

- **Report on the Czech Republic's participation in the Fifth European Community Framework Programme for research, technological development and demonstration activities and in the Fifth European Atomic Energy Community Framework Programme for research and training activities in the nuclear sector 1998-2002**

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The research and development teams of the Czech Republic have participated in the EC Framework Programmes and the EURATOM programme since 1993, i.e. from the FP3 onwards. However, unlike FP3 and FP4, the FP5 was the first Framework Programme, which the Czech Republic participated in under similar conditions as the EU member states. Consequently, the FP5 started in the Czech Republic with high expectation – the national launching conference in February 5, 1999 was visited by more than 700 participants. The participation of the Czech teams in the FP5 has regularly been monitored, evaluated and also reported to the government of the Czech Republic. This report is a brief summary of that monitoring and it proves that the afore-mentioned high expectation has been met.

The monitoring and evaluation of national participation in the FP5 and EURATOM was not only aimed at improving the position of the Czech Republic in the European research but even at improving the national R&D performance at all. The increase of international co-operation is unprecedented in the last fifteen years: except for the FPs the Czech R&D teams regularly participate in the COST, EUREKA, EUROCORES, dozens of bilateral R&D programmes worldwide and also programmes of many scientific infrastructures (e.g. CERN, EMBO, etc.). Simultaneously, in the same period, the Czech R&D system has undergone substantial changes, valuable long-term experience has been accumulated from four national grant agencies and the National Research Programme has been launched. The monitoring of the participation of R&D teams in all these programmes has become an indispensable part of the Czech National Research and Development Policy that was first proclaimed during the “period of the FP5” (in the year of 2000) and it is regularly updated since.

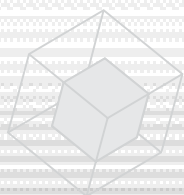
This report consists of two parts. The first deals with interpretation of statistical data on participation of Czech teams in hundreds of FP5 and EURATOM projects and it is consequently in a paper printed form. The second part is a database of all FP5 and EURATOM individual projects with Czech participants and it is in an electronic form. This database is available on the CD enclosed in the back cover and it is equipped by a users' friendly search programme. We hope that both parts will contribute to a better elucidation of the participation of the Czech Republic in the complex environment of the FP5 and EURATOM and can be thus explored for inferring the strategy of building the European Research Area.

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*June 2005*

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### 1.1. Introduction

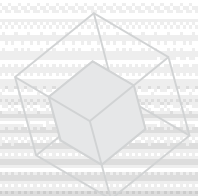
The Fifth Framework Programme (FP5) of the European Union, with a budget of EUR 14,960 million, represented the largest international programme of research, technological development and demonstrations worldwide. According to the CORDIS website [www.cordis.lu](http://www.cordis.lu), more than 16,000 projects were initiated during the Fifth Framework Programme from 1999 to 2003.

The Czech teams have already gained some experience by participating in 243 projects during the Fourth Framework Programme. However, their participation in FP4 was only possible by way of a programme oriented towards international co-operation, i.e., co-operation with so-called third countries, those whose association with the Framework Programme is not regulated by the agreement on association with the FP. Approximately 5% of the total FP4 budget was allocated to this programme. Nevertheless, experience from their participation in FP4 was only partially applicable during FP5, since the Framework Programmes undergo highly dynamic development. FP5 differed from the previous programmes in two ways:

- a. FP5 was the first time the candidate states participated under almost the same conditions as EU member states.
- b. Instead of applying a field-of-research budget structure as had been customary until then, the FP5 budget was allocated to the so-called key actions, which was a system of 21 socio-economic priorities. The FP5 projects are thus strongly target-oriented in character.

Projects of target-oriented research, their preparation in rather large international consortia, evaluation of project proposals and a whole range of other circumstances meant the Czech teams had to adapt to an environment that quite differed from the system of submitting projects in their home environment shaped as it was by the activities of the Grant Agency of the Czech Republic and other grant agencies.

The 'National Contact Organisation for FP5' project (NKO; a project of the Ministry of Education, Youth and Sports) monitored the participation of Czech teams in FP5. The monitoring was based on the information continuously provided by programme committees organising the individual programmes of FP5. It must be stated that each programme committee had its own methodology of generating statistics on the project proposals and their evaluation. Therefore, information from the continuous monitoring sometimes differs considerably from the data presented on the CORDIS website. While the continuous monitoring data are based on the results of evaluating project proposals, the database published on the CORDIS website presents projects that were ultimately in fact contracted by the European



Commission. Thus, the biggest differences occur in comprehensive statistics on the contracted contributions to the Czech teams, since the contracting process almost systematically led to decreasing the amount of contributions required by the teams in their project proposals to the European Commission. However, it can be documented at the same time that the information on the CORDIS website is not complete, i.e., that there are FP5 projects that are in progress but not presented on the CORDIS website. Until April 30, 2004 the European Commission has not published a comprehensive final report on FP5, one that would contain information that could be considered final.

In this report, however, – unless stated otherwise – we will proceed from the data contained in the May 2004 database made available by the EC to the programme committee for the Integration and Strengthening of the European Research Area, which serves already a Sixth Framework Programme. This board is denoted by the abbreviation SP1, and we will also refer to its database using this abbreviation. The SP1 database undoubtedly gives more complete data on the number of projects and participants than CORDIS: the differences most often range around 2% of the monitored values, although they sometimes reach up to 5%. The differences do not affect the conclusions of the statistical analysis of the Czech participation in FP5 in any significant way. However, they become important if data on individual important projects drop out due to incomplete records. We will denote the aforementioned database 'SP1-05-04'.

***The extent of the database attest to the wide scope of FP5: a total of 84,264 teams began working on 16,569 FP5 projects.***

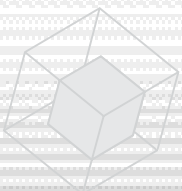
Let us observe that in this report, we do not distinguish between 'participant' and 'participation' and, therefore, the number of separate participants is lower than the stated number of teams, since a range of teams participated repeatedly in different projects.

***As regards the Czech Republic, the database states that 890 Czech teams participated in 701 FP5 projects. Thus, the Czech Republic participated in 4.2% of all FP5 projects.***

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## 1.2. Czech contribution to the FP5 budget

While teams from the candidate countries participated in the Fourth Framework Programme without their governments contributing to the programme budget, participation in FP5 projects was contingent on the payment of a contribution, the amount of which corresponded to the ratio of the GDP of the country in question to the overall GDP of the EU-15 countries. According to the EUROSTAT data, the Czech GDP in 1999-2002 represented approximately 0.64% of the EU-15 GDP, and thus the Czech Republic should have contributed this percentage to the overall FP5 budget. However, it was agreed that the candidate states could fully participate in FP5 if they covered 70% of their regularly established contribution. Therefore, Czech



participation was contingent on the payment of approximately 0.45% (= 0.64 \* 0.7) of the FP5 budget, which ultimately represented 68.36 million euro. This contribution was covered progressively: in 1999 the Czech Republic paid 40% (of its regular contribution), in 2000 60% of the regular contribution, in 2001 80%, and finally last year it paid its regular annual contribution in full; see *Table 1*. The contributions were paid in euros, and their amount in Czech crowns therefore also depended on the exchange rate on the day of remittance.

	1999	2000	2001	2002
Czech contribution (million euros)	8.83	13.58	20.28	25.67
Czech contribution (mil. Czech crowns)	316.4	484.4	710.8	924.1

*Table 1.* Czech contributions to FP5.

### 1.3. FP5 structure

The FP5 budget was allocated to 21 key actions, which were socio-economic priorities the goals of which were to be achieved precisely by way of the FP5 projects. The key actions concentrated on the following five thematic programmes (parentheses list their abbreviations we use below in the present text):

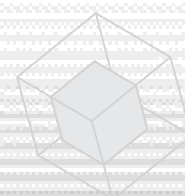
1. Quality of Life and Management of Living Resources (QoL)
2. Information Society Technologies (IST)
3. Competitiveness and Sustainable Development (GROWTH)
4. Sustainable Development and the Environment (ENVI)
5. Energy (ENERGY)

In addition to the thematic programmes, FP5 also encompassed these three horizontal programmes:

6. Confirming the International Role of Research in the European Community (INCO)
7. Promoting Innovation and the Participation of Small and Medium Enterprises (INNO-SME)
8. Improving Human Research Potential and the Socio-economic Knowledge Base (IHP)

The overall FP5 budget is given in *Table 2*.

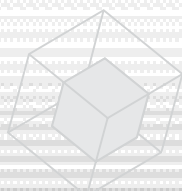
The goals of the individual key actions were outlined only generally and they were specified in detail for the given period in the relevant work programmes. All programmes had their own programme management structures, the most important body of which was always the respective programme committee comprising representatives of all the participating states. Representatives of the candidate states participated in all dealings of the programme committees, but they had no voting rights.



The FP5 projects stemmed from proposals submitted to the European Commission (EC) by international consortia formed by the national teams. The proposals were submitted based on calls launched by the EC. The content of the calls was always determined by the goals of the key actions, but it also reflected the previous course of the programme. If European teams submitted projects that were able to contribute in a decisive way to achieving the goals of a particular key action, the topics proposed in such projects would no longer be offered. One of the important roles of the programme committees was to assist in precisely such a formulation of work programmes that would help in achieving the key action goals as efficiently as possible depending on the capacities of the consortia and their national teams.

The first calls to submit projects were launched in the beginning of 1999 and then the last ones in the end of 2002.

The structure and budget of the 5th EC Framework Programme 1998-2002			
	Programme / key action	Million euros	%
Thematic programmes	<b>Quality of Life and Management of Living Resources</b>	<b>2,413</b>	<b>16</b>
	KA1 Food, Nutrition and Health	290	
	KA2 Control of Infectious Diseases	300	
	KA3 The 'Cell Factory'	400	
	KA4 Environment and Health	160	
	KA5 Sustainable Agriculture, Fisheries and Forestry and Integrated Development of Rural Areas	520	
	KA6 The Ageing Population and Disabilities	190	
	Generic research and support for research infrastructures	553	
	<b>User-friendly Information Society</b>	<b>3,600</b>	<b>24</b>
	KA1 Systems and Services for the Citizen	646	
	KA2 New Methods of Work and Electronic Commerce	547	
	KA3 Multimedia Content and Tools	564	
	KA4 Essential Technologies and Infrastructures	1,363	
	Generic Research and Support for Research Infrastructures	480	
	<b>Competitive and Sustainable Growth</b>	<b>2,705</b>	<b>18</b>
	KA1 Innovative Products, Processes and Organisation	731	
	KA2 Sustainable Mobility and Intermodality	371	
	KA3 Land Transport and Marine Technologies	320	
	KA4 New Perspectives in Aeronautics	700	
	Generic research and support for research infrastructures	583	
	<b>Energy, Environment and Sustainable Development</b>	<b>2,125</b>	<b>14</b>





	Programme / key action	Million euros	%
Thematic programmes	<b>The Environment</b>		
	KA1 Sustainable Management and Quality of Water	254	
	KA2 Global Change, Climate and Biodiversity	301	
	KA3 Sustainable Marine Ecosystems	170	
	KA4 City of Tomorrow and Cultural Heritage	170	
	<b>Energy</b>		
	KA5 Cleaner Energy Systems, Including Renewables	479	
	KA6 Economic and Efficient Energy for a Competitive Europe	547	
	Generic research and support for research infrastructures	204	
	<b>Research and training in the field of nuclear energy –</b>		
Horizontal programmes	<b>EURATOM</b>	<b>979</b>	<b>7</b>
	KA1 Controlled Thermonuclear Fusion	788	
	KA2 Nuclear Fission	142	
	Generic research and support for research infrastructures	49	
	<b>Confirming the International Role of Community Research</b>	<b>475</b>	<b>3</b>
	<b>Promotion and Encouragement of SME Participation</b>	<b>363</b>	<b>2</b>
	<b>Improving the Human Research Potential and the Socio-economic Knowledge Base</b>	<b>1,280</b>	<b>9</b>
	KA1 Improving the Socio-economic Knowledge Base	165	
	Joint Research Centre (the EC and Euratom)	1,020	7
	<b>Total FP5 budget</b>	<b>14,960</b>	<b>100</b>

Table 2. The structure and FP5 budget, 1998-2002.

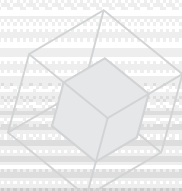
#### 1.4. Basic FP5 project types

FP5 included a very rich spectrum of various project types. The project type was given by the activities of the contractors' consortium. Each project type had a specifically determined goal and the project type significantly affected the percentage of the financial contribution from the EC to the total cost of the project. For example, the EC participated with up to 50% in the costs of research activities; in case of demonstration activities its share was 30%; in so-called co-operative research this was 50%; costs of various types of fellowships were usually fully covered by the EC (paid to the individuals and institutions that hosted the visit); miscellaneous 'accompanying measures' were again subsidised up to 100%; the EC contributed a fixed amount to conferences; it granted awards from a budget established in advance; etc.



Code	Project type description	Action – type of cost sharing
TA1	Research projects	Shared-cost action
TA2	Demonstration projects	Shared-cost action
TA3	Combined projects	Shared-cost action
TA4	Access to research infrastructures	Shared-cost action
TA5	Large EURATOM facilities	Shared-cost action
TA6	Co-operative research (SME projects)	Shared-cost action
TA7	Collective research (SME association projects)	Shared-cost action
TA8	Preparatory projects (exploratory awards)	Shared-cost action
TA9	Marie Curie Fellowships - individual fellowships	Fellowships – grant
TA10	Marie Curie Fellowships – industry host fellowships	Fellowships – grant
TA11	Marie Curie Fellowships – creation of training sites	Fellowships – grant
TA12	Marie Curie Fellowships – visits to training sites	Fellowships – grant
TA13	INCO – Fellowships for young researchers	Fellowships – grant
TA14	INCO – Fellowships to Japan	Fellowships – grant
TA15	Research training networks	Support to linking of research centres
TA16	Thematic networks	Support to linking of research centres
TA17	Co-ordination measures	Co-ordination costs
TA18	Classical accompanying measures	Accompanying measures
TA19	Grants – support	Accompanying measures
TA20	Projects of adopting and introducing technologies	Accompanying measures
TA21	High-level scientific conferences	Accompanying measures
TA22	Advanced studies courses	Accompanying measures
TA23	Accompanying measures	Accompanying measures
TA24	Strategic actions in the field of training and excellence	Accompanying measures
TA25	Archimedes Prize	Accompanying measures
TA26	Descartes Prize	Accompanying measures
TA27	EURATOM grants	Accompanying measures
TA28	Action for the first users of research results	Accompanying measures
TA29	Innovation centres	Accompanying measures

**Table 3.** FP5 project types.



### 2.1. The total number of project proposals

During the Fifth Framework Programme, the Czech teams participated in the preparation of 2,156 project proposals. In 137 cases, however, the proposals did not comply with the formal requirements, so only 2,019 proposals advanced to the evaluation process, based on which projects could win support from the European Commission. This means that formally deficient proposals made up approximately 6% of all prepared proposals, which according to the available data corresponds to the European average.

