Assessment of Participation of the Czech Republic in the EU Framework Programmes

Technology Centre of the Academy of Sciences of the Czech Republic
Vladimír Albrecht, Jiří Vaněček

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Contact information:
Technology centre AS CR
Rozvojová 135
165 02 Praha 6
Czech Republic
Tel: + 420 234 006 100
Fax: +420 220 922 698
e-mail: techno@tc.cz
http:// www.tc.cz

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Foreword

This report was prepared by the Technology Centre of the Academy of Sciences of the Czech Republic. Technology Centre is the National Information Centre for European Research, it deals with analytic and perspective studies in R&D and innovation and it is involved in transnational technology transfer. The activities of the National Information Centre for European Research are conducted within a series of projects that are fully funded by the Ministry of Education, Youth and Sports of the Czech Republic since 1999. The indispensable part of these activities is monitoring and analysing of the participation of the Czech Republic in the EU Framework Programmes. Since the beginning of the Fifth Framework Programme the Technology Centre annually reports on participation of Czech teams in the Framework Programmes to the Czech Government.

This report is, however, much more comprehensive than the annual running reports. Employing the acquired experience the Technology Centre developed and implemented a series of indicators that offer new ways of understanding the participation of the Czech Republic in the complex structure of the Sixth Framework Programme. Simultaneously, since the Ministry of Education, Youth and Sports asked also for analysis of results achieved by the Czech teams in the Sixth Framework Programme, the report is complemented by a bibliometric study proposed and performed by the Technology Centre.

The Technology Centre considers this report, the methodologies implemented therein and the respective findings, as a contribution to both the current reform of the Czech R&D system and to the Europe wide discussion on monitoring and evaluation of the Framework Programmes.

Karel Klusáček
Director

Vladimír Albrecht
Deputy Director and Head of Monitoring

Technology Centre of the Academy of Sciences of the Czech Republic

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Finally, the authors want to appreciate valuable discussions during preparation of this report they held with Ivan Wilhelm, the plenipotentiary of the Czech Government for European research.

Summary

This report deals with the participation of the Czech Republic in the Sixth EU Framework Programme for research and development (FP6) and in the Sixth EURATOM programme.

The aspiration of the Framework Programme 6 (FP6) was to make a grand reform of European R&D by converting the independent national R&D systems into an interconnected system called the European Research Area (ERA). During the life span of the FP6 the Czech Republic has started a new phase of the reform of its R&D system. The R&D reform has been "result oriented", i.e., public financial support of research performing institutions has been allocated according to the measurable results achieved by the performed R&D activities. The reform also increased public funding of R&D from 1.2 % GDP in 2000 to some 1.5 % GDP in 2006. Currently the Czech Republic invests probably the pivotal share of GDP in R&D among the EU New Member States.

The main objective of the presented report is to contribute to the reform debate at both national and European levels by bringing relevant facts on Czech participation in European research. In other words this report is not aimed at "value setting interpretation" of Czech participation in the FP6, but it rather offers a multitude of points of view which might be relevant for future formulation of the Czech policy contributing to the building of the ERA.

The report consists of three parts. Whereas the first part deals with international comparative analysis of participation of the Czech teams in the FP6, the second part reports results of a questionnaire campaign ascertaining how Czech investigators assessed the impact of their participation in FP5 and FP6 projects. The third part then employs bibliometric approaches to statistically analysed articles co-authored by several hundred Czech investigators of FP5 and FP6 projects.

The first part used data from the database E-CORDA of the European Commission to make an international comparative analysis of participation of Czech teams in FP6 and EURATOM. Since the Czech Republic has not formulated any target oriented policy of its participation in the EU Framework Programmes, which

would allow it to evaluate the fulfilling of its goals, the evaluation methodology employed in the present report is based on comparing the participation of the Czech Republic with participation of other EU member states which are either considered individually or as aggregates (i.e., New and Old Member States, NMS and OMS, respectively). Differences between countries are described either by numbers of participating teams or by the corresponding financial indicators characterizing country investment in FP6 or by the size of the support they request from the European Commission. The indicators are considered either in absolute terms (number of country participants, total requested support, etc.) or as relative indices (number of participants per one million population, requested support per one million of Gross Expenditure on R&D, etc.).

The analysis of participation of the CR in FP6 and EURATOM programmes revealed that

- The success rate of the Czech teams in submission of FP project proposals was slightly lower than the success rate of their counterparts from the OMS. Due to the synergy of several factors, the Czech Republic had only the same number of successful participants of FP6 projects per one million population as the EU countries, which however invest in R&D a considerably smaller percentage of their respective GDP than does the Czech Republic. However, the share of Czech teams, which participate at solving the demanding integrated projects, networks of excellence, and specific projects of target oriented research, i.e., projects aimed at achieving new knowledge, is almost at the same level as in the OMS, consequently considerably higher than in the other New Member States.
- The Czech teams are not active in co-ordinating the FP projects: the share of coordinators among all country participants in the Czech Republic was smaller than in any other EU Member State.
- The Czech Republic has a very uneven participation of the NUTS3 regions in FP6 and EURATOM: some three quarters of all Czech participants are from the capital city of Prague and from the city of Brno, which have the highest concentration of academia teams. However, the analysis also indicated FP6 importance for SMEs and industry teams in regions with smaller density of academia teams.
- Czech industry sectors reacted to FP6 calls for proposals in different ways. However, according to several relevant indicators Czech industry reaction to the FP6 calls was clearly higher than the reaction of industry in any other New Member State. This holds good particularly for research in the field of

aeronautics. Nevertheless, in life sciences, biotechnologies for health and in food research, the reaction of Czech industry was poor. Similarly compared with the other NMS, the participation of Czech SMEs was quite high.

- The ratio GERD/GDP clearly separates Old and New Member States. When instead of the usual "participation indicators" the country participation is measured by financial indicators eliminating influence of the national economy size (e.g., "total country investment to FP6 projects per one million euro of the national GERD or GDP") then Czech FP6 participation is ranked among the old member states with a higher GERD/GDP level. Hence the Czech Republic "behaves like a state with rich national structures supporting the R&D activities".
- The Czech reaction to opportunities offered in different thematic priorities was varied and the report deals with the individual priorities in detail. Unfortunately Czech reaction was poorer in priorities supported by high budget (e.g., LSH and IST) than in priorities having only a small budget (AaS, EURATOM). The report suggests the explanation of this phenomenon by the existence of "pivotal institution", which is able to influence behaviour of the whole sector. In thematic sectors with broadly dispersed participants the success rate and support obtained from the FP6 resources is lower than in the fields with such a pivotal organization. The pivotal institutions in AaS and EURATOM are indentified in the report.
- The participation in the FP6 projects brought high European added value to the Czech teams. Specifically, in all thematic priorities the Czech teams cooperated with the top European institutions and globally significant teams. In total 1068 Czech teams cooperated with more than 14,000 teams in solving 876 projects of FP6. This scope of international cooperation is unique and has no parallel in the whole history of the Czech R&D system.

The second part reports on a questionnaire campaign organized in the first half of 2008. The questionnaire was primarily designed to obtain more information on project results. Since addressing investigators of finished projects could better serve this purpose than still running projects. therefore some FP5 investigators were asked to answer the questionnaire as well. However, the campaign only confirmed some of the hypotheses that were considered to be true prior the campaign. For instance,

- The responses confirmed that Czech teams participate in the FP6 projects only with a small personal capacity and participation is thus rather a matter of individual researchers than a result of an institutional policy.

- Successful participation has a recurrent character, i.e., a high percentage of successful participants of FP projects (irrespective of the field) submit anew FP project.
- The questionnaire did not present detailed information on project results. The objective analysis of FP results clearly requires employing more sophisticated tools than a questionnaire which is, moreover, considered as a big burden for the R&D teams.

The third part attempts to assess some FPs project results by employing bibliometric analysis to several hundreds articles that resulted from FP5 and FP6 projects and were co-authored by Czech participants. The bibliometric analysis revealed much more relevant results than the aforementioned questionnaire. The study, which explored the data from the Web of Science, has clearly demonstrated that

- The Czech teams participating in FP5 and FP6 projects are above-average in the Czech Republic.
- The papers resulting from the FP projects are cited significantly more often than average Czech papers.
- Participation in the FP projects also reinforces international collaboration of the Czech teams.
- FP has a marked effect on the direction of research of the participating teams.

Although participation of the Czech R&D system can hardly be characterized by one word, we nevertheless tend to consider it to be successful. The reform of the Czech R&D system has already paid special attention to the issue of the ERA and participation of the Czech Republic in the Seventh Framework Programme. We consider this study a contribution to the evidence-based R&D policy at both the Czech national and the all-European levels.

CONTENTS

1. International comparison of participation of the Czech Republic in the FP6 and the EURATOM programme

Vladimír Albrecht
Technology Centre AS CR Prague, Czech Republic

1.1. Introduction

Chapter 1 reports on participation of the Czech Republic in the **6th EU Framework Programme for Research and Technological Development (FP6)** and in the 6th **EURATOM** Framework Programme, which were opened in 2002 and closed in 2006.

Since these two progammes had equal rules of participation and the reporting methodology is based mainly on comparison of statistical indicators of EU Member States in these two programmes, we frequently use the abbreviation "FP6" to denote both programmes.

The FP6 had a comprehensive thematic (field) structure – cf. Table 1 – which was furnished with a broad portfolio of various types of projects and at the same time supported by horizontal activities, the development of which is essential for any of the themes (e.g. study fellowships, participation of small and medium-sized enterprises etc.)

The FP6 represents an important instrument for the achievement of objectives set out by the Lisbon strategy launched by the EU in 2000. This strategy shall ensure sustainable growth of the EU which undoubtedly requires that the EU achieves the highest possible rate of competitiveness in the global economy. Concurrently with the launch of the Lisbon strategy, the European Commission (DG Research) declared its intention to create the European Research Area – ERA as an area that will enhance effectiveness of international cooperation in the field of R&D, where the EU still lags behind the USA. The EU also struggles with ever more difficulty with the competition of the fast developing economies of China and India, whose investments in R&D have been growing at a rate unparalleled in Europe. The FP6 was supposed to be one of the main instruments for the ERA creation as it is clearly indicated by its full title: "The Sixth framework programme of the European

Community for research, technological development and demonstration activities, contributing to the creation of the European Research Area and to innovation".

The EURATOM Programme sets out similar objectives as the FP6 in the narrower field, namely, in peaceful use of nuclear energy.

Thus, the FP6 has contributed to the creation of such an area in Europe, which will assist in finding effective solutions of problems of the European society through international cooperation in the field of R&D. Hence, the framework programme supports especially the "demand (society needs) driven research". The European Commission defined the themes of the so called specific programmes, to which the budget of the framework programme was allocated. The framework programme has definitely not meant to be a substitute for the research carried out at the national level. On the very contrary, the projects implemented within the framework programmes should explicitly create the "European added value", i.e. they should be focused on addressing those issues, which are pivotal for the EU and are most often too demanding to be implemented by the national research of individual countries. It should be much easier in the ERA to establish such groupings of research centres that will have sufficient capacity to tackle the major issues. The so called "new instruments", i.e. "Integrated Projects" and "Networks of Excellence" with budgets amounting to dozens of million EUR were introduced within the FP6 to cater for this objective.

In terms of the prior experience of the CR with the framework programmes, let us recall that a few Czech teams took part already in projects of the 3rd Framework Programme. Much stronger participation of the CR was recorded in the 4th Framework Programme, in the projects of which 243 Czech research units took part. In both programmes the Czech teams could participate only in those projects through which the EU supported the international cooperation in R&D with third countries, i.e. with the EU non-member states. Participation of Czech teams substantially increased in the 5th Framework Programme running from 1999 to 2002, when the Czech Republic signed, similarly as other European states standing then for their EU membeship, the Association Agreement on the FP5 and thus acquired the status of "Associated state". As a result the associated states could participate in the FP5 on almost equal footing with the EU Member States. Since the framework programmes are funded from the EU budget made up of the EU Member States contributions, the associated states also contributed particularly to the FP5 budget. The amount to be contributed by the respective associated state was defined as 70 % of the sum calculated according to the same rules as those governing the Member States contributions to the EU budget.

The overall contribution of the CR to this programme's budget throughout the duration of the FP5 accounted for CZK 2.4 billion. Its disbursement was made following the incremental instalment regime with the highest instalment made in 2002 of CZK 934 million, which represented approximately 86 % of the then budget of the Czech Science Foundation. Hence, the Czech contribution into the framework programme was definitely not only symbolic, therefore the participation in the FP necessitates an analysis of the "effectiveness of national investments into the European research". The most frequently asked questions in this context are related to comparing the total financial support received by the Czech teams from the European Commission and the Czech contribution to the framework programme budget. After accession to the EU, however, the amount of the contribution is hidden in the total amount the CR as the EU Member State contributes to the aggregate EU budget, which makes the assessment of effectiveness of our participation in the FP6 even more difficult.

However, evaluation of national participation in complex R&D programmes should not be restricted merely to the return on invested funds, but it should also include the analysis of the achieved results. The data concerning the return on invested funds, however, do not lose any of its relevance, since they send an important signal to the national administration indicating the ability of Czech teams to participate in the European research. Analysis of these data could indicate which reforms should be put in place in the Czech R&D system, in order the CR can efficiently contribute to the achievement of the FP objectives.

At this point at least two main issues related to the European research should be referred to. Firstly it is important to analyze to what extent the results of the framework programme match its objectives. It is particularly interesting to know how this programme contributes to the fulfilment of the Lisbon strategy. However, this analysis cannot be made without data which only the European Commission has available, since no national administration has access to the necessary summary of all the results of the framework programme. The trouble is that national administrations usually do not even receive information on the results of projects, in which their national teams participated. Thus, the first essential issue is inadequate availability of information on the results of the FP6. The other serious issue is that the CR, just like most EU Member States, does not have the policy for participation in the framework programmes and therefore it can hardly conduct its ex-ante evaluation. Apart from that the ex-post evaluation is usually concentrated more on the analysis of participation rather than on the achieved results.

The methodology chosen to assess participation of the CR in the FP6 is based on international comparisons of participation of the Czech teams in FP6. The participation of the CR is compared with participation of other EU Member States or their aggregates by means of appropriately selected indicators. The Technology Centre of the Academy of Sciences of the CR (TC AS), which conducted the comparative analysis, has been monitoring the participation of the CR in FP6 and annually presents interim reports to the Czech Government. This report on the participation of the CR in the FP6 comprises a wider portfolio of indicators than the interim reports, however it is consistent with these reports.

1.2. Main features of the methodology implemented to assess participation of the Czech Republic in the FP6

The 6th Framework Programme and the EURATOM programme, just like the previous framework programmes, are focused on target-oriented research and its priorities are set out following an extensive debate on the EU needs. The aggregated budget of the FP6 and EURATOM programme, after the accession of ten New Member States in 2004, amounts to € 19.1 billion. The budget breakdown is given in Table 1. Each priority had its detailed work programme, referred to in the individual calls for proposals published by the European Commission (EC).

The amount of the EC contribution to the team, which participates in the research projects under FP6, depends on the type of its activities (it ranges from 30 % of total eligible costs in case of demonstration activities to 50 % in research activities up to 100 % in case of coordination activities or activities, which are of special importance to the EC).

Project proposals, submitted most often by international consortia, were subject to expert evaluation (peer review system), in which the international team of evaluators classifies how the proposal satisfies several pre-determined criteria. Based on the final ranking, the project proposals can also receive the EC contribution. The contractual negotiations between the EC and the consortium required fulfilment of many preconditions. For instance, in many projects – typically in the integrated projects and network of excellence – the participating teams were obliged to conclude the intra-consortium agreement (stipulating the value of knowledge brought by teams at the start of the

project, use of financial resources in the course of project implementation, and first and foremost concerning intellectual property rights to obtained results). The amount of Community contribution to the consortium to cover its eligible costs incurred during project life is fixed in contract negotiation and we call it "requested contribution". Namely, the finite value of this contribution depends on course of the project, thus the final value is not registered in the E-CORDA database. The consortia for research projects under the FP6 could, without any restrictions, be made up of teams of the EU-27 and six associated countries (Island, Israel, Liechtenstein, Norway, Switzerland, and Turkey). If the project required the engagement of a team from any other country, which was also possible, the amount of the EC contribution had to follow special rules.

The presented analysis is carried out using the data in the E-CORDA database, which is issued and regularly updated by the European Commission (EC). The latest release of the E-CORDA database (June 2008) contains data on **10 058 projects**, for which successful contract negotiations between the EC and the research consortium were conducted in the period from the first call for proposals under the FP6 (17 December 2002) to 31 January 2008. Altogether **74 400 teams** from all over the world participated in these projects and the EC contributes almost **€ 16.7 billion** to carrying out these projects, which represents approximately **95 % of the planned FP budget** earmarked for the so called "indirect actions", i.e. the FP6 projects implemented by international consortia (i.e. net of expenditure for activities performed by the Joint Research Centre, designated as "direct actions" of the EC).

Since the FP5 the Czech Republic welcomed the possibility to participate in the EU research. However, the CR did not formulate any goals which had to be achieved by participation of Czech teams in the FP5 and FP6 and no strategy of CZ participation in the FP6 was declared. However, the Czech government annually requires analysis of the state of the Czech research and its comparison with the situation abroad. Consequently, the methodology implemented to assess the participation of the CR in the FP6 consists in comparing the participations of Czech teams with those of the other EU Member States. The comparative statistics in this report is mostly given explicitly, either for all the EU-27 or the CR is compared against preselected reference group of countries. Most frequently the aggregate data for the "Old Member States" – OMS - (of which the EU consisted up until 30 April 2004), further referred to as EU-15 and the "New Member States" – NMS - , by which the EU was enlarged in May 2004 (i.e. 10 Member States (CY, CZ, EE, HU, LT, LV, MT, PL, SI, SK) and in January 2007

(BG, RO)). However, for the sake of comparison the Czech Republic is excluded from the NMS and the NMS without the CR are further referred to as EU-11. In some cases, when the data were available for the whole group of the NMS (EU-12) only, the data for the CR is compared also with EU-12 data, which might lead to some bias (the comparison are likely less distinctive than those with the EU-11).

When evaluating the statistical data on the participation of countries in the FP6, an account has to be taken of the real reporting value of the employed indicators. For instance, one of the frequently discussed indicators is the country participation success rate (i.e. the ratio (percentage) of country participations in projects that received EC contribution divided by total number of the country teams who submitted project proposals in the respective FP6 priority) has a rather limited meaning, because the success or failure of any project proposal is a result of the whole consortium activity, but when estimating the country success rate, success or failure is ascribed to the teams from the analysed country only. When comparing country participation in the FP6 one should select suitable indicators, e.g. instead of comparing countries by total numbers of their participations in the projects, one should rather use the "numbers of participants recalculated per unit population (one million inhabitants or one thousand researchers)"

However, it is also obvious, that the participation in the consortium per se does not reflect the significance of the share of the team in the preparation of the project proposal or its subsequent implementation. It is the amount of requested contribution which testifies to the significance of the team participation in successful projects. International comparisons may thus employ the total support requested jointly by all the teams of the given country in successful projects. However, the international comparison of the total EC contribution requested by individual countries must be expressed on comparable units. This chapter uses several indices: total requested contribution per researcher (i.e. total contribution requested by all participants of the respective country divided by the number of researchers of this country) and the total requested support received by the respective country in relation to its Gross Domestic Product (GDP) or Gross Expenditure on Research and Development (GERD).

Source of data:

E-CORDA database of contracted projects in FP6, European Commission, DG Research, June 2008.

Europe in figures, Eurostat, European Commission, 2008, ISSN 1681–4789.

Table 1 – Budget of the FP6 (after EU enlargement in May 2004)

	million euros
FP6 Budget	**17 883**
1. Focusing and integrating Community research (Secific Programme 1)	**14 682**
1.1 Thematic priorities:	12 438
1.1.1 Life sciences, genomics and biotechnology for health.	2 514
1.1.1.1 Advanced genomics and its applications for health	1 209
1.1.1.2 Combating major diseases	1 305
1.1.2 Information society technologies	3 984
1.1.3 Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices	1 429
1.1.4 Aeronautics and space	1 182
1.1.5 Food quality and safety	753
1.1.6 Sustainable development, global change and ecosystems	2 329
1.1.6.1 Sustainable energy systems	890
1.1.6.2 Sustainable surface transport	670
1.1.6.3 Global change and ecosystems	769
1.1.7 Citizens and governance in a knowledge-based society	247
1.2 **Specific activities covering a wider field of research**	1 409
1.2.1 Policy support and anticipating scientific and technological needs	590
1.2.2 Horizontal research activities involving SMEs	473
1.2.3 Specific measures in support of international cooperation	346
1.3 **Non-nuclear activities of the Joint Research Centre**	865
2. Structuring the European Research Area (Specific Programme 2)	**2 854**
2.1 Research and innovation	319
2.2 Human resources	1 732
2.3 Research infrastructures	715
2.4 Science and society	88
3. Strengthening the foundations of the European Research Area (Specific Programme 3)	**347**
3.1 Support for the coordination of activities	292
3.2 Support for the coherent development of policies	55
EURATOM budget	**1 230**
1. Priority thematic areas of research	**890**
1.1 Controlled thermonuclear fusion	750
1.2 Management of radioactive waste	90
1.3 Radiation protection	50
2. Other activities in the field of nuclear technologies and safety	**50**
3. Nuclear activities of the Joint Research Centre (JRC)	**290**
FP6 + EURATOM total	**19 113**

1.3. Project preparation and success rates of the Czech Republic

The first calls for proposals under the EC FP6 were published on 17 December 2002. Altogether 213 calls for proposals were published under the EC FP6 in the period from 2002 to 2006, in which the EC received more than 56 000 project proposals, in the preparation of which more than 390 000 teams of all over the world participated.

In the period from 2002 to 2006, a total of 6 224 Czech teams were involved in the preparation of 4 766 project proposals of the FP6. Based on the evaluation performed by groups of international evaluators, the EC decided to support financially 876 projects carried out by international consortia with the participation of altogether 1 068 Czech teams. Here we refer to successful projects and successful participants and the success rate of projects and participants. The total project success rate (i.e. successful projects as percentage of all proposals with Czech participants) amounted to 18.4 % and the participation success rate of Czech teams achieved 17.2 %.

Both the project and participation success rates of the CR were lower than the average or participation success rate across FP6. The participation success rate of the European countries is portrayed by the map in Figure 1.

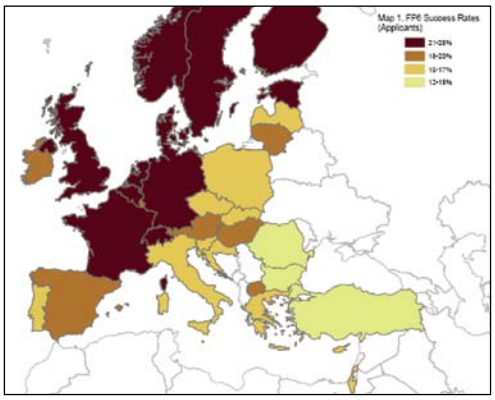

Figure 1 – Success rate of the European countries in FP6. The colour scale of success rate is given in the right upper corner. Source: EC Report (of 26 June 2008).

FP6 Success Rates (Applicants)
- 21–25 %
- 18–20 %
- 16–17 %
- 12–15 %

The map classifies the European countries by their teams' participation success rate into four categories. Above-the-average success rate is reported by Nordic

and West European countries, and only by Estonia from the New Member States. The Czech Republic is in the third category (16–17 % success rate), together with majority of the New Member States, but also Italy, Greece and Portugal. The lowest success rate is shown by Romania, Bulgaria and Turkey.

However, it is obvious that individual thematic and horizontal priorities of FP6 vary in their success rates. The bar chart in Fig. 2 compares the participation success rate of Czech teams with the total success rate of the Old Member States and the New Member States (in this case including the CR). It is obvious at first sight that in all the seven thematic priorities of the first specific programme the success rate of EU-15 exceeds that of EU-12. This is not the case, however, in horizontal priorities, where in the ERA-NET type projects (focused on coordination of national grant agencies and other national providers of financial support for R&D so that they create transnational new European programmes, whose projects are solved by international consortia) the success rate of EU-12 outperformed EU-15. Higher success rate of EU-12 is also reported in the programme for coherent development of national research and innovation policies and also in research infrastructures.

As to the CR, the success rate of Czech teams was higher than that of the EU-15 in the aeronautics and space research. The CR recorded considerably higher success rate than the EU-15 in those priorities which focus on better networking and coordination of national research, i.e. on "coherent development of national policies" and "coordination of EU research" through ERA-NET projects. These priorities, however, have drawn only a small share of EC FP6 budget. On the contrary, in priorities with the largest budgets, i.e. IST and NMP, the success rate of the CR was lower when compared to EU-15, but also EU-12.

The scatter plot diagram in Fig. 3 compares again the success rate values of the CR and EU-15 and the complemented bar chart shows the number of project applicants per 10 million population (in CR and EU-15). In case of the CR, it is especially obvious that the CR had higher participation success rate in those priorities, where fewer Czech teams participated in the preparation of project proposals.

The data for the CR indicate that there is a negative correlation between the number of project proposers and their success rate, i.e. the higher the number of project proposers from the CR, the less successful they were. Even though the success rate of the CR does not markedly differ from the EU-15 success rate (as shown already by the previous chart), the data no more confirm the negative correlation between the success rate and the number of proposers from the EU-15.

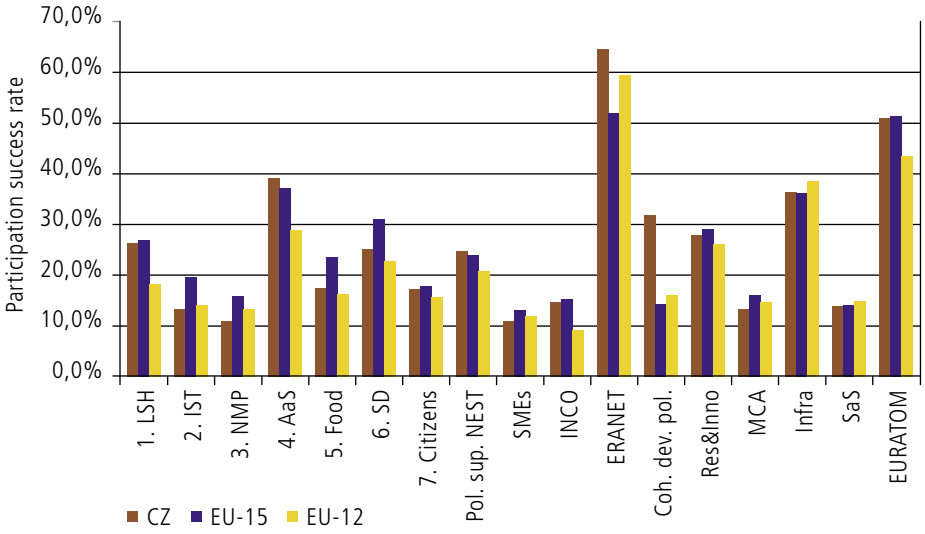

Figure 2 – Comparison of participation success rate of teams from the CR (brown), EU-15 (blue) and EU-12 (i.e. New Member States including CR) in FP6 priorities.

