of about 250 key research directions. Sets of key research directions proposed by the panels were then further processed by a working group set up after the completion of the work of panels. The group included panel chairmen, panel secretaries and other experts. The objective of the group was in particular to identify interdisciplinary research directions and to select those key research directions with the highest potential to contribute to a positive economic and social development of the Czech Republic. The selected group of 90 key research directions, identified as the most relevant to the Czech economical and societal needs, was then allocated into 19 thematic sub-programmes.
- After a comprehensive SWOT analysis, *cross-cutting panels* suggested a set of sub-programmes (systemic measures) in their respective fields. Systemic measures were proposed with the objective to create a favourable environment for the thematic programmes and the National Research Programme as a whole. As in the case of thematic panels, the results of cross-cutting panels were further discussed and modified by the working group established in the final stage of the project. In total, 19 cross-cutting sub-programmes were recommended.

The main results of the project were a proposal for a set of priorities for the orientation of research in the Czech Republic, recommendations for accompanying systemic measures and a proposal for the implementation of the recommendations, including a methodological approach for its operative management.

Updating the selection of research priorities in reaction to evolving economic and social needs of the country has become a continuous process. Therefore it is necessary to maintain the continuity of foresight activities in the Czech Republic. The first step will be a detailed evaluation of the project, its assets and drawbacks, as well as a proposal for the follow-up activity. At the same time it is necessary to establish an institutional structure capable of carrying out complex strategic studies focused on research and technology priorities and their links to and effect on the economic and social situation in the Czech Republic.

5.2 National Research Centres

The programme *National Research Centres* can be considered as a successful example of improved cross-sectoral R&D co-operation. The centres are established in locations where a 'critical mass' in terms of R&D knowledge and capacities and of interest in co-operation exists already. Research centres are established as a new Public-Private-Partnership with the aim to become a nucleus for the formation of competitive research infrastructures. Their purpose and aim is to increase the level of inter-branch and interdepartmental cooperation, to foster links between existing research potential and the potential users of its results, to attract new technology-intensive companies and promising young engineers and scientists and to stimulate necessary changes in infrastructure and regional research governance systems. For this purpose the policy measure aims both at promoting the development of research activities and supporting infrastructures and services, e.g. for technology transfer, consulting, etc.

For example, the *Business Innovation Centre* (BIC) in Prague became an important actor in the regional R&D-based co-operation and networking. The Technology Centre of the Academy of Sciences had established this centre in order to support SMEs in their efforts to get access to advanced technologies and their application. The BIC is a member of the European Business Innovation Centre Network and of the corresponding domestic network. This domestic network includes BIC Prague, Czech Technical University in Prague, BIC Plzeň, BIC Ostrava and BIC Brno.

5.3 Stimulus by public finance reform

The indirect form of research and development support, as a supplement to the direct support, enforced in the Czech Republic in the scope allowed by the public finance reform, is a significant stimulus for provision of 2 per cent of GDP for research and development from the private funds. This amount of private expenditures should be attained by the EU member states in compliance with the Lisbon strategy and Barcelona objectives by 2010. Such indirect instruments are further mentioned in Table 1.

Appendix 1: Overview over identified instruments for Private Sector involvement and their use in the Czech Republic