### 2.2. Project and participant success rates

Of 2,019 formally correct project proposals, 526 projects successfully passed through the evaluation process. The average success rate of FP5 projects with Czech participation was thus 26%.

2,995 teams participated in submitting formally correct projects, and 696 teams made it to the successful projects. The average participant success rate of the Czech teams was thus 23.2% in the thematic programmes.

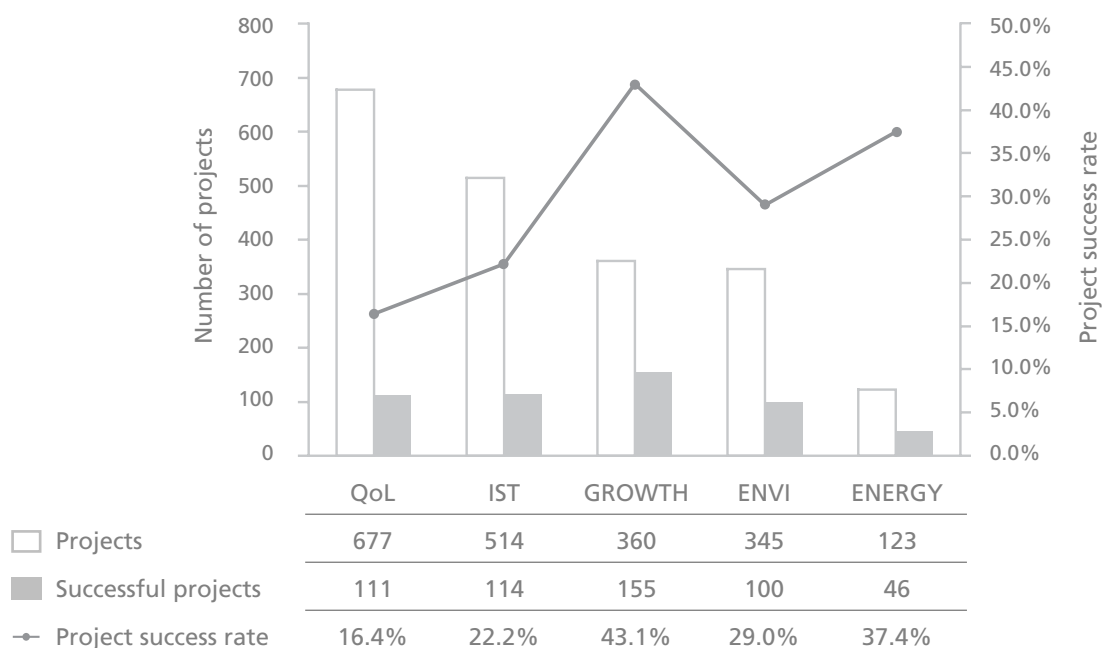


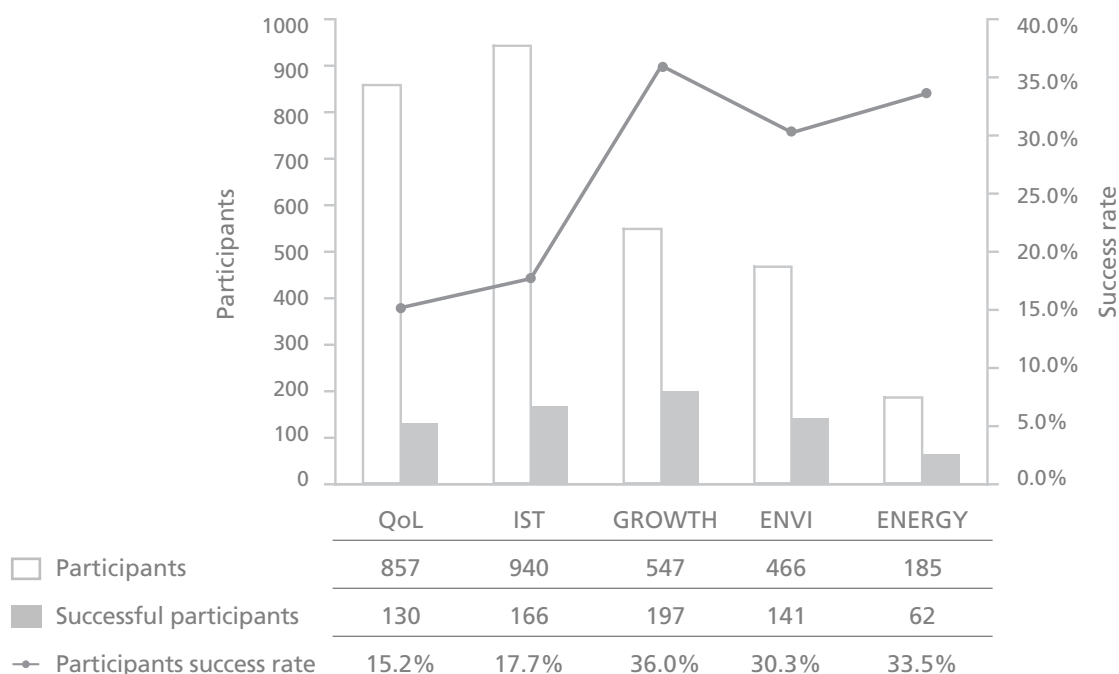
Figure 1. Basic data on the number of projects involving Czech participants in FP5 thematic programmes during 1999-2002.



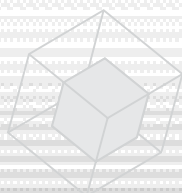
It must be stated that there were considerable differences between thematic programmes both as regards the proposal error rates and the project or participant success rates. The combined data on the project success rate of Czech participation in thematic programmes are presented in the graph in *Figure 1*, with a table of the statistical values attached.

Let us remark that in its evaluation, the European Commission only uses the participant success rate. Of the total of five thematic programmes, complete all-European statistical data at the time when this report was being compiled were only available for the QoL, IST and GROWTH programmes and their all-European average participant success rates reached the values of 20%, 26% and 37%, respectively. The corresponding values for the Czech participants (see the table in *Figure 2*) were: 15%, 18% and 36%. Therefore, the Czech success rate was significantly lower than the all-European average particularly in the QoL and IST programmes. On the other hand, according to the continuous data from the respective programme committees, the Czech success rates in the ENVI and ENERGY programmes are always higher than the all-European average.

The success rate is determined by a whole range of factors. These are not only the methodical and scientific qualities of the teams but also their ability to join important international consortia capable of forming the critical research capacity necessary to resolve fundamental problems to which the EC allocated financial resources (in the form of the FP5 budget and its detailed distribution by the individual work programmes).



*Figure 2.* Basic data on the number of Czech participants in FP5 thematic programmes.



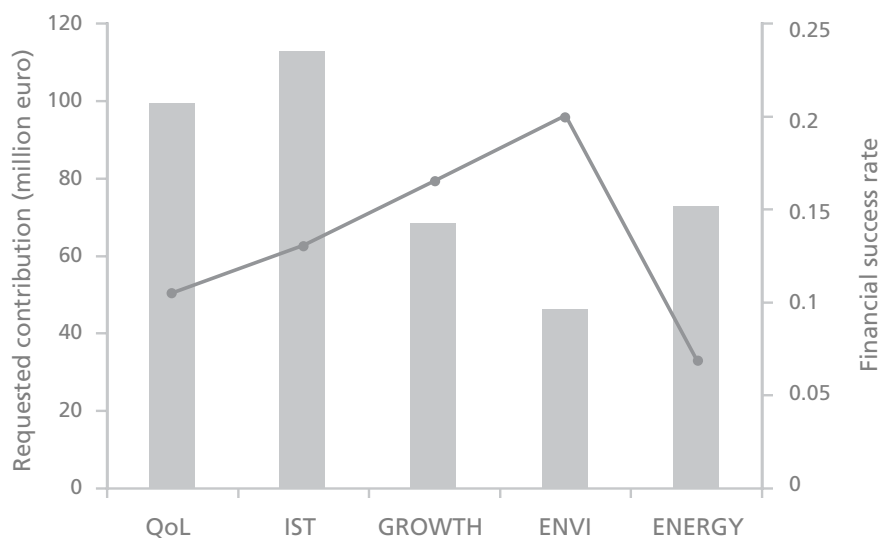
At the same time it is necessary to consider the fact that the ‘total success rate’ summarises the success rates of all projects or participants regardless of whether their contribution to the project consisted in extensive research activities of fundamental importance (and most likely also required mobilisation of a large budget) or whether they only participated in a research training network (where the costs more or less covered travelling expenses due to their participation in work meetings or visits to research centres).

### 2.3. Financial success rate

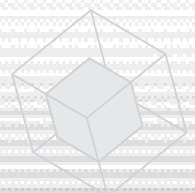
By the financial success rate of a given programme we mean the ratio of the aggregate requested contribution in the successful projects granted by the European Commission, to the aggregate requested contribution in all (formally correct) submitted project proposals.

The graph in *Figure 3* gives the total requirements by the Czech participants and the success rate of these requirements. In total, the Czech teams requested EUR 399.5 million from the European Commission only in the thematic programmes, i.e., approximately six times the Czech contribution to the FP5 budget.

The curve plotted in *Figure 3* shows the success rate of financial requirements in the individual thematic programmes. In the QoL, IST and GROWTH programmes, it did not even reach 20%; in the QoL programme, the success rate was just 12%. It turns out that the financial success rate is lower in all thematic programmes than the respective project or participant success rate – without exception.



*Figure 3.* The columns indicate the estimated total volume of contributions requested by all Czech teams from the European Commission and curve shows their success rate.



*Table 4* gives data on the total amounts requested by the Czech teams when entering the contracting process during the monitored period. Let us recall again that the Czech Republic contributed to the total FP5 budget proportionally to the ratio of its GDP to the GDP of the entire EU. The Czech Republic, just like the other candidate states, was allowed to participate after covering mere 70% of the proper fee determined in this way, i.e., it contributed approximately 0.45% of the FP5 budget.

The second column in *Table 4* lists budgets of the individual thematic programmes. The third column then gives the total amount that the Czech teams achieved during contracting process for each programme. Finally, the fourth column indicates amounts from contracting processes in multiples of 0.45% of the total budget for the given programme.

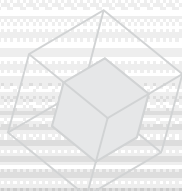
Program	Total budget (million euro)	Requested from the EC by the Czech participants	'Multiples of 0.45% of the programme budget'
QoL	2413	10.43	1.0
IST	3600	14.77	0.9
Growth	2705	11.24	0.9
ENVI	997	9.25	2.1
ENERGY	1144	5.03	1.0
Total	10859	50.72	1.0

*Table 4.* Resources contracted from the EC by the Czech teams and their comparison to aliquot percentages that the Czech Republic contributed to the individual programme budgets.

It is apparent from *Table 4* that in thematic programmes, the Czech teams will most likely obtain a total amount corresponding to '0.45% of the programme budget'. In the ENVI programme, the Czech teams contracted an amount 2.1 times higher than what would correspond to 0.45% of the Czech contribution to this programme.

An analysis of the data continuously provided by the EC during FP5 suggested that the Czech teams requested mostly significantly higher amounts in successful projects than what was assigned to them in the contracting process. The biggest difference between the requested and actually contracted project support from the European Commission was in the ENERGY programme. In this case the difference between the requested and contracted contribution can be explained by two projects that ultimately only obtained a fraction of the support the applicants requested from the EC.

At the same time it is obvious that both project and participant success rates have little effect on the level of the percentage of the given programme

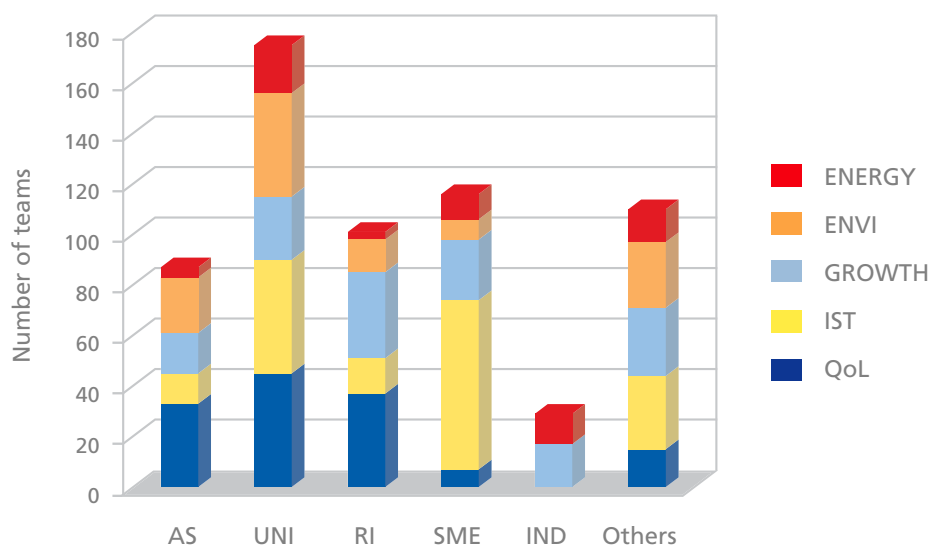


budget the Czech teams finally contract. Therefore, although the participant and particularly financial success rates of the Czech Republic in the QoL programme were much lower than in the IST and GROWTH programmes, the aliquot requested amount in successful projects involving Czech participation in this programme was on the same level as in IST and GROWTH, respectively. Thus, the success rate criterion alone (whether it be the project or participant rate) does not give us sufficient information about the importance of the teams' participation in the programme.

The fact of dissimilar rates of return of resources in the individual programmes does not have a simple cause. It can be shown in the case of the QoL and GROWTH programmes that projects in which a Czech team intended to participate with a higher budget (more than EUR 300,000, i.e., approximately CZK 10 million) had a very low success rate. The predominant Czech participant in the case of the IST programme was a small or medium enterprise, and these organisations had a lower success rate generally.

In the ENERGY programme on the other hand, the Czech teams successfully participated in several costly demonstration projects, to which the European Commission contributed amounts even higher than EUR 3 million.

(Failure of a single project of such scope would then dramatically reduce the total financial success rate of the Czech Republic.)



*Figure 4.* Institutional structure of the Czech teams in thematic program projects, AS – Academy of Sciences of the Czech Republic, UNI – universities, RI – research institutes, SME – small and medium enterprises, IND – industry, Others – typically end users.



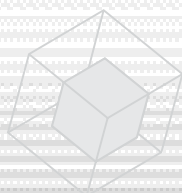
Participation of the Czech teams in the ENVI programme appeared 'systematically most successful' from the very beginning of FP5. The success rate of the Czech teams exceeded the average European success rate, and financing went to participants who planned 'reasonably high budgets' for their participation.