Abbreviations, used in Chart 2, designate the following EC FP6 priorities:

1. LSH:	1st thematic priority: Life sciences, genomics and biotechnology for health
2. IST:	2nd thematic priority: Information society technologies
3. NMP:	3rd thematic priority: Nanotechnologies and nanosciences, knowledge-based functional materials, new production processes and devices
4. AaS:	4th thematic priority: Aeronautics and Space
5. Food:	5th thematic priority: Food quality and safety
6. SD:	6th thematic priority include the Sustainable energy systems, Sustainable surface transport and Global change and ecosystems programmes
7. Citi:	7th thematic priority: Citizens and governance in a knowledge-based society
Pols. sup-NEST:	Research for policy support and New and emerging science and technologies
SMEs:	Specific research activities for small and medium-sized enterprises
INCO:	Specific measures in support of international cooperation (with third countries, i.e. non-EU Member States)
ERANET:	Support to coordination of research activities in the EU
Coh.dev.pol:	Coherent development of national research and innovation policies
Res. Inno:	Programmes for support of research and innovations
MCA:	Human resources and mobility (the so called Marie Curie Actions – MCA)
Infrastr.:	Programmes supporting the use of research infrastructures on a European scale
S & S:	Science and Society
EURATOM:	EURATOM FP6 Programme

Although the EURATOM Programme availed of only a limited budget when compared to the FP6, the activities of the CR in the preparation of projects were certainly visible and achieved a fairly high success rate. The FP6 witnessed, however, with the exception of research activities for SMEs, more intensive activity in project preparation of the EU-15 than in the CR and in the priorities with big budgets, in IST and LSH, the activities of Czech teams in the preparation of projects were much less intensive than in the EU-15. The same holds good for the preparation of projects of Marie Curie fellowships (MCA priority). The summary information provided by both the charts indicates the least favourable situation in the IST and NMP, where the CR reported much lower activity in the preparation of projects and the submitted projects were much less successful than those developed by the EU-15. As far as the thematic priorities are concerned, the success rate of the CR was equal to that of the EU-15 in LSH, AaS and Citizens priorities, in which both the activities associated with the preparation of projects and their success rate differ only insignificantly from values achieved by the EU-15.

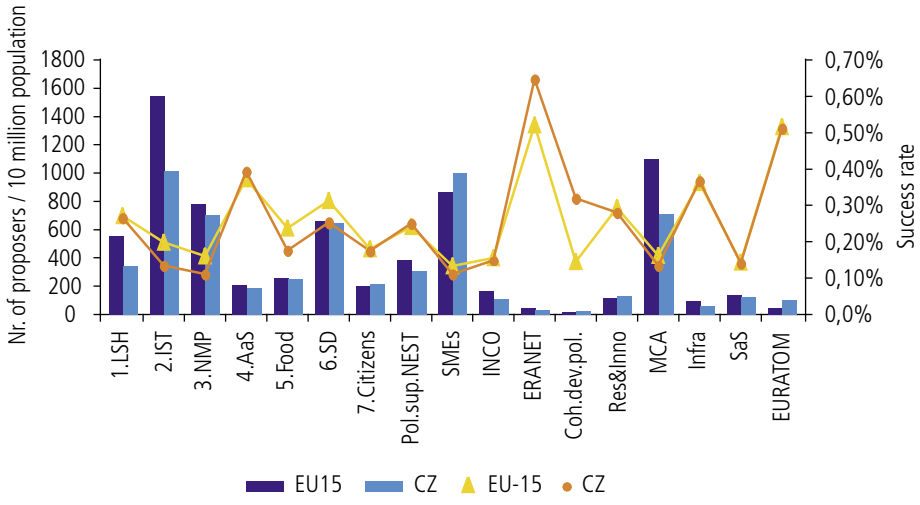

Figure 3 – The bar chart compares the number of project proposers and the dot chart their respective success rate in the CR and EU-15. For the purpose of comparability, the numbers of proposers are calculated per 10 million inhabitants.

1.4. Basic characteristics of the Czech participation in EC FP6 projects

The EC concluded a total of 10 058 contracts for implementation of a project under the FP6. The total budget of these projects amounts to € 25 700 million and the EC contribution from the FP6 budget accounts for € 16 700 million. These projects will be carried out by international consortia, which altogether consist of 74 400 teams from all over the world. A total of 1 068 teams from the CR will participate in the implementation of 876 projects of the FP6 and the EURATOM FP6. Thus the Czech Republic participates in solving 8,7 % of FP6 projects supported by financial contribution of the FP6. The summary eligible costs of projects with CZ participants amount to 5436 M€.

The Czech participants represent 1.44 % of all the participants and the amount contracted by the Czech teams equals approximately 0.78 % of the amount, which has so far been allocated by the EC from the FP6 budget. The average budget for the CZ team participation amounts to approximately € 182.9 thousand and the average contribution requested by a Czech team from the EC accounts for approximately € 122.6 thousand.

The scatter plot in Fig. 4 shows international comparisons of the number of participations of the EU-27 in the funded projects. It clearly indicates that the highest number of participations in contracted projects reports Germany (DE) followed by the United Kingdom (UK), France (FR), Italy (IT), etc. Apparently, the number of participations strongly correlates with the size of population. Therefore, for the purpose of comparisons the numbers of participations of individual countries are calculated per 1 million inhabitants given by the bar chart in Fig. 4 (the countries are ranked by the decreasing value of this indicator). The 105 participations per 1 million inhabitants ranks the CR 21st among the EU-27, or 6th among the New Member States. In both the cases the position of the CR is stable and identical with that at the time of distribution of the first sixth, the first third and also the first half of the EC FP6 budget.

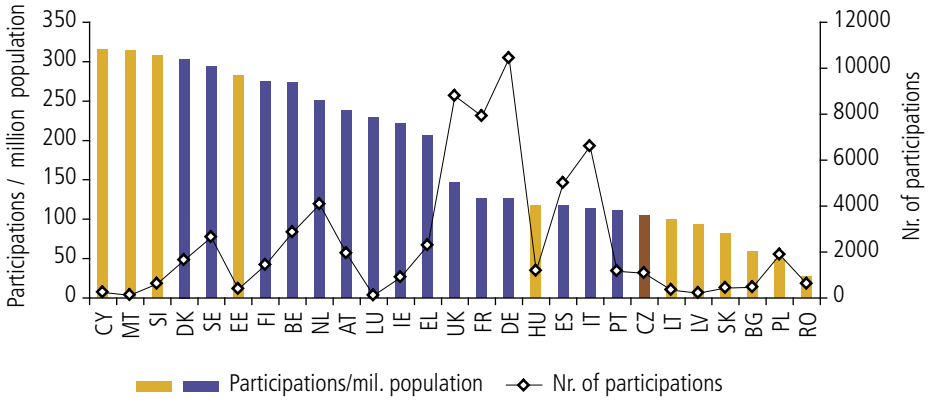

Figure 4 – Scatter plot (dot line) shows the participation of the EU-27 in contracted projects under the FP6 (by 31 January 2008), the bars present the number of participations per 1 million inhabitants. The yellow bars represent the New Member States.

According to EUROSTAT data of January 2008, in the period from 2002 to 2006 the CR spent annually more than 1.3 % of its GDP on R&D. As illustrated by the chart, the position of the CR is in the middle in the group of 11 states (HU, ES, IT, PT, CZ, LT, LV, SK, BG, PL, RO), which, except for IT, spent on their R&D less than 1 % of GDP. However, high correlation between the amount spent on R&D at the national level and the total number of participations in the FP can be demonstrated. Albeit analysis of this relation is not included in this report, we shall restrict ourselves to articulating an assumption that the **"stated comparisons indicate that the total number of Czech teams participations was to be higher so that the CR joins the group of countries, which spend more than 1.3 % of GDP on R&D "**.

Nonetheless, the number of participations depends to a great extent on the number of researchers in the national system of research and development. In the bar chart in Fig. 5 the EU-27 states are ranked by the number of participations per the total capacity of researchers expressed in 1000 full time equivalents (1000 FTE). When measured by this index, Cyprus and Malta obviously lag behind all the other EU-27 Member States. Higher value of this index is more often reported by smaller countries. It is interesting, though, that in the most advanced countries (FR, DE, FI) there are fewer than 8 participations in FP6 per 1000 FTE. In the CR there are about 11 participations per 1000 FTE, which ranks it 15th among the EU-27, while e.g. even SE and UK have fewer participations per 1000 FTE than the CR.

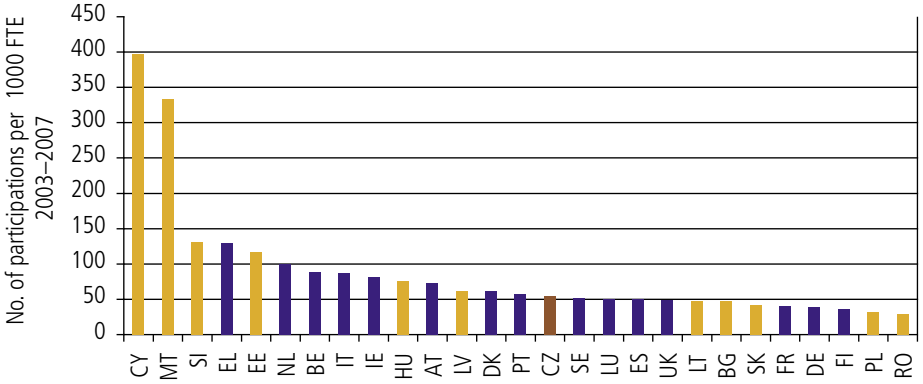

Figure 5 – Number of FP6 participations per total country capacity, i.e. number of researchers in the period from 2003 to 2007 expressed in 1000 full time equivalents.

1.5. Scope and structure of international cooperation of Czech teams

In the implementation of 876 "Czech projects"(i.e. projects with Czech participants) a total of 1 068 Czech teams participated, who were members of 876 consortia composed of 11 205 teams from the EU-15 and 1 659 teams from the EU-11 and 1 531 teams from countries outside the EU. Altogether, the Czech teams cooperated with 14 395 teams from all over the world. It is evident that the FP6 created for Czech teams conditions for unprecedented scope of international cooperation. It is also quite clear that the largest share in this cooperation was on the part of teams from the EU-26 (i.e. EU without the CR).

The bar chart in Fig. 6 presents the number of EU participations in projects, carried out with the involvement of Czech teams. The chart also gives the breakdown of teams of the respective country by thematic priority (of Specific programme SP1); the activities of the 2nd and 3rd specific programmes are aggregated into a single value (in this chart those are the parts of the bars marked SP2, 3).

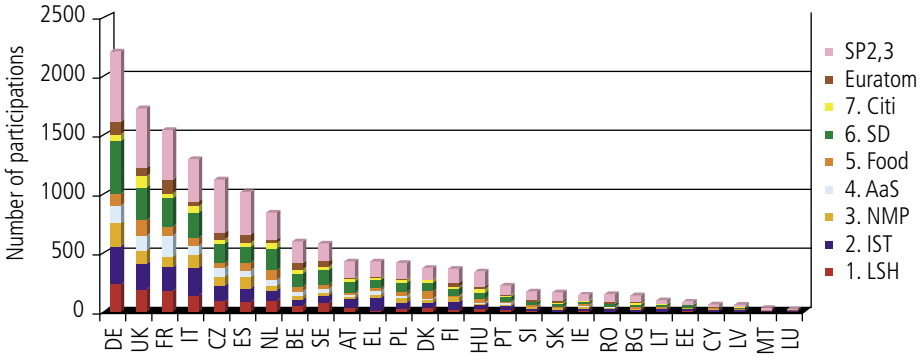

Figure 6 – Distribution of 12 864 teams from the EU-26, which cooperated with the Czech participants in the implementation of projects under the FP6. The internal divison of the bars corresponds to distribution of given country teams according to thematic priorities of the FP6 and EURATOM.

The Czech teams obviously cooperated the most with teams coming from large countries (with more than 35 million inhabitants), i.e. DE, UK, FR, IT, ES. Concerning the New Member States the CZ teams most frequently cooperate with Poland. It was to be expected that the number of cooperating teams will be proportional to the size of the budget allocated to individual priorities. This, however, has not been confirmed by the respective analysis: the chart indicates that e.g. the frequency of EU-15 participations in the SD priority differs only insignificantly from the frequency in the IST priority, which, however, availed of several times bigger budget than the SD priority. Relatively low correlation between the number of participating teams and the budget in individual thematic priorities has a number of reasons and also characterises the priorities of the Czech research and development. Moreover, it is the consequence of individual thematic priorities with a different composition of projects (e.g. in the area of sustainable development there were more Networks of Excellence than in the area of information technologies), which in the end impacted the number of participants.

When performing this international comparison, one has to know whether the composition of foreign participants in projects solved by the Czech participants was typical or specific. The bar chart in Fig. 7 thus compares the profile (percentage distribution) of the participation of **all EU-26 teams** in thematic priorities with the profile comprising **only those EU-26 teams, which cooperated with the Czech teams.**

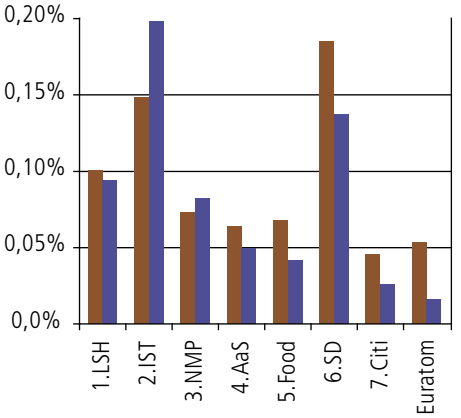

Figure 7 – The blue bars show the share (in %) of EU-26 teams (i.e. EU-27 without CZ) participating in all the projects, while the brown bars show the share of those EU-26 teams only, which were involved in projects with Czech participation.

The number of EU-26 teams participating in all the projects under individual thematic priorities to a considerable degree reflects the size of budget allocated to the respective priority. The Fig. 7, however, clearly indicates that the participation profile of the EU-26 teams, which were **involved only in projects with Czech teams**, differs substantially from the overall participation profile of the EU-26 teams. The EU-26 teams most frequently participated in the IST thematic priority, and much less in the SD priority. When only those EU-26 teams which cooperated with the Czech teams are considered, than their ranking under these two priorities reverses. Apparently, the Czech teams were much more keen to cooperate in the area of sustainable development than in the information technologies area. It is necessary to mention that the participation of EU-26 teams in the EURATOM FP6 accounted for approximately 2 % of their total participation (in the FP6 and the EURATOM FP6), while it exceeded 5 % in case of those teams which cooperated in carrying out the Czech projects. This confirms the immensely active participation of the CR in the EURATOM FP6.

The relevance of international cooperation can be measured not only by the number of teams participating in projects, but also by the total eligible costs spent by individual countries on their carrying out. The bar chart in Fig. 8 gives the total costs incurred by the EU-26 teams in carrying out projects with Czech participation. For each country the respective column gives the amount of total costs per individual thematic priority (and the total costs of the second and third specific programme of the FP6). Once again its is obvious that the highest costs of the implementation of projects with Czech participants were born by large countries, i.e. DE, UK, FR, IT and ES, joined by the Netherlands. Concurrently,

the chart indicates that the costs incurred by the teams of these main partner countries in the IST priority, with the by far the largest budget in the FP6, do not exceed the costs of the SD thematic priority. While these six partner countries spent € 456 million in the IST projects with Czech participation, the amount spent on the SD projects reached € 496 million.

At the same time, with the exception of the UK, these main partner countries spent much more on the SD priority than on projects of the specific programmes SP 2, 3 together. The chart also suggests that the Czech teams participated in the aeronautics and space research projects, to which FR, DE, UK and IT invested huge amounts of funds totalling to approximately € 440 million.

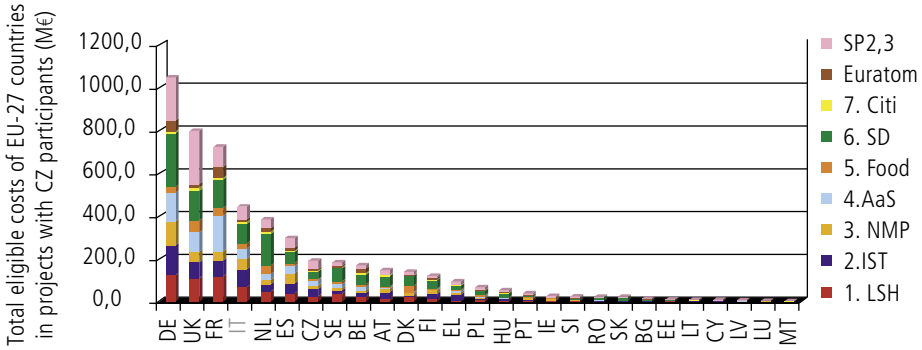

Figure 8 – Distribution of total eligible costs of the EU-27 participation in projects with Czech teams. The inner division of the bars shows the share of eligible costs allocated on individual thematic priorities of the FP6, on specific programmes SP2 and SP3, and on the EURATOM programme.

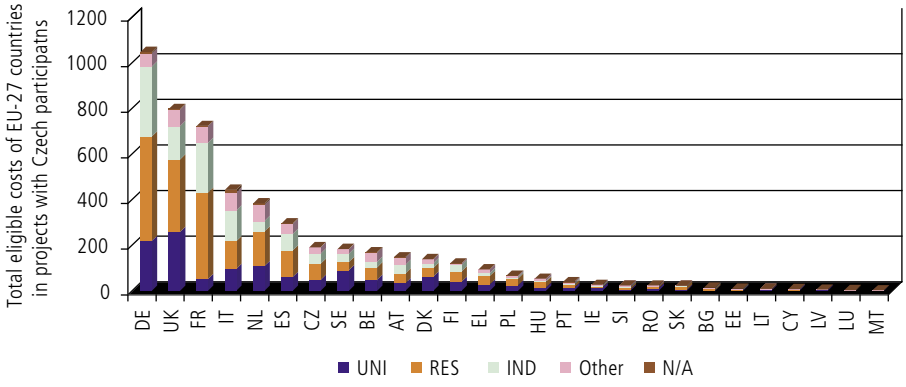

Figure 9 – The distribution of the total eligible costs of the EU-27 participation in projects with Czech teams broken down by the individual type of participant (UNI – universities, RES – research organisations, IND – industry, Other (e.g. end users) and N/A – not available).

The bar chart in Fig. 9 presents the expenditure of the EU-27 participation in projects with Czech participants broken down by the type of participant. It is evident that in the first six countries with the highest total costs (DE, UK, FR, IT, NL, ES) the largest amounts on their participations were spent by their research organisations (RES). It is most perceptible in case of DE and FR. As to the second place it is not so clear: while in case of UK and NL the second largest expenditure was incurred by universities, in DE, FR and IT by industrial teams. Remark that very similar structure of participants has the overall (i.e. not restricted to consortia with Czech teams only) international cooperation of the EU-15 teams. A typical feature of this participation structure is high expenditure of EU-15 industries, which distinguishes the EU-15 from the New Member States of EU-11, whose industry participates in the FP projects to a far lesser degree. **Hence, the chart indicates the ability of Czech teams to participate in consortia with high share of industrial partners, which boosts future prospects for the involvement of the CR in the European knowledge-based economy.**

1.6. Czech Republic and coordination of FP6 projects

The size and extent of FP projects usually are bigger than what the Czech participants know from project solved at national level. Hence, coordination of big consortia consisting of many different teams coming from different national environments is very demanding. Although coordination of FP projects requires professional managerial skill employed to steer project activities towards attaining project goals, the research teams quite frequently emphasize the creative scientific dimension of the coordination activity. Previous experience with solving FP projects is an asset of teams, who consider to act as coordinators.

Czech teams acquired already non-negligible experience with participation in FP5 projects which, unfortunately, was not converted into coordination activities in the FP6. The bar chart in Fig. 10 shows the distribution of EU-27 coordinators of the FP6 projects. The "big four" (DE, FR, IT, UK) co-ordinate some 57 % of FP6 projects, however, UK coordinators are most active.

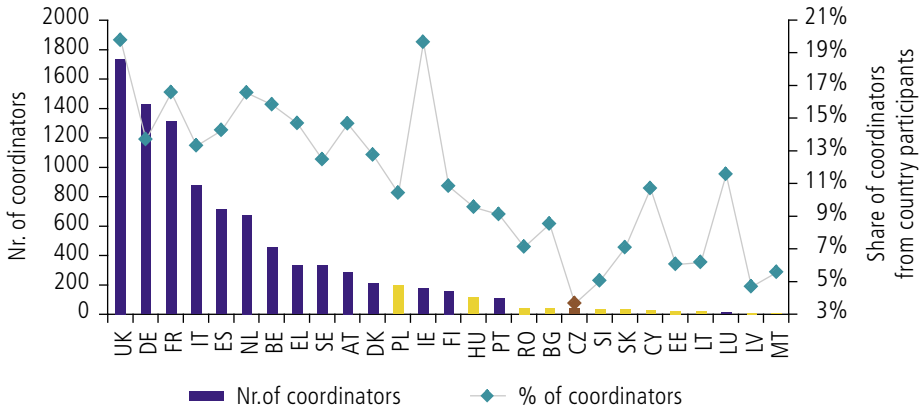

Figure 10 – Bar chart shows the numbers of EU-27 coordinators of the FP6 projects. The scatter plot diagram indicates the percentage of coordinators from total number of participants from given country.

The scatter plot diagram shows what portion of country participants represent the co-ordinators. The UK (19,7 %) and Ireland (19,6 %) had the largest percentage of coordinators. This indicates the language asset of the native English speaking coordinators. The CZ teams co-ordinated only 39 FP6 projects, i.e.three times less than HU or only by eight projects more than 5 times smaller SI. **The Czech coordinators represent some 3,7 % of all CZ participants and the scatter plot diagram clearly shows that this is by far the smallest portion among the EU member states.** The percentage of coordinators among all participations is in any old member state at least three times higher than in the Czech Republic. This is at variance with the ability of Czech research teams to effectively manage research projects. Since the beginning of 90s of the last century the Czech Republic developed system of national grant agencies thus the research teams acquired a lot of experience with the system of research grants.

The small number of CZ coordinators indicates rather low ambition of Czech teams to actively influence the course of FP6 projects. The Czech teams rather prefer to contribute to the projects by their professional skill, i.e. they act rather as suppliers of research ideas and performers of some methodologies, than by steering the big FP6 consortia to achieve goals formulated in the work-programmes of the calls for proposals.

Table 2 shows distributions of coordinators from CZ, EU-11 and EU-15 according "instruments", i.e. types of projects. It is clear that the FP6 new instruments, i.e. IP and NoE, are co-ordinated almost exclusively by the Old Member States. Furthermo-

Table 2 – Comparison of project type distribution of coordinators from CZ, EU-11, and EU-15

	CZ	EU-11	EU-15
IP	1	2	677
STREP	6	51	2086
NOE	0	2	166
CRAFT	0	8	356
CLR	0	2	77
II	0	2	74
I3	0	0	9
SSA	9	187	1037
CA	2	9	457
MCA	21	275	3855

re, the New Member States co-ordinate only 2,7 % of STREP projects. On the other hand the NMS co-ordinate some 16 % of all specific support actions, which are not primarily designed for scientific research. The CZ coordinators do not exceed 1 % in any project type.

Since the IPs, NoEs and STREPs spent the highest portion of the FP6 budget and Tab. 2 shows that these projects were coordinated almost exclusively by the OMS, one can conjecture that NMS co-ordinate only a very small part of the FP6 budget (i.e. only small portion of the total requested contribution). The bar chart in Fig. 11 shows for each EU Member State the total project cost (full columns) and total EC contribution coordinated by coordinators from given Member State. The scatter plot diagram then indicates the percentage of the EC distributed budget (EC contribution), which is co-ordinated by coordinators of a given EU member state. It follows that all New Member States except for Poland co-ordinate less than 1% of the summary EC contribution. Thus, spending of 98 % FP6 budget is co-ordinated by the Old Member State coordinators.

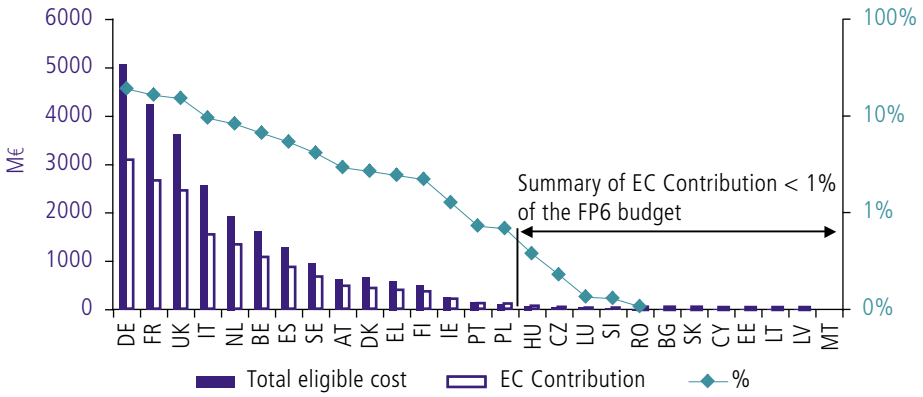

Figure 11 – The full columns indicate the summary budget of projects coordinated by given EU Member State. The framed columns show the summary EC contribution to projects coordinated by given EU-Member States. The countries are ranked according to percentage of the FP6 budget the spending of which they co-ordinate.

The share of the FP6 budget coordinated by the New Member States is thus almost negligible. The CZ teams coordinate spending of some 0,2 % of the total requested EC contribution, say, for the sake of simplicity, some 2 per mille of the FP6 budget. On the other hand the burden of coordination activities of projects with budgets in millions of Euros is enormous and the management is thus hardly compatible with the ordinary duties of the researchers. The afore mentioned numbers not only indicate small ambition of Czech teams to actively influence the course of projects they participate in, however, **it also reveals the lack of institutional strategies and even the lack of pro-active national policy which via participation of Czech teams in the FP would assume responsibility for the respective part of the European research policy.**

1.7. Summary characteristics of the participation of the CR in priorities of the FP6 and EURATOM programme

The bar chart in Fig. 12 presents the total number of participations of Czech teams in individual priorities of the FP6 and EURATOM FP6. The chart suggests that the highest number of Czech participations, namely 163, is reported by the 6th thematic priority which covers three areas (energy, climate change and transport), followed by the participation in the IST priority (135). The third place is taken by participation in projects conducted for the benefit of small and medium-sized enterprises (109). The portfolio of Czech participation in the EC FP6 priorities (i.e. distribution of Czech participation in the FP6 priorities expressed in %) differs from both the final portfolio of the New Member States (EU-12, or EU-11) and that of the Old Member States (EU-15). Both these groupings show the highest percentage of participation in the IST priority, to which the largest share of the EC FP6 budget was allocated. Concurrently, the CR reports a markedly lower percentage of participation in the LSH priority compared to the EU-11 and especially the EU-15 Member States.