Instrument		Intensity of use	Initiated by	Used for	Used in				Examples and remarks
					Instigation	Design	Implement.	Review	
General dialogue	Insight studies, roadmapping, foresight	Occasional	Both sides	Awareness, identification of emerging technologies & trends	✓				Commissions of the R&D Council
	Conferences	Not common	Public Sector	Discussion platform					
	Brainstorming / task forces	Regular	Public Sector	Identification of priorities and possible policy actions	✓	✓		✓	Working groups, expert panels
Informal decision involvement	Evaluation studies	Regular	Public Sector	Programme review, identification of policy need				✓	
	Advisory groups	Frequent	Public Sector	Participation in design, evaluation, etc.	✓	✓	✓	✓	National Research Policy Council
	Informal consultations	Regular	Public Sector	Exchange of viewpoints between stakeholders	✓	✓		✓	Expert commissions
	Formal consultations	Frequent	Public Sector	”Official” opinion	✓	✓	✓	✓	Public discussion, Assoc. of Research Organizations
Formal decision involvement	Task force	Not common	Public Sector	Joint policy development					
	Participation in decision making bodies (observer status)	Frequent	Public Sector	Decision involvement	✓	✓		✓	R&DC, NRPC
	Participation in decision making bodies with (co-) decision right	Frequent	Public Sector	Decision involvement, shared responsibility		✓	✓	✓	E.g. Control Board of Grant Agency of CR
	Administrative / supervisory boards	Common	Public Sector	Private Sector representatives involved in important institutional decisions		✓	✓		Participation in R&D Grant Agency
Joint activities	Initiation of networks	Well developed	Both sides	Stimulation of joint Public-Private Sector initiatives		✓	✓		(joint) National Research Centres, Business Innovat. Centres
	Co-financing of projects / programmes	Frequent	Both sides	Sharing of cost / risks			✓		Within Nat. Research Centres, S&T parks
	Public Private Partnership	Well developed	Both sides	Pooling of resources		✓	✓		Scientific & technological parks
Staff interaction	(Temporary) Staff exchange	Occasional	Both sides	Enhance mutual understanding and mobility			✓		
	Staff mobility	Not common	Public Sector	Public Sector expertise in research leadership positions					
Unsolicited contributions	Statements, studies, white papers, etc.	Not common	Private Sector	Express views, recommend changes, influence decisions					
	Dialogue platforms	Frequent	Private Sector	Initiate / facilitate dialogue with public sector	✓	✓	✓		Joint research centres
	Research funding	Frequent	Both sides	Initiate / support research in desired areas			✓	✓	Grant Agency of the CR

Table 1: Overview of instruments used for Private Sector involvement

Appendix 2: Selected relevant sources and literature

1. General and country information

National Research and Development Policy – available at http://www.vlada.cz/1250/eng/vrk/rady/rady.htm

National Research Programme – available at http://www.vyzkum.cz/FrontClanek.aspx?idsekce=613

National Research and Development Policy, National Research Programme – 2004 – available at http://www.msmt.cz/Files/PDF/KFNarodnipolitikavAJ.pdf

The Government's Principles for Research and Development – available at http://www.vlada.cz/1250/eng/vrk/rady/rady.htm

National Research and Development Policy for 2004-2008 – available at http://www.msmt.cz/Files/PDF/KFNarodnipolitikavCJ.pdf

Analysis of the Research and Development in the Czech Republic – 2004 – available at http://www.vyzkum.cz/FrontClanek.aspx?idsekce=11525

Analysis of Previous Trends and Existing State of Research and Development in the Czech Republic and a Comparison with the Situation Abroad – available at http://www.vlada.cz/1250/eng/vrk/rady/rady.htm

Evaluation of Indirect Tools for Research and Development Support – available at http://www.msmt.cz/Files/VedaAVyzkum/Odbor_34/Neprima_podpora_VV/NNVV_text.htm

2. Important actors

http://www.vlada.cz	Government Office
http://wtd.vlada.cz/vrk/vrk.htm http://www.vyzkum.cz/	Research and Development Council of the Government
http://www.msmt.cz/_DOMEK/?CAI=2973	Ministry of Education, Youth and Sport – Section Research and Development
http://www.mpo.cz/eng/	Ministry for Industry and Trade
http://www.mmr.cz/index.php?lang=3	Ministry for Regional Development

3. Other

http://www.avo.cz/index_e.htm	Association of Research Organizations
http://www.aipcr.cz/eng/default.asp	Association of Innovative Enterpreneurship
http://www.ceskahlava.cz/index.php	Česká Hlava (Czech Brains) – Project for Support of Scientific and Technological Intelligence

4. Further information and feedback

This country profile has been prepared by Dr. Vlasta Kunova. For further information and feedback, please contact the responsible author under Vlasta.Kunova@flaw.uniba.sk