#### 2.4. Institutional structure of the Czech participants

The histogram in *Figure 4* reports on the institutional structure of the Czech participants in successful thematic programme projects. We can see that the most common participant in FP5 projects is a university team. The second place then surprisingly goes to small and medium enterprises. At the same time, it is obvious that the individual participant categories differ substantially in the thematic structure of their projects. Universities are represented almost uniformly in the QoL, IST and EESD programmes (i.e., in the aggregate of the ENVI and ENERGY programmes), their representation in the Growth programme is lower. Participation of small and medium enterprises markedly dominates in information technology projects. Research institutes are strongly represented in the QoL and GROWTH projects. Academic institutions are strongly represented in projects in the field of life sciences. Big industry only participates in the Growth and Energy projects. The 'Others' category has a considerable percentage of both mediating organisations and – above all – end users of the results (clinics, municipal governments, but also manufacturers, etc.).

The graph in *Figure 5* shows how many project proposals the individual participants were involved in and what their success rate was. With the exception of small and medium enterprises, the success rate of the Czech participants fluctuates around 25%. SMEs had a substantially lower success rate: on average, this was 16.5%.

In the QoL programme, the SME success rate did not even reach 12%; it attained its highest value of 21% in the ENERGY programme. This confirms the fact that preparation of demanding projects surpasses the capacity of SMEs and it is obvious that this category of participants in Framework Programmes will not do without efficient support when joining the European research and development projects.





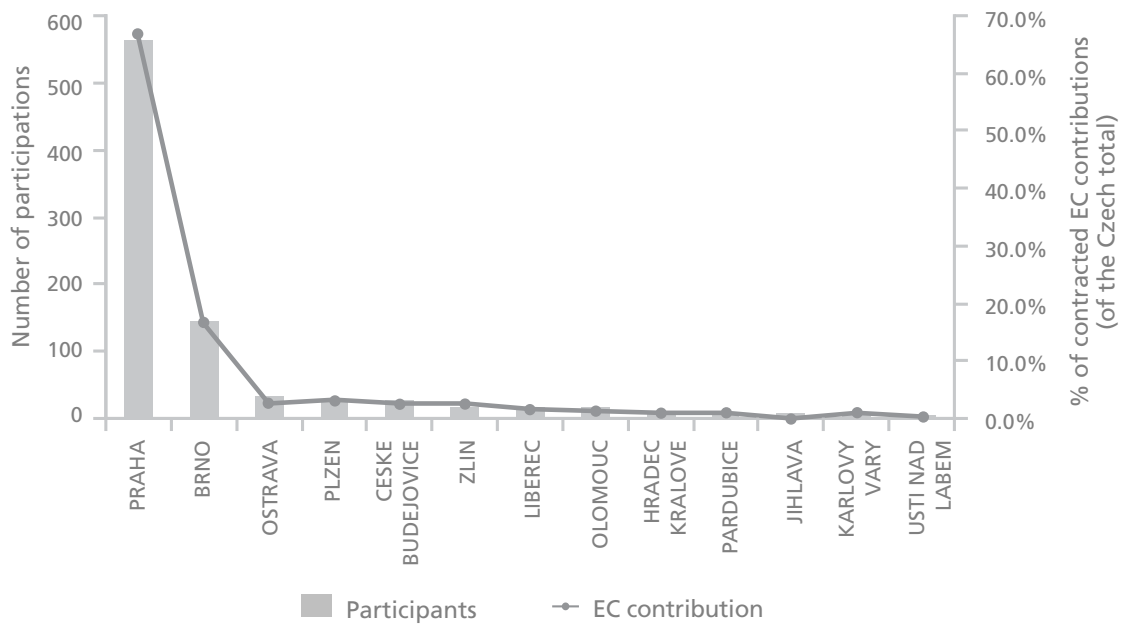


*Figure 5.* Distribution of the number of project proposals by the proposer type and their success rate.

## 2.5. Regional distribution of participants

The distribution of the FP5 projects participants across the regions of the Czech Republic was very uneven. Namely, the distribution profile is heavily dependent on location of academia institutes. The highest concentration of universities and institutes of the Czech Academy of Sciences is in the capital city of Praha. The agglomeration of Praha thus had 564 participations, which corresponds to 64% of total participation of all Czech teams in the FP. The second biggest university and academic area is in Brno (the capital of Moravia), which had 146 participations corresponding to 16,4% of the total for the Czech Republic. Thus, more than 80% of all participations were from Praha and Brno. On the other hand it is remarkable that the participants came from 92 municipalities of the Czech Republic. However, in this report we distinguish only the 14 higher administrative regions of the Czech Republic. Due to the indicated geographical spreading none of the 14 regions was left without a participation in some FP5 projects. The minimum “participatory intensity” had the North Bohemia region with the capital city of Ústí nad Labem and North West Bohemia with the capital city of Karlovy Vary (each of these two regions had 6 participations). The overview of the regional distribution is in *Figure 6* (data for the Middle Bohemia region and Praha are amalgamated into one item).





**Figure 6.** Regional distribution of participation of Czech teams in the FP5 projects. The regions are named here according to their capitals. The histogram shows the numbers of participations of regions and the curve the percentage of the EC contribution to regional teams (% of the total).

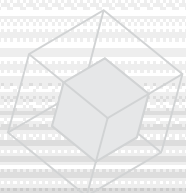
The geographical distribution of the participation is indicated in the map in *Figure 7*. The circles indicate location of regional capital cities with universities and research institutes.

The total participation of the first five regions (Praha, Brno, Ostrava, České Budějovice) represented more than 90% of all Czech teams and 92% of the total contracted contributions by the EC.

The regions differed not only due to their respective intensity of participation but they also had their own specific patterns of thematic profiles. These profiles for Praha, Brno, Ostrava and Plzeň are visualized in the “radar graphs” in *Figure 8* together with the profile of the Czech Republic (the middle radar graph).

The total profile for the Czech Republic is dominated by participation in two programmes: GROWTH and IST. The programmes with minimum participation are INNO and INCO.

Since 2/3 of all participation of the CR was rooted in Praha, the profile of the Praha’s is most similar to the total profile of the Czech Republic. However, Praha has absolutely highest share of participation in the EURATOM and the same holds good for the IHP programme.



The profile of the Brno's region is clearly dominated by participation in the GROWTH programme. The second lowest participation of the Brno region in the IHP programme (comprising the Marie Curie Fellowships) is at variance with the number of research workplaces particularly at Brno universities.

The profile of Ostrava is dominated by relatively high participation in the EESD-ENVI programme. This highly industrialised region thus used the opportunity offered by FP5 to solve its problems with the environmental burden. Unfortunately, participation of the industrial SMEs in the FP5 was only marginal.

The region of Plzeň is again highly industrialized and its profile is dominated by relatively high participation in the GROWTH programme. This region has second highest participation in the EURATOM programme among all Czech regions. Unfortunately, this region did not participated in the QoL and IHP programmes.

Let us eventually remark that the profile of the České Budějovice region (the region with the fifth highest participation in the FP5) is clearly dominated by participation in EESD-ENVI, IST and QoL programmes due to the considerable concentration of life sciences research institutes in this region.



Figure 7. Geographical (regional) distribution of the participation of teams from 14 Czech regions. Circles indicate the capital cities of the regions.



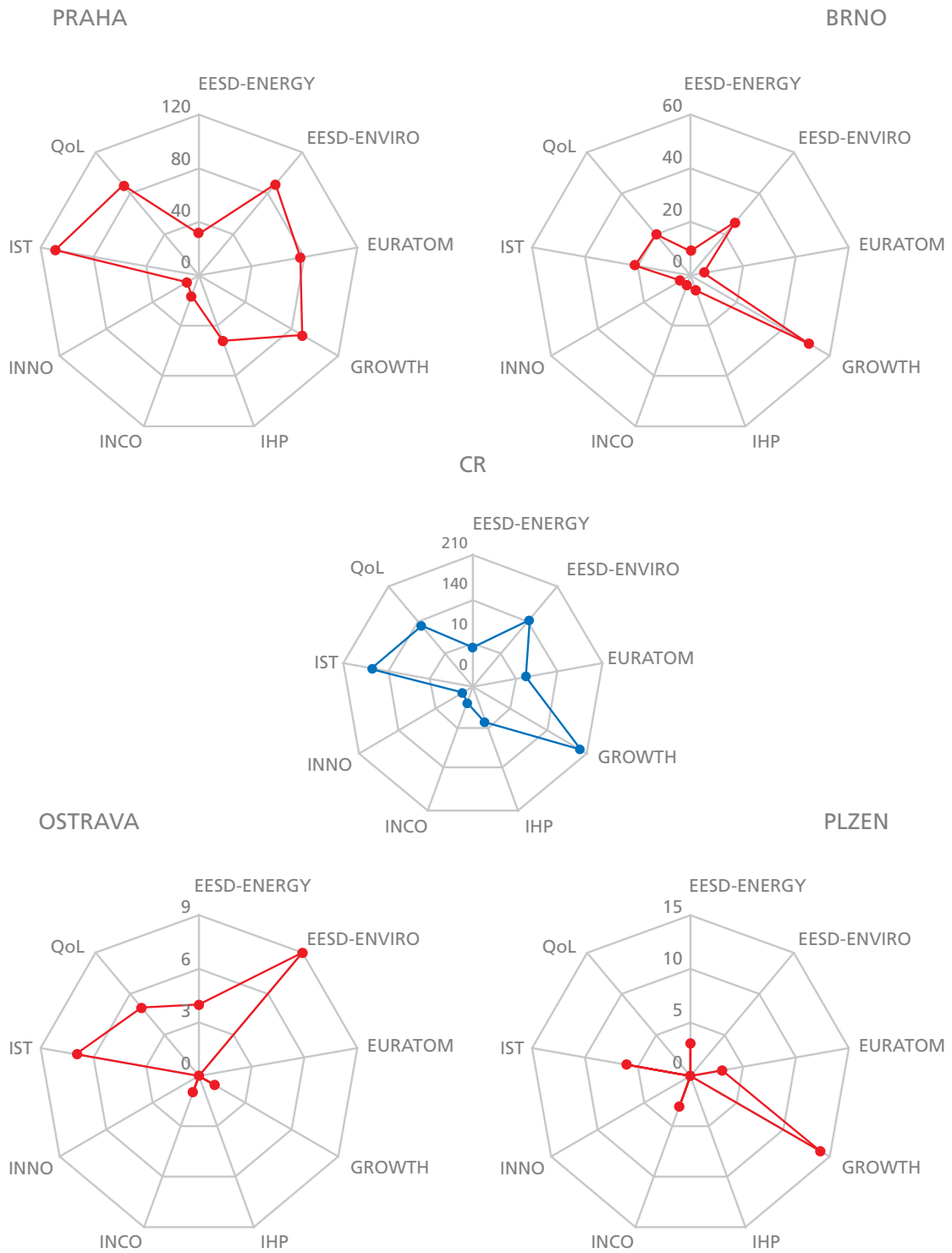
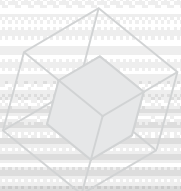


Figure 8. Participation profiles of the Czech Republic and four regions (Praha, Brno, Ostrava, Plzeň) in the FP5 projects.



## 2.6. Project co-ordination

In general, however, it is true that the success of a proposal depends largely on its co-ordinator. The percentage of Czech co-ordinators in the projects that are under way is very low. This is particularly due to the fact that only few projects were initiated and subsequently co-ordinated by a Czech research centre, but also due to the lower success rate of those projects that were proposed by a Czech co-ordinator. In total, 2,995 teams from the Czech Republic participated in the preparation of project proposals in thematic programmes. However, only 164 of these teams – i.e., only approximately 5% – played the role of a co-ordinator. We also cannot ignore the large differences between programmes: while in the QoL and ENVI programmes only a single one of 34 co-ordinators succeeded, 38 co-ordinators in the Growth and Energy programmes achieved a success rate of almost 30%. The relatively high number of co-ordinators in the IST programme, which involved 92 teams, was caused particularly by special project types meant to introduce technologies in which only Czech teams could participate ('take-up measures'). Here, we had a total of 13 successful co-ordinators, which corresponds to a success rate of 14%. We can thus only state that Czech co-ordinators contributed rather to a decrease in the success rate of Czech teams participating in FP5 than to its increase.

## 2.7. Characteristics of the scope of international co-operation

The Czech teams co-operated with more than 3,800 foreign teams in successful projects of thematic programmes. The histogram in *Figure 9* gives the percentage of these teams by the individual countries and also by the thematic programmes. Successful consortia involving Czech teams were totally dominated by teams from the EU-15 – these constituted 85.2% – and only 14.8% of the co-participating teams came from the 10 candidate countries. The Czech teams most often co-operated with teams from Germany and the United Kingdom, followed by teams from France, Italy, Spain, the Netherlands, etc. The percentage of teams from the individual EU-15 states thus very closely correlates with the population of these states.

The situation with teams from the candidate countries was completely different. Though the most frequent partners of the Czech teams are teams from Poland, which has the largest population among the candidate countries, the second place does not go to Romanian teams (as the population argument would require) but to Slovak teams followed by teams from Hungary (which has a population twice that of Slovakia). It is interesting that the number of co-operating teams from Slovenia is higher than the number of Romanian teams, even though the Romanian population is more than ten times larger than the Slovenian one.

It is always apparent from the graph that the highest number of foreign teams occurs in projects of the Growth programme (35%), which is followed by the IST programme (21%). However, the individual countries differ very much in



the structure of their teams in the thematic programmes. While, for example, the Irish teams are decidedly dominated by the field of information technologies, in the case of Belgium, Finland, the Netherlands and Sweden, the relative representation of teams from the IST field is marginal.

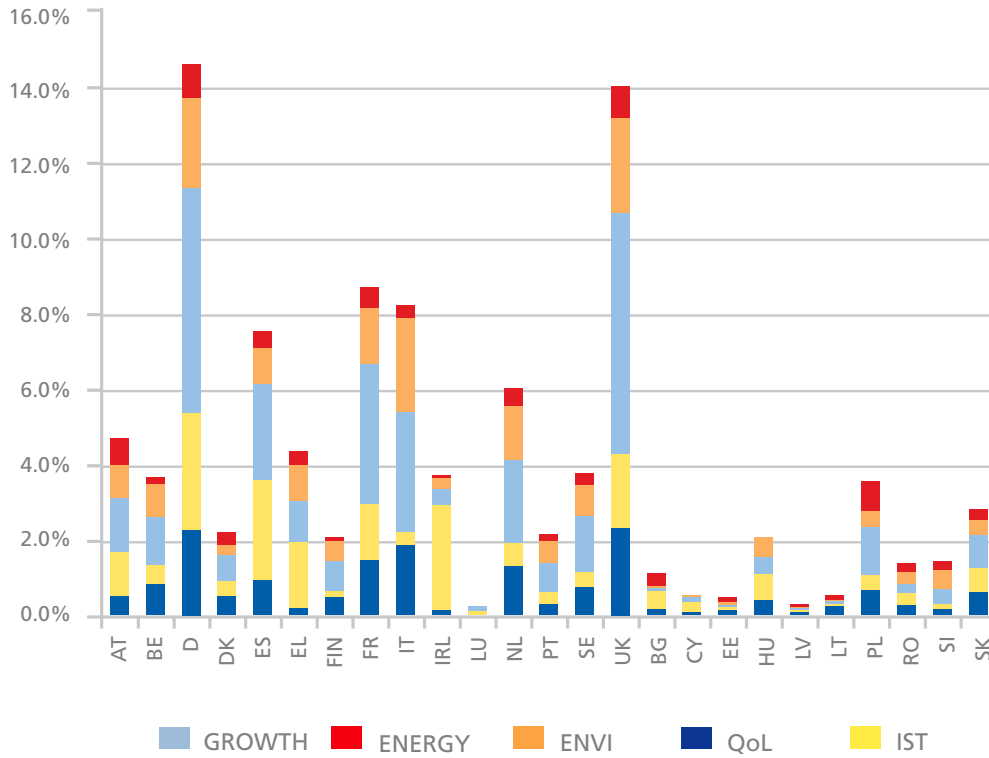
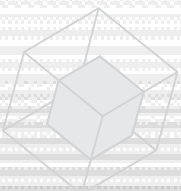


Figure 9. Percentage of teams from EU-15 and from the 10 candidate countries in successful projects with Czech participation.