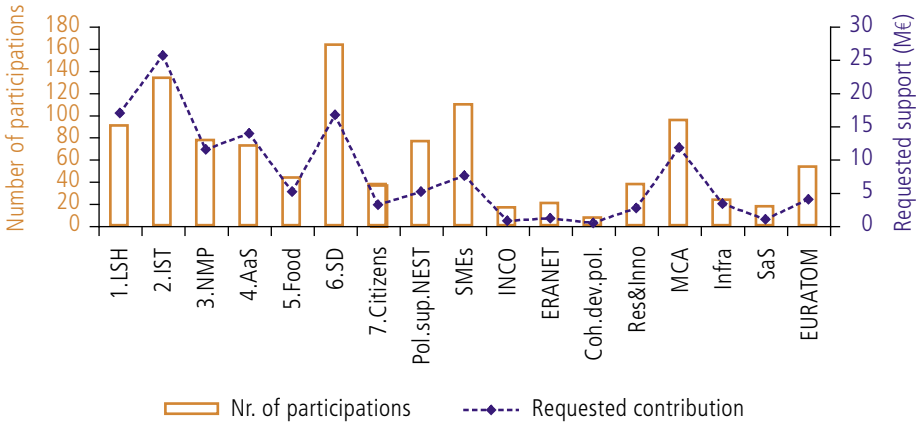

Figure 12 – Number of participations (bars) of CZ teams and their requested contribution (broken line) in thematic priorities / spec. programmes of the FP6 and the EURATOM programme.

As concerns the contracted funds, the largest contribution is granted to the Czech teams participating in the IST priority projects (€ 25.787 million), followed by the LSH priority (€ 16.944 million) and the SD priority (€ 16.685 million). In the AaS priority the Czech teams request contribution amounting to € 13.926 million, which represents approximately 11 % of the total contracted amount. This share is two times higher than that of EU-15 and four times higher than with the EU-11. High success rate of the CR in the AaS is brought about particularly by the participation of Czech teams of aeronautics research. The lowest support is received by the Czech teams in priorities, or specific programmes with only limited budgets, i.e. INCO (EU cooperation with third countries), S&S (Science and Society), Coh.Dev.Pol. (coherent development of national research and innovation policies) and ERA-NET scheme (international coordination of national / regional programmes of research and innovation).

It shall be taken into account, however, that the amount of contribution depends particularly on the size of the budget allocated to the respective programme. The largest budget was allocated to the IST priority and the smallest, on the contrary, to the support of coherent development of policies. Correspondingly, the Czech teams received the largest and lowest total support in these two priorities, respectively. An important measure of the participation thus is the share of support received by the Czech teams of the total amount distributed under the respective priority. Altogether the teams from the CR contracted 0.86 % of the up to now allocated

FP6 budget for the EU Member States. The bar chart in Fig. 13 showes for each FP6 priority the contribution requested by Czech teams expressed as percentage of the total contribution requested by all EU Member States. The highest share of the allocated budget was granted to the CR in the Coh.Dev.Pol (3.5 %). The participation in the EURATOM programme was marked with great success, there the Czech teams requested 2.3 % of the distributed budget and also in research activities for small and medium enterprises, where the Czech teams requested 1.7 % of the budget. These three areas, however, availed only of small budget of the FP6. As to the thematic priorities, the CR was most successful in the Citizens priority, under which the Czech teams received 1.45 % of the distributed budget. **In the AaS priority the CR received 1.42 % of the distributed budget, which is the highest share ever granted to any of the New Member States from the budget of any thematic priority. On the contrary, in those priorities which availed of the largest budgets, i.e. IST, LSH, NMP, the Czech teams received 0.79 %, 0.74 % and 0.80 % of the allocated budget, respectively.**

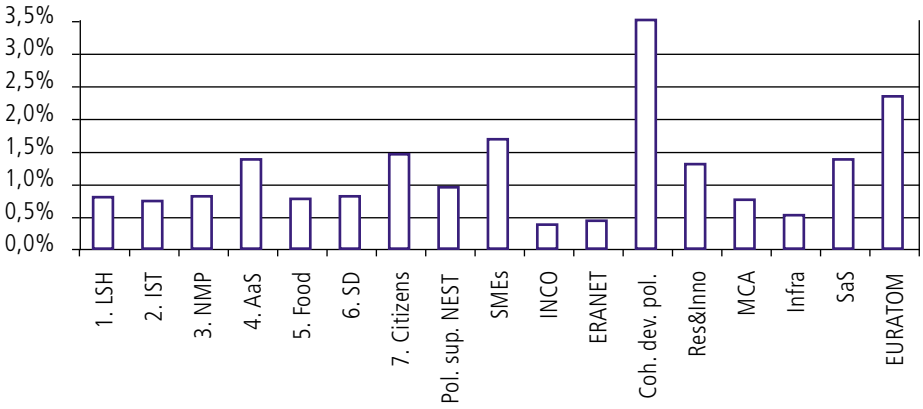

Figure 13 – Contributions requested by Czech teams as percentage of contributions requested by all EU Member States.

1.8. Description of Czech participation in the FP6 by type of project

The significance and benefits of the participation can only be determined by the results achieved in individual projects. Nonetheless, a mere comparison of the total available budgets facilitates a fairly accurate assumption that through the participation in projects focused on research, i.e. the Integrated Projects (IP) and Specific Targeted Research Projects (STREP), or in the Networks of Excellence (NoE), considerably more relevant and more beneficial results can be achieved than in Coordination Actions (CA) or Specific Support Actions (SSA).

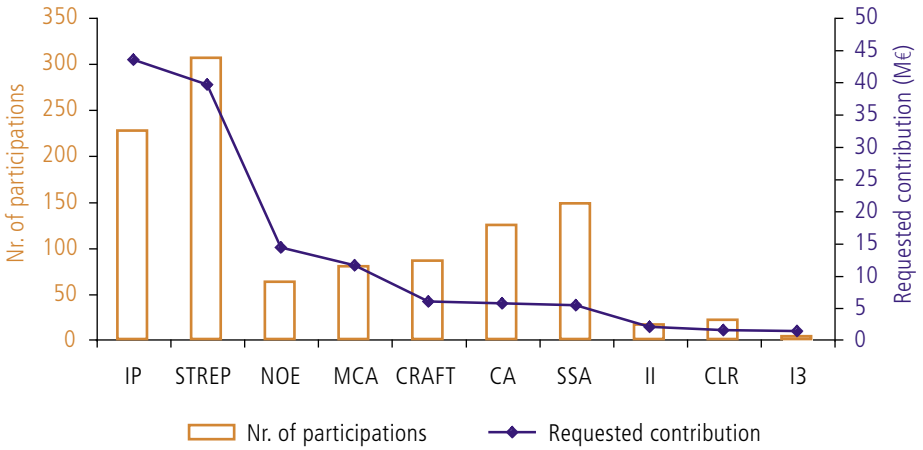

Figure 14 – The bar chart gives the number of participations of Czech teams in individual types of projects under the FP6. The dot chart gives the total contracted amount, by which the EC supports the participation of Czech teams in these projects. Used abbreviations: IP – Integrated Projects, STREP – Specific Targeted Research Projects, NoE- Networks of Excellence, MCA – Human Resources and Mobility – Marie Curie Actions, SSA – Specific Support Actions, SME- specific research projects for small and medium-sized enterprises, CA – Coordination Actions, II and I3 are Research Infrastructures, CLR – Collective Research projects for SME associations.

The bar chart in Fig. 14 illustrates that the Czech teams most frequently participate in projects focused on research activities such as STREP projects (307 participations) and Integrated Projects (226 participations). The third most frequent participation is recorded in the SSA (147 participations), which however do not primarily strive for creation of research results.

As to the contracted contribution, the Czech teams request the highest contribution in the Integrated Projects (€ 43.484 million), followed by STREP projects (€ 39.714 million) and finally the third largest amount is requested by the Czech teams in relation to their involvement in the NoE projects (€ 14.366 million). While the Czech teams thus receive almost 75 % of the total contracted funds in the "main instruments" (IP, NoE, STREP), just like the EU-15 teams, the EU-11 receive only 63 % therein. Except for the CR, the New Member States participate in the SSA and CA projects far more frequently than the Old Member States. A thorough analysis, however, reveals that the Czech participation in the individual IP mostly involves only a smaller capacity and requires considerably lower contribution for IP than participations from other countries, the EU-15 in particular. We shall also highlight that the fourth largest amount (€ 11.537 million) is required by the Czech participants in projects aiming at promoting mobility. These projects are conducive to the commencement of further international collaboration in research and development.

One of the lowest contributions, on the contrary, also when compared to the other EU-27 countries, was requested by the Czech teams involved in the SSA projects (€ 5.361 million). Nevertheless, the number of Czech participations in this form of support is fairly high. In projects for small and medium-sized enterprises (SME and CLR) the Czech teams contracted altogether the amount of € 7.476 million.

The breakdown of contributions received by the CR, EU-11 and EU-15 by individual type of project is presented in Fig. 15. It is clear that these "project portfolios" are similar, but the EU-15 reports considerably stronger participation in research oriented types of projects (IP, STREP) than the EU-11. It is also obvious that the Czech portfolio is closer to that of the EU-15 rather than the EU-11. The Czech teams requested the highest percentage of contribution for their participation in the highly demanding IP and in the category of STREP research projects. They have together a higher share than the EU-15 teams. Note, that the CR requested higher share of contribution for its teams in the NoEs than EU-15 or EU-11. These projects, which aim at ensuring durable interconnection of European research institutions (or creating virtual institutions which are to overcome the limitations of the traditional "brick and mortar institutions"), were frequently criticised by Czech participants due to their complicated structure and un-manageable high number of participants.

The New Member States differ from the EU-15 mainly by their share in the SSA projects, which do not focus primarily on research activities, but rather aim to stimulate them.

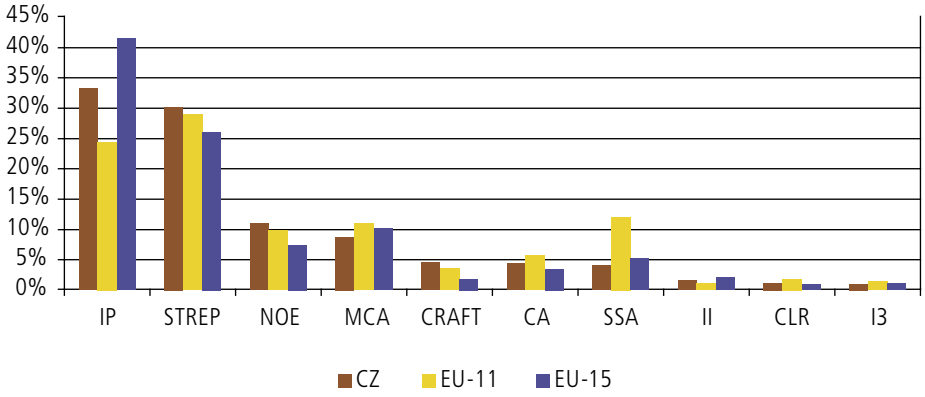

Figure 15 – Comparison of portfolios of requested contribution by type of project implemented by the CZ, EU-11 and EU-15 teams.

1.9. Description of Czech participation in the FP6 by type of participant

The E-CORDA database facilitates at least a rough distribution of research teams by their prevailing activities. Therefore, we present the structure of the FP6 participants broken down into the category of universities, research organisations, industrial teams, "other" and N/A category (i.e. teams, which failed to state the prevailing activity of their organisation). The Fig. 16 gives the number of project participants from the AS CR, research institutes, universities, industrial companies and all the other partners. The highest number of participants comes from universities, nonetheless the total research sector, i.e. ASCR and research institutes, prevails in numbers over participants from universities.

The bar chart in Fig. 17 illustrates the total contribution requested by the participants from individual types of institutions and the dot chart gives the average amount of contribution granted to them by the EC. The average contributions received by the AS CR teams differ only insignificantly from those received by the university teams. Relatively lower average contributions were received by teams from research institutes, which necessitates a more thorough analysis that is beyond the scope of this report. Though the "other" group is strongly heterogeneous, it often times includes those participants designated as "end users" since their role to be played in the project was to test the implementation of project results. The industrial teams receive lower support, because the EC covers no more than 50 % of total costs of their participation in projects.

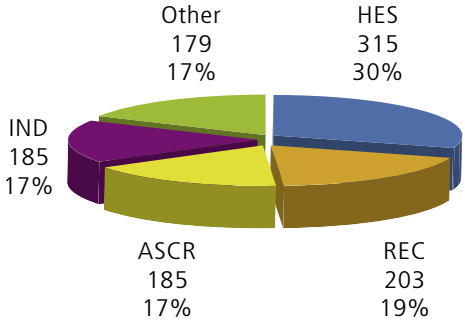

Figure 16 – Structure of Czech participants involved in the implementation of EC FP6 projects.

Portfolios of requested constribution (i.e. breakdown of contribution by type of participant) of the CR, EU-11 and EU-15 are compared in the bar chart in Fig. 18. These portfolios are alike as the highest percentage of contribution was received by teams from universities and research sector, while the industry always receives approximately half of that value only. Yet, the differences between these portfolios are by no means negligible. In the CR, obviously, it was the research sector which received the highest support (comprising the AS CR, all the other public research institutions as well as private institutions), while in the EU-11 and EU-15 the highest support was granted to university teams. Moreover, it is also clear that the share of contribution received by industry in the CR is approximately at the same level as that of EU-15, while in the EU-11 it is considerably lower.

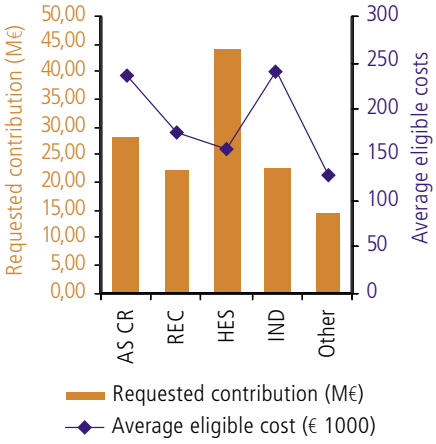

Figure 17 – Average and total contribution requested by individual type of participant in the EC FP6 projects.

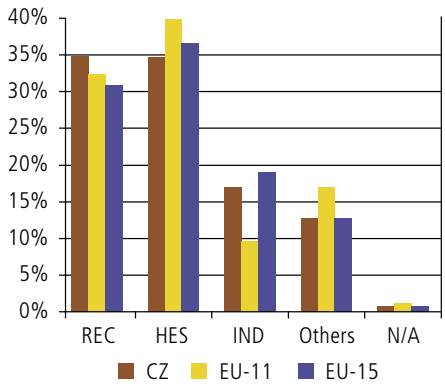

Figure 18 – Portfolios of requested contribution (i.e.distribution of EC contribution requested by different type of participants) of the CR, EU-11 and EU-15.

Concerning the industry participation we shall repeat once again that the EC contribution is closely related with the structure of activities performed by the industrial participant. Thus industry participation requires use of additional indexes.

1.10. Czech industry in the FP6

Although participation of industry is one of the important goals of the framework programme, the prevailing type of participants in the FP projects are teams from higher education organisations and research organisations. The industrial teams represent approximately 20 % of all the EU participants. The lower share of industrial teams has a number of reasons. It does not make sense to use as an excuse the "European climate", which is often described as "Europe produces high number of scientific articles, lagging behind, however, in the application of new knowledge". It is necessary to at least admit that the share of industrial teams in the individual Member States fluctuated a lot: while it exceeded 25 % in Germany, in a number of New Member States it failed to reach 10 %.

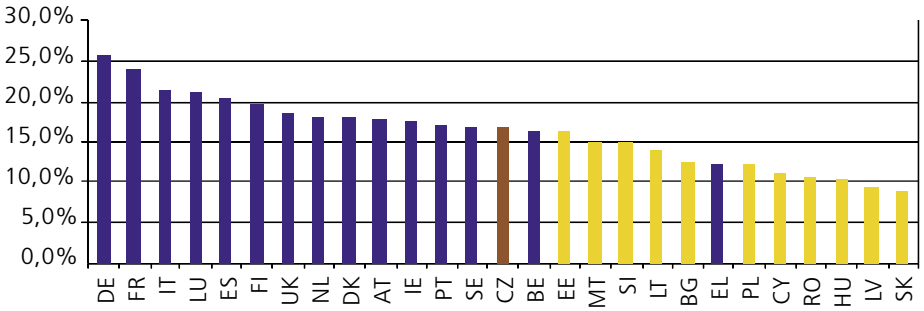

Figure 19 – Share of industry participations in individual Member States.

The chart in Figure 19 presents the ranking of individual Member States based on this share. It is obvious at first sight that in majority of the Old Member States the share of industrial teams was higher than that in the New Member States.

High share of university and academia teams in the FP6 projects is brought about by the very nature of this programme. Most of the calls for proposals opened in the thematic priorities provide a detailed description of the respective theme, the

investigation of which shall be financially supported by the European Commission. While the participation of university and academia teams is largely motivated by the opportunity to receive financial support for offering their research capacity, expertise and methodological readiness to address challenging research issues related to the prescribed themes, the industrial teams are only willing to participate if the respective theme fits their own intentions.

The bar chart in Fig. 20 definitely indicates that **the CR had the largest share of industry participations among all the New Member States**.

The bar chart in Figure 20 gives the absolute numbers of industry participations in the individual EU Member States. The MSs are ranked based on the dot chart, which gives the percentage of eligible costs of all the industrial teams in the given MS of the total eligible costs of industrial teams across the EU-27 (i.e. EU-27 industrial eligible costs = 100 %). The share of Czech industrial teams was 0.78 % of the total eligible costs of all the industrial teams in the EU-27, which helped the CR rank the 15th among the EU-27, or the 1st among the New Member States. As indicated by the detailed comparison, the number of industry participations of the CR was lower than that of PL, but in comparison to the Polish teams, the Czech teams dinvested higher eligible costs.

Alltogether 12 779 industrial teams from the EU-27 participate in the FP6 projects, of which 178 are the industrial teams from the CR. The total eligible costs of industrial teams from the EU-27 amount to € 5.6 billion, the total eligible costs of the Czech industrial teams equal approximately € 43.9 million. This amount represents roughly 34 % of eligible costs of all the industrial teams from the New Member States. This share suggests that the Czech industry responds to the calls of the framework programme more actively when compared with the "average response of industry of the New Member States".

The total eligible costs of participation of industrial teams naturally depend on the size of the respective national economy. If we want to compare the relevance of the framework programme for industries in the Member States, we have to use indices, which relate the country eligible costs in comparable units.

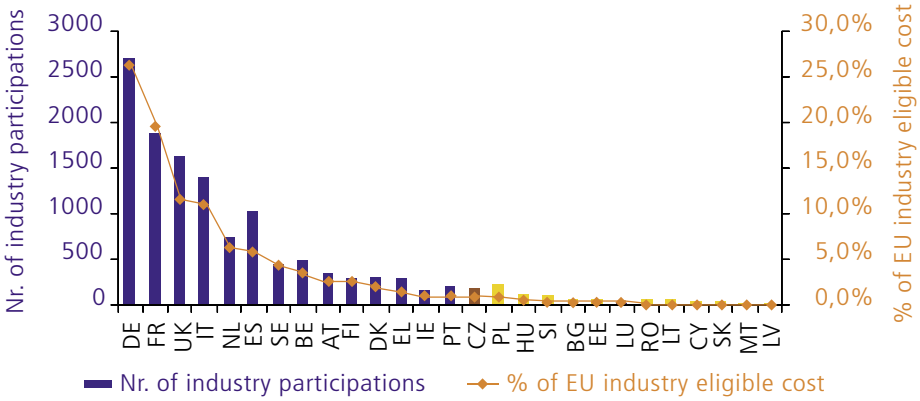

Figure 20 – Bar chart: Number of industry participations, Old Member States are given in blue, New Member States are in yellow. The countries are ranked according to the percentage of eligible costs of industrial teams of given Member State from the total eligible costs invested by all EU-27 industrial teams.

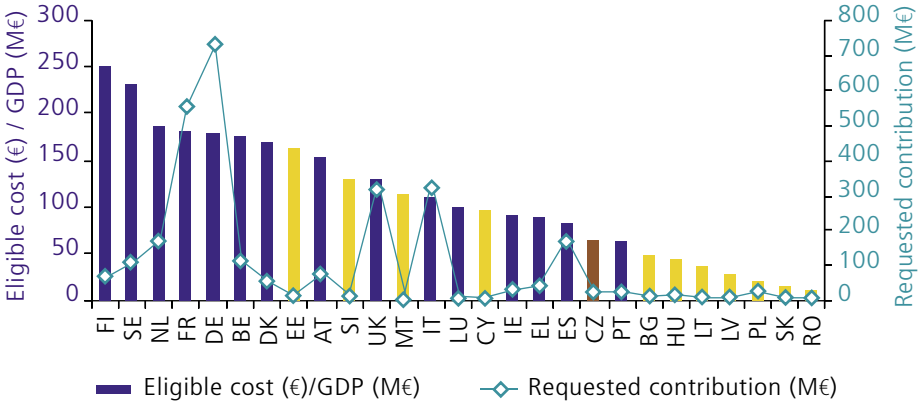

Figure 21 – Bar chart: Eligible costs of industry participations per 1M€ GDP. Dot chart: Total requested contribution for industry participations in FP6 in M€.

The bar chart in Fig. 21 presents the eligible costs of industry participations per 1 M€ GDP by individual Member State. According to this index the CR ranks the 19th among the EU-27.

The responses of individual industries to the calls under the framework programme varied a lot. While the participation of industrial teams in the Citizen and governance in knowledge based society priority was next to zero, the eligible costs incurred by

industry in the Aeronautics and Space priority exceeded 50% of the total eligible costs of EU-27 teams in this priority. However, not all industrial sectors with high R&D spending use the possibility to participate in the suitable FP6 thematic priority. For instance, high spending of the pharmaceutical industry on research and development are common knowledge. Nevertheless, this industry hardly participated in the activities of the first thematic priority and industry eligible costs in this priority amounted only to 15 % of the total eligible costs in this priority. Similarly, since food constitutes a commodity with high export potential in the Member States' economies, it was only natural to expect that industry will take an active part in this priority. Nonetheless, the industry eligible costs here represent only 7.3% of the total eligible costs of this priority. We might point out strong involvement of Danish food industry, which is fully in line with the position of Denmark as one of the largest food exporters in the EU.

As concerns the investments of industry of the New Member States in the participation in FP6, major changes experienced by this sector have to be taken into consideration, as well as the scarcity of capital needed for research and development, underdeveloped venture capital, ownership structure, which does not always have a favourable impact on research and development oriented activities in industrial enterprises.

Table 3 – Industry eligible cost as percentage of total eligible cost of EU-27 in thematic priorities, activities in support of SMEs and in the EURATOM programme.

Priority	industry e. c./ total e. c.
1.LSH	15,1%
2.IST	32,7%
3.NMP	34,4%
4.AaS	54,0%
5.Food	7,3%
6.SD	27,6%
7.Citi	0,0%
Euratom	8,8%
SME	41,9%

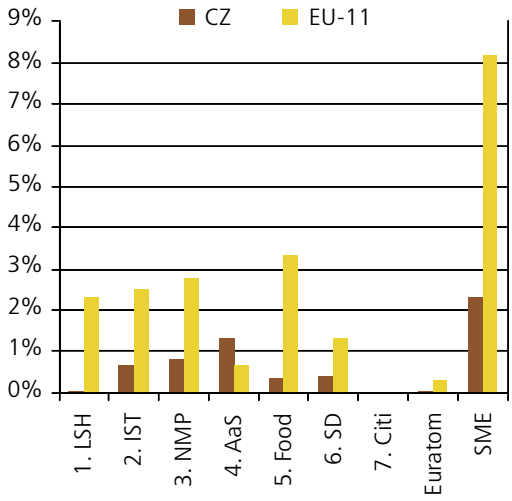

Figure 22 – Total eligible costs of Czech industrial teams and the EU-11 industrial teams expressed as percentage of the EU-27 industry total eligible costs.

The bar chart in Fig. 22 shows what percentage of industry eligible costs of the whole EU-27 is represented by the eligible costs of Czech industrial teams and EU-11 industrial teams. The total eligible costs of industrial teams from the New Member States (i.e. EU-11 plus CZ) should be about 4%, which correspond to their contribution to the EU budget (and thus to the FP6 budget). The chart indicates that this value is not achieved in the FP6 thematic priorities. On the contrary, the eligible costs of industrial SMEs from the EU-11 report double the amount of this value. Hence, the SMEs from the NMS utilize rather more the possibilities offered by the FP than SMEs from the OMS.

Note, that the number of industry participations from the New Member States in the EURATOM programme is only negligible.

The total eligible costs of Czech industrial teams can be deemed sufficient as long as they achieve approximately 0,8% of the EU-27 industry eligible cost, which approximately corresponds to the CZ contribution to the FP budget.

It is therefore more than obvious that the participation of the Czech industry in the first thematic priority is absolutely insufficient. The number of Czech industry participations in this priority is low and the participating teams avail of only small budgets. Similarly, the Czech industry participation in the Food priority is inadequately small.

The same applies to the Czech industry participation in the SD priority, which was of composite nature. It comprised research in the area of energy as well as sustainable transport systems and climate change research. No doubt the first two areas offered major opportunities for the industry engagement. Unfortunately, an in-depth analysis pointed out that the participation of Czech industrial teams in energy research was very poor.

Not even the IST priority reports eligible cost of Czech industrial teams equalling 0.8%. This limit was attained by Czech industry participations in the NMP priority.

The chart also shows that in the IST, NMP and SD priorities, the eligible costs of Czech industrial teams represent always approximately at least ¼ of eligible costs of all the EU-11 industrial teams. It is a sign of a far more active response of the Czech industry to the opportunities provided by these priorities compared to response of industries in the other New Member States, since in financial terms the Czech Republic economy is far less than ¼ of EU-11 economy.

The chart demonstrates extremely successful participation of the Czech industrial teams in the Aeronautics and Space research priority. In this priority the eligible costs

of the Czech teams are substantially higher than the eligible costs of all the other New Member States' industrial teams. In this priority the eligible costs of the Czech industrial teams achieved double the eligible costs of all the other New Member States. The investments of the Czech industrial teams under this priority exceed considerably the investments of some EU-15 Member States. **The Czech aviation industry thus becomes an important player in the European aeronautics research.**

Czech industry, similarly as the European industry, had a very varied reaction to calls for proposals. Nevertheless, the thematic portfolio of eligible cost of the CZ industry differs from that of EU-27. The CZ aviation industry is the most successfully participating sector, which thus took advantage to participate at projects with all-European relevance. On the other hand the small participation of the CZ industry in life science is quite warning since this sector has globally very high dynamics of new knowledge production and implementation of new technologies. Unfortunately a similar conclusion holds good for the participation of the CZ industry in the IST priority, to which the biggest portion of the FPs budgets is allocated and the EU wants to further stimulate the public private partnership in financing research in this sector.