## Preparation of projects of the horizontal programmes and their success rates

In this chapter, we will present the basic characteristics of the Czech participation in the individual horizontal programmes.

### 3.1. The INCO programme – supporting the international importance of European research

The INCO programme had these priorities:

- a) Supporting co-operation with third countries. Within the framework of this priority, research centres from candidate countries were allowed to apply for the 'Centre of Excellence' status. Additionally, it was also possible to get support to build information infrastructures aimed at boosting awareness of the Framework Programmes. However, teams from the Newly Independent States (countries established after the break-up of the USSR) could also get support in specified thematic priorities for joint projects with the member and associated states within the framework of co-operation with the third countries. Next, there was an option of joint projects with Mediterranean countries and, finally, worldwide co-operation in the 'research for development' category.
- b) Training for researchers. This part aimed at supporting participation of young researchers at EU research centres and in the associated countries; particularly when solving FP5 research projects. Next, through this part of the INCO programme, the EC supported participation of young scientists in Japanese research centres.
- c) Co-ordination. This part of the INCO programme focused on co-ordination with other large European programmes, e.g., COST, EUREKA etc.

***A total of 1,187 projects with 3,799 participants started within the INCO programme. The Czech Republic with its 26 participations participated in 22 projects.***

In the INCO programme, the Czech teams contracted a total of EUR 2.582 million, corresponding to 0.64% of the total amount released for the INCO programme (which was EUR 399 million).

Regarding priority a), the Czech teams participated in 14 projects. Here, three Czech institutions (The Institute of Experimental Medicine of the Academy of Sciences of the Czech Republic, the Institute of Theoretical and Applied Mechanics of the Academy of Sciences of the Czech Republic and the Department of Cybernetics of the Faculty of Electrical Engineering of the Czech Technical University) won the 'Centre of Excellence' status.

At the same time, within this priority, the EC supported the establishing of the NINET National Information Network for FP5.

No Czech team participated in priority b) finally, in priority c) the Czech Republic participated in 8 meetings focusing on co-ordination of the COST programme.



### 3.2. The Innovation programme and support to small and medium enterprises – INNO

This programme included three project types: ETI, EXAW and Craft. The EXAW and Craft projects were specifically oriented towards small and medium enterprises (SME) and the data on their numbers are already included in the statistics of the individual thematic programmes. Nevertheless, due to the fact that these projects very strongly encourage SME innovative activities, the EC continuously issued synoptic statistics from which we draw information in this section.

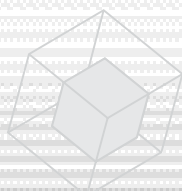
**The ETI projects** (Economic and Technological Intelligence) are oriented to mapping of innovations, exchange of results originating from technological development and mapping of sectors and environment of selected SME groups. Typical participants in international consortia solving the ETI projects are mediators offering their services to SME applying their technologies, products and introducing innovations. As of March 28, 2003 this type of Czech research centre contracted 13 projects with the European Commission, which is the highest number of all candidate countries.

**The EXAW preparatory projects** (Exploratory Awards) were to facilitate the working out of research projects or co-operative research projects for small and medium enterprises (SME) – CRAFT, see below. The total statistics on the EXAW projects is presented in *Table 5*.

		Submitted	Successful	Success rate
Europe total	Proposals	2,713	1,151	44.0%
	Participants	5,760	2,455	42.6%
Czech Republic	Proposals	86	28	32.6%
	Participants	95	29	30.5%
	Co-ordinators	47	11	23.4%
	Support requested from the EC (million euros)	0.95	0.29	30.5%

*Table 5.* Basic data on the EXAW preparatory projects.

A total of 2,713 EXAW proposals were submitted across Europe, of which 103 did not comply with the formal requirements. Eventually, 1,151 EXAW projects won financial support, which corresponds to a 44% project success rate. The all-European participant success rate was 42.6%. Teams from the Czech Republic participated in working out 86 EXAW proposals, i.e., 3% of all submitted proposals. The Czech Republic had the highest number of EXAW proposals of all the candidate countries. More than one half of these proposals were co-ordinated by the Czech participants. It follows from the above table that their success rate was 23%, i.e., a much higher





value than was the case for Czech co-ordinators in thematic programme projects. It can be estimated that the total volume of support to these projects requested from the EC by teams from the Czech Republic was EUR 950,000, and participants in successful projects won support of EUR 290,000. From the perspective of the rate of return of the Czech contribution to the FP5 budget, this amount is almost negligible, for it is much more important how many successful project proposals were worked out in connection with the running EXAW projects.

**The CRAFT projects** are intended specifically for SMEs, which have no research capacity of their own. In CRAFT projects, consortia of SMEs may work out a project the research part of which is solved by research institutions (under market conditions). The maximum budget for a CRAFT project is limited by the European Commission to EUR 2 million, with the EC contributing up to 50% of the project budget. CRAFT project budgets are very often drawn up in such a way that the EC financial support completely covers expenses requested by the research work suppliers, and the remaining 50% of the budget is then invested by SMEs by expending their own capacities.

It must be stated that according to most indicators, SMEs from candidate countries participate in CRAFT projects much less often than SMEs from the EU states.

In total, 2,494 CRAFT projects were submitted to the European Commission as part of FP5. Almost 12% of the proposals (293) had serious formal defects due to which they were eliminated without entering the proposal evaluation process. Teams from the Czech Republic participated in working out 187 proposals. Of these, 24 (i.e., 13%) were eliminated due to formal defects. Formal defects in CRAFT projects prepared by SMEs are thus roughly twice as frequent as is the case for research projects prepared at research centres. The total statistics on CRAFT projects is presented in *Table 6*.

	Proposals	Projects	Successful projects	Project success rate %
Czech Republic	187	163	59	36.2
European Total	2,494	2,201	884	40.2

*Table 6.* Total statistics on CRAFT projects.

When monitoring the statistics of CRAFT projects, we distinguish not only between 'regular participants' and co-ordinators but also monitor participation of research organisations (RO) that were not members of research consortia (their participation in the projects resulted from a subcontract with a research consortium). Basic data on Czech participation in comparison with selected participant groups (states associated with FP5, EU member states and the total numbers for all participant states) are given in *Table 7*.



		Czech Republic	Associated states	EU	Total
Submitted	Co-ordinators	22	172	2321	2494
	SME-participants	215	1325	11838	13276
	RO	118	701	6149	6894
Selected for financing	Co-ordinators	5	54	830	884
	SME-participants	55	428	4378	4841
	RO	27	229	2198	2443
Success rate	Co-ordinators	22.7%	31.4%	35.8%	35.4%
	SME-participants	25.6%	32.3%	37.0%	36.5%
	RO	22.9%	32.7%	35.7%	35.4%

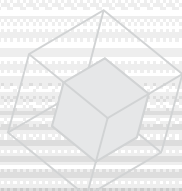
*Table 7.* Statistics on CRAFT projects participation (RO = research organisations).

As regards the preparation of CRAFT projects, SMEs from the Czech Republic were far more numerous than SMEs from all other candidate states: 206 SMEs from Poland and 126 SMEs from Hungary participated in proposal preparation and in other candidate states it was always less than 100 SMEs. Likewise, as regards project proposals, participating research organisations from candidate states were dominated by the Czech Republic (Poland: 108 RO; in other candidate states it was always less than 100 research organisations). However, *Table 7* shows that the success rate of SMEs, co-ordinators and ROs from the Czech Republic was always substantially lower than the success rate of these categories of participants in CRAFT projects so that finally there were not as many successful SMEs and ROs from the Czech Republic as Polish SMEs and ROs, respectively.

Both on the whole and in the case of teams from the Czech Republic, the majority of CRAFT type projects were submitted in thematic areas belonging to the Growth programme. A more detailed analysis shows a remarkable dynamism in activities of the Czech teams, as they submitted almost as many CRAFT projects in 2002 as in the previous three years of FP5, see *Table 8*.

*Table 8.* Thematic and chronological distribution of CRAFT project proposals with Czech participants.

	1999	2000	2001	2002	Total	%
QoL	0	6	12	11	29	15.5%
IST	0	0	2	8	10	5.3%
GROWTH	4	17	40	56	117	62.6%
EESD	1	5	9	16	31	16.6%
Total	5	28	63	91	187	100.0%
%	2.7%	15.0%	33.7%	48.7%	100.0%	



In total, SMEs from the Czech Republic and organisations conducting research for CRAFT projects entered into the contracting process requiring support of EUR 4.2 million. This amount can hardly be compared to the '0.45% of the budget for the 2nd horizontal programme' since the latter had a fixed budget of EUR 400 million only for activities the topics of which did not fit in the thematic programmes. However, a far more important part of the budget had the 'form of an objective', i.e., thematic programmes were to allocate approximately 10% of their budgets to supporting SME participation, that is to the ETI, EXAW and CRAFT projects. It can thus be estimated that a total of approximately EUR 1,500 million (EUR 1,100 million from thematic programmes, EUR 400 million for other activities) was to be set aside to support SME participation. The Czech Republic was to pay 0.45% of this budget, i.e., approximately EUR 6.7 million. Expert estimates suggest that the Czech teams applied for a total of approximately EUR 5.1 million in ETI, EXAW and CRAFT projects – that is, a little less than would correspond to the '0.45% contribution' that the Czech Republic contributed to the budgets of programmes involving these projects.

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### **3.3. The IHP programme – improving the human research potential and the socio-economic knowledge base**

The IHP programme focused on supporting human, scientific and technological resources with the aim of solving only the serious problems of the European society. The programme involved three basic directions:

- Supporting individuals, scientists and researchers in their participation in research teams, and supporting the use of top facilities in other European countries;
- Creating links between science, technology and society and supporting prominent experts;
- Monitoring, research and analysis of social problems in Europe, such as unemployment, sustainable development, quality of life, etc.

These directions were further specified by the following priorities:

- i. Further training and mobility of researchers. These were particularly Marie Curie Fellowships for individual researchers and also the establishing of training sites both in academic institutions and industrial organisations. Next, it included the establishment of research and training networks.
- ii. Making national research infrastructures available to European researchers.
- iii. Supporting scientific and technological excellence (various forms of meetings of top scientists, particularly with young researchers, highly specialised conferences, summer schools etc.). Under the framework of these activities, the EC presents three awards:



- Descartes Prize – acknowledgment of exceptional scientific and technological results of a European team of co-operating researchers.
- Archimedes Prize – acknowledgment of individual student work at the university level (topics are usually fixed).
- European Union Contest for Young Scientists – the contestants are high school students, winners of the national contests for young scientists.

- Improving the socio-economic knowledge base (socio-economic research and analytic studies of changes in the European society in the era of a global knowledge society).
- Advancement of policies in the field of science and technology in Europe (reinforcing the foundations of European science and research policies).
- Women and science.

Numbers of projects in these priorities with Czech participation are given in *Table 9*. Altogether, there are 79 projects, which represent 1.6% of all 4,881 projects within IHP.

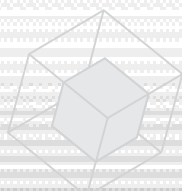
Priority	
i. Training and Mobility of Researchers	26
ii. Infrastructures	6
iii. Promoting Scientific and Technological Excellence	22
iv. The Socio-economic Knowledge Base	22
v. Advancement of Policies in the Field of R&D	3

*Table 9.* Number of projects with Czech participation in the IHP programme.

Let us observe that the Descartes Prize is generally considered the highest acknowledgment in the field of R&D awarded by the European Commission. In 2001 this prize was awarded to an international consortium for its project entitled 'Development of New Drugs against HIV'. The consortium led by Prof. Balzarini (BE) comprised 6 teams: BE, CZ, ES, IT, SE, UK. One of the members of this consortium was a team of Prof. Holý from the Institute of Organic Chemistry and Biochemistry AS CR, whose theoretical works formed the basis of the project.

Support to the mobility of the individual researchers realised by means of the Marie Curie Fellowships had a rather wide scope: in total, 6,888 proposals were submitted, of which 2,850 were realised. This corresponds to a success rate of 41.4%.

Researchers from the Czech Republic submitted a total of 83 proposals, of which 22 were carried out, which means a success rate of approximately 26%. Foreign researchers submitted proposals to visit Czech research centres in 11 cases, but ultimately only 2 visits to the Czech Republic took place (18% success rate).



Country	Proposals for fellowships by the guest country		Proposals for fellowships by the host country		Proposals for training sites	
	Submitted	Successful	Submitted	Successful	Submitted	Successful
AT	94	40	161	44	58	25
BE	159	70	278	95	89	42
DE	753	335	759	310	604	197
DK	74	35	182	64	52	28
ES	1299	604	551	220	233	45
EL	323	132	127	64	69	17
FR	1,472	552	1,217	498	360	160
FIN	60	31	59	23	17	9
IT	681	252	493	177	271	71
IE	97	41	70	28	191	38
LU	10	6	1	0	0	0
NL	184	107	474	228	284	122
PT	59	24	61	18	36	7
SE	139	63	248	98	35	21
UK	398	167	2,014	909	409	254
BG	106	37	1	1	0	0
CY	17	6	2	0	2	1
CZ	83	22	11	2	28	6
EE	14	6	3	0	0	0
HU	122	49	7	3	3	0
LT	17	4	1	1	0	0
LV	15	3	0	0	4	1
MT	3	0	0	0	0	0
PL	258	80	7	1	22	9
RO	122	42	0	0	0	0
SI	30	16	2	0	14	3
SK	96	29	0	0	1	0
Other	203	97	159	66	75	39

**Table 10.** Distribution of fellowship projects by applicant countries and by target countries. The sixth and seventh columns give the number of training site proposals.



Regarding the proposals of individual fellowships, there was a big difference between the EU member states and the candidate states both in relation to the intensity of proposal submission and particularly in the target research centres. The candidate countries only submitted 883 proposals (that is just 13% of 6,888 submitted proposals) and only 8 study visits (i.e., 0.3% of 2,850 visits) took place in all candidate countries.