1.11. Participation of the Czech NUTS3 regions

The bar chart in Fig. 23 shows the regional distribution of CZ participations in the FP 6. Since universities and academic research institutions are the most frequent participants in the FP, the distribution of Czech participants across the regions is very uneven because the academia type teams are mainly concentrated in the capital city of Prague and Brno (second biggest city of the CR). Thus almost ¾ of all participants come from two regions: the region of the capital city of Prague (CZ010) and from the city of Brno which belongs to Jihomoravský region (CZ062).

However, the uneven regional distribution, either measured in terms of participations or financial indicators, is inherent to the FP6, i.e. we can observe it anywhere in the EU.

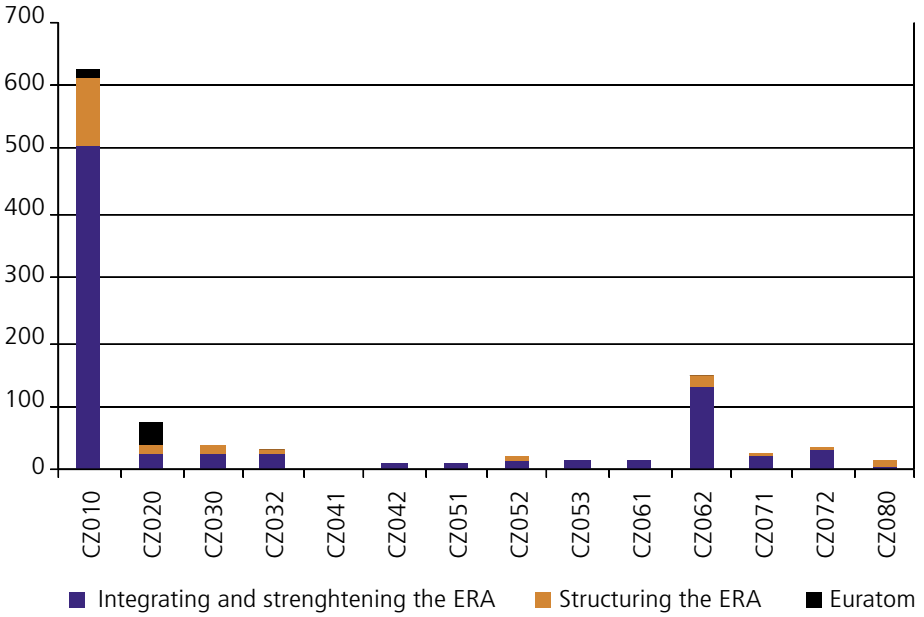

Figure 23 – Regional distribution of CZ participations in the FP6.

Let us remember that the EU consists of 1283 regions in the NUTS3 classification. However, the statistics indicates that some 50 % of the FP6 budget is spent in 42 regions only, i.e. in some 3 % of the NUTS3 regions. The bar chart in Fig. 24 shows the percentage of eligible cost invested by these most active regions and simultaneously the percentage of the contribution requested by teams from these regions. There is no CZ region among these most active 42 regions.

The internal division of the columns in Fig. 23 shows the participation distribution across the specific programmes of the FP 6 and the EURATOM programme. The Specific programme 1 (Focusing and strengthening Community Research) was predominantly oriented on research activities performed either in integrated project and STREPs or in the research for the benefit of SMEs. The Specific programme 2 (Structuring the ERA) was mainly oriented on support of researchers mobility, research infrastructures etc. Hence the internal structure of the columns indicates the regions preparedness to participate in the challenging research activities.

As mentioned above, the highest number of participations is achieved by the capital city of Prague (625 participations) and Jihomoravský region (South-Moravia region – 150 participations), whose participants come mostly from the city of Brno. Then

the Central Bohemia region with 73 participations follows. The teams from the Jihočeský region (South Bohemia) and Zlínský region participated 39 and 34 times, respectively. Participations of any of the remaining regions was below 3 % of the CZ total, however, every CZ NUTS3 region participated. The graph simultaneously indicates that the greatest capacity needed to participate in the EURATOM programmes is in the Středočeský region (Central Bohemia) region where the Institute of Nuclear Research plc. has its seat.

Table 4 – NUTS regions in the Czech Republic

NUTS 3	Region Name
CZ010	Hlavní město Praha
CZ020	Středočeský kraj
CZ031	Jihočeský kraj
CZ032	Plzeňský kraj
CZ041	Karlovarský kraj
CZ042	Ústecký kraj
CZ051	Liberecký kraj
CZ052	Královéhradecký kraj
CZ053	Pardubický kraj
CZ061	Vysočina
CZ062	Jihomoravský kraj
CZ071	Olomoucký kraj
CZ072	Zlínský kraj
CZ080	Moravskoslezský kraj

The bar chart in Fig. 25 shows both total region investments (sum of eligible cost) to participate in the FP6 (full bars) and the respective requested contribution (framed bars). The scatter plot diagram shows the average contribution requested by the teams in the regions. The big variance of this index is due to the structure of the participants: regions with high share of academia teams have higher average requested contribution than regions with small share of these teams. Some 79 % of the requested contribution is spent in the region of Prague (64 %) and the South Moravia region (15 %). There is the highest concentration of universities and institutions of the Academy of Sciences. The third highest contribution (6 %) is requested by teams from the Central Bohemia region, the capacity of which to participate is dominated by activities of the Nuclear Research Institute.

Due to the uneven participation of regions statistical indicators are further considered individually only for the capital city of Prague, Jihomoravský region, Středočeský region, Jihočeský region and Zlinský region, whilst the remaining regions are aggregated into the „other" category.

The distribution of the project types („instruments") is shown by the bar chart in Fig. 26 The Central Bohemia region has the highest share of its participations in the Integrated projects (IP). It is evident that both Prague and the Jihomoravský region have the highest share in research projects realised either by IPs or STREPs.

Prague has 45 participations in the Networks of Excellence (NoEs),which represents 7 % of all Prague's participations in the FP6. In all remaining regions the share of participations in NoEs is still lower, the Zlinský region does not participate in the NoEs at all.

The participation in Marie-Curie Actions rather low, it is only slightly higher in all regions than participation in the NoEs.

The Jihočeský region and Zlínský region have the highest share of their respective participations in the specific support action and coordination activities. They represent some 40 % of all participations in these regions.

Prague has the smallest share of participations in projects for SMEs (CRAFT and CLR) among all Czech regions: it amounts to 5 % of all Prague's participations. The Central Bohemia region and South Moravia region have similarly low participation in these projects. Thus in regions with high number of academia teams the participation in projects performing research in the benefit of SMEs is small. However in the Zlinsky region as well as in the "other" regions almost one third of all participations is realized in the projects for SMEs. This suggest the high significance of the framework programme for SMEs in regions with a weak infrastructure of universities and academia teams.

Participation in project for research infrastructures (I1 and I3) is considerably influenced by the national-wide decisions, i.e. it can be hardly considered as a result of

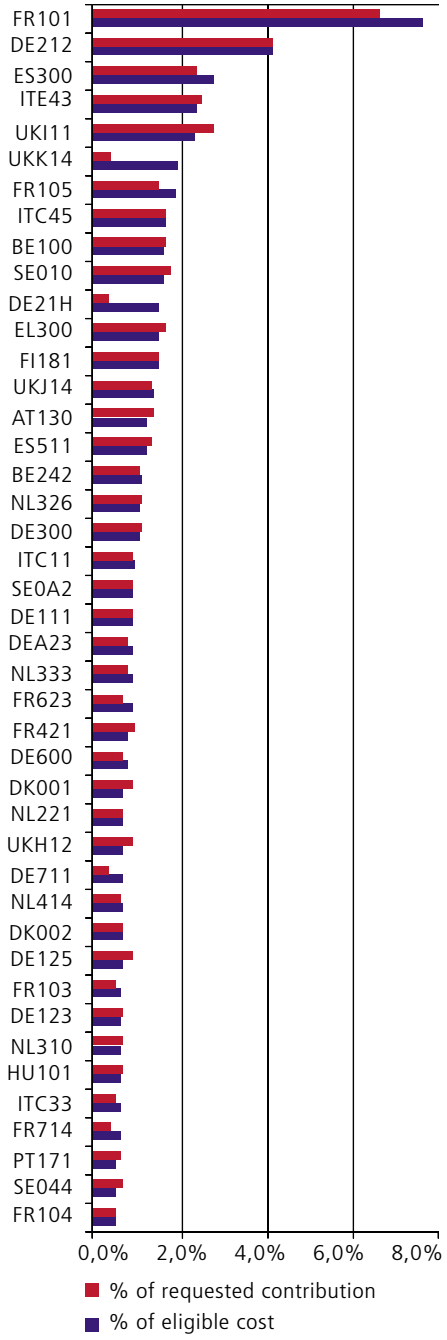

Figure 24 – The top EU NUTS3 regions whose eligible costs represent 50 % of the total EU eligible costs and they request some 50 % of the Total EC contribution to the FP6.

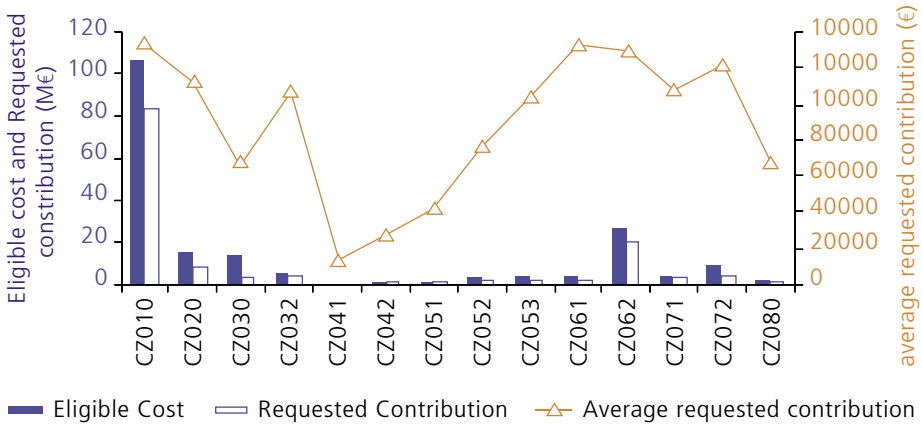

Figure 25 – Bar chart: Regional distribution of total eligible cost and requested contribution
Scatter plot diagram: Average contribution requested by the region's teams.

purely „bottom up activity". Prague, Central Bohemia region and South Moravia region have the highest share of their respective participation in these projects.

The bar chart in Fig. 27 indicates distribution of participations according to the type of participant´s main activity: HES stands for higher education organisations, REC for research institutes, IND for industrial organisations (both private and public), OTH for others and N/A is used for non-defined organisations.

The intraregional distributions are clearly very different. When HES and REC are summed up then they markedly prevail in the following four regions: Prague, South Moravia, Central Bohemia and South Bohemia. The share of HES plus REC varies between 62–73 % of the respective number of participations in these regions. However, whereas Prague and the South Moravia have very similar shares of HES

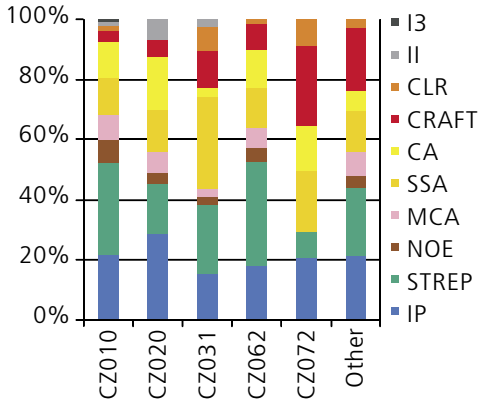

Figure 26 – Intraregional distribution of participations in different types of FP6 projects.

and REC, the participation of the Central Bohemia region is clearly dominated by research institutes (in fact it is mainly due to high activities of the Nuclear Research Institute). The share of HES plus REC in the Zlín region as well as in other regions is bellow 1/3 of all participations, thus considerably lower than in the above discussed regions. However the Zlín region as well as other regions have highest share of participations of industry: almost 50 % of all participations from the Zlín region come from industry, in other region this ratio amounts to 30 %. The smallest ratio of industrial participations has Prague (the ratio is bellow 10 % of all participations).

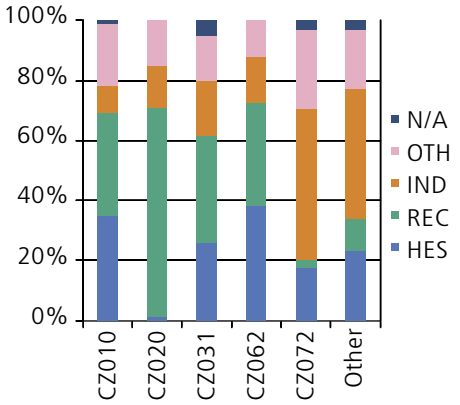

Figure 27 – Intraregional distribution of participations according to the participants's activity

It can be thus stated in fine that there are considerable differences among NUTS3 regions participations in the FP6. Some ¾ of all Czech participations come from the capital city of Prague and the South Moravia region (or even from Brno, the biggest city in Moravia). These two regions have the highest concentration of universities and research institutes in the Czech Republic The statistical analysis of the intraregional structure of the participations indicates, that the Framework programme offers outstanding opportunities even for regions with lower research capacity. The participation of industry, particularly participation of small and medium enterprises located in these regions, is very significant. Regions with small participation (i.e. regions, which represent less than 3 % of the total CZ participation), participate more frequently in specific support activities, which likely paves the way towards future participation in demanding research projects.

1.12. Selected financial aspects of Czech participation in the FP6

The Framework programme shall by no means replace the national research programmes, on the very contrary it shall be complementary to a certain degree thereto. Therefore, the experience gained by countries gradually acceding to the European Community (EC) suggests that the number of national participations in the FP follows an ascending trend up to the level at which it equals the share of national population in the total EU population. The chart in Fig. 28 illustrates the increase in the number of teams from the New Member States in the period from 2003 to 2005, which, however, did not continue in the 2006–2007 period. It is definitely clear that the number of teams from the New Member States by far fails to reflect the share of their national population. An in-depth analysis reveals that there is a room for stronger participation especially among the "larger New Member States". The CR also reports a positive growth of participation of its teams. The population of the CR represents approximately 2.1 % of the total EU-27 population, meaning that the CR still has a room to increase the representation of its teams in the EU-27 teams. In case of the CR, the drop experienced in 2007 could be attributed to the exacting nature of project preparation under the newly launched FP7, in which the Czech teams joined the top quality teams from the EU.

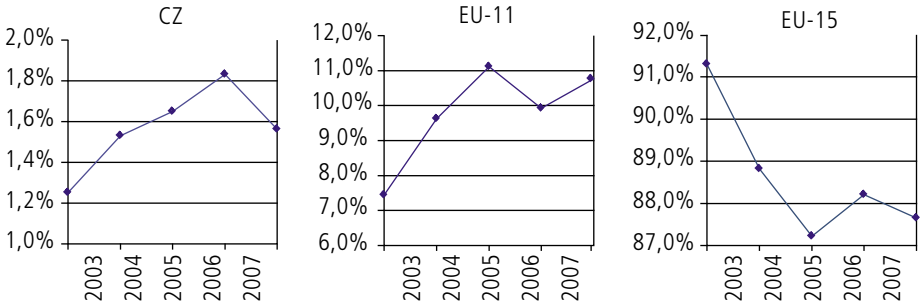

Figure 28 – The trend of share of the CZ, EU-11 ands EU-15 teams among the EU-27 teams in the 2003–2007 period.

Although the number of national participants positively correlates with the size of national population, the significance of their participation depends on a great many other factors, including undoubtedly also their ability to mobilise adequate

capacity for their participation (and thus to receive an adequate part of the FP budget). The "participation in a project" indicator on its own does not report on the relevance and significance of participation, which is far better expressed by average total costs of participation, or the average amount of contribution granted by the EC to support the participation of Czech teams. Table 5 presents basic comparisons of the CR with the EU-11, or the EU-15, average.

Table 5 – Comparison of average budget for the participation of Czech teams with the EU-11 and EU-15 teams.

	Average budget (€)	EC contribution (€)	EC contribution/ budget
CZ	182 851	122 567	67,03 %
EU-11	150 199	106 781	71,09 %
EU-15	396 376	249 819	63,04 %

Apparently, the average budget of a Czech participant in the FP6 projects is higher than that of a participant from the EU-11. Nonetheless, the average budget of a Czech participant is slightly lower than half of the average budget of a participant from the EU-15. The same proportions are true for the average contributions by which the EC supports the participation of teams in the FP6 projects. The last column of the table illustrates that the average contribution/ average budget ratio is the highest in the New Member States, where it achieves almost 3/4, while in case of the CR only 2/3 and in the EU-15 even less than 2/3. These differences are largely caused by the structure of participants, type of projects in which they participate and the rules for fixing the amount of contribution. Generally speaking, the higher the percentage of industrial teams participating in the FP6 projects, the lower the percentage contributed to the costs of their participation (while universities and research institutions could get up to 100 % of their eligible costs, industrial companies can receive no more than 50 %).

Based on the amount of requested support the CR ranks 17th among the EU-27, or 3rd (behind PL and HU) among the New Member States. The ranking of the EU-27 by their total eligible costs of participation in the FP is presented by the bar chart in Fig. 29.

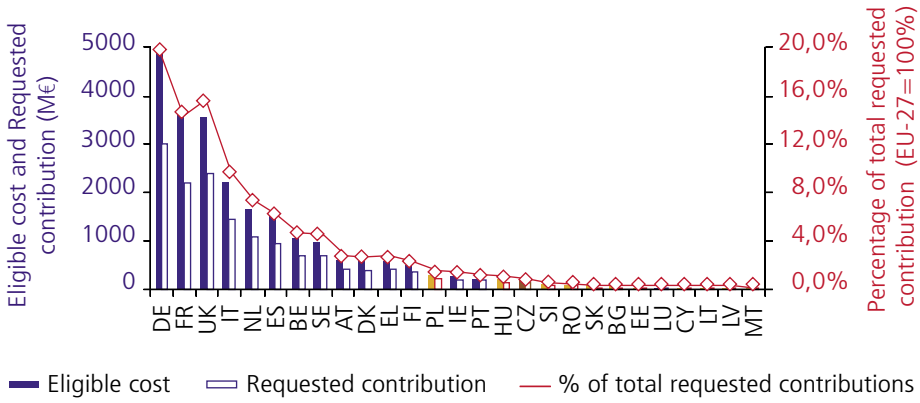

Figure 29 – The dot chart (scale on the right side) gives the percentage of the total contribution granted by the EC to the EU-27 teams received by the individual Member States (EU-27 = 100 %). The bar chart (scale on the left side) gives the total costs, or the total contribution requested by teams from the Member States for participation in the EC FP6.

As mentioned earlier, there is a lot of evidence that the total percentage of the received support allocated to the teams of the state concerned should not differ much from the percentage of contribution, which the Member States contributes to the FP budget. The budget of the Framework Programme is an integral part of the total EU budget (only marginal contribution is paid by candidate countries, which naturally do not contribute to the EU budget). Thus, the amount of the relative contribution of the Member State to the EU budget is used as an indicative estimate for the total financial support requested by the Member State. For instance, throughout the duration of the FP6 the German contribution to the EU budget and consequently to the FP budget ranges about 20–21 %, and the dot chart in Fig. 29 also indicates that the EC contribution to German teams amounted to approximately 20 %.

In the Old Member States, the percentage contributed by the given Member State to the budget of the Framework in given fiscal year is a good approximation of the percentage of total support requested by these Member State teams. However, in the New Member States this relationship is not that close, since these countries have been paying a full contribution to the EC only starting with 2005. In 2003 the New Member States were not yet the full-fledged EU Member States and participated in the EC FP6 with the obligation to pay only 70 % of the full contribution to the FP budget, in 2004 the New Member States paid only 2/3 of the full contribution to the EU (the proportionate part of which was allocated to the FP6 budget, since they only

became the full-fledged EU Member States on May 1). Following their EU accession, several New Member States experienced a fairly rapid increase in the percentage they have to contribute to the EU budget as a consequence of their growing gross national product. As concerns the CR, in 2003 its contribution was approximately 0.6 % of the FP6 budget and in 2005 the CR paid 1.00 % of the EU budget and the plan for in 2006 was 1.06 %. We can therefore assume that throughout the duration of the FP6 the Czech teams should annually contract more than 0.7 % (since the Czech contribution has always exceeded this value).

The charts in Fig. 30 show the dynamics of requested contribution for CR, EU-11 and EU-15. It is immediately obvious that the New Member States keep increasing their share in the total amount, by which the EC supports participants from the EU-27. While in 2003 the EU-12 Member States drew only 3.5 % of the total EU-27 support, in 2006 it was already 6.6 %. In spite of that the Old Member States continue to receive more than 93 % of all the EU-27 funds, which may seem to be an inappropriately high a share. However, this percentage of requested support closely correlates with the percentage contributed by these countries.

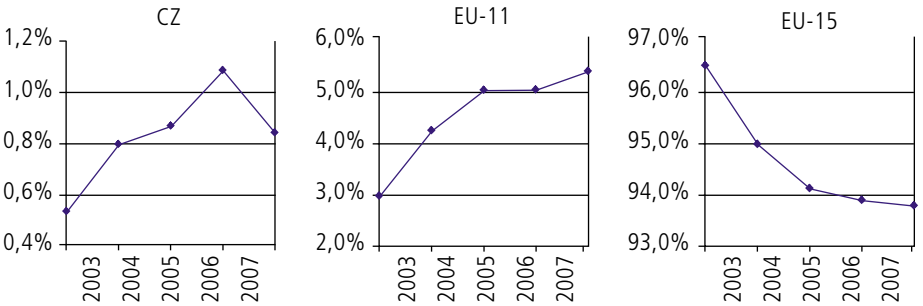

Figure 30 – Dynamics of requested contribution expressed in percentage (EU-27 = 100 % in the given year) for implementation of projects, which were gradually contracted in the 2003–2007 period. The "Total" gives the percentage of requested contribution received by the given grouping in the course of the EC FP6.

The CR also reported a rapid increase in the percentage of received support and thorough analyses indicate the percentage of received support is very close to that by which the CR contributes to the EC budget, or by which it contributed to the FP budget in 2003 and 2004. And if the total support received by the Czech teams is lower than would be appropriate with respect to the contribution of the CR to the EC FP6 budget, it was caused first and foremost by low response of Czech teams at the launch of the EC

FP6, i.e. in 2003. By all means it holds good that while the New Member States receive bigger and bigger share of the FP budget, the share received by the EU-15 keeps falling.

Since the FP is one of the important instruments of the Lisbon strategy, which is to increase the global competitiveness of Europe, it is only natural that especially the leading research teams should participate in the FP projects. Favourable conditions for the work of leading research teams of course prevail in the Member States with highGross Expenditure on R&D (GERD). The relevance of participation in the FP for the given national environment can be then measured by the "total requested EC contribution to the team participation / GERD ratio". The bar chart in Fig. 31 compares the EU-27 Member States based on the percentage of GERD represented by the total contribution to the participation in FP. This percentage marks the entire five-year period from 2003 to 2007, which is why the total requested contribution is related to the sum of GERDs for this five-year period.

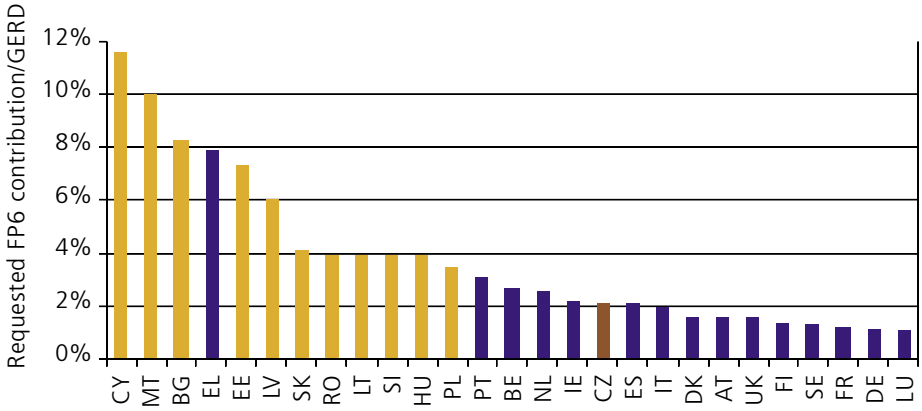

Figure 31 – The EU-27 Member States are ranked according to the "total requested contribution in the FP/GERD" (summary Gross Expenditure on R&D (for 2003–2006 period)) ratio.

One can immediately see that **except for the CR, the total requested contribution in the New Member States always represents a much higher percentage of GERD than in the Old Member States with the exception of Greece (EL)**. While in the EU-11 the contribution equals almost 4 % of GERD (and in the case of small countries the value exceeds 7 %), the contribution in the EU-15 tends to fall below 2 % of GERD. In the CR it is 2.1 %, which puts the CR into a unique position among the group of Old Member States. Greece, on the contrary is ranked into the group of the New Member States). Let us point out that with the exception

of SI and CR, the GERD in the New Member States always represents an amount lower than 1 % of GDP. On the contrary, in the Old Member States, except for EL, ES, IT and PT, the GERD always accounts for more than 1.3 % of GDP. **It suggests that the participation in the FP is more relevant for countries which invest more than 1 % of GDP into R&D. In these countries there are usually no grant agencies in place, which would furnish support for such a broad thematic portfolio of research projects, as it is in the case of the FP6.**

However, this observation should not lead to the conclusion, that the FP is not important for countries with higher R&D intensity (i.e. higher GERD/GDP ratio). Namely, the budget of the framework programme is usually stated to be approximately 5 % of the total public expenditure of the Member States on research and development. Such a statement, though, is misleading since the total public expenditure is to a great extent spent on institutional support, while the framework programme is designed to finance almost exclusively project activities. Although the projects under the framework programme differ in nature from those supported by the Grant Agency of the CR (GA CR), we shall bear in mind that throughout the duration of the EC FP6, the annual total expenditure of the Czech teams on their participation in the EC FP6 exceeded the expenditure of the GACR, see bar chart in Fig. 32. According to this chart, in 2003 the expenditure on participation in the EC FP6 was lower, but the total expenditure on Czech participation in projects launched in that year under the FP5 and the FP6 would exceed the GA CR expenditure. For 2007 the chart presents total expenditure /contributions for projects under the FP6 and FP7.

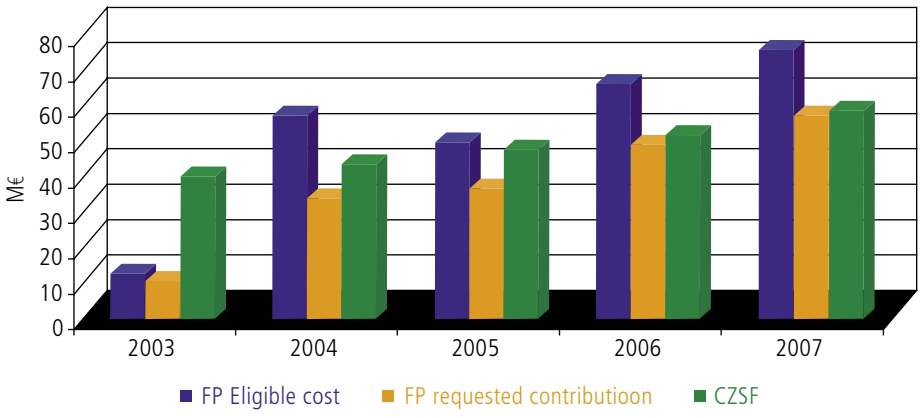

Figure 32 – Comparison of annual expenditure on and requested contributions for participation in the FP6 with the GA CR budget.