The study visits necessarily had to take place abroad, and additionally, they could not occur within the candidate countries. *Table 10* shows the distribution of the fellowships by the applicant countries and by the target countries. The above-mentioned difference between the EU-15 member states and the candidate states can be very well seen in the table. At the same time, it is obvious that researchers from EU-15 most often expressed interest in visiting research centres in the Czech Republic, but in general, it is true that their interest in visiting candidate countries was only sporadic.

The difference between the EU-15 states and the candidate states further increased in the case of available training sites. Here, 2,857 training site proposals were submitted, of which only 74 originated from candidate countries (i.e., only 2.6% of the proposals). In total, 1,095 projects were successful, which corresponds to a success rate of 38%. Of the successful projects, only 20 (i.e., 1.8%) went to research centres in the candidate countries.

In this programme, the Czech Republic had the highest number of proposals of all the candidate countries; however, due to their lower success rate, only 6 positions were eventually awarded the status of a Marie Curie Fellowship training site – that is less than for any of the EU-15 states. Yet, the success of a project ultimately depends on the researchers' interest in visiting the given training site, and it will be necessary to wait for the complete, final statistics of the EC.



The goal of this programme was to take advantage of the existing potential in the field of nuclear energy research both in regard to nuclear fusion and nuclear fission. The programme focused particularly on applying the research results to boost the safety and economic efficiency of the technologies.

The 3,132 participants in the EURATOM programme are involved in 1,154 projects, with the Czech Republic featuring 85 participations in 73 projects. However, the participation of the individual research centres in this programme was distributed very unevenly. The Nuclear Research Institute in Řež, a.s. participated in 43 projects, and the Institute of Plasma Physics of the Academy of Sciences of the Czech Republic participated in 15 projects. Another 15 organisations participated in a further 21 projects. However, multiple participation of a smaller number of research centres is typical for the EURATOM programme (e.g., the French Commissariat à l'Énergie Atomique participated in 174 projects; the German Forschungszentrum Karlsruhe GmbH – Technik und Umwelt participated in 101 projects, etc.).

Basic data on the total participation are given in *Table 11*.

Topic – priority	Czech Republic		Total	
	Projects	Participation	Projects	Participation
Controlled Thermonuclear Fusion	15	15	882	1,001
Nuclear Fission	45	53	184	1,480
Generic Research	4	4	63	363
Infrastructures	10	13	25	288
Total	74	85	1,154	3,132

*Table 11.* Basic data on the number of projects and participation in the EURATOM programme

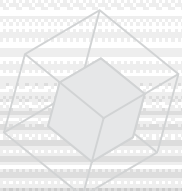
As regards the rate of return of funds, in their successful projects, the Czech teams contracted a total of approximately 0.38% of the EURATOM programme budget, which corresponds to about 0.9 times the aliquot Czech contribution to this programme. Here, we again need to point out the vast differences between the individual participants: several institutions that participated in this programme drew substantial parts of the budget (e.g., one institution obtained 2.4% of the budget).



The European Commission does not list any criteria according to which it would be possible to determine the importance of the individual projects. The EC repeatedly organises studies of patent generation and market applications of the results of Framework Programme projects. The monitoring of 'project significance characteristics' can only be justified after a certain time elapses since the settlement of intellectual property rights and market applications of the project results are usually long-term processes. Currently, with a number of projects still in progress, the significance of the Czech participation can only be assessed indirectly, e.g., by the budget volumes of Czech project participants.

Table 12 presents all projects and their Czech participants whose the budget as accepted during the contracting process was higher than EUR 300,000. There are 46 of these projects. The importance of these projects follows already from the fact that although this is only 6% of the total number of the 701 projects with Czech participation, the total EC contribution to their solution represents more than 25% of the total EC contribution to all Czech teams.

Identification label	Programme	Project name	Project participant from the Czech Republic
QLG3-CT-1999-00192	QOL	Network analysis of hippocampal memory processing	Institute of Physiology of the Academy of Sciences of the Czech Republic
QLK2-CT-1999-00556	QOL	Detoxified Adenylate Cyclase Toxin: a major improvement for the development of safe, efficient and multipurpose vaccines.	Institute of Microbiology of the Academy of Sciences of the Czech Republic
QLK3-CT-1999-00104	QOL	In Vitro production of high quality mammalian oocytes for biotechnology, assisted reproduction, breeding and toxicology-teratology purposes.	Institute of Animal Physiology and Genetics of the Academy of Sciences of the Czech Republic
QLK5-CT-2001-01401	QOL	Innovative models of critical key indicators as planning and decision support for sustainable rural development and integrated cross border regional management in former Iron Curtain areas based on north to south European reference studies	GEO Group, a.s.
IST-1999-12058	IST	Decision support tool for complex industrial processes based on probabilistic data clustering	COMPUREG PLZEŇ, s.r.o

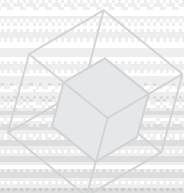




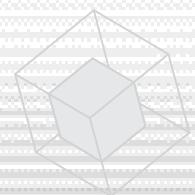
Identification label	Programme	Project name	Project participant from the Czech Republic
IST-1999-12058	IST	Decision support tool for complex industrial processes based on probabilistic data clustering	KOVOHUTĚ ROKYCANY, a.s.
IST-1999-20122	IST	Quality Controlled Component-based Software development	KD SOFTWARE s.r.o.
IST-1999-20188	IST	European Take-up of Essential Information Society Technologies - Integrated Machine Vision Cluster	MERZ, spol. s r.o.
IST-2000-28177	IST	Statistical and mathematical modelling, data analysis, simulation and optimisation methodologies for precision farming	LESPROJEKT SLUŽBY s.r.o.
IST-2000-28345	IST	EUROPEAN GENERIC EMERGENCY RESPONSE INFORMATION SYSTEM	MEDIUM SOFT a.s.
IST-2000-28402D	IST	Open Platform and methodologies for development tools Integration in a distributed environment	I.C.C.C. GROUP, a.s.
IST-2001-32404	IST	A Scaleable Monitoring Platform for the Internet	CESNET, interest group of legal entities
IST-2001-33507	IST	A Voice Enabled Residential Automation & Networking platform	IBM Czech, s.r.o.
IST-2001-34016	IST	Design Methodology and Environment for Dynamic Reconfigurable FPGA	Institute of Information Theory and Automation of the Academy of Sciences of the Czech Republic
IST-2001-35141	IST	European Tech Venturing Programme	VIP PARK.CZ s.r.o.
IST-2001-38143	IST	A voice mediated system for structured entry of medical data	IDS SCHEER CR, s.r.o.
IST-2001-38575	IST	Alternative Realities in Networked Environments	ET NETERA s.r.o.
G1RD-CT-2000-00222	GROWTH	Dry Stamping and dry machining of difficult to-cut materials by means of Superhard Nanocomposite Coatings (NACODRY)	SHM Ltd.
G1RD-CT-2000-00352	GROWTH	Development of Innovative Manufacturing Techniques for the Production of Super Large Silicon Wafers for the next Millennium	THEMIS a.s.
G4RD-CT-2002-00679	GROWTH	Active Aeroelastic Aircraft Structure (3AS)	Aeronautical Research and Test Institute, a.s.



Identification label	Programme	Project name	Project participant from the Czech Republic
G4RD-CT-2002-00769	GROWTH	Third Generation Digital Fluid Management System	Brno University of Technology
G5RD-CT-2000-00221	GROWTH	A New Generation of Cutting Tools Based on Functionally Graded Sialons for solving the Machining Problems of the 21. Century (FGMSIATOOL)	SAINT-GOBAIN ADVANCED CERAMICS s.r.o.
G6ST-CT-2001-50099	GROWTH	High-Temperature Micromaterial Testing Technology (HiT)	TESCAN s.r.o.
11369	GROWTH	Operational Benefit Evaluation by Testing an A-SMGCS	ERA a.s.
11369	GROWTH	Operational Benefit Evaluation by Testing an A-SMGCS	Aerial Navigation Agency of the Czech Republic
EVG3-CT-2002-80006	EESD-ENVIRO	PRAGUE CENTRE OF MATHEMATICAL GEOPHYSICS, METEOROLOGY and THEIR APPLICATIONS	Charles University in Prague
EVK1-CT-1999-00040	EESD-ENVIRO	Landscape-use Optimisation With Regards of the Groundwater Resources Protection in the Mountain Hardrock Areas	VODNÍ ZDROJE GLS
EVK1-CT-2002-00111	EESD-ENVIRO	Adaptive Decision Support System for Stormwater Pollution Control	DHI HYDROINFORM, a.s.
EVK1-CT-2002-00124	EESD-ENVIRO	INTEGRATED WATER MANAGEMENT OF TRANSBOUNDARY CATCHMENTS	GEO Group a.s.
EVK1-CT-2002-80012	EESD-ENVIRO	Centre of Excellence in Environmental Chemistry and Ecotoxicology	Masaryk University in Brno
11689	EESD-ENERGY	TRENDSETTER Setting Trends for Sustainable Urban Mobility	THE CAPITAL OF PRAGUE
11735	EESD-ENERGY	Molten Salt Solar Thermal Power 15 MWe Demonstration Plant (target Action 'C')	ALSTOM
13495	EESD-ENERGY	Pv Enlargement - Technology Transfer, Demonstration And Scientific Exchange Action For The Establishment Of A Strong European Pv Sector	SOLARTEC s.r.o.
13515	EESD-ENERGY	The Worlds Largest Double Concentration PV System - PV Electricity For Southern Europe At Lowest Costs	SOLARTEC s.r.o.

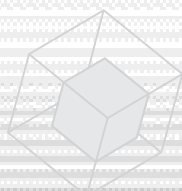


Identification label	Programme	Project name	Project participant from the Czech Republic
9756	EESD-ENERGY	3rd Generation Igcc - Demonstration ( 400 Mw ) At Vresova, Czech Republic	SOKOLOVSKÁ UHELNÁ a.s.
ICA1-CT-2000-70002	INCO	Machine Intelligence Research and Application Centre for Learning Excellence	Czech Technical University in Prague
ICA1-CT-2000-70013	INCO	Advanced Research Centre for Cultural Heritage Interdisciplinary Projects	Institute of Theoretical and Applied Mechanics of the Academy of Sciences of the Czech Republic
ICA1-CT-2000-70028	INCO	Centre of Excellence: Institute of Experimental Medicine, Prague	Institute of Experimental Medicine of the Academy of Sciences of the Czech Republic
IPS-1999-8507	INNO	Operation of an Innovation Relay Centre in the Czech Republic	Technological Centre of the Academy of Sciences of the Czech Republic
IPS-1999-8507	INNO	Operation of an Innovation Relay Centre in the Czech Republic	BIC PLZEŇ, s.r.o.
IPS-1999-8507	INNO	Operation of an Innovation Relay Centre in the Czech Republic	BIC BRNO, s.r.o.
IPS-2000-40003	INNO	INDUSTRIAL PROPERTY EUROPE	Industrial Property Office of the Czech Republic
IPS-2000-8644	INNO	BOHEMIAN REGIONAL INNOVATION STRATEGY	Technological Centre of the Academy of Sciences of the Czech Republic
IPS-2000-8644	INNO	BOHEMIAN REGIONAL INNOVATION STRATEGY	BIC PLZEŇ, s.r.o.
IPS-2000-8661	INNO	Innovation for North Bohemia and Opole	BUSINESS DEVELOPMENT NATIONAL ASSOCIATION
FIKS-CT-1999-00002	EURATOM	Core LOSS During a Severe Accident (COLOSS)	ŠKODA - UJP, PRAHA a.s.
FIKS-CT-2001-06005	EURATOM	17th International Conference on Structural Mechanics in Reactor Technology (Smirt-17)	Brno University of Technology
FU05-CT-1999-00102	EURATOM	Fusion thermonucleaire contrôlée action generale	Institute of Plasma Physics of the Academy of Sciences of the Czech Republic



Identification label	Programme	Project name	Project participant from the Czech Republic
FU05-CT-2000-00031	EURATOM	Contract of Association	Institute of Plasma Physics of the Academy of Sciences of the Czech Republic
FU05-CT-2001-00320	EURATOM	Notification of Basic Support for Technology Work (Ref. TA-TW2-G01)	Institute of Plasma Physics of the Academy of Sciences of the Czech Republic
FU05-CT-2002-00025	EURATOM	Static and dynamic toughness testing at the transition temperature	Institute of Plasma Physics of the Academy of Sciences of the Czech Republic
FU05-CT-2002-00051	EURATOM	Contract of Association Amendment 2	Institute of Plasma Physics of the Academy of Sciences of the Czech Republic

*Table 12.* Summary of FP5 projects and Czech participants whose budgets were greater than EUR 300,000.



## 6. Rate of return of funds contributed to the FP5 budget by the Czech Republic

The SP1 database specifies for each participant the budget volume of his participation in the project and also the EC contribution which was actually agreed during the contracting process. The differences between the contribution volumes requested by the participants from the EC are highly variable: while in some projects the participant contracted the requested amount, in other projects the contracted contribution did not even reach 50% of the requested amount. Due to the fact that before the SP1 database became available all reports on the rate of return of funds had been based on the sum of requested contributions and not on their actual contracted volume, the existing estimates of the rate of return of invested funds have been exaggerated.

Let us observe that the EC considers the individualised data on the contribution volumes to be confidential and does not allow them to be published. Therefore, in this report we only give aggregated data for the individual programmes and, in this chapter, data for the entire FP5.

- i. The total Czech contribution to the FP5 and EURATOM programme budgets was (see Section 1.2) EUR 68.36 million.
- ii. Teams from the Czech Republic participate in 701 projects, the total budget of which adds up to EUR 1,635.02 million.
- iii. The aggregate budget of the Czech teams in their 701 projects totals EUR 98.42 million, i.e., approximately 6% of the total EUR 1,635.02 million.
- iv. The EC contribution to these 701 projects with Czech participation is EUR 1,049.51 million, which represents approximately 64.2% of the total EUR 1,635.02 million.
- v. The aggregate contribution to the Czech teams then adds up to EUR 64.78 million, which represents 65.8% of their budget (i.e., the EC contributed to the Czech teams the same relative amount it contributed to all teams on average).
- vi. The 'rate of return' totals  $64.78/68.36 = 94.8\%$ .

Here we must state that one cannot demand a 100% rate of return. The main reason consists in the fact that the FP5 budget also financed the third country participation (the INCO programme drawing approximately 3% of the FP5 budget) and it is further estimated that FP5 management costs represented approximately 5% of the total budget. This means that approximately 8% of the FP5 budget could not be 'returned' to the states (i.e., member and associated states) that contributed to the budget. Therefore, it seems that the Czech Republic achieved the 'maximum possible'.

However, it is necessary to bear in mind that the European Commission took several actions during FP5 that were aimed exclusively at supporting FP5 participation by the candidate states. The most prominent action of this type was



the placing of calls included in the QoL, Growth and EESD programmes that were addressed only to teams from the candidate countries and that asked them to submit proposals in order to join projects already underway. The success rate for these calls was very high – for the QoL programme, it was 2.5 times higher than in the ‘standard’ calls and in the Growth programme, it even ranged around 95%. Results of these calls boosted FP5 participation by the candidate states very strongly indeed, particularly in those cases where the previous national participation had been low (e.g., in the case of Poland). These calls thus had the character of a campaign which was in some degree at odds with the principle of selecting the best European teams on a competitive basis. This criticism does not apply to other calls such as those that allowed teams from candidate countries to submit proposals in order to bolster their base of expertise through which they would then be able to participate in large projects of the next (i.e., the sixth) Framework Programme.

However, in connection with the rate of return of funds it is necessary to recall again that all candidate states covered only 70% of their ‘proper contribution’ to the FP5 budget. It is thus questionable whether the rate of return of the invested resources would remain on the same relative level if the Czech Republic had covered the contribution fully. Although there are no data available from the individual states regarding the rate of return of their funds, it follows from many ‘private communications by the member states’ NCPs that their national rates of return ranged most often between 66 and 75% during their first participation in the Framework Programme.



Questions related to the success rate and efficiency of the Czech participation in the Framework Programme cannot be answered in a comprehensive way without an appropriate international comparative analysis. Absolute criteria ('whether or not the Czech Republic accomplished its FP5 goals') cannot be justified in this case, since the Czech Republic did not participate in the formulation of the FP5 thematic profile. The question of participation efficiency cannot be reduced to the rate of return of the invested funds since even the rate of return has its 'comparative dimension' (there are states with a very high rate of return – probably the UK – and states with a low rate of return – probably Poland –, whose national R&D resources thus subsidise foreign team participation). Yet, the European Commission has not worked up any methodology that would establish an objective basis of such an international comparative analysis. This chapter therefore points out only some of the aspects of the international comparison. We will most often compare the Czech participation with average data for selected groups of countries, e.g., EU-15, or with averages of the new member states, where we will not include the Czech Republic. These are therefore average statistics and indices for the group comprising CY, EE, HU, LT, LV, MT, PL, SI and SK, which we will denote CC-9.

Using data made available to the public on the CORDIS website ([www.cordis.lu](http://www.cordis.lu)), we can infer how many projects the individual EU-25 states participated in. The data never fully match the SP1 database, which was released by the EC for restricted use in May 2004, and it can thus be expected that the data will be probably refined further. The number of CORDIS projects is given in *Table 13*. Let us observe that the number of projects for Austria is missing in the table, as CORDIS structures these data in a different way than for the other states. Finally, the row denoted 'Total' gives all projects, that is, not only those in which the EU-25 countries participated.

The UK teams participate in the highest number of projects, while teams from Malta participate in the lowest number of projects. It is obvious that participation in the projects is related to the participating population in some way; nevertheless, these studies confirm that this connection is very loose. As regards the Czech Republic, it can be seen that the Czech teams participate in the second highest number of projects among candidate countries after Poland. The third place among the candidate states goes to Hungary, which participates in almost the same number of projects as the Czech Republic. There is no correlation between the population and the number of projects for the candidate states (e.g., Slovenia participates in 351 projects while Poland, which is 20 times as large, participates in 919 projects).

Using data from *Table 13*, we can calculate the 'FP5 project participation profiles' of the individual countries, which are given in *Table 14*. Its first numeric column gives the percentage of FP5 projects in which teams from the given country



participate. It is obvious from the column that any of the EU-15 states (with the exception of Luxembourg) participated in a higher percentage of FP5 projects than any of the candidate states (with a single exception: Poland has a slightly higher participation rate than Ireland). The Czech Republic participated in 4.1% of all FP5 projects. At the same time, it is also seen that among the candidate states, the Czech Republic is in second place after Poland – however, the latter’s population is almost four times as high as that of the Czech Republic. Nevertheless, analyses show that the percentage of projects in which the given state participates is not related to its population very closely. We thus do not even present the statistics of the ‘number of projects per unit population’. The following columns then specify the percentage of country participation in projects of the individual thematic and horizontal FP5 programmes. We call this distribution the ‘programme profile’.

As regards the participation profile in thematic programmes, it follows from a comparison of the Czech participation with the average profile for all states (row ‘Total’ in *Table 13*) that the Czech Republic is underrepresented only in the QoL programme projects, it is almost exactly average in the IST programme, and it considerably exceeds the average values in Growth and EESD. Let us observe that the average EU-15 profile is dominated by the percentage of IST projects, and it has a minimum in EESD (consisting of combined ENVI and Energy programmes). On the other hand, the average CC-9 profile is dominated by the EESD programme and in QoL, IST and Growth projects, and its representation is lower than for EU-15. The Czech profile thus approximates the CC-9 profile much more closely than the EU-15 profile.

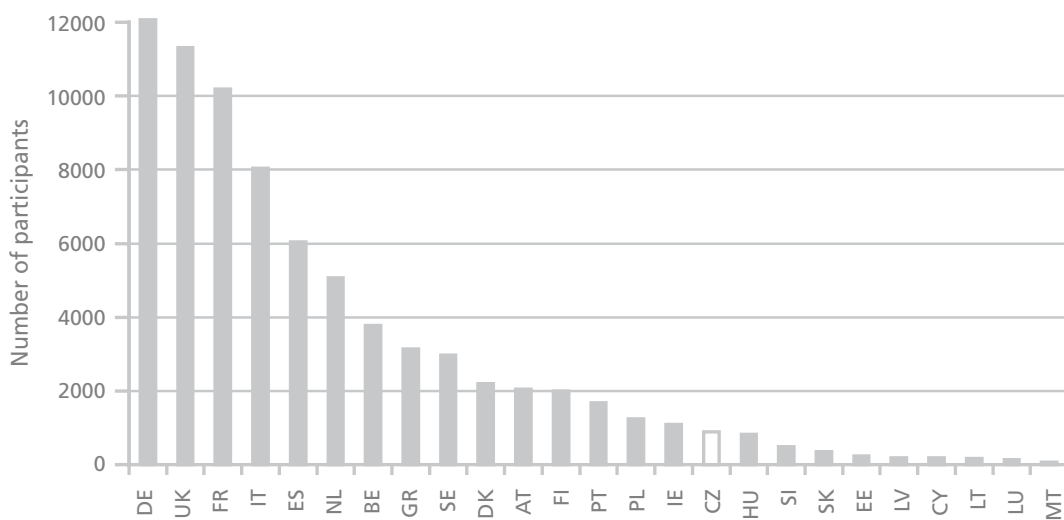
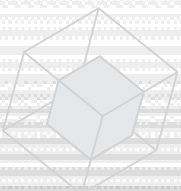


Figure 10. Histogram of the number of the EU-25 states participating in FP5.





Countries	Thematic programmes				Horizontal programmes				Total
	LIFE	IST	GROWTH	EESD	INCO	INNO	IHP	EURATOM	
Total	2,689	2,519	2,143	1,941	1,187	144	4,881	1,032	16,536
BE	414	545	499	335	108	25	308	145	2,379
DK	413	228	264	390	49	13	221	36	1,614
DE	1,100	1,369	1,305	1,075	209	53	1,093	386	6,590
ES	720	742	746	603	132	57	593	146	3,739
FI	309	271	291	239	56	14	137	106	1,423
FR	1,022	1,172	1,038	785	188	48	1,116	245	5,614
GR	219	548	289	306	42	2	216	13	1,635
IE	205	206	160	126	26	4	141	14	882
IT	824	1,114	928	661	167	62	808	174	4,738
LU	11	48	18	15	2	4	12	1	111
NL	733	541	712	641	137	27	621	125	3,537
PT	218	252	280	251	60	22	159	26	1,268
SE	513	347	454	376	47	17	292	116	2,162
UK	1,397	1,262	1,147	959	244	44	1,492	201	6,746
CY	9	62	10	32	14	5	8	1	141
CZ	98	102	149	143	26	14	79	68	679
EE	48	29	11	54	6	6	29		183
HU	112	97	96	104	37	13	121	57	637
LT	28	23	23	41	5	7	13		140
LV	24	28	22	34	7	6	17	11	149
MT	5	4	4	16	12		4		45
PL	154	140	213	215	46	6	135	10	919
SI	49	61	82	79	14	4	48	14	351
SK	41	30	52	67	12	8	21	27	258

**Table 13.** Number of FP5 projects with participation of the individual EU-25 countries. (Source: [www.cordis.lu](http://www.cordis.lu)).

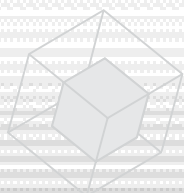
It is obvious that the Czech Republic's representation in the horizontal programmes is considerably lower than corresponds to the total average values in the INCO and particularly IHP programmes. In the case of the INNO programme, we must bear in mind that the number of projects involving small and medium enterprises is included in the relevant thematic programmes, so we only present here the percentage of the ETI projects (see Section 3.2.).



Country	Total participation	Thematic programmes				Horizontal programmes			Euratom
		QoL	IST	GROWTH	EESD	INCO	INNO	IHP	
Total	100.0%	16.4%	15.4%	13.1%	11.8%	7.2%	0.9%	29.8%	6.3%
BE	14.4%	17.6%	23.2%	21.2%	14.2%	4.6%	1.1%	13.1%	6.2%
DK	9.8%	25.8%	14.2%	16.5%	24.4%	3.1%	0.8%	13.8%	2.2%
DE	39.9%	16.8%	20.9%	20.0%	16.4%	3.2%	0.8%	16.7%	5.9%
ES	22.5%	19.6%	20.2%	20.3%	16.4%	3.6%	1.5%	16.1%	4.0%
FI	8.6%	21.9%	19.2%	20.7%	17.0%	4.0%	1.0%	9.7%	7.5%
FR	34.0%	18.4%	21.1%	18.6%	14.1%	3.4%	0.9%	20.1%	4.4%
GR	10.0%	13.4%	33.6%	17.7%	18.7%	2.6%	0.1%	13.2%	0.8%
IE	5.4%	23.3%	23.5%	18.2%	14.4%	3.0%	0.5%	16.1%	1.6%
IT	28.5%	17.6%	23.8%	19.8%	14.1%	3.6%	1.3%	17.3%	3.7%
LU	0.7%	10.3%	44.9%	16.8%	14.0%	1.9%	3.7%	11.2%	0.9%
NL	21.6%	20.7%	15.3%	20.1%	18.1%	3.9%	0.8%	17.6%	3.5%
PT	7.6%	17.5%	20.2%	22.5%	20.1%	4.8%	1.8%	12.8%	2.1%
SE	13.1%	23.9%	16.2%	21.2%	17.5%	2.2%	0.8%	13.6%	5.4%
UK	40.9%	20.8%	18.8%	17.1%	14.3%	3.6%	0.7%	22.3%	3.0%
CY	0.8%	6.6%	45.6%	7.4%	23.5%	10.3%	3.7%	5.9%	0.7%
CZ	4.1%	14.7%	15.3%	22.4%	21.5%	3.9%	2.1%	11.9%	10.2%
EE	1.1%	27.1%	16.4%	6.2%	30.5%	3.4%	3.4%	16.4%	0.0%
HU	3.8%	17.9%	15.5%	15.4%	16.7%	5.9%	2.1%	19.4%	9.1%
LT	0.8%	21.1%	17.3%	17.3%	30.8%	3.8%	5.3%	9.8%	0.0%
LV	0.9%	16.8%	19.6%	15.4%	23.8%	4.9%	4.2%	11.9%	7.7%
MT	0.3%	11.1%	8.9%	8.9%	35.6%	26.7%	0.0%	8.9%	0.0%
PL	5.6%	16.9%	15.3%	23.3%	23.5%	5.0%	0.7%	14.8%	1.1%
SI	2.1%	14.1%	17.6%	23.6%	22.8%	4.0%	1.2%	13.8%	4.0%
SK	1.5%	16.4%	12.0%	20.8%	26.8%	4.8%	3.2%	8.4%	10.8%

**Table 14.** Percentage of EU-25 member states participating in the FP5 projects. The second column gives the percentage of FP5 projects in which the given country participates. The following columns specify the distribution of the given country's projects by the individual programmes.

Contractors' consortia play an essential role in the Framework Programme projects. Certain 'minimum participation' rules, which were to contribute to a higher 'European value' of the projects, were established for consortia consisting of national teams. Consortia thus needed to have a minimum international membership and, consequently, projects of 'national character' were eliminated. Despite this, it suggests itself that large states (DE, UK, FR, IT, ES) were typically represented by



more teams in a given project. As a result, another important index of Framework Programme participation is the 'participation intensity', i.e., the number of participations of a given state per unit population. Nevertheless, we first present in *Figure 10* a histogram of the number of FP5 participations by the EU-25 states.

With its 890 FP5 project participations, the Czech Republic is in 16th place among the EU-25 states.

While by the number of their participants (participations), the EU-25 can be almost exactly divided into the 'old and new states' (i.e., EU-15 and CC-10), the participation intensity – i.e., the number of participations per unit (1 million) population – shows that such a division is not valid. The participation intensity is shown in the histogram in *Figure 11*. It is obvious from the chart that the highest participation intensity occurred in Denmark while the lowest one in Poland: the Polish intensity is lower than 1/10 of the Danish intensity. The Czech participation intensity was 86 (participation per 1 million inhabitants) and it comes in the 20th place among EU-25. Participation intensity and its histogram suggest the possibility of considering four groups of states:

Group 1: DK, FI, BE, LU, SE, NL. These are states with a very high percentage of GDP invested in R&D .

Group 2: GR, IE, CY, AT, SI. These are rather smaller states that (with the exception of Austria) have a rather poor chance of getting national grants. At the same time, GR, IE and AT have very high researcher mobility (regarding proposals for both the individual visits and training sites), see *Table 10*.

Group 3: UK, FR, EE, PT, MT, ES, DE, IT. The large states of this group that have very strong national research and thus ample opportunities to get national grants. However, Estonia, Portugal and Malta – which, in contrast, do not have an advanced national R&D grant system – squeezed in among these large states.

Group 4: CZ, HU, LV, SK, LT, PL. With the exception of the Czech Republic, these are states where the R&D investments fell below 1% of their GDP. Of these states, only the Czech Republic has a highly advanced system of national grants.

It thus seems that the participation intensity depends on two factors: firstly the percentage of GDP realised in R&D and probably also the abundance of opportunities provided to the research and development teams by the national grant system.

Just like we gave 'project profiles' of the individual states in *Table 14*, we can now calculate 'participant profiles', i.e., percentage of participant representation in the individual FP5 programmes.

The histogram in *Figure 12* presents participant profiles for the Czech Republic, the average profile for EU-15, CC-9 and for 'other states'.