The chart also shows that the total requested contribution for participation in the FP does not exceed the GA CR expenditure, nevertheless the gap (between the orange and green bars in the chart) keeps closing. Thus, the framework programme cannot be perceived as a marginal ("5 %") complementary opportunity open to the Czech research and development. On the contrary, the CR shall pay major attention to its participation in the ongoing FP7, which annually avails of a roughly by 40 % higher budget than that of the FP6.

1.13. Detailed view on participation of CZ teams in the FP6 thematic priorities and the EURATOM programme

This chapter describes in detail the participation of the CR in individual thematic priorities of FP6 and the EURATOM programme. The same scheme and the same indicators as for FP6 were used.

Since the number of participations in individual priorities has only a limited reporting value, the participation is described through financial indicators. The total requested contribution for individual EU-27 Member States is shown in graphics. The value of this indicator, however, depends on a multitude of factors. It is certainly impacted by the value of GDP per capita, but undoubtedly also by the composition of participants. The research teams (of "academia" type) were granted contribution from the European Commission up to 100 % of their eligible costs, while the contribution to industrial teams achieved no more than 50 % of eligible costs. The amount of contribution also depended on the type of the project and activities performed under such a project, e.g. contribution in case of specific support actions could equal up to 100 % of eligible costs, while in research activities it was usually 50 % and in case of demonstration activities it amounted to no more than 35 % of their eligible costs. Therefore, the indicator based on eligible costs is more suitable for comparing individual countries rather than requested contribution. Since the sum total of eligible costs is effected by the number of participants, or the size of national economy, the participation of EU Member States is compared by means of the "eligible costs per € 1 million GDP" indicator, i.e. the eligible costs/GDP(M€) ratio. Since the projects were submitted in calls from 2003 to 2006, the total eligible costs for this period are related to the total GDP for 2003–2006 period.

For each priority also the composition of participants is taken into account (i.e. the share of participants from HES (Higher education organisations), REC (Research organisations), IND (Industrial teams), Oth (Other organisations) and N/A (when participant type is missing in the database)).

There are two tables presented for each priority. The first one gives the number of those organisations, which altogether represent top 10 % participants in the **entire priority**, as well as the number of participations of organisations, the sum of which represents top 10 % participants in those projects only, in which the **Czech teams participated** (the so called **"Czech projects"**). The table shows in graphics (by colours) to what extent the top (most frequent) participants in the whole priority overlap with the top participants in the Czech projects. Those Czech projects, in which the outstanding teams from the leading European institutions participated, can be considered to be projects generating high added value for Czech participants.

The other table presents a list of major Czech projects, i.e. those projects, which the Czech participants joined with big budgets. The list includes those projects, in which the total budget of Czech participants accounts for approximately 10 % of total eligible costs of Czech participants in this priority. Thus the table indicates the relevance of the addressed matters for the Czech Republic.

1.13.1. Life sciences, genomics and biotechnology for health

This priority has the second largest budget among the thematic priorities of FP6. The bar chart in Fig. 33 shows the EU-27 Member States ranked by the total eligible costs per 1 M€ GDP, incurred by the respective national teams in the LSH projects. According to these statistics, the CR ranks the 16th among the EU-27 Member States. Ten Member States (SE, DK, EE, NL, BE, FI, UK, AT, FR, DE) spent on their participation in LSH priority more than double the amount (per 1 M€ GDP) spent by the CR.

The dot chart shows the total contribution requested by individual Member States. It indicates that the highest contribution was requested by the "Big Four", namely in the following order: DE, UK, FR, IT. Nevertheless, they are not followed by the ES (as expected judging from the size of GDP), but by NL and SE, and only then by ES. The CR ranks the 14th among the EU-27.

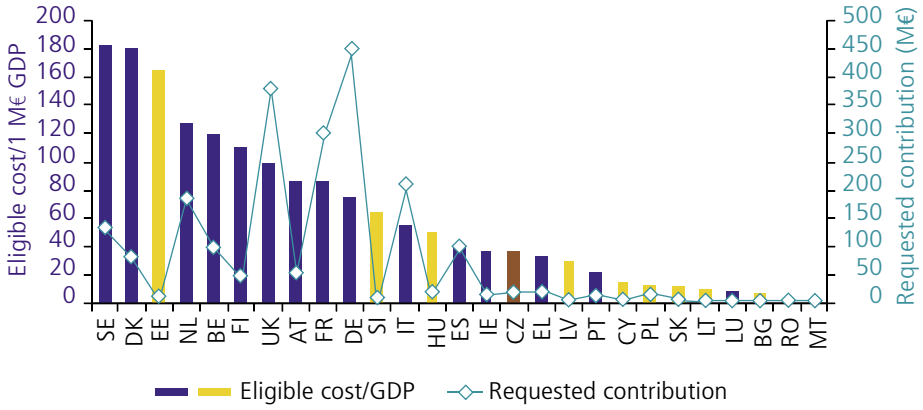

Figure 33 – Bar chart: Total eligible costs of the participation in the LSH priority calculated per € 1 million GDP. Dot chart: Total requested contribution for the participation in the LSH priority (in M€).

Fig. 34 presents the composition of Czech teams, New Member States excluding CR, i.e. EU-11, and the composition of teams from the old EU-15. It is obvious that in comparison with the NMS and OMS, the CR has the lowest share of HES teams and the highest share, on the contrary, of research organisations' teams. Detailed analysis suggests that prevailing among the research organisations were the teams from the Academy of Sciences of the CR. It also reveals that when compared with EU-11 and EU-15, the CR has by far the lowest share of industrial teams. There was not a single large industrial company in the CR participating in this priority.

Therefore, a question arises about the significance of the participation of the CR in LSH priority, which is partially answered by Table 6. Its left part enlists the top 10 % participants in all LSH projects, while its right part gives the top 10 % participants in LSH projects with CZ teams. The boxes in blue show those institutions, which are present in both parts of the table. The most frequent participants in consortia implementing the LSH projects are the French INSERM, the Swedish Karolinska Institutet,

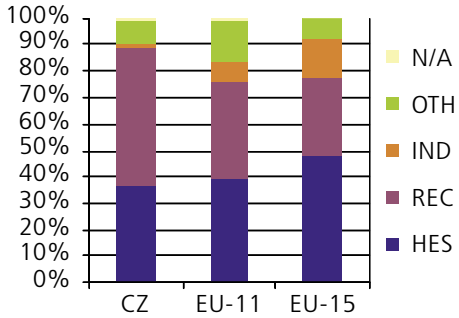

Figure 34 – Composition of participations of teams according their activity type in CZ, EU-11 and EU-15.

the French CNRS, the German Max-Planck Gesellschaft, the Oxford University etc. These are, without any doubt, the foremost European, or global research institutions. The right part of the table clearly shows that projects with the participation of Czech teams involve fairly often these leading institutions of international stature.

Hence, thanks to the participation in LSH projects, a number of research teams from the Czech public and private research organisations as well as Czech universities were offered a unique opportunity to cooperate with the leading European teams.

Table 6 – Left part of the table gives a summary of "top 10 % participants" in all LSH projects, while the right part of the table enlists the "top 10 % participants" in LSH projects with CZ teams.

top 10 % participants in all LSH projects	participations	top 10 % participants in LSH projects with CZ teams	participations
INSTITUT NATIONAL DE LA SANTE ET RECHERCHE MEDICALE	129	INSTITUT NATIONAL DE LA SANTE ET RECHERCHE MEDICALE	26
KAROLINSKA INSTITUTET	102	KAROLINSKA INSTITUTET	24
INSTITUT NATIONAL DES SCIENCES DE L'UNIVERS /CNRS	102	CHARLES UNIVERSITY	23
MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	71	INSTITUT NATIONAL DES SCIENCES DE L'UNIVERS/CNRS	20
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	61	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	16
EUROPEAN MOLECULAR BIOLOGY LABORATORY	56	UNIVERSITY COLLEGE LONDON	14
MEDICAL RESEARCH COUNCIL/LONDON	56	LEIDEN UNIVERSITY MEDICAL CENTER	12
UNIVERSITY COLLEGE LONDON	54	ERASMUS UNIVERSITY MEDICAL CENTER	11
LEIDEN UNIVERSITY MEDICAL CENTER	49	MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	10

IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	49	IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE.	10
INSTITUTO DE ASTROFISICA DE ANDALUCIA, CENSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	49	MEDICAL RESEARCH COUNCIL/LONDON	10
		UNIVERSITA DEGLI STUDI DI MILANO	10
		KATHOLIEKE UNIVERSITEIT LEUVEN	10

Finally, Table 7 lists those projects, which the Czech participants entered with big budgets. It concerns 10 projects, in which the total eligible costs of Czech participants represent approximately 10 % of total eligible costs of the Czech Republic in the LSH priority. Of these 10 projects, 7 are Networks of Excellence (NoE) and 3 are Integrated Projects. Such investments made by the Czech institutions in the Networks of Excellence are surprising, since this type of projects has usually been met with criticism in the CR. The critics pointed out that the effectiveness of management of such a broad portfolio of participants in the network is usually very low.

The composition of institutions is the following: 7 institutes of the AS CR, three workplaces of Faculties of Medicine of the Charles University, the University of West Bohemia and finally an industrial team (BIOTEST ltd.).

By all means the project titles foreshadow the high relevance of their implementation since they often address urgent issues the Czech society has to overcome in one way or another.

Table 7 – Projects with Czech participants, whose total eligible costs represent approximately 10 % of total eligible costs of the CR in the LSH priority.

Project title	Participant	Instrument
Multi-Organismic Approach to Study Normal and Aberrant Muscle Development, Function and Repair	INSTITUTE OF PHYSIOLOGY, ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	NOE
Live attenuated replication-defective influenza vaccine	BIOTEST S.R.O	IP
Diagnostic Molecular Imaging	CHARLES UNIVERSITY IN PRAGUE	NOE
Diagnostic Molecular Imaging	INSTITUTE OF EXPERIMENTAL MEDICINE, ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	NOE
European Molecular Imaging Laboratories	CHARLES UNIVERSITY IN PRAGUE INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY – ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	NOE
European AIDS Treatment Network	UNIVERSITY HOSPITAL PLZEN, CZ	NOE
European Rat Tools for Functional Genomics	INSTITUTE OF PHYSIOLOGY, CZECH ACADEMY OF SCIENCES	IP
European Network for the Advancement of Clinical Gene Transfer and Therapy	INSTITUTE OF MOLECULAR GENETICS, ACADEMY OF SCIENCES, CR	NOE
Integrated Genomics, Clinical Research and Care in Hypertension	CHARLES UNIVERSITY IN PRAGUE INSTITUTE FOR CLINICAL AND EXPERIMENTAL MEDICINE	NOE
Platforms for biomedical discovery with human ES cells	INSTITUTE OF EXPERIMENTAL MEDICINE, ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	IP

Generally speaking the participation of the CR in the LSH priority was lower, particularly because the Czech industry in fact does not participate in this priority. The investigated topics are relevant for the CR and a number of public research organisations join the projects with a fairly high capacity, therefore it can be expected that these organisations will use the results of the projects to a major degree. Participation in research consortia often brought the European added value to the Czech teams, since it made it possible for them to collaborate with the leading European workplaces in the field of life sciences.

1.13.2. Information society technologies

The information and communication technologies absorb the highest share of the total budget in all the framework programmes. The IST priority budget accounted for almost € 4 billion. It follows from the dot chart in Figure 35 that the largest share of the budget is drawn down by the four largest states, namely DE, FR, UK and IT. According to the amount of contribution, the CR ranks the 17th, meaning it requested contributions lower than any of the EU-15, but also considerably lower than Poland and Hungary.

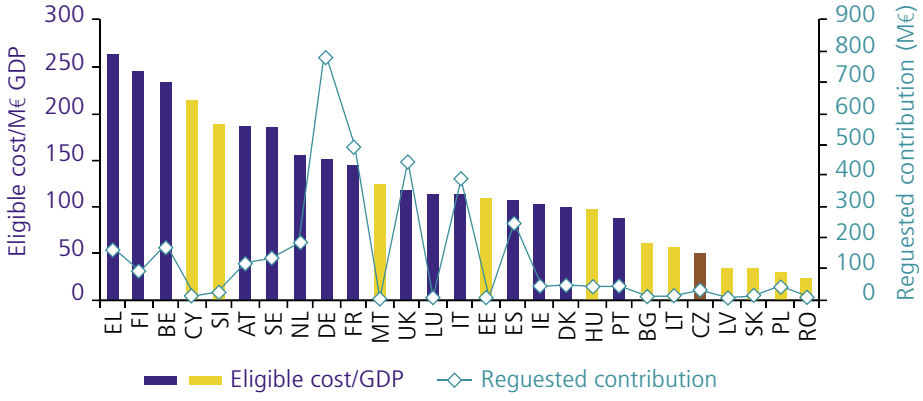

Figure 35 – Bar chart: Total eligible costs of the participation in the IST priority calculated per € 1 million GDP. Dot chart: Total requested contribution for the participation in the IST priority (in M€).

According to the total eligible costs calculated per € 1 million GDP, the CR ranks the 23rd in the EU-27 – see the bar chart in Fig. 35. Its ranking in other thematic priorities is far better. It indicates that the Czech teams participate only scarcely in areas with the largest EU investments. It is evident from Figure 36 that the composition of Czech participants in the IST priority is quite similar to that of the EU-11 or EU-15 participants. The CR has a slightly higher share of industrial teams than the EU-11, but a lower share than the EU-15. The structure of industrial teams from the CR and the EU-11 differs considerably from that of the EU-15. The industrial teams from the New Member States (including the CR) are predominantly small and medium-sized enterprises, while in the Old Member States they are usually large companies.

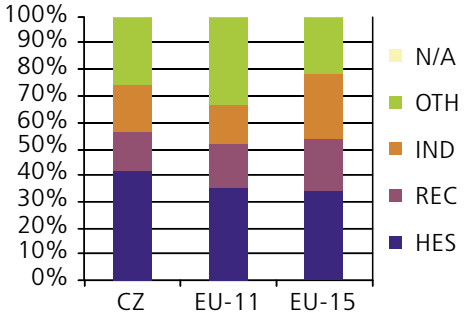

Figure 36 – Composition of participations of teams according to their activity type in CZ, EU-11 and EU-15.

Let us observe that while in the other thematic priorities the share of research organisations in the CR is larger than in the new or Old Member States, in the IST priority the CR has the lowest share of research organisations.

Table 8 – The left part of the table gives a summary of the "top 10 % of participants" in all IST projects, while the right part of the table enlists the "top 10 % participants" in IST projects with CZ teams

top 10 % participants in all IST projects	participations	top 10 % participants in IST projects with CZ teams	participations
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	239	FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	27
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	157	CZECH TECHNICAL UNIVERSITY, PRAGUE	27
TELEFONICA INVESTIGACION Y DESARROLLO SA UNIPERSONAL	101	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	19
INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	97	UNIVERSITAT POLITECNICA DE CATALUNYA	14
CONSIGLIO NAZIONALE DELLE RICERCHE	88	CONSIGLIO NAZIONALE DELLE RICERCHE	12
ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	85	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	11

FRANCE TELECOM SA	83	KUNGLIGA TEKNISKA HOGSKOLAN	11
COMMISSARIAT A L'ENERGIE ATOMIQUE	80	NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH – TNO	10
KUNGLIGA TEKNISKA HOGSKOLAN	78	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	10
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	76	COMMISSARIAT A L'ENERGIE ATOMIQUE	10
INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	70	FOUNDATION FOR RESEARCH AND TECHNOLOGY – HELLAS	10
UNIVERSITAT POLITECNICA DE CATALUNYA	67	INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	10
VALTION TEKNILLINEN TUTKIMUSKESKUS	67	MAGYAR TUDOMANYOS AKADEMIA SZAMITASTECHNIKAI ES AUTOMATIZALASI KUTATO INTEZET	10
SIEMENS AKTIENGESELLSCHAFT	63	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	9
EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	63	UNIVERSITA DEGLI STUDI DI ROMA "LA SAPIENZA"	9
UNIVERSIDAD POLITECNICA DE MADRID	61	TECHNISCHE UNIVERSITAET WIEN	9
		INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	9
		VALTION TEKNILLINEN TUTKIMUSKESKUS	9
		CHARLES UNIVERSITY, FACULTY OF MARTHEMATICS AND PHYSICS	9

Table 8 shows that in the top 10 % participants the research organisations and universities predominate. Nevertheless, these are institutions focused particularly on applied research, which is true about the absolute winner in terms of participation, namely Fraunhofer Gesellschaft. It also comprises large companies operating in

communications as well as participants from large industrial companies. The left part of the table covers the top 10 % participants in consortia, in whose activities also Czech teams participated. The blue boxes indicate participants present in both parts of the table. The Czech teams for sure cooperated with quite a few "top 10 % participants in IST projects", but they were mainly research organisations or universities, not industrial partners or communication companies.

Table 9 presents a list of projects joined by the Czech participants with big budgets. The industrial partners clearly prevail. It is positive that in prevailing majority it concerns research projects (8 Integrated Projects and 7 Targeted Research Projects).

Table 9 – Projects with Czech participants, whose total eligible costs represent approximately 10 % of total eligible costs of the CR in the IST.

Project title	Participant	Instrument
Computers In the Human Interaction Loop (CHIL)	IBM Czech Republic, Ltd.	IP
A NETworked multisensor system for elderly people: health CARe, safety and securITY in home environment	IBM Czech Republic, Ltd.	IP
Distant-talking Interfaces for Control of Interactive TV	IBM Czech Republic, Ltd.	STREP
Converged Messaging Technology	LOGICACMG Ltd.	STREP
COMPANIONS: persistent multi-modal interfaces to the Internet	CHARLES UNIVERSITY Prague	IP
BUILDING KNOWLEDGE DRIVEN and DYNAMICALLY ADAPTIVE NETWORKED COMMUNITIES WITHIN EUROPEAN HEALTHCARE SYSTEMS	IDS SCHEER CR, Ltd.	IP
Improving Knowledge and Decision Support for Healthy Lifestyles	IDS SCHEER CR, Ltd.	STREP
Simulation based automated Diagnosis, Treatment and prognosis of Cardiovascular diseases	IDS SCHEER CR, Ltd.	STREP
COMPANIONS: persistent multi-modal interfaces to the Internet	WEST BOHEMIAN UNIVERSITY, PLZEN	IP
Closed Loop INsulin Infusion for Critically Ill Patients	CHARLES UNIVERSITY Prague	IP

Smart Chips for Smart Surroundings	ASICENTRUM Ltd.	STREP
Motivating Active Participation of Primary Schoolchildren in Digital Online Technologies for Creative Opportunities through Multimedia	CROSS CZECH AS	STREP
The Democracy Network	AGENCY FOR EUROPEAN PROJECTS & MANAGEMENT	NOE
Integration of Geographical Information Systems with DB, decision-support management and an auditory system to develop an advanced system that will be able to give support on decisions in a crisis	T-SOFT, Ltd.	STREP
Collaboration@Rural: A collaborative platform for working and living in rural areas	WIRELESSINFO	IP
OASIS: Open Advanced System for disaster and emergency management	MEDIUM SOFT A.S.	IP

Participation of the CR in the IST thematic priority was fairly low. Universities dominate among the Czech participants. Nevertheless, the share of industrial teams of the CR exceeds that of the EU-11 Member States. The project titles stated in Table 9 suggest that the Czech teams spent more on their participation in projects with high social relevance, i.e. in projects applying information technologies in order to solve pressing social problems. Only smaller amounts were invested by the Czech teams into the actual development of information technologies, be it hardware or software. The second paragraph in this chapter informed us about the fairly low success rate of Czech applicants for contribution for investigation of projects under the FP6. It seems therefore that a great many Czech software companies, which operate successfully in the field of information technologies, do not find the framework programme attractive enough.

1.13.3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices

The bar chart in Fig. 37 illustrates that compared to EU-11 and CR, the EU-15 Member States and Slovenia report significantly higher eligible costs per € 1 million GDP. According to this indicator the CR ranks the 19th, outperformed by SI, PL and LV from among the group of New Member States. The dot chart in this Figure indicates that by far the largest amount of contribution for participation in the FP6 projects was requested by the German teams, followed at a large distance by the UK, FR and IT teams (the CR requested the 16th highest contribution).

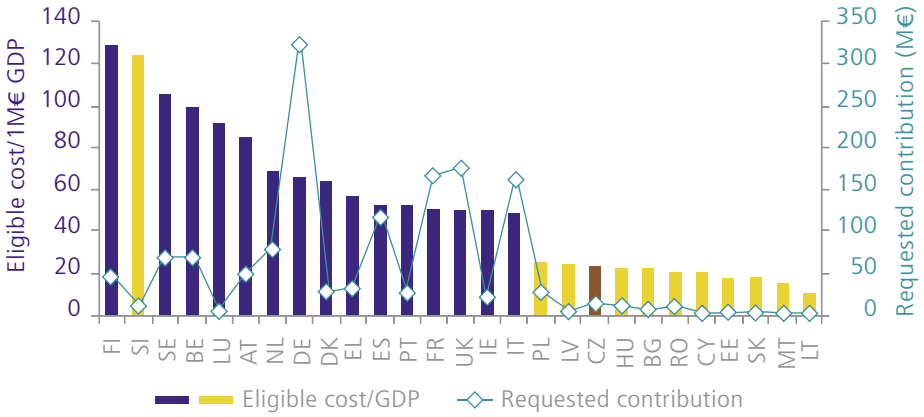

Figure 37 – Bar chart: Total eligible costs of the participation in the NMP priority calculated per € 1 million GDP. Dot chart: Total requested contribution for the participation in the NMP priority (in M€).

The Fig. 38 shows that the composition of Czech participants in this priority is almost identical with that of the EU-15. The share of industrial teams in this priority achieves 35 % both in the EU-15 and in the CR. It confirms that this priority is to a major degree dedicated to "industry driven research".

However, the left part of Table 10 reveals that the top 10 % participants were recruited first and foremost from research organisations and universities. The only industrial participant was the Fiat research centre.

The right part of the table enlists the top 10 % participants in projects with Czech teams. Here too the research and education organisations clearly prevail. The only industrial participant is Siemens A.G. It shall be noted that the set of the "top 10 % participants" does not reflect the structure of participants in the given priority.

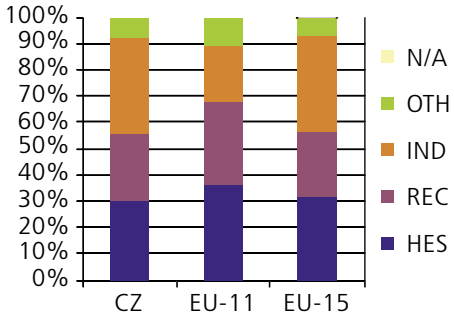

Figure 38 – Composition of participations of teams according their activity type in CZ, EU-11 and EU-15.

Table 10 – The left part of the table gives a summary of the "top 10 % participants" in all NMP projects, while the right part of the table enlists the "top 10 % participants" in projects with CZ teams".

top 10 % participants in all NMP projects	participations	top 10 % participants in NMP projects with CZ teams	participations
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	78	FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	11
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	67	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	11
CONSIGLIO NAZIONALE DELLE RICERCHE	65	COMMISSARIAT A L'ENERGIE ATOMIQUE	10
COMMISSARIAT A L'ENERGIE ATOMIQUE	47	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	9
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	45	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	8
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATU-URWETENSCHAP-PELIJK ONDERZOEK /NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH	34	CZECH TECHNICAL UNIVERSITY IN PRAGUE	8
CENTRO RICERCHE FIAT S.C.P.A.	32	VYSOKÁ ŠKOLA CHEMICKO-TECHNOLOGICKÁ V PRAZE	7

VTT VALTION TEKNILLINEN TUTKIMUSKESKUS	31	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK /NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH	7
MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	28	SIEMENS AG	6
UNIVERSITEIT TWENTE	26	FUNDACION TEKNIKER	6
KATHOLIEKE UNIVERSITEIT LEUVEN	25	UNIVERSIDADE DOMINHO	6
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	23	TECHNICAL UNIVERSITY OF DENMARK	5
KUNGLIGA TEKNISKA HOEGSKOLAN	22	EIDGENÖSSISCHE MATERIALPRÜFUNGS- UND FORSCHUNGSANSTALT	5
TECHNICAL UNIVERSITY OF DENMAK	21	FUNDACION FATRONIK	5
		FUNDACIÓN INASMET	5
		JOZEF STEFAN INSTITUTE	5

Higher representation of industrial partners undoubtedly necessitates cooperation on more specifically and accurately defined themes, which results in broader variety of participants and consequently in smaller overlap of the top 10 % participants in all projects with the top 10 % participants in projects with Czech teams. The Czech research organisations largely tapped the opportunity to cooperate with research institutes of the German Fraunhofer Gesellschaft and also with many other leading European institutions, e.g. the institutes of the French CNRS, the Spanish Consejo superior de investigaciones científicas, etc. Nonetheless, they failed

to cooperate with a number of outstanding institutions (Max-Planck Gesellschaft or Cambridge University).

The Table 11 gives a list of projects joined by the Czech participants with big budgets. No doubt it is highly positive that of the seven participants with big budgets three are industrial partners.

Table 11 – Projects with Czech teams whose total eligible costs represent approximately 10 % of total eligible costs of the CR in the NMP priority.

Project title	Participant	Instrument
Control and smart devices	ELCERAM A.S.	IP
Virtual Automation Networks	TECHNICAL UNIVERSITY Brno	IP
Novel Therapeutic Strategies for Tissue Engineering of Bone and Cartilage Using Second Generation Biomimetic Scaffolds	INSTITUTE OF MACROMOLECULAR CHEMISTRY, ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	NOE
Radical Innovation Maskless Nanolithography	DELONG INSTRUMENTS A.S.	STREP
NANOSTRUCTURED AND FUNCTIONAL POLYMER-BASED MATERIALS AND NANOCOMPOSITES	INSTITUTE OF MACROMOLECULAR CHEMISTRY, ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	NOE
Integrated Design of Catalytic Nanomaterials for a Sustainable Production	J. HEYROVSKY INSTITUTE OF PHYSICAL CHEMISTRY, AS CR	NOE
Healthcare by Biosensor Measurements And Networking	EXBIO PRAHA	IP

1.13.4. Aeronautics and space

Leading European manufacturers of aircrafts and aircraft equipment were frequent participants in projects under this priority. As against the other thematic priorities, this priority reports the highest share of industrial teams, therefore it is only fitting to refer to "industry driven research" under this priority.

The bar chart in Figure 39 demonstrates that the highest total eligible costs per € 1 million GDP of all were incurred by France, Sweden and Belgium, followed at a certain distance by NL, UK, DE. According to this index, the CR ranks 9th in this

priority in the group of EU-27, thus outperforming ES, IT, AT, DK, FI and others from among the Old Member States and, with the exception of MT, also all the New Member States.

In terms of the total requested contribution illustrated in Fig. 39 by the dot chart, the CR apparently requests a higher contribution to support its participation than any other New Member State. The contribution requested by the Czech participants represents roughly 70 % of the total contribution requested by all the participants from the EU-11. The CR thus presents itself as a country with highly advanced aeronautical research and industry.

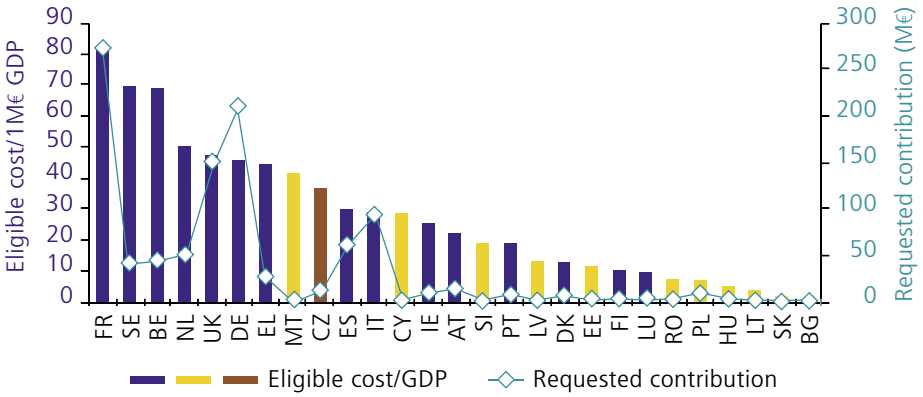

Figure 39 – Bar chart: Total eligible costs of the participation in the A&S priority calculated per € 1 million GDP. Dot chart: Total requested contribution for the participation in the AaS priority (in M€).

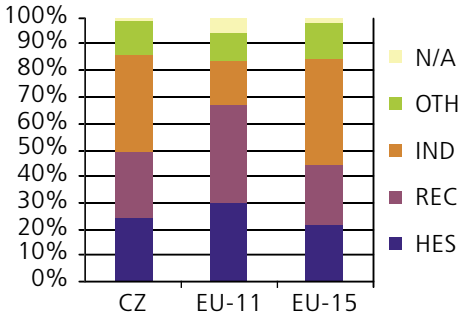

Figure. 40 – Composition of participations of teams according their activity type in CZ, EU-11 and EU-15.

The coordination of participation in projects of the framework programme was very effective and a thorough analysis points to a very high capacity of Czech teams joining the projects of this priority, which exert strong influence on the course of a multitude of projects.

The chart in Fig. 40 illustrates an almost identical composition of participants from the Czech Republic and from the EU-15. Simultaneously, it clearly shows that the EU-11 states report approximately half the share of industrial teams among their participants compared with the EU-15.

The left part of Table 12 presents a summary of the 10 % participants in all AaS projects. It is evident that these are the outstanding representatives of the European aviation industry. The right part of the table enlists the top 10 % participants in the "Czech projects". These are more or less the same organisations as those enlisted in the left part of the table. It proves that in this priority the Czech teams collaborated with the leading European aircraft manufacturers, thanks to which they benefited from high European added value. It has to be mentioned that the collaboration of Czech teams with foremost European aircraft manufacturers was broader than stated in this document, since only the top 10 % participants are referred to.

Table 12 – The left part of the table gives a summary of the "top 10 % participants" in all AaS projects, while the list given in the right part of the table enlists the "top 10 % participants" in projects with CZ teams.

top 10 % participants in all AaS projects	participations	top 10 % participants in AaS projects with CZ teams	participations
DEUTSCHES ZENTRUM FUER LUFT UND RAUMFAHRT E.V.	72	DEUTSCHES ZENTRUM FUER LUFT UND RAUMFAHRT E.V.	19
OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES	57	EUROPEAN AERONAUTIC DEFENSE AND SPACE COMPANY – EADS DEUTSCHLAND GMBH	19
EUROPEAN AERONAUTIC DEFENSE AND SPACE COMPANY – EADS DEUTSCHLAND GMBH	54	OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES	15
STICHTING NATIONAAL LUCHT- EN RUIMTEVAART-LABORATORIUM	46	VYZKUMNY A ZKUSEBNI LETECKY USTAV, A.S.	14
DASSAULT AVIATION	41	STICHTING NATIONAAL LUCHT- EN RUIMTEVAARTLA-BORATORIUM	13
AIRBUS DEUTSCHLAND GMBH	38	AIRBUS DEUTSCHLAND GMBH	12
AIRBUS FRANCE SAS	31	DASSAULT AVIATION	12

Table 13 – Projects with Czech participants, whose total eligible costs represent approximately 10 % of total eligible costs of the CR in the AaS priority.

Project title	Participant	Instrument
ERASMUS	HONEYWELL SPOL Ltd.	STREP
Cost Effective Small AiRcraft (CESAR)	Aeronautical Research and Test Institute, A.S. (coordinator)	IP
	UNIS, SPOL. Ltd. .	IP
	EVEKTOR SPOL. LTD	IP
	JIHLAVAN, A.S.	IP
	HEXAGON SYSTEMS, Ltd	IP
	PRVNI BRNENSKA STROJIRNA VELKA BITES, A.S.	IP
	AERO VODOCHODY A.S.	IP
Development of a Framework for Data Harmonisation and Service Integration	INTERGRAPH CR SPOL. S R.O.	IP
	HELP SERVICE REMOTE SENSING	IP
EUROPEAN WINDTUNNEL ASSOCIATION (EWA)	Aeronautical Research and Test Institute, A.S.	NOE
Advanced Low Cost Aircraft Structures	Aeronautical Research and Test Institute, A.S.	IP
Safety, Complexity and Responsibility based design and validation of highly automated Air Traffic Management	HONEYWELL SPOL Ltd.	STREP

The Table 13 with a summary of projects, joined by the Czech participants with huge eligible costs, clearly illustrates that these are mainly Integrated Projects. It largely involves industrial companies or institutions closely cooperating with the industry. The mentioned Network of Excellence focuses also on the delivery of services to aviation industry. It is highly positive that they are mostly economic entities with high share of private capital. The table also indicates intensive cooperation between these institutions.

CZ participation in the Aeronautic and Space Research thematic priority is undoubtedly extremely successful. The coordination of participation was efficient, therefore the Czech participants joined the projects with the

necessary critical mass. The role of the chief coordinator was played by the Aeronautical Research and Test Institute. The total contribution requested by the Czech teams equals 70 % of the total contribution requested by all the EU-11 states. In this priority, therefore, we cannot only refer to the European added value enjoyed by the Czech teams through their participation, but we also have to claim the European added value created by the participation of the Czech teams for the benefit of all the EU Member States.

1.13.5. Food quality and safety

The highest eligible costs (calculated per € 1 million) in this priority are reported by Denmark, cf. the bar chart in Figure 41. It is no doubt the result of Denmark being one of the largest food producer in the EU.

Figure 41 – Bar chart: Total eligible costs of the participation in the Food priority calculated per € 1 million GDP. Dot chart: Total requested contribution for the participation in the Food priority (in M€).

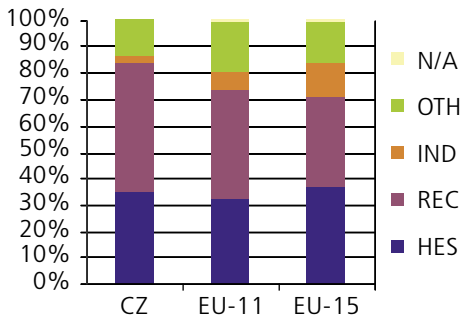

Figure 42 – Composition of participations of teams according their activity type in CZ, EU-11 and EU-15.

According to this index the CR ranks only the 22nd among the EU Member States, or the 9th among the New Member States.

The dot chart in Fig. 41 shows that the largest contribution to support its participation in this priority was requested by the United Kingdom, followed at a fairly large distance by DE, NL, FR and IT. The contribution requested by Denmark amounts to almost 70 % of the contribution requested by Germany. It is obvious that in this priority the total requested contribution is connected only to a very limited degree with the size of population or GDP.

Fig. 42 shows that the participation of industrial partners is generally very low, in the EU-15 it is roughly 13 %. The CR, however, has a much lower participation of industrial teams not only when compared with the EU-15, but also with the EU-11: More than 82 % of Czech participants are the leading research organisations and universities. Just like in the LSH priority, here too a question arises, how will the Czech academia institutes, which to a large extent participate in the European research, tap the results achieved.

Table 14 – The left part of the table gives a summary of the "top 10 % participants" in all Food projects, while the right part of the table enlists the "top 10 % participants" in projects with CZ teams

top 10 % participants in all Food projects	participations	top 10 % participants in Food projects with CZ teams	participations
INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	49	WAGENINGEN UNIVERSITY	14
WAGENINGEN UNIVERSITY	37	INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	14
UNIVERSITEIT GENT	24	DEN KONGELIGE VETERI-NAER – OG LANDBOHOEJSKOLE	11
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	22	DANMARKS FOEDEVAREFORSKNING	10
TEAGASC – THE NATIONAL FOOD CENTRE	19	VYZKUMNY USTAV VETERINARNIHO LEKARSTVI – VETERINARY RESEARCH INSTITUTE	9
DEN KONGELIGE VETERINAER- OG LANDBOHOEJSKOLE	18	AGENCE FRANCAISE DE SECURITE SANITAIRE DES ALIMENTS	7

INSTITUTE OF FOOD RESEARCH UK	17	TEAGASC – THE NATIONAL FOOD CENTRE	7
DANMARKS FOEDE-VAREFORSKNING	16	TECHNICAL UNIVERSITY OF DENMARK	6
CONSIGLIO NAZIONALE DELLE RICERCHE	16	VYSOKA SKOLA CHEMICKO-TECHNOLOGICKA V PRAZE	6
ID-LELYSTAD, INSTITUUT VOOR DIERHOUDERIJ EN DIERGEZONDHEID B.V.	15	INSTITUTE OF FOOD RESEARCH UK	6
NATIONAL INSTITUTE OF PUBLIC HEALTH AND THE ENVIRONMENT NL	15	AGRICULTURAL UNIVERSITY OF ATHENS	6
ALMA MATER STUDIORUM – UNIVERSITA DI BOLOGNA	14	NATIONAL INSTITUTE OF PUBLIC HEALTH AND THE ENVIRONMENT NL	6
STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK, RIKILT – INSTITUTE OF FOOD SAFETY	14	UNIVERSITEIT GENT	6

It ensues from the left part of Table 14 that the dominant position among the top 10 % participants in the Food priority projects is taken by research organisations and universities. It also applies to the top 10 % participants in projects with the Czech teams. The blue boxes in **Table 14 indicate that the Czech teams took the opportunity to cooperate with the foremost European institutions, such as the French INSERM, universities in Wageningen and Gent, or the British Institute of Food Research. This cooperation undoubtedly brought high European added value for the Czech teams**.

Table 15 – The projects with Czech teams, whose total eligible costs represent approximately 10 % of total eligible costs of the CR in the Food priority.

Project title	Participant	Instrument
Tracing Food Commodities in Europe	INSTITUT OF CHEMICAL TECHNOLOGY PRAGUE	IP
Control and prevention of emerging and future pathogens at cellular and molecular level throughout the food chain	VETERINARY RESEARCH INSTITUTE	IP
Harmonising nutrient recommendations across Europe with special focus on vulnerable groups and consumer understanding	NATIONAL INSTITUTE OF PUBLIC HEALTH	NOE
Traditional United Europe Food	INSTITUT OF CHEMICAL TECHNOLOGY PRAGUE	IP
Novel Processing Methods for the Production and Distribution of High-Quality and Safe Foods	FOOD RESEARCH INSTITUTE PRAGUE	IP
New Technologies to Screen Multiple Chemical Contaminants in Foods: Biocop	INSTITUT OF CHEMICAL TECHNOLOGY PRAGUE	IP
Salmonella-free broilers by live vaccine-induced innate resistance to colonisation and invasion and novel methods to eliminate vaccine and field strains	VETERINARY RESEARCH INSTITUTE	STREP

The list of projects, joined by the Czech organisations with big budgets, again implies high social relevance of the investigated themes. It is favourable for the Czech participation that higher eligible costs are tied to participation in demanding Integrated Projects.

1.13.6. Sustainable development, global change and ecosystems

This priority is of a composite nature. It focused on Sustainable energy systems, on Sustainable surface transport systems and finally on Global change and ecosystems. While the first two areas have a strong industrial component, the third area investigates frequently the matters of basic research.

The bar chart in Fig. 43 shows, that according to index of eligible costs calculated per € 1 million GDP, the largest amounts spent on participation in this priority were reported by Nordic countries and NL. The CR according to this index ranks only the 21st among the EU-27, or the 6th among the New Member States.

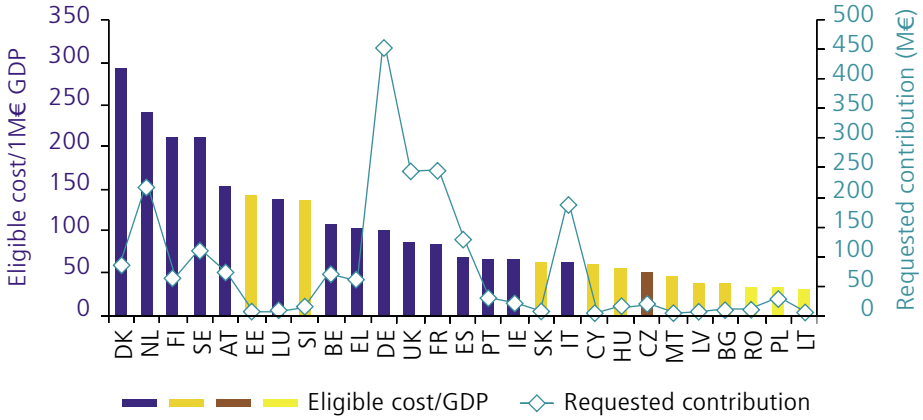

Figure 43 – Bar chart: Total eligible costs of the participation in the SD priority calculated per € 1 million GDP. Dot chart: Total requested contribution for the participation in the SD priority (in M€).

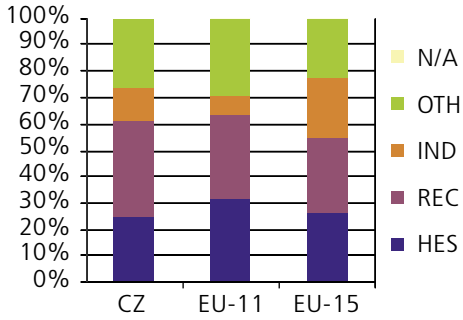

Figure 44 – Composition of participations of teams according their activity type in CZ, EU-11 and EU-15.

The largest contribution to support the participation was requested by DE, followed by FR and UK, the fourth highest contribution was requested by NL, followed by IT. The CR with its total requested contribution ranks the 15th among the EU-27, or the 2nd (after Poland) among the New Member States.

The chart in Fig. 44 shows that almost one fourth of all the participants from the EU-15 comes from industry. It is altogether 1848 industrial teams representing 23.4 % of participants from the EU-15. The share of industrial participants in the CR was 12.8, while in the EU-11 it was only 7.7 %. Nonetheless, in the CR these were 21 industrial teams, i.e. almost a 100 times smaller number than the number of industrial teams from the EU-15. An in-depth analysis points at an almost complementary structure of participation of industrial teams from the EU-15 and

the CR. While the industrial teams from the EU-15 participate particularly in projects in the area of sustainable energy systems, the Czech industrial teams participate in such projects only to a negligible degree. The Czech industrial teams participate in a surprisingly many projects in the area of "global change and ecosystems", where the industrial teams from the EU-15 participated to a lesser degree.

Table 16 – The left part of the table gives a summary of the "top 10 % participants" in all SD projects, while the right part of the table enlists the "top 10 % participants" in projects with CZ teams".

top 10 % participants in all SD projects	participations	top 10 % participants in SD projects with CZ teams	participations
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	62	COMMISSION OF THE EUROPEAN COMMUNITIES – DIRECTORATE GENERAL JOINT RESEARCH CENTRE	16
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	50	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	15
CONSIGLIO NAZIONALE DELLE RICERCHE	48	UNIVERSITAET STUTTGART	13
COMMISSARIAT A L'ENERGIE ATOMIQUE	45	UNIVERZITA KARLOVA V PRAZE	13
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK/NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH	44	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	13
NATURAL ENVIRONMENT RESEARCH COUNCIL	41	RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN	12
ENERGIEONDERZOEK CENTRUM NEDERLAND	39	HELMHOLTZ-ZENTRUM FUER UMWELTFORSCHUNG GMBH – UFZ	12
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	36	LUNDS UNIVERSITET	12
MAX PLANCK SOCIETY FOR THE ADVANCEMENT OF SCIENCE	35	FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	11

UNIVERSITAET STUTTGART	34	WAGENINGEN UNIVERSITY	11
INSTITUTO SUPERIOR TÉCNICO – TECHNICAL UNIVERSITY OF LISBON	33	SIEMENS AG	11
CHALMERS TEKNISKA HOGSKOLA AB	32	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWE-TENSCHAPPELIJK ONDERZOEK / NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH	11
NATIONAL TECHNICAL UNIVERSITY OF ATHENS	31	CHALMERS TEKNISKA HOGSKOLA AB	11
DEUTSCHES ZENTRUM FUER LUFT UND RAUM-FAHRT E.V.	29	CONSIGLIO NAZIONALE DELLE RICERCHE	11
IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	29	NATURAL ENVIRONMENT RE-SEARCH COUNCIL	11
CENTRO RICERCHE FIAT S. C. P. A.	29	UNION OF EUROPEAN RAILWAY INDUSTRIES	10
WAGENINGEN UNIVERSITY	28	IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	10
VTT VALTION TEKNILLI-NEN TUTKIMUSKESKUS	28	UNIVERSITEIT UTRECHT	10
LUNDS UNIVERSITET	27	CZECH TECHNICAL UNIVERSITY IN PRAGUE	10
RHEINISCH-WESTFA-ELISCHE TECHNISCHE HOCHSCHULE AACHEN	26	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	10
UNIVERSITY OF NEWCASTLE UPON TYNE	26	ALSTOM TRANSPORT SA	9
INSTITUT FRANCAIS DU PETROLE	25	MAX PLANCK SOCIETY FOR THE ADVANCEMENT OF SCIENCE	9
TECHNICAL UNIVERSITY OF DENMARK	24	FONDAZIONE ENI ENRICO MATTEI	9
SIEMENS AG	24	INSTITUTO SUPERIOR TÉCNICO – TECHNICAL UNIVERSITY OF LISBON	9
TECHNISCHE UNIVERSITEIT DELFT	24	POTSDAM INSTITUT FUER KLIMAFOLGENFORSCHUNG	9
UNIVERSITY OF SOUTHAMPTON	23	VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V	9

ARISTOTLE UNIVERSITY OF THESSALONIKI	22	ENERGIEONDERZOEK CENTRUM NEDERLAND	9
CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS	21		

The scope of Table 16 also indicates a large number of projects under the SD priority: 10 % of the most frequent participants in this priority is represented by 28 institutions. It is also obvious that under this priority the usual portfolio of institutions, i.e. universities, research institutions and industrial partners, is enriched with national centres for the protection of environment, industrial associations and business organisations, which are included in the "Others" category in the statistics. A considerable share of blue boxes in Table 16 suggests that the Czech teams largely participated in activities carried out in the projects by the "top 10 % teams" coming from the leading European universities, national groupings of research institutions (CNRS, Max Planck Gesellschaft etc.) and globally significant industrial companies (Fiat, Siemens etc.).

Table 17 – Projects with Czech participants, whose total eligible costs amount to approximately 10 % of the total eligible costs of the CR in the SD priority.

Project title	Participant	Instrument
A Long-term Biodiversity, Ecosystem and Awareness Research Network	HYDROBIOLOGICAL INSTITUTE, CZECH ACADEMY OF SCIENCES	NOE
ENERGY in MINDS!	STATUTÁRNÍ MĚSTO ZLÍN / CITY OF ZLIN	IP
Bringing Retrofit Innovation to Application in Public Buildings – BRITA in PuBs	BRNO UNIVERSITY OF TECHNOLOGY	IP
ENERGY in MINDS!	ZELENÉ BYDLENÍ / GREEN HOUSING ASSOCIATION	IP
	EKOSOLARIS, A.S.	IP
Electromagnetic compatibility between rolling stock and rail-infrastructure encouraging European interoperability	RAILWAY RESEARCH INSTITUTE	STREP
Innovative Track Systems	CZECH TECHNICAL UNIVERSITY IN PRAGUE	IP

Table 17 lists projects, in which the Czech participants took part with big budgets. **The project titles indicate high relevance of the investigated themes. This priority also reveals yet another dimension of the "European added value". Namely, these are projects which require extensive international cooperation, since they address issues of Europe-wide interest and therefore they involve "investment into common European issues"** (cf. e.g. project No. 1 and 5 in Table 17).

1.13.7. Citizens and governance in a knowledge-based society

The themes of socio-economic sciences and humanities appear as a separate priority for the first time in the FP6. It is a priority with the lowest budget of all the thematic priorities.

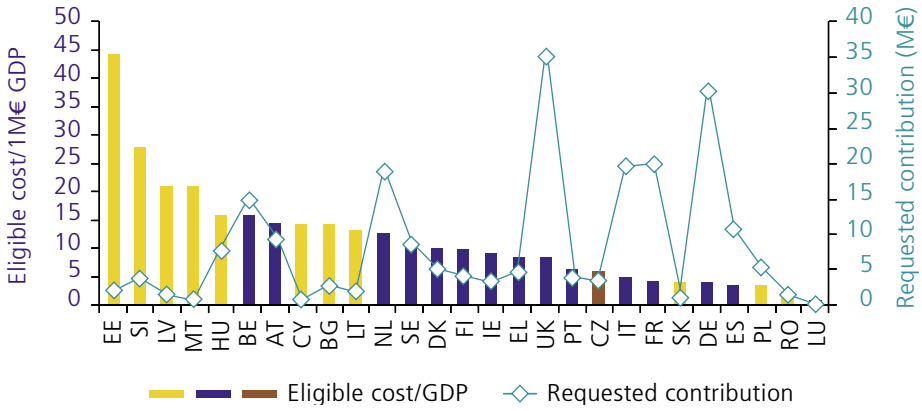

Figure 45 – Bar chart: Total eligible costs of the participation in the Citi priority calculated per € 1 million of GDP. Dot chart: Total requested contribution for the participation in the Citi priority (in M€).

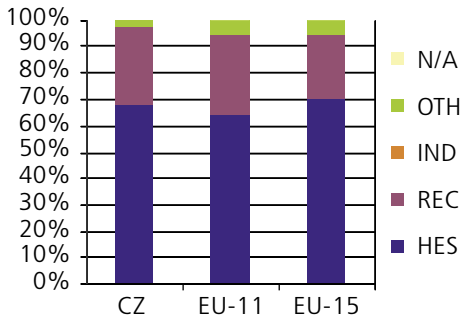

Fig. 46 – Composition of participations of teams according their activity type in CZ, EU-11 and EU-15.

The bar chart in Fig. 45 shows that the most active ones were the New Member States in this priority. Judging from the amount of total eligible costs calculated per 1 M€ of GDP, only two "Old" Member States (BE and AT) rank among the top ten countries. Based on this index, the CR ranks only 19th among the EU-27.

The highest contribution was again requested by the "big four", this time in the following order - UK, DE, FR and IT. In the group of the New Member States, the CR requests the third highest contribution after HU and PL.

The chart in Fig. 46 reveals almost identical composition of participants in projects under the Citi priority. The dominant position in this priority is taken by university teams (academia). Industry does not participate in this priority. It is obvious that a number of themes (e.g. migration-related issues) in this priority would be relevant for national and regional administration. Therefore, low participation of teams from the "Others" category, that would include not only the referred to administrations, but also institutions in general, which would participate as end users of project results is fairly surprising. The demonstrated low interest of end users of project results evokes a question, whether the calls for proposal published under the Citi priority encouraged the submission of such projects which could be used by end users of project results.

The left half of Table 18 proves the dominant position of university teams (academia) in the Citi priority. The Warsaw University, i.e. an institution from a New Member State, is among the top 10 % of the most frequent participants (in the other priorities the top 10 % of the most frequent participants include exclusively organisations from the Old Member States). In this priority the Czech teams cooperated fairly rarely with the top 10 % participants. In spite of that it is clear that even in this priority the Czech institutions cooperated with the leading European universities.

Table 18 – The left part of the table gives a summary of the "top 10 % participants" in all Citi projects, while the right part of the table enlists the "top 10 % participants" in projects with CZ teams.

top 10 % participants in all Citi projects	participations	top 10 % participants in Citi projects with CZ teams	participations
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	21	CENTRAL EUROPEAN UNIVERSITY BUDAPEST FOUNDATION	10
UNIVERSITEIT VAN AMSTERDAM	19	LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE	9

LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE	18	CHARLES UNIVERSITY PRAGUE	9
CENTRAL EUROPEAN UNIVERSITY BUDAPEST FOUNDATION	17	UNIVERSITY OF SUSSEX	7
GEOTEBORGS UNIVERSITET	13	UNIVERSITETET I OSLO	7
UNIVERSITY OF SUSSEX	13	UNIWERSYTET WARSZAWSKI	6
EUROPEAN UNIVERSITY INSTITUTE	12	STICHTING KATHOLIEKE UNIVERSITEIT BRABANT	6
UNIVERSITÉ CATHOLIQUE DE LOUVAIN	12	UNIVERSITEIT VAN AMSTERDAM	6
UNIVERSITY OF WARWICK	11	INSTITUTE OF SOCIOLOGY OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	6
KATHOLIEKE UNIVERSITEIT LEUVEN	11	FONDATION NATIONALE DES SCIENCES POLITIQUES	5
UNIWERSYTET WARSZAWSKI	10	EUROPEAN UNIVERSITY INSTITUTE	5
FREIE UNIVERSITAET BERLIN	10		
UNIVERSITEIT UTRECHT	10		
STOCKHOLMS UNIVERSITET	10		
TARTU UELIKOOL	10		
UNIVERSITA DEGLI STUDI DI TRENTO	10		

Table 19 presents projects, to which the Czech participants contributed big budgets. **They are predominantly the Networks of Excellence, which to a certain degree explains the lower interest on the part of end users in project results under this priority. The project titles indicate the prevalence of theoretical themes, that are most likely not attractive enough for the end users.**

Table 19 – Projects with Czech participants, whose total eligible costs amount to approximately 10 % of the total eligible costs of the CR in the Citi priority.