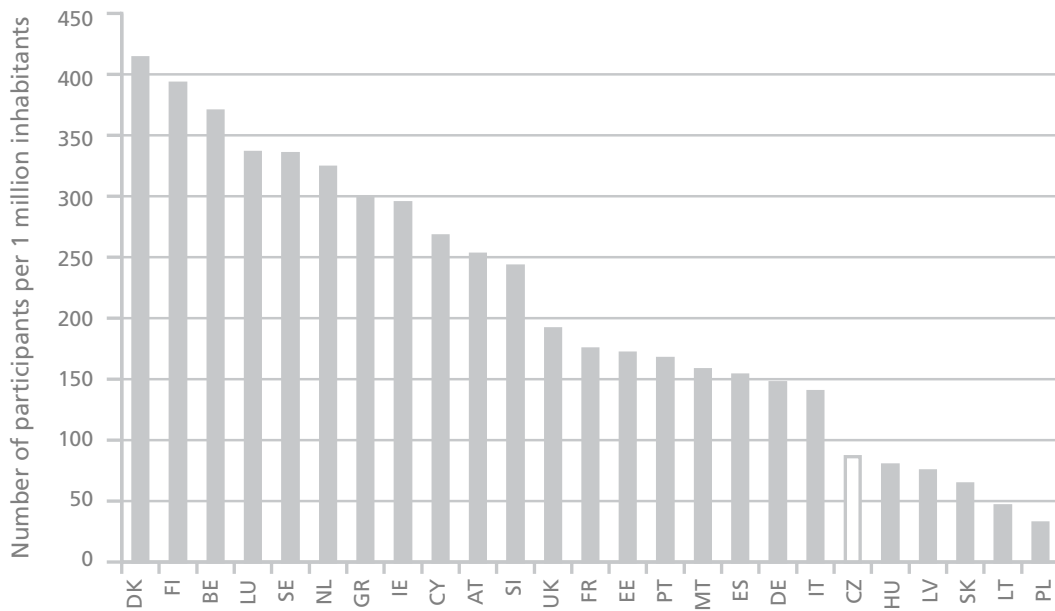


Figure 11. FP5 participation intensity (i.e., the number of participations per 1 million inhabitants) for the EU-25 states.

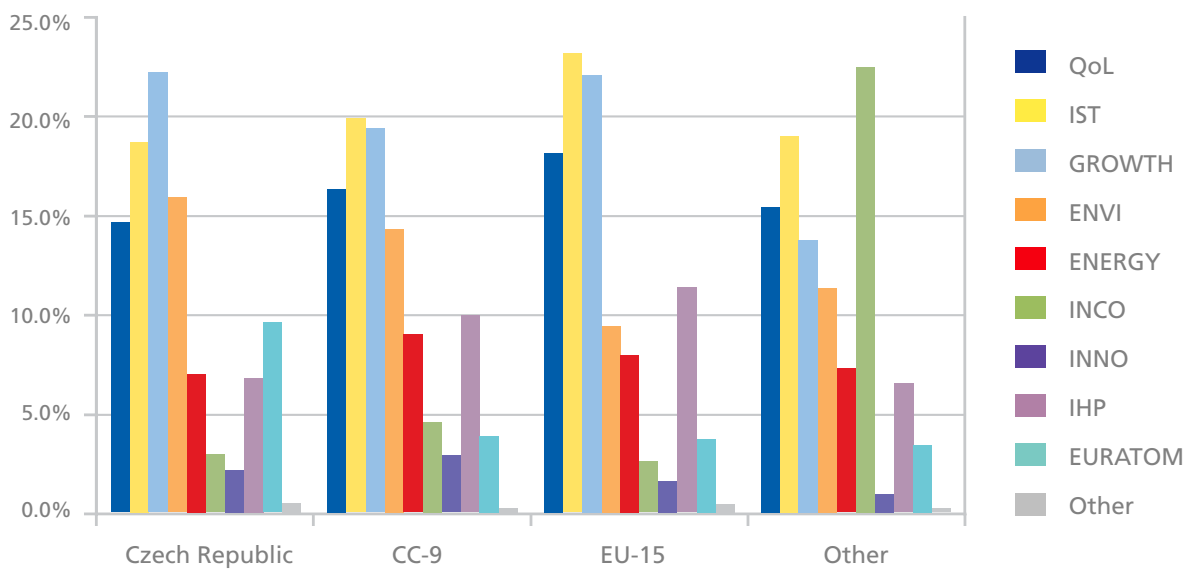
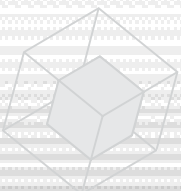


Figure 12. Participant profiles (i.e., the percentage of participant representation in FP5 programmes) for the Czech Republic, CC-9, EU-15 and other participants.



It is seen from the graph that the Czech participation profile is dominated by participations in the Growth programme.

Czech representation in the QoL, IST and IHP programmes is lower both in comparison with EU-15 and with CC-9. It is precisely these two programmes (simply: in biotechnologies and information technologies) that are the most likely cause of the fact that, regarding FP5, the Czech Republic ultimately only comes in 20th place among the EU-25 countries. On the other hand, the Czech Republic clearly exceeds EU-15 in the ENVI and in particular the EURATOM programmes.

It is obvious from the participant profile of the 'other' states that third countries most often participated in FP5 by means of the INCO programme.

Participation in European research projects always means an opportunity to gain experience with top-level research and development involving the most demanding requirements for the ability to compete with highly advanced national teams. Yet, it is clear that participation in research projects will most likely impose higher demands on a team than participation in thematic networks or accompanying measures, etc. Therefore, when assessing a participant profile, it is necessary to take account of the types of activities in which the participants were involved (see *Table 3*). While 53% of EU participants were involved in pure research projects (action TA01), it was just 49% of participants from the Czech Republic. However, only 44% of teams from the CC-9 countries participated in research projects. The Czech Republic, just like the other candidate states, fell far behind the EU-15 countries also as regards utilization of the Marie Curie actions.

On the other hand, almost 15% of teams from the Czech Republic participated in the thematic networks (TA16) while in EU-15, this was only 10%. These differences become even bigger in the individual programmes. E.g., a full 28% of all Czech teams participated in the thematic networks within the Growth programme but in EU-15, this was only 17% of teams. 61% of EU-15 teams participated in research projects within the IST programme while in the case of the Czech Republic this was only 39% of participants. In contrast, this programme has 28% of teams from the Czech Republic participating in projects for adopting technological development results (action TA20), while for EU-15 this was 11% on average. Only the EESD-ENVI programme had the percentage of teams from the Czech Republic participating in research projects (72%) higher than the percentage of EU-15 teams (70%).

This confirms again and again the fact that (with the exception of the ENVI programme) the percentage of teams from the Czech Republic participating in research projects was lower than the average for EU-15. In contrast, the percentage of teams from the Czech Republic in thematic networks and other supporting activities was higher than the corresponding percentage for EU-15.

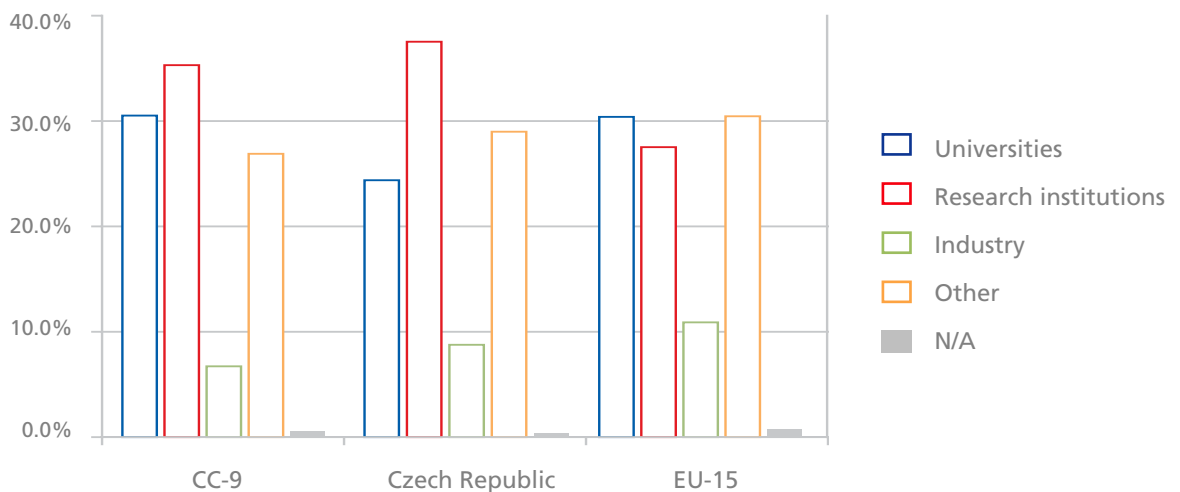
Yet, the institutional structure of the participants is also important. In thematic programmes, we already know it for the Czech Republic from Section 2.4. Here, we will compare it to the averages for EU-15 and CC-9. The source of the data is again the SP1 database, which distinguishes five types of participants according to



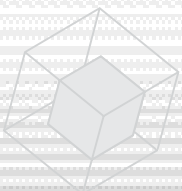
their activities: training institutions, i.e., universities, research institutions, industry, other and unspecified. Profiles (i.e., percentage distribution of the participants) for CC-9, the Czech Republic and EU-15 are presented in histograms in *Figure 13*. It is obvious that the profiles for the Czech Republic and CC-9 differ substantially from the EU-15 profile: while in the first case the most frequent participant is a research institution, in case of EU-15, it is a university. It should be taken as a warning for the Czech Republic that it has the lowest representation of universities, which confirms the continuing separation of research and education. However, the highest percentage of industrial participants is to be found in the EU-15 profile; the percentage of industrial organisations in the Czech Republic is higher than in CC-9.

The individual thematic programmes differ markedly in the structure of their participants. We present the participant structure of the individual thematic programmes in *Table 15*. It is apparent from the table that in the QoL programme, the Czech Republic has the lowest representation of industrial participants. In the IST programme, the most frequent participant from the Czech Republic is in the category 'other' (just like in EU-15). In the Growth programme, by far the most frequent participants are not industrial institutions – instead, these are again research institutions in the Czech Republic, while in the EU, these are institutions from the category 'other'. The most frequent participant in the EESD-ENERGY programme both in the Czech Republic and in EU-15 also belongs to the category 'other'. However, it is interesting that in this programme, the second most frequent category of participants in the Czech Republic are universities, while in EU-15 these are research institutions. The best agreement between the Czech and EU-15 profiles occurs in the ENVI programme.

This analysis suggests a continuing incompatibility of the institutional structures of participants from the Czech Republic and EU-15.



*Figure 13.* Institutional profiles of FP5 participants from CC-9, the Czech Republic and EU-15.



Programme	Group	Research				N/A
		Universities	institutions	Industry	Other	
QoL	CC-9	34.2%	43.5%	2.8%	19.2%	0.3%
	Czech	28.5%	53.8%	2.3%	15.4%	0.0%
	EU-15	41.6%	34.3%	5.7%	17.5%	0.8%
IST	CC-9	28.7%	21.1%	11.2%	38.8%	0.1%
	Czech	25.3%	15.1%	12.0%	47.6%	0.0%
	EU-15	25.3%	16.5%	16.1%	41.8%	0.4%
GROWTH	CC-9	26.6%	37.5%	13.6%	21.4%	0.8%
	Czech	18.3%	32.5%	19.8%	29.4%	0.0%
	EU-15	16.9%	24.2%	20.0%	38.1%	0.8%
EESD-ENVI	CC-9	33.0%	41.4%	3.8%	21.3%	0.6%
	Czech	34.0%	36.9%	5.0%	23.4%	0.7%
	EU-15	36.6%	36.7%	4.6%	21.6%	0.5%
EESD-ENERGY	CC-9	21.0%	27.9%	6.3%	44.4%	0.3%
	Czech	29.0%	12.9%	9.7%	48.4%	0.0%
	EU-15	16.4%	25.2%	10.2%	48.0%	0.3%

**Table 15.** Institutional profiles of participants in the individual thematic programmes

The Framework Programmes are generally target-oriented research in character. Therefore, technology implementation plans aimed at the application of the achieved research results form an important part of each research project. It is obvious that commercially oriented institutions cope with this essential component better than academic institutions. A question thus arises concerning the impact of an organisation’s legal status on its participation in FP5 projects. The EC distinguished these four organisation categories:

- Governmental organisations (i.e., established and controlled by the local, district, regional, national, or state administration),
- Public commercial organisations (i.e., established and owned by a public office),
- Private commercial organisations,
- Private non-profit organisations.<sup>1</sup>

The histogram in *Figure 14* shows the profiles of the legal status of participants from CC-9, the Czech Republic and EU-15, i.e., the representation percentage of the above categories of project participants.

<sup>1</sup> Due to the fact that we use statistical data provided by the European Commission, it was necessary to accept the organisation type classification used in the European Commission.



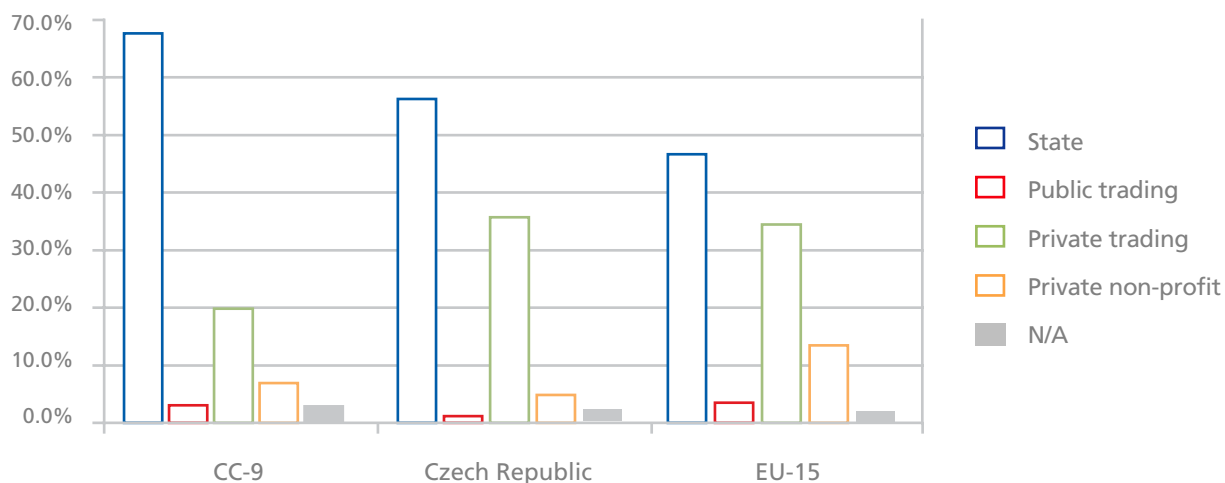
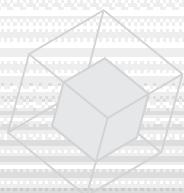


Figure 14. Profiles of the legal status of project participants from CC-9, the Czech Republic and EU-15. State-owned or governmental – see the text.