Project title	Participant	Instrument
Languages In a Network of European Excellence	CHARLES UNIVERSITY, PRAHA	NOE
Efficient and democratic governance in a multi-level europe	CHARLES UNIVERSITY, PRAHA	NOE
	INSTITUTE OF INTERNATIONAL RELATIONS, PRAHA	NOE
Sustainable Development in a Diverse World	INSTITUTE OF TEHNOLOGY OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	NOE
Reconciling Work and Welfare in Europe	MASARYK UNIVERSITY, BRNO	NOE
Diversity and The European Public Sphere: Towards a Citizens' Europe	INSTITUTE OF PSYCHOLOGY OF THE ACADEMY OF SCIENCES	IP

1.13.8. The EURATOM programme

The EURATOM Programme is financed by the European Atomic Energy Community. The research topics were mainly focused on the controlled thermonuclear fusion, management of radioactive waste and radiation protection. Thus the thematic spectrum of EURATOM was quite narrow and corresponded rather to a thematic priority of the FP6. Consequently, the size of the budget of this programme is at the level of smaller thematic priorities of the FP6. The rules for participation were similar to those governing the FP6.

The bar chart in Figure 47 shows again the index of eligible costs calculated per € 1 million GDP for each EU Member State. **According to this indicator the CR is at the sixth position among all EU-27 Members or at the first position among the New Member States. These are the most successful rankings which indicate that participation in EURATOM is a priority for the Czech research.**

Figure 47 – Bar chart: Total eligible costs of the participation in the Citi priority calculated per € 1 million of GDP. Dot chart: Total requested contribution for the participation in the Citi priority (in M€).

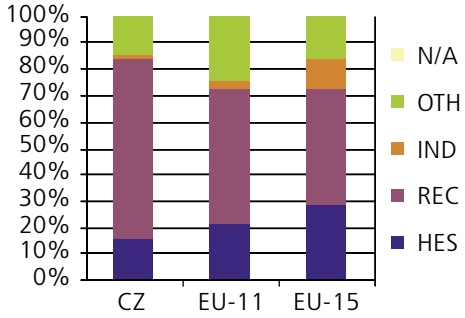

Figure 48 – Composition of participations of teams in EURATOM according their activity type in CZ, EU-11 and EU-15.

DE, FR followed by UK, BE and NL requested the highest support for their participation. The CR requests the 10th highest support among all EU-27 states, which is by far the highest support requested by any New Member State. Namely, 80 % of the EURATOM support requested by the new member states is to be allocated in the CR. This is still higher share than that requested by CZ teams in the most successful FP6 thematic priority, i.e. in AaS.

The chart in Fig. 48 shows the composition of participants from the CR, EU-11 and EU-15 in the EURATOM programme. It is evident that the composition of the CZ participation differs from both EU-11 and EU-15 as well. The CR has the highest share of participations of research institutions and simultaneously the smallest share of university participations. However, the CR has also the smallest share

of participations of industrial teams. This evokes the question on implementation of the results achieved by the Czech research teams, particularly the question of intellectual property rights whose treatment is important because many projects had a high application potential. Regarding the applicability of the project results one might be surprised by the small share of participation of CZ institutions from the "others" category, since there are many state institutions dealing with the problems of radiation protection and nuclear waste management.

Table 20 – The left part of the table gives a summary of the "top 10 % participants" in all EURATOM projects, while the right part of the table enlists the "top 10 % participants" in projects with CZ teams".

top 10 % participants in all EURATOM projects	participations	top 10 % participants in EURATOM projects with CZ teams	participations
STUDIECENTRUM VOOR KERNENERGIE – CENTRE D'ETUDES DE L'ENERGIE NUCLEAIRE (BE)	35	NUCLEAR RESEARCH INSTITUTE (CZ)	31
COMMISSARIAT A L'ENERGIE ATOMIQUE (FR)	34	COMMISSARIAT A L'ENERGIE ATOMIQUE (FR)	26
NUCLEAR RESEARCH INSTITUTE (CZ)	31	STUDIECENTRUM VOOR KERNE-NERGIE – CENTRE D'ETUDES DE L'ENERGIE NUCLEAIRE (BE)	24
NUCLEAR RESEARCH AND CONSULTANCY GROUP (NL)	29	COMMISSION OF THE EUROPEAN COMMUNITIES – DIRECTORATE GENERAL JOINT RESEARCH CENTRE	23

Similarly as in the thematic priorities of the FP6 the left side of Tab. 20 lists the top 10 % of the most frequent participants in the whole EURATOM programme and the righ side shows the same but particularly for projects with CZ participants. Unlike FP6 thematic priorities here in EURATOME Czech institution, namely the Nuclear Research Institute (NRI) is for the first time ranked among the most frequent European participants: NRI is the third most frequently participating institution in EURATOM. This ranks the CR into the position of a country with highly developed

nuclear research. Thus NRI belongs among guarantees of the European Added Value of activities developed in the EURATOM programme.

Finally, a survey of projects, which the Czech teams entered to with high eligible cost, is presented in Tab. 21. The Czech teams invest quite a big portion of their working capacity into these projects, which proves the significance and relevance for the Czech Republic. The titles of these projects indicate the high societal importance of the solved problems.

Table 21 – Projects with Czech participants, whose total eligible costs amount to approximately 10 % of the total eligible costs of the CR in the EURATOM programme

Project title	Participant	Instrument
Nuclear plant life prediction.	NUCLEAR RESEARCH INSTITUTE	NOE
Prediction of Irradiation Damage Effects on Reactor Components (PERFECT)	NUCLEAR RESEARCH INSTITUTE	IP
EUROpean research program for the PARTitioning of minor actinides and some long-lived fission products from high active wastes issuing the reprocessing of spent nuclear fuels (EUROPART).	NUCLEAR RESEARCH INSTITUTE	IP
Integrated Infrastructure Initiatives for Material Testing Reactors Innovations	NUCLEAR RESEARCH INSTITUTE	II

EURATOM is a highly specialised programme and as such offering opportunity to participate only to highly specialised teams. The Czech Nuclear Research Institute has the third most frequent participation among all European participants and thus proves its significant position in the European nuclear research. However, the situation described with the AaS priority, when a significant research institution acts as co-ordinator of participation of industrial teams, does not repeat itself in this programme. Namely, the Czech industry participation in the EURATOM is negligible.

1.14. Conclusions

The international comparative analysis constitutes an important tool implemented in national studies assessing country participation in the EU Framework programmes. However, the presented analysis of participation of the Czech Republic is completely based on the international comparison. This approach requires to select a suitable group of reference countries and indices by means of which differences between countries are measured. In this study the group of reference countries consists of the EU-27 Member States, which are considered either individually or in aggregation into Old Member States and New Member States. The differences between countries are, similarly as in many other studies, visualized by indices of country's participation and by the respective financial indicators like country investment into FP6 participation (i.e. the sum of eligible costs of all participating teams) or support requested from the European Commission (i.e. the sum of EC contribution required by all participating teams). However, these indices are heavily dependent on the size of country population or size of national economy (say, size of GDP) and such comparisons are not specific for participation in the FP6, since they always show that countries with big population have a higher number of participations than countries with smaller population. Thus the present study employs some "relative indicators" i.e. number of participations per one million population or per one thousand FTE of researchers capacity, or the financial measures are related to GDP or Gross Expenditure on R&D (expressed in M€).

Although the implemented indicators are very simple, they are not in common use. Many graphs ranking the member states according to the relative indices might lead to the conclusion that they favour small countries. However, we suggest that small countries do not offer such broad national support to project activities to their teams as the big countries, which usually have sound national grant agencies with long tradition. Consequently, teams from small countries naturally tend to participate more in international research programmes than teams from big countries.

According to the number of participations per one million population – see Fig. 4 – the Czech Republic is ranked at the 21st position among the EU-27 Member States. The Czech Republic is thus ranked among ten EU Member States which have smaller R&D intensity (i.e.,GERD/GDP) than the Czech Republic. Hence the 21st rank

signalizes, that the current reform of the Czech R&D system should introduce measures aimed at enhancing the participation of Czech teams in the Framework programme.

Increased participation can be achieved, for instance, by increasing the number of prepared project proposals and simultaneously by increasing the proposal success rate. However, the project proposals are results of collective effort of many European teams, hence increase of their success rate depends on the ability of Czech teams to cooperate with sound (and thus successful) European teams. In other words, the Czech teams should be first recognized by top (successful) European teams. This indicates a rather long way to improving the Czech participation in the FP.

Fig. 3 shows that in life sciences and biotechnologies for health and also in information technologies the Czech Republic prepared considerably smaller number of proposals (per one million population) than the Old Member States. In information technologies and nanotechnologies the Czech Republic had a clearly lower success rate than the OMS. Thus the participation in the three thematic priorities with the highest budgets should be particularly improved.

On the other hand, participation of the Czech Republic in aeronautics and in the EURATOM programme was very successful. In both thematic areas the Czech Republic has a strong research institution, which plays an important role in the pan-European context.

The reaction of the Czech industry to opportunities offered by the FP6 was varied. However, if we do not consider differences between priorities then the Czech Republic had the highest share of industry participants among all New Member States whose total eligible costs represented some 34 % of the total industrial eligible costs of the New Member States. The Czech industry did not participate in life sciences and food research, but it was very successful in aeronautics (see Fig. 22).

We know from paragraph 1.12 that ranking countries according to absolute and relative financial indicators might lead to controversial conclusions. For instance, according to the total country requested contribution (likely also received during the project life) the New Member States are in the tailing part in the EU Member state ranking (cf. Fig. 29), but they lead the EU ranking when relating the requested contribution to the country GERD (see Fig. 31). According to this indicator the Czech Republic is ranked among the Old Member States with higher R&D investments. This part of the study wants to contribute to the all-European debate on how to measure the participation of national teams in the FP. The absolute numbers of participations do not describe the country participation properly. Indices relating participation to

national investments into R&D should be introduced and implemented in order to arrive at a more objective ex-post description of the FP.

The analysis comparing participation of the Czech Republic in the seven thematic priorities of the FP6 and in the EURATOM programme is based mainly on the "country eligible costs (€)/ GDP (M€) ratio". This indicator ranks the countries in correspondence with some apriori expectations (e.g. DK is the EU leader in food research, BE, FI and FR are the leaders in nuclear research etc.). According to this indicator the Czech Republic most successfully participated in the EURATOM programme (6th position among EU-27) and aeronautics (9th position in EU-27). This indicator again signalizes a rather weak position of the Czech Republic in the IST research.

The significance of Czech participation in the FP6 is documented by comparing the list of most frequently participating teams in the whole FP6 with the list of participants, who the Czech participants really cooperated with in the FP6 projects. In both cases the top 10 % of participants are compared. In all thematic priorities these two lists have a considerable overlap which indicates that Czech teams cooperated with "FP6 significant partners". Since these partners are frequently commonly considered as leaders in global research and development, we can derive the respective European added value that the Czechs obtained due to their participation in the FP6 projects.

In conclusion, the study revealed many strong and weak points of participation of the Czech Republic in the FP6 and the EURATOM programme. We believe that implementation of the multitude of different indicators in this study contributes to better description of the complex structure of the Framework programme and that the international comparative analysis employing a whole set of different indicators proved to be an efficient tool for assessment of the participation of the Czech Republic in the FP6 and the EURATOM programme.

2 Questionnaire on Impact Assessment of the Framework Programme 5 and 6 in the Czech Republic: Survey Analysis.

Jiří Vaněček, Helena Klempererová, Vladimír Albrecht
Technology Centre AS CR Prague, Czech Republic

2.1. Introduction and methods

Participation of Czech research teams in Framework Programme (FP) 5 and 6 has considerably increased compared to the FP4. Czech teams have been involved in approximately 890 projects in FP5 and some 1068 projects in FP6. Also the amount of contracted funding increased considerably. However, outcomes of the FP projects in the Czech Republic have not been evaluated yet. This is particularly because the FP project results evade any registration and therefore it is difficult to conduct analysis of effectivity of participation of Czech teams in the FPs. Our present analysis is trying to fill this gap and evaluate the results, outcomes and impacts of the Czech participation in FP. It consists of three parts. The first part is a participation statistics and the third a bibliometric analysis of publications resulting from FP projects. We now present the second part which consists of a survey among the leaders of the research teams participating in the FP projects. The survey was aimed to record the opinion or view of the researchers on the following aspects:

- significance of the FP project for the research team and capacity needed for its solution
- correspondence of the FP project objectives with the main research field of the team
- accomplishment of the planed objectives by the whole FP project and specifically by the Czech team
- importance of various types of outcomes of the FP projects for research teams
- modes of publishing of FP project results
- economic impacts of FP project results
- continuing collaboration with partners from FP projects
- effect of participation in the FP projects on the image of the research group and its attractiveness to new employees

The survey has been done in the form of a questionnaire (attached as a supplement to this chapter). The questionnaire was relatively simple and most questions could be answered by marking the selected choice(s) from the offer or by filling in "yes" or "no" or a number. Few questions required more extensive response. We have also asked researchers to provide us with details of their results achieved during FP projects, i.e. the list of publications, patents, licenses etc. The questionnaires were distributed and answers collected by the FP contact point workers at the given institution, which belonged to the NINET network. The NINET workers have sent the filled questionnaires to us by e-mail. Most responses to our questionnaire were received from academic institutions, i.e. from the universities and public research institutes and overall the return rate was quite low (see bellow). The survey took place in April and May 2008.

Similar questionnaire campaign was conducted already in 2004, two years after the end of FP5 (see Albrecht V., ECHO 2005/1, 2005). At that time we received answers mainly from those teams which were still in the process of project solution, i.e. those who finished their FP5 project did not respond to the questionnaire. Results of the first survey were considerably different from the present data (see discussion below).

2.2. Results

We have collected responses from 226 projects, which is approximately 12 % of all FP5 and FP6 projects with the Czech participation. Eighty one of the filled questionnaires were received from principal investigators (PI) of FP5 projects and 145 responses from the FP6 projects. Most of the responders were from universities (44 % of all responders), followed by the institutes belonging to the Academy of Sciences of the Czech Republic (20,4 %), branch research institutes (17,1 %) and private companies (13 % of all responders). Other public institutions like libraries or public schools sent us only 5,6 % of all responses.

Most of the responders were solving projects lasting 3 years (38,9 %), but responses from 2- and 4-year-projects were also relatively frequent (23,6 and 22,9 percent respectively). On the other hand, projects lasting one year or less and projects longer than 4 years constituted only small part of the responders (6,3 and 8,3 percent respectively). Most of the responses were received from

projects which were still running at the time of our survey (58,3 %), but a significant part of the responses were from projects already finished (41,7 %).

Fig. 1 indicates that more than half of the projects required capacity lower than 25 man-months. Most of the projects were thus rather small, requiring only 1 person's work. Most of the teams participating in the FP projects were simultaneously involved in 1 to 5 other projects (Fig. 2). Only 6 % of the teams responded, that the FP project was the only one they have been solving. Both these figures suggest that the importance of the FP projects for Czech research groups was not decisive.

The man-month capacity that the teams spend on a project solution is an important parameter. The capacity needed to solve the whole project requires a certain critical amount and the same should be true for the capacity invested by individual teams. The analysis of this parameter is particularly important for the Czech Republic, since the statistical data indicate that Czech teams contribute to the project budget by a very small share only.

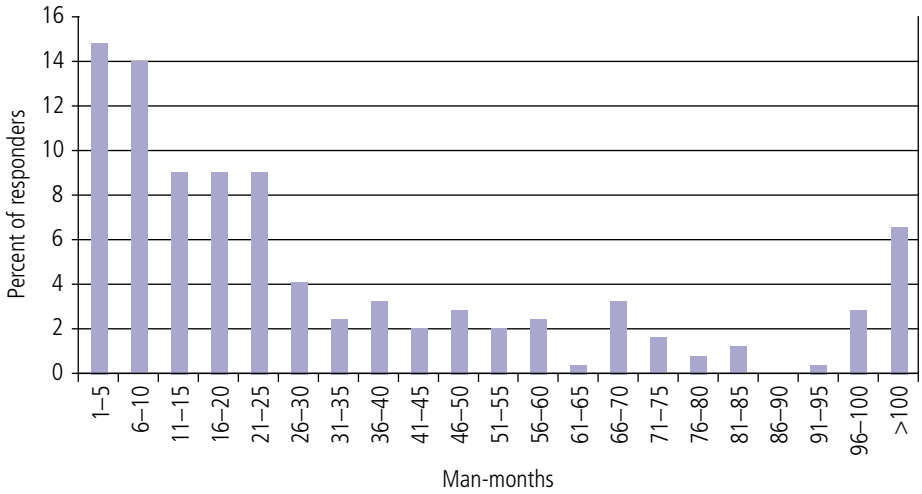

Figure 1 – Estimate of capacity needed for FP projects.

In fact, the average share of the total project budget allocated to the Czech teams is the smallest among all EU Member States (see Fig. 3). The last position of the Czech Republic in this graph indicates that Czech teams participating in the FP projects invest only small part of their capacity and supports the above conclusions from our survey.

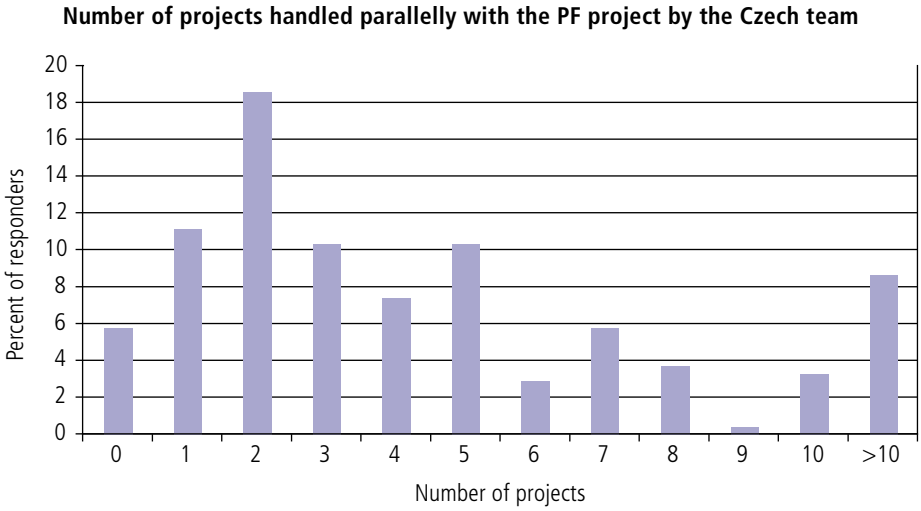

Figure 2 – Number of projects solved by the research team simultaneously with the FP project.

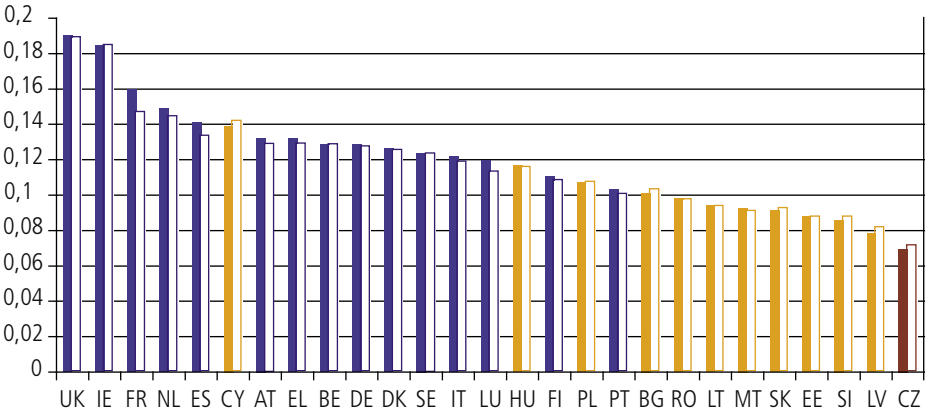

Figure. 3 – Ranking of the EU Member States according to the average percentage of the total budget of the FP projects allocated to the national teams for their research (full columns). Open columns indicate the average percentage requested by national teams from the total EC contribution to project solution.

Research direction of the FP project fitted in most cases into the main field of research of the participating teams (Fig. 4). Only 12 % of responders admitted partial shift of research interest. However, it is not clear, how tightly the FP projects matched the previous research direction, i.e. whether they really solved the same research problems as the other projects of the team. The bibliometric analysis of their papers published after the beginning of the FP project indicated that a relatively high yield of the papers authored by the group leaders participating in FP projects were published in journals belonging to different fields than the papers published before the start of the FP project (see the bibliometric analysis in the third chapter of our study).

Most responders felt they have been sufficiently acquainted with overall results of the whole FP project (Fig. 5). Only 3 % felt they have not received enough information and 2 % could not answer because their project still continued. This finding is in contrast with results of our previous survey carried out in 2004 among Czech participants of FP5. In that survey, the Czech teams quite frequently complained to be poorly informed about overall solutions of the project. We concluded that because FP projects were usually solved by large consortia, it was very difficult for coordinators to harmonize activities of different national teams and keep everybody well informed. However, this type of complaint is quite rare in the FP6.

Most responders (82 %) indicated that the project achieved the goals planned (Fig. 6). Only 11 % felt that the goals were achieved only partially and 1 % responded that the goals were not achieved. Considering that calls for proposals prescribe the goals of the anticipated research activities in quite detailed way, the above numbers indicate surprisingly small risk of investments into the target oriented FP projects.

Did the FP-project fit into the main field of research of the team?

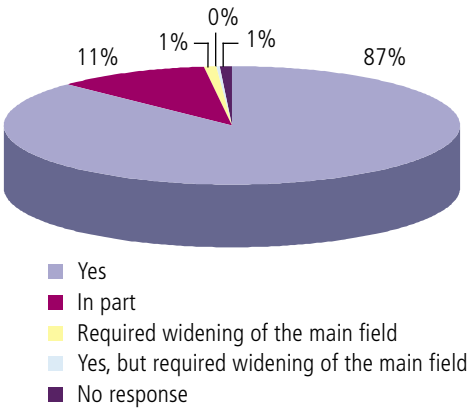

Figure 4 – Correspondence between research direction of the FP projects and the main research direction of the Czech team.

Have you been acquainted sufficientl with overall solution of the project?

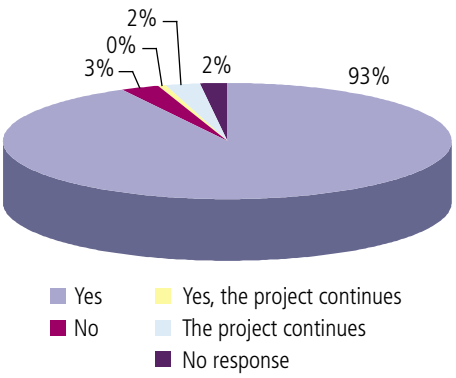

Figure 5 – Awareness of the complete results of the whole FP project.

Did the project accomplish the assigned goals?

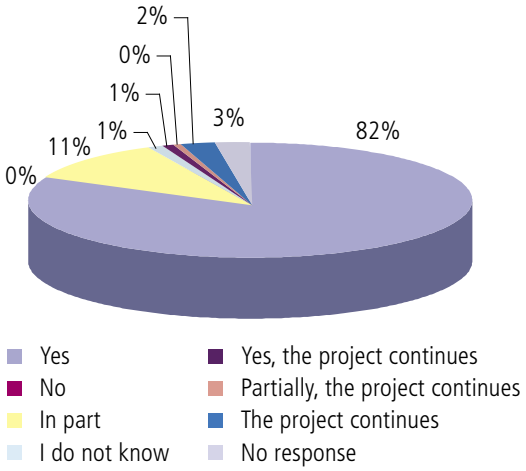

Figure 6 – Achievement of the planed (intended) objectives by the FP project.

Did the Czech team fullfill its role in the project?

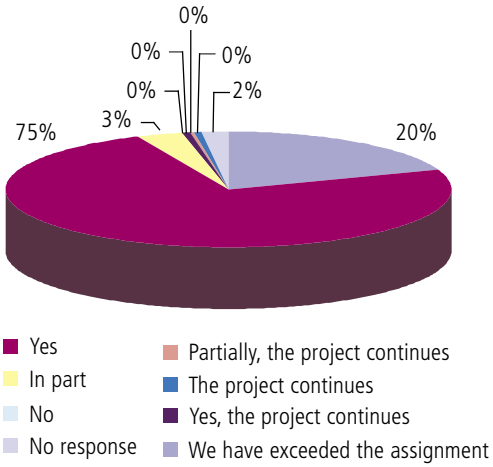

Figure 7 – Achievement of the planed (intended) objectives by the FP project.

Even more responders (95 %) felt that the Czech team has fulfilled or even exceeded its planned objectives in the project (Fig. 7). Only 3 % admitted only partial achievement of the goals by the Czech team. This means that the Czech teams perceived themselves as one of the most productive groups within the international consortium.

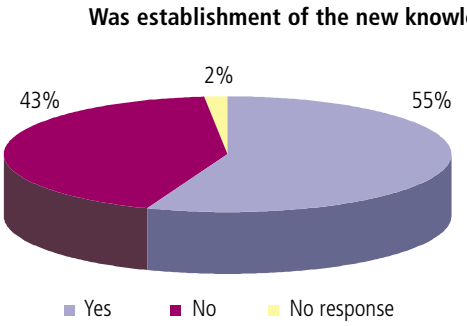

Figure 8 – Was discovery of new knowledge among the planned objectives of the Czech group?

The subsequent part of the questionnaire was devoted to the results and outcomes of the FP projects. The planned goals of the Czech research team included discovery of new knowledge in 55 % of the FP projects (Fig. 8). In 43 % of the projects the Czech teams had other goals (e.g. implementing some new methods they mastered through their other activities) and in 2 % the team leaders did not respond to our question. However, the responses were strongly dependent on the project type. Whereas in STREPs and IPs 68 % of the responders had an assignment to search for new knowledge and less than 1/3 of the responders pursued development of other activities as their main task, in NoEs, CAs, SSAs only 1/3 of the responders regarded new knowledge as their main task while two thirds were charged with other activities.

Vast majority of the responders (92 %) considered international collaboration to be among important outcomes of the projects (Fig. 9). Similar proportion (90 %) of the researchers appreciated the financial support and 88 % appreciated discovery of new knowledge. About two thirds of the responders indicated that experience with project management is an important outcome of the FP project that will be utilized in their future activities at both national and European level. New equipment was valued by only 13 % of responders. This low proportion is likely caused by the necessity to cover the VAT from the budget of the participating institution. This may suggest that investing in new equipment is rather a part of a long term strategy of the management of the institution than occasional use of the possibility to buy the equipment that is partially supported by the FP financial means.

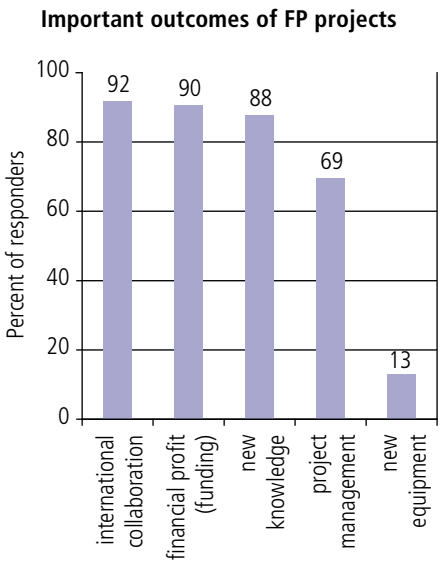

Figure 9 – Estimation of importance of various types of outcomes of the FP projects by the Czech team leaders.