Legal status of the participant		Research				N/A
		Universities	institutions	Industry	Other	
Governmental	CC-9	96.9%	82.2%	2.4%	32.5%	0.0%
	<b>CR</b>	99.1%	68.3%	1.3%	22.1%	0.0%
	EU-15	94.5%	50.7%	1.3%	12.3%	3.8%
Private, non-profit	CC-9	2.4%	5.7%	2.0%	15.0%	0.0%
	<b>CR</b>	0.9%	3.3%	2.6%	10.9%	0.0%
	EU-15	4.7%	30.7%	1.7%	11.4%	4.2%
Private commercial organisations	CC-9	0.1%	7.6%	86.0%	42.2%	4.8%
	<b>CR</b>	0.0%	28.4%	93.6%	58.1%	0.0%
	EU-15	0.3%	11.8%	94.9%	67.7%	15.3%
Public commercial organisations	CC-9	0.1%	3.7%	7.6%	4.7%	0.0%
	<b>CR</b>	0.0%	0.0%	2.6%	3.1%	0.0%
	EU-15	0.2%	6.4%	1.6%	4.9%	0.0%
N/A	CC-9	0.5%	0.8%	2.0%	5.7%	95.2%
	<b>CR</b>	0.0%	0.0%	0.0%	5.8%	100.0%
	EU-15	0.3%	0.5%	0.4%	3.7%	76.7%

Table 16. Legal status profiles of participants from universities, research institutions, industry, other and unidentified institutions. For the definition of these categories – see the text.





It is obvious from the graph that the most frequent participant in FP5 projects is a governmental organisation. These organisations represented exactly 2/3 of participants in CC-9 and less than 1/2 in EU-15. The second most frequent participant was a private commercial organisation. Their representation percentages in the Czech Republic and in EU-15 are identical and considerably higher than in CC-9. At the same time, it is apparent that the Czech Republic has the lowest representation of private non-profit organisations. However, it can be stated that the Czech profile is much closer to the (average) EU-15 profile than to the (average) CC-9 profile.

The concluding *Table 16* presents legal status profiles within five organisation categories: universities, research institutions, industrial organisations, 'other' and 'unidentified institutions' – N/A.

It is obvious from the table that legal status profiles of universities are very similar across CC-9, the Czech Republic and EU-15: unambiguously dominated by the governmental status. However, with research institutions, the profiles are different. They are mostly dominated by the 'governmental' status, but in case of CC-9 it makes up 82%, while in EU-15 this is only 50% and the Czech Republic is to be found exactly 'between these values'. The Czech research institutions only seldom have (in 3% of cases) the status of private non-profit organisations while in EU-15, 30% of participants have this status. On the other hand, 28% of research organisations in the Czech Republic have the status of private commercial organisations, while in EU-15 this is only 12% and in CC-9 less than 8%. In the case of industrial organisations, the legal profiles in CC-9, the Czech Republic and EU-15 are again similar. We can thus conclude that the differences in the legal status profiles of participants from CC-9, the Czech Republic and EU-15 are particularly due to the dissimilarities in the status of research organisations.



FP5 was the first European Community Framework Programme in which the European Commission enabled the twelve candidate countries to participate under almost the same conditions that applied to the EU-15 member states. The participation was regulated by the association agreement and contingent on the payment of a contribution, which was determined as 0.45% of the FP5 budget.

The Czech participation in the Fifth Framework Programme meant an entirely new experience for research and development centres from the Czech Republic. During the FP5 period, i.e., in the years 1999-2002, the Czech Republic did not have an advanced system of grants for projects for target-oriented research, which – in contrast – was the predominant character of FP5 projects. At the same time, FP5 meant an absolutely unprecedented increase in the opportunities the Czech research centres had to join international research co-operation. More than 3,000 Czech research centres participated in the preparation of almost 2,300 project proposals. These proposals were prepared by international consortia, which consisted of more than 9,000 foreign teams coming most often from EU-25 countries.

Project proposals passed through a demanding process of expert evaluation based on which 701 projects with Czech teams were recommended for financing by the European Commission. Altogether, the Czech Republic had 890 participations in these projects – a number of teams participated in more than one project. The success rate of the Czech teams ranged from approximately 15% in the QoL programme up to 36% in the Growth programme – we can state that, in principle, the Czech success rate followed the all-European one. If the Czech success rate in the QoL and IST programmes was lower than the all-European average, it reached precisely the European average in the Growth programme and it considerably exceeded the all-European average in the EESD programme.

The Czech Republic was further successful in programmes that focused on supporting small and medium enterprises. The response by SMEs to the calls to submit projects was typically higher than in the other candidate states. A much more significant success of the Czech SMEs was prevented by the lower success rate of their proposals, which suggests the need to encourage the formation of specialised agencies that would help SMEs in the preparation of their projects.

The Czech Republic, just like the other candidate states, responded in a very insufficient way to the opportunity to join projects of international researcher mobility.

Several research centres successfully joined innovation-supporting projects and, at the same time, one European project considerably contributed to intensified formation of the National Information Network for FP5 (NINET) – its activities are supported by the Ministry of Education, Youth and Sports through its EUPRO programme projects.



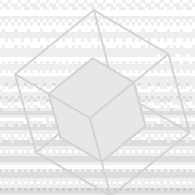
As far as the EURATOM programme is concerned, we can again confirm successful Czech participation. However, the participation requirements here were not tackled by dozens of different teams as was the case in FP5 thematic programmes, and the main effort was made by two institutions instead: the Institute of nuclear research, a.s. and the Institute of Plasma Physics of the Academy of Sciences of the Czech Republic (and in this sense it is appropriate to speak rather about 'institutional' than 'national' success rate).

The financial success rate was lower than the participant success rate: in the QoL programme it ranged about 10% and in the ENERGY programme only around 7% (i.e., in these programmes, teams from the Czech Republic only received 10 and 7%, respectively, of the amount they asked for in their proposals).

In their successful projects, teams from the Czech Republic always ultimately contracted such aggregate amounts that corresponded to approximately 0.45% of the individual programme budgets despite the dissimilarity in the participant and financial success rates – this was proportionate to the volume of the Czech contribution to FP5. In the EESD programme, the Czech teams contracted a much higher amount than corresponded to 0.45% of its budget, which again confirms the excellent quality of the Czech teams in the field of research. It can be estimated that the total rate of return of the Czech contribution to the FP5 budget reached 95%.

An international comparison shows that both by the number of projects and by the number of its participants, the Czech Republic ranks in second place (after Poland) among all the former candidate states and in 16th place among the EU-25 states. Yet, if we convert its participation to a population of unit size (1 million inhabitants), the Czech Republic is in 20th place among the EU-25 states, since four small candidate states overtook it (CY, EE, MT, SI). A number of indicators suggest that the structure of Czech participants in FP5 projects somewhat differs from the structure in the EU-15 countries and the new member states. The most frequent participant from the Czech Republic is a university researcher – see *Figure 4* – in the event that we separate institutes of the Academy of Sciences of the Czech Republic and research institutions into independent categories. In the case of using a classification according to the practice common in the European Commission (including the institutes of the Academy of Sciences in the same category as the other research institutes – cf. *Table 15*), the most frequent participant from the Czech Republic is a team from a research institution (Academy of Sciences of the Czech Republic and research institutes) while in EU-15 as well as in the new member states, the most frequent participant is a university team.

In contrast to the teams from EU-15 but in agreement with teams from other candidate states, the Czech teams participated much more often in projects that did not primarily focus on research and that were of a supporting character instead (thematic networks, co-ordination activities, etc.). This particularly applies to the Growth programme: although it had the highest number of Czech participants,



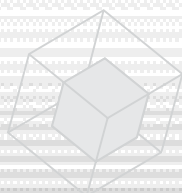
the Czech Republic did not receive the aliquot percentage from this programme budget (i.e., 0.45%) since the contributions in supporting projects were generally lower than contributions to research activities.

It is very positive that representation of industrial organisations among the Czech participants almost approached their representation among teams from EU-15 (in any case, the Czech Republic had a higher industry participation rate than the other candidate countries).

Overall, the Czech teams thus demonstrated their ability to participate in the entire FP5 thematic spectrum and to engage in the demanding activities of international research consortia. Participation in these projects enabled them to gain experience with the mechanisms of preparing, financing and managing projects in target-oriented research, and FP5 thus had a very significant impact on the preparation of the National research programme. However, it is obvious that the total Czech participation in FP5 was markedly lower than the participation of comparably large EU-15 states, including those that spend a lower percentage of their GDP in research and development than the Czech Republic, like Portugal and Greece.

A general disadvantage of the candidate states was that they did not participate in the preparation of FP5 and while it was in progress, they could only make minimum efforts to assert their 'own topics'. A specific disadvantage of the Czech Republic is our low number of researchers, which however crucially limits the number of projects for which the Czech Republic could apply in the first place. In any case, opportunities to get national grants should not compete with the option of participating in the European projects. The success rate of participating in the Framework Programmes depends not only on the ability of a team to assert itself through its methodical and analytical skills and competencies but also on its capability to form research alliances and consortia that would push their own research results all the way to their actual (commercial) application, which is related to the establishing of an efficient system regulating intellectual property rights.

If the Czech Republic wants to maintain or improve its participation in the European research milieu and strengthen thus its position in the European knowledge economy, it must strive to bolster the research capacity of Czech research centres and to establish an environment sensitive to the issues of intellectual property rights, which are long-term processes. However, nothing prevents the Czech Republic from setting its own priorities that it intends to accomplish by means of European research or from actively engaging in the preparation of the Seventh Framework Programme, which is currently under way.



## Appendix

### National Information Network for the FP5.

From the very beginning of the FP5 the Ministry of Education, Youth and Sports (MEYS) started to develop a network of centres aimed at raising awareness of the FP5 and helping to the Czech teams with project preparation. In the year of 2000 the European Commission supported formation of this information network by the project National Information Network – NINET – in the Czech Republic.

The NINET was established subsequently in a form of a series of projects, the proposals of which were submitted by universities and industrial associations in the framework of the programme EUPRO administered by the MEYS.

Regional contact organisations were established within all larger universities, and several relevant projects submitted by Business Innovation Centres (BIC) succeeded as well. Other successful projects involving specialised contact organisations were submitted by such groups as the Confederation of Industry of the Czech Republic; a specialised contact organisation was established for medical sciences; etc. A map of regional and specialised contact organisations is presented in *Figure 16*. These were mostly projects for 2-3 years, undergoing a continuous annual peer-review procedure.

The MEYS repeatedly launched calls for proposals within this programme so that finally each university city succeeded in submitting an EUPRO project proposal, thus gradually, a network consisting of the National Contact Organisation and 19 Regional and Specialised contact organisations evolved.

At the same time, the MEYS, acting on a request by the European Commission, appointed Czech representatives to the FP5 programme committees. The structure and operating scheme of the NINET network are presented in *Figure 15*.

The Technology Centre of the Academy of Sciences of the Czech Republic succeeded with its National Contact Organisation (NKO) project. National Contact Points (NCPs) for the individual thematic and horizontal programmes worked within the NKO. NCPs participated in the activities of the European network of national contact points and they cooperate with the respective structures of the European Commission. The NCPs particularly participated in all training sessions organised for them by the EC and they transmitted their knowledge to the NINET.

In February 1999, the NKO organised a National Information Day on the occasion of the launch of FP5 (with the participation of more than 700 research and development employees), and a number of National Information Days have been organised subsequently, following EC calls to submit FP5 projects.

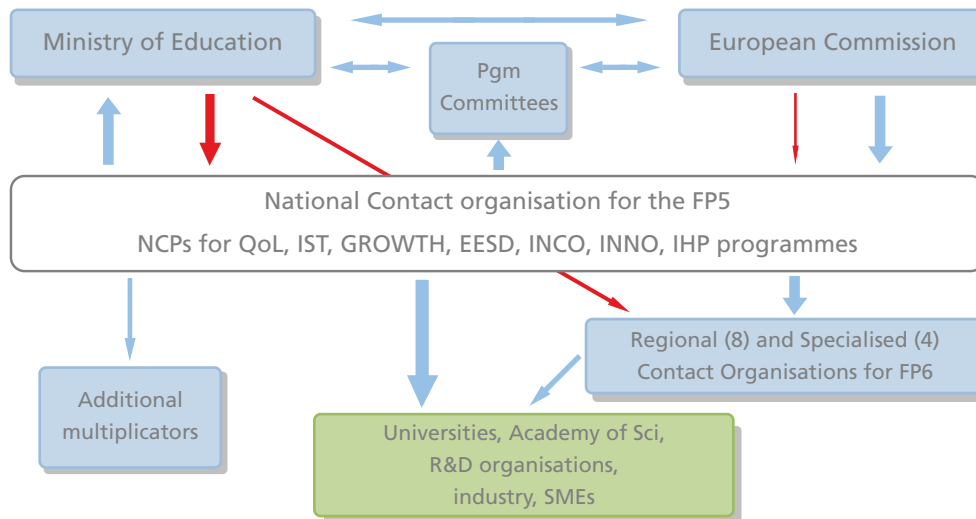
In co-operation with the representatives of the programme committees, the NKO monitored participation of the individual teams in FP5 and regularly informed the MEYS and the Czech government about the situation in its annual reports.

The NINET network also co-operated with the research centres established by large universities (e.g. Charles University in Prague) independently of EUPRO



programme. NINET further collaborated with research centres engaged in projects financed by the European Commission with the aim of achieving the best possible results for FP5 projects. This was particularly the case with the Idealist project, which focuses on supporting the IST programmes.

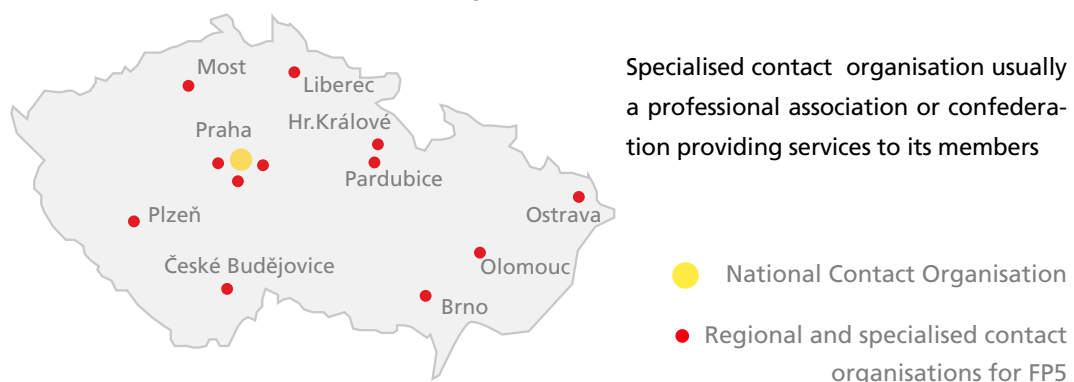
The NINET approved its effectivity and it continues with its service even during the FP6 programme. The NINET URL is available at [www.ninet.cz](http://www.ninet.cz)



*Figure 15.* Organigramme of the NCP system in the Czech Republic. Blue arrows indicate 'information flows'. Red arrows indicate financial flows (note: EC financial support to NCO is exclusively for NCP participation in EC meetings). NCO plus 12 other contact organisations make up NINET – the National Information Network for FP6.

Regional contact organisation is usually a consortium of local university and a partner with good contacts to regional innovative SMEs

Specialised contact organisation usually a professional association or confederation providing services to its members



*Figure 16.* NINET geography as of September 2004