Most of the responders (78 %) presented their results on the web pages of their project and almost a half organized an international meeting, where their results were presented (Fig. 10). One or more research articles were published by 43 % of the responding teams, meeting abstract(s) were published by 38 % of the responders. Books were used as the way to publish result in 11 % of the projects, authorized software and certified technology or method in only 5-6 % of the projects. Prototypes, patents, pilot plants and licenses were quite rare, they were listed among results of 3 % or less of the FP projects.

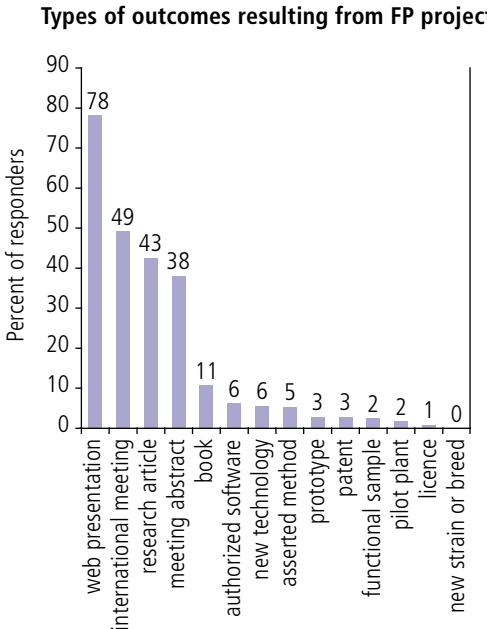

Figure 10 – The mode of publishing of the FP project results and its incidence.

Because the publishing habits differ a lot depending on the research field we have sorted the responses according to the priority of the FP projects. For this analysis we had to make some grouping of the priorities. We have merged the FP5 priority QOL and the FP6 priorities Life Sciences, Genomics and Biotechnology for Health and Food Quality and Safety into the group Life & Food. Group Informatics merged the priorities IST and Information Society Technologies, group Energy & Ecology the priorities EESD and Sustainable Development. The group Industrial Research included the priorities GROWTH, the Nanotechnologies and Nanosciences and the Aeronautics and Space.

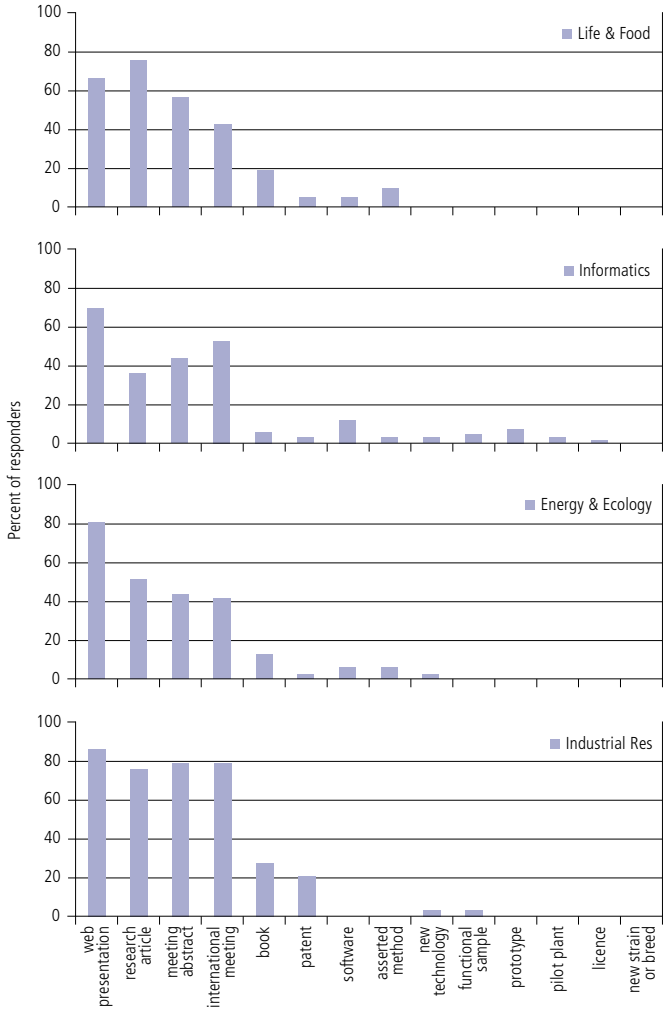

Figure 11 – Types of outcomes sorted according to the project priority. The figure shows ways of publishing of the results and its incidence in various FP priorities.

Web presentation was the most frequent way of publishing the results in all groups with exception of Life & Food, which had research articles as the most common way of result presentation (Fig. 11). Research articles were an important publishing route also in Industrial Research, but quite rare in Informatics. International meetings were most frequently organized as outputs of projects in Industrial Research. Meeting abstract and books had an important role as a publishing medium in Industrial Research and in Life & Food. Most patents were produced in Industrial Research while new software was mostly the outcome of projects belonging to Informatics. Informatics was also the only priority producing new prototypes, pilot plants and licenses.

The questions aiming at characterization of collaboration with foreign research teams revealed that seventy one percent of responding teams continued their collaboration with research teams from the original consortium after the end of the FP project (Fig. 12). Sixty nine percent of the responders even prepared a new proposal and 38 % submitted it successfully. This relatively large portion contributes to the explanation of "participation loops".

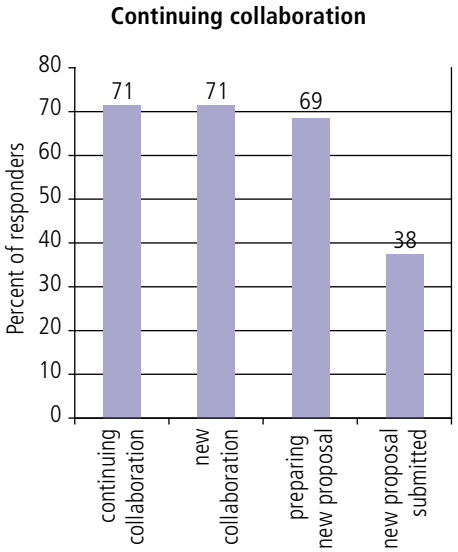

Figure 12 – Continuing collaboration with partners from FP projects.

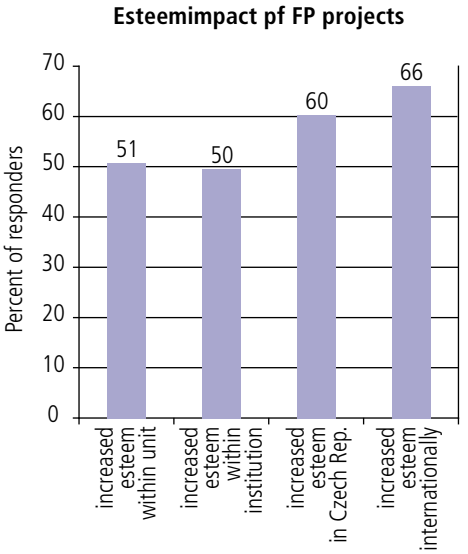

Figure 13 – Effect of participation in the FP projects on appreciation of the research group gained within the home institution or the Czech Republic or the whole Europe.

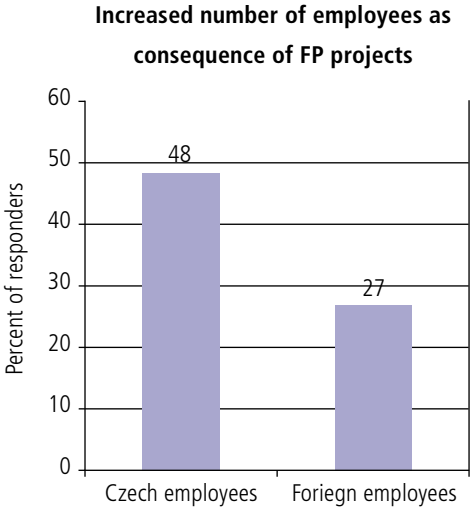

Figure 14 – Increased attraction of the research group for new employees as a result of participation in FP projects.

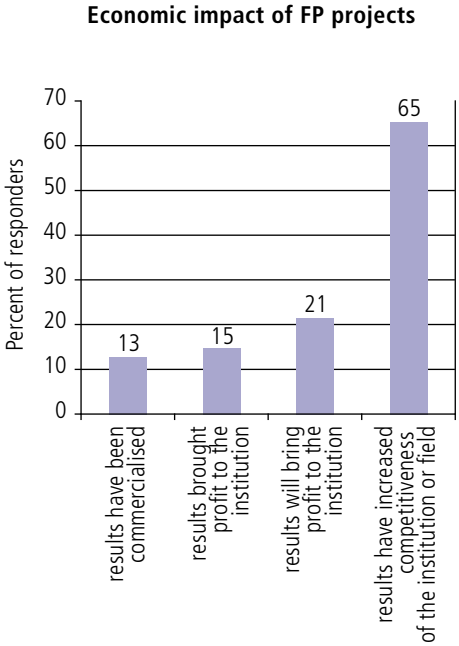

Figure 15 – Economic impact of the FP projects.

Two thirds of the responders felt, that the recognition of their research group by international research community improved due to their participation in FP project (Fig. 13). However, only about half of them felt increased recognition within their own institution or unit.

40 % of responders admitted that participation in the FP project increased their attraction for job seekers and consequently brought new Czech employees to the research team (Fig. 14). 27 % of responders admitted increased number of foreign employees resulting from participation in the FP project.

About two thirds of responders felt that their results in the FP project increased the competitiveness of their field or institution (Fig. 15). Only 13 % of them indicated that their results have already found commercial use and slightly more (15 %) thought that their results brought some profit to their institution. Future profit from their result was expected by 21 % of responders.

2.3. Discussion and conclusions

The FP project was usually only one of several projects run simultaneously by a Czech research team and there was usually allocated a quite small capacity of the team not exceeding 1 full time equivalent for solution of the FP project. These responses seem to justify the conclusion that the significance of the FP projects for the Czech research institutions is not very high, i.e. the individual researcher's incentive to participate is not properly converted into the team's participation. However, the sum of contracted funding from FP in 2006 and 2007 was equal to the total budget of the largest funding body in CR, the Czech Science Foundation. This indicates great potential of researches to successfully participate, which is somewhat in contrast with the modest investments spent by the Czech institutions.

Only about half of the projects had included the discovery of a new knowledge among planned goals. Nevertheless, more than 80 % of responders indicated that the new knowledge they obtained due to their participation was important for them. Hence, although they did not specify what kind of knowledge they acquired, the participation enriched "their knowledge portfolio". In most of the teams the additional funding was one of the most important outcomes of their participation in the FP project. However, it was not the only outcome, because most of these teams also highly valued international collaboration, discovery of new knowledge and experience with management of international team. Very few teams felt that the improved equipment of their laboratory was among important outcomes of the FP projects. This confirms that investing into laboratory equipment is dependent on long term prospects harmonized with the whole institutional strategy, implying that equipment has been usually obtained from other sources and only rarely from the FP projects.

Most responders felt that their participation in the FP project was very successful because 80 % of them indicated they have fulfilled the planed goals and 15 % have even surpassed them. This clearly indicates that the Czech teams perceive themselves as very productive and useful members of the international research consortium.

The most frequent way of dissemination of the project results were presentations on project's web pages, followed by journal articles and conference proceedings. However, there were some differences in the presentation customs depending

on FP priority or field of research. The teams participating in priorities belonging to the field of "Informatics" had fewer journal articles than in other priorities, but produced more often authorized software and were the only ones producing licenses. Most patents were produced by teams involved in "Industrial research", which was the most productive group also in journal articles, books, conference abstracts and international meetings.

Collaboration of the Czech teams with their project partners often continued even after the end of the project. Most of the team leaders indicated that they prepare new project with their former foreign partners and about one third of them have even successfully submitted the new project.

Increased numbers of employees joining the research team were among very frequent consequences of participation at the FP projects. Most of them were of Czech nationality but the number of foreigners was also significant. The relatively high frequency of responses indicating actual or expected financial profit from commercialization of the project results was somewhat surprising. Unfortunately, it is rather difficult to make an inquiry into the significance of the profit via a questionnaire campaign.

In conclusion, our survey brought somewhat expected results that supported our conclusions from statistical data and bibliometric analysis. The low return rate of the questionnaire and mainly the unduly modest responses describing the results achieved clearly indicate the limited value of such a survey data. This in turn calls for founding an intelligent registry of project results that will make it possible to objectively analyze profits and achievements of the team, institution, sector, at national and European level.

Appendix

Questionnaire for the impact assessment of FP5 and FP6

Complete at the web site below, please
https://geform.tc.cz/hodnocenidopadurp/
or complete the following form

A. Identification of the project:

1. Framework Programme: FP5 ☐ FP6 ☐
2. Acronym of the project: . . . . . .
3. Interviewed researcher(s)/investigator(s):. . . . . .
4. E-mail of the researcher/investigator:. . . . . .

B. Characteristics of the research workplace
(= university department, department of an institute, i.e. the lowest unit in the structure of the participating organisation as the workplace of the team of researchers/investigators)

4. Name of the workplace:. . . . . .
5. Address of the workplace: . . . . . .
6. Core disciplines of the workplace (no more than five): . . . . . .

C. Characteristics of the team of researchers/investigators
(i.e. physical researchers/investigators of the EU project)

7. Estimated capacity of the team which was devoted to the research (number of man-month – full-time equivalent): . . . . . .
8. Core disciplines (no more than five): . . . . . .
9. Did the EU project fit the portfolio of core disciplines of the team?
   - ☐ Yes
   - ☐ Partly
   - ☐ The project required a fundamental extension of the portfolio of core disciplines of the team
10. How many projects were investigated by the team in parallel with the EU project concerned? (local and foreign, such as The Czech Science Foundation (GACR), Grant Agency of the Academy of Sciences of the CR (GAAV), NAZVA, Internal Grant Agency of the Ministry of Health (IGAMZ), COST, EUREKA, others): . . . . . Number ☐ I do not know

D. Objectives of the project

11. Were you adequately acquainted with the overall investigation of the project (e.g.: did you receive the final report of the project, the form of provided information, however, is irrelevant)
    ☐ Yes ☐ No
12. Did the project achieve the set objectives?
    (i.e. the project as a whole, as concerns your contribution – see below)
    - ☐ Yes
    - ☐ No
    - ☐ Partly, I do not know (I do not have sufficient information).
13. Brief description of results:. . . . . .
14. Did your team meet its role in the project?
    (According to the definition in the project proposal – project dossier, etc.)
    - ☐ We did more than we were supposed to
    - ☐ Yes
    - ☐ Partly
    - ☐ No

15. Were you supposed to derive new knowledge from the project?
☐ Yes ☐ No
16. Describe the new knowledge derived thanks to your contribution to the project (annotation):

. . . . . .

E. Importance of results achieved in the project for your workplace

17. Would you consider the receipt of funds from the European Commission to be the main result of your participation in the project? ☐ Yes ☐ No
18. Would you consider the equipment (investment etc.) obtained in the project to be an important result of your participation in the project? ☐ Yes ☐ No
19. Do you consider the new disciplinary knowledge gained in the project to be an important result of your participation? ☐ Yes ☐ No
20. Was the experience gained in the international cooperation an important result of your participation in the project? ☐ Yes ☐ No
21. Did the experience with project management lead to major improvements of management skills in your team for the benefit of the research team management? ☐ Yes ☐ No
22. Did you apply in the investigation the results achieved in the previous projects (also national)
☐ Yes ☐ Partly ☐ No

F. Activities of your team focused on dissemination of information on the results achieved in the project (It means the share of your team in these activities carried out in the project)

23. Web site providing information on projects
☐ We contributed to the following web site: http://
☐ We did not contribute to any website
24. Organisation (co-organisation) of an international seminar, an international conference (Enter each event on a separate line in the following columns: Title of the event, Venue, Date, Proceedings (title)

Title (of the event)	Venue	Date	Proceedings (title)
. . . . .			

25. Contribution to the proceedings: (Enter each contribution on separate line in the following columns: Authors, Title of the contribution, Proceedings (title), Date, Page (from–to)

Authors	Title of the proceedings	Date	Page
. . . . .			
. . . . .			
. . . . .			

26. Article published in a journal (Enter each article on a separate line in the following columns: Authors, Title, Journal (Volume, Issue etc.), Year, and Page (from–to)

Authors	Title	Journal	Year	Page (from–to)
. . . . .				
. . . . .				
. . . . .				
. . . . .				

27. Scientific publication (Enter each publication on a separate line in the following columns: Authors, Title, Published by, Year, and Number of pages)

Authors	Title	Published by	Year	Number of pages
. . . . .				

28. Patent (Enter each patent on a separate line and fill the data in the following columns: Applicant/holder, Title of the patent, Registration number, Year of registration, Patent Office (where protected)

Applicants/holders Name Registration number Year Patent Office (where protected)

. . . . . .

. . . . . .

29. Licence: . . . . . Name . . . . . Specification

30. Verified technology: . . . . . Name . . . . . Specification

31. Pilot plant: . . . . . Name . . . . . Specification

32. Variety: . . . . . Name . . . . . Specification

33. Breed: . . . . . Name . . . . . Specification

34. Prototype: . . . . . Name . . . . . Specification

35. Applied methodology: . . . . . .

36. Functional specimen: . . . . . Name . . . . . Specification

37. Authorised software: . . . . . Name . . . . . Specification

38. Did your cooperation with the teams of research consortium continue after the completion of the project? ☐ Yes ☐ No
39: Did the results of the project lead to further cooperation: ☐ Yes ☐ No
40. The results were requested by (fill in the number)
local workplaces: . . . . . .
foreign workplaces: . . . . . .

G. Participation in the project resulted in

41. Commencement of preparation of another project ☐ Yes ☐ No
42. Successful submission of another international project application ☐ Yes ☐ No
43. Better position of the team within the workplace (university department, department)
☐ Yes
☐ No
☐ I cannot judge
44. Better position of your workplace within the participating organisation
☐ Yes
☐ No
☐ I cannot judge
45. Enhanced international recognition of your team
in the CR ☐ Yes
☐ No
☐ I cannot judge
abroad ☐ Yes
☐ No
☐ I cannot judge

46. More interest in working at your workplace (the project attracted new researchers)
Czech: ☐ Yes ☐ No
From abroad: ☐ Yes ☐ No

H. Commercial use of the project results

47. The project results were used commercially
☐ Yes
☐ No
☐ I do not know
48. The project results generated financial profit for your workplace (your institution)
☐ Yes ☐ No
49. Do you expect that the project results will generate any financial profit for your workplace (your institution)? ☐ Yes ☐ No
50. Do you believe that the project results have contributed or will contribute to strengthening of competitiveness of a certain workplace or discipline in the CR
☐ Yes
☐ No
☐ I cannot judge

51. Date of the interview:

52. Signature of the interviewer:

. . . . . .

Send the form, please, to the following e-mail address: **klempererova@tc.cz**

3. Czech results of FP 5 and FP 6 projects in bibliometric perspective

Jiří Vaněček, Vladimír Albrecht
Technology Centre AS CR Prague, Czech Republic

Summary

Our study evaluates the results of the Framework Programmes (FP) 5 and 6 in the Czech Republic and the effect of participation in FP on publication activity of research teams. It consists of two parts. The first part analyses papers resulting from the FP projects, the second analyses all publications of principal researchers of the FP projects comparing papers published before and after the project start. FP participation has a marked influence on research direction. Publications resulting from the FP projects had 42 % higher mean citation rate and 77 % more EU-25 collaborations than the Czech standards. Teams participating in the FP are better-than-average, because citation rate of all their papers published before the FP project was 21 % higher than the Czech standards. However, FP participation did not further increase the citation rate or the number of collaborations. The most striking finding of the study is the marked influence of FP on the direction of research. After the project start, the research teams published many papers in 10 fields in which they published no papers before the project. In 45 other fields, more than 200 % increase of publication number has occurred.

3.1. Introduction

One of the main goals of Framework Programmes (FP) is the support of applied research and collaboration between academia and private companies. Nevertheless, the research teams from universities and the Academy of Sciences involved in basic research are the major FP participants in the Czech Republic. However, there are some differences compared to other sources of support for projects of basic research. Czech national funding programs give researchers the freedom to choose the direction of their research as long as the project is of sufficient quality. In contrast to this approach, the FP calls specify their themes quite narrowly. Moreover, the FP

puts special attention to the international collaboration and in some programs the multinational participation is even required.

Given all these differences from the national programs supporting basic research it would be interesting to know, how the aims of the FP have been fulfilled and whether the results of the FP projects are different from those of the national programs. Moreover, the importance of FP for Czech research is increasing, because participation of the Czech research teams in FP has been growing since 1990s and the volume of contracted support has also been increasing from year to year. However, the results of the FP projects in the Czech Republic have not been evaluated yet. We have therefore designed a bibliometric study evaluating research papers published as a result of the FP projects and analyzing the impact of participation in a FP project on overall publication activity of the research teams.

3.2. Methodology

Study 1: We have evaluated Czech publications resulting from and assigned to the 5th and 6th FP projects and published from 2000 to 2007. Bibliometric data of the FP publications were obtained from the Web of Science (WoS) of Thomson Reuters and were compared with the data of all Czech publications published in the same year (Czech standards). Comparisons were made namely as regards the number of international collaborations with EU-25 countries, the number of citations per paper and the field/category of the research.

The list of publications resulting from the FP projects was compiled from two sources. The first source was the electronic repository of the ASCR (ASEP), which yielded 1492 publications assigned to the FP projects. The second source was our survey (questionnaire) among principal investigators of FP projects, which yielded 281 publications. From the total of 1773 FP publications, there were found equivalents for only 736 publications in the WoS database. All our comparisons were made using these 736 publications.

Study 2: We have evaluated all publications authored by the Czech principal investigators (PI) of the 5th and 6th FP projects which started from 1999 to 2004. Bibliometric data of the publications published during the 4-year period preceding the start of the FP project were compared with the data of publications published during the 4 years after the start of the project. In order to make the 4-year-period comparisons after the start of the project, we had to limit the FP 6 projects to those beginning in 2003 and 2004 only. In our analysis, we have

compared the two sets of publications as regards the number of collaborating EU-25 countries as specified in the byline of the paper, in the number of citations and the field/category of the research. The publications and their bibliometric data were retrieved from the WoS of Thomson Reuters. The data were carefully cleaned and special care was taken to select only publications with correct institutional affiliations of principal investigators (PI).

The sources of the data for analysis were twofold. The titles of the FP 6 projects with Czech participation, the names of the PIs and the starting dates of the projects were retrieved from the E-CORDA database. From this database, the PIs names of 271 FP 6 projects starting in 2003 and 2004 were obtained. The titles of the FP 5 projects and their starting dates were also retrieved from the E-CORDA database. However, this database does not contain names of the PIs of the FP 5 projects. The names on the projects are those of the representatives of the whole institution, as rectors of the universities, directors of the research institutes etc. Therefore we have attempted to get the names of the PIs by inquiry in their home institutions. However, we have been only partially successful as we have received PIs names of 241 FP 5 projects only. Some of the PIs were involved in more than 1 FP project; therefore our final list contained 441 researcher names and institutional addresses. This list has been used for retrieval of publications from the Web of Science as well as for cleaning of the data.

All papers published by these researchers during 4-year periods before and after the beginning of the FP projects have been extracted from the WoS database. Only papers with correct institutional addresses have been retained. The resulting set contained 4157 papers. These papers were compared with all Czech papers (i.e. Czech standards) published in the same years in the following aspects: number of publications, number of citations, number of collaborations with EU-25 countries, and changes of the research field/category.

In order to enhance comparisons of the bibliometric data, we have plotted the data not only as absolute numbers but also as the relative quotients of the Czech standards; numbers of collaborations and citations of each analyzed paper were divided by the average number of collaborations or citations of all Czech papers (Czech standards) published in the same field/category and the same year. These relative numbers were labeled as the collaboration index or citation index respectively; the index value greater than 1 indicated that the publications are more cited (or have more collaborations) than the Czech standards. These indexes were used for comparisons of the papers published before and after the start of the FP projects.

3.3. Results

3.3.1. Analysis 1: Publications resulting from FP 5 and FP 6 projects

The number of publications resulting from the FP projects increased from 4 in the year 2000 to almost 200 in the year 2006 resulting in total of 736 publications (Fig. 1a). When expressed as relative part of all Czech papers published in the same year, the FP papers ranged from 0.08 to 2.54 % and all together represented 1.46 % of all Czech papers published from 2000 to 2007 (Fig. 1b). However, these numbers surely do not represent all papers resulting from the FP projects, because the majority of the papers analyzed came from the database of the AS CR and were authored by the researchers from the AS CR while most of the publications from the universities were not included in the selection.

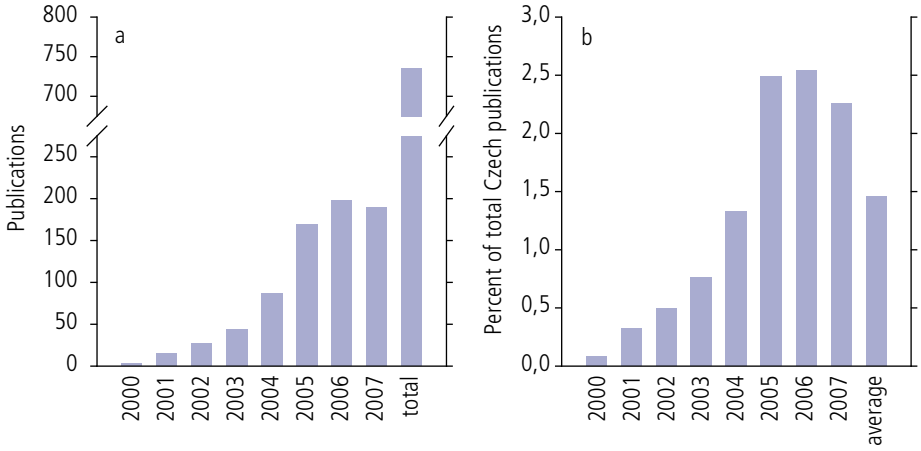

Figure 1 – Publications resulting from FP projects (a) and their share of the total Czech publications (b).

The highest number of FP publications belonged to the Multidisciplinary Physics category followed by Optics, Atomic and Molecular physics, Physics of condensed matter and Material science (Fig. 2a). These categories correspond to the areas of major calls in FP 5 and FP 6. It is interesting to compare the number of the FP papers to the total Czech output in each category. In some categories, e.g. in Biodiversity conservation or Optics, the papers assigned to FP projects represented 10 % or even more of all Czech papers published (Fig. 2b). In these categories, the Framework Program was clearly one of the major supports of research activity.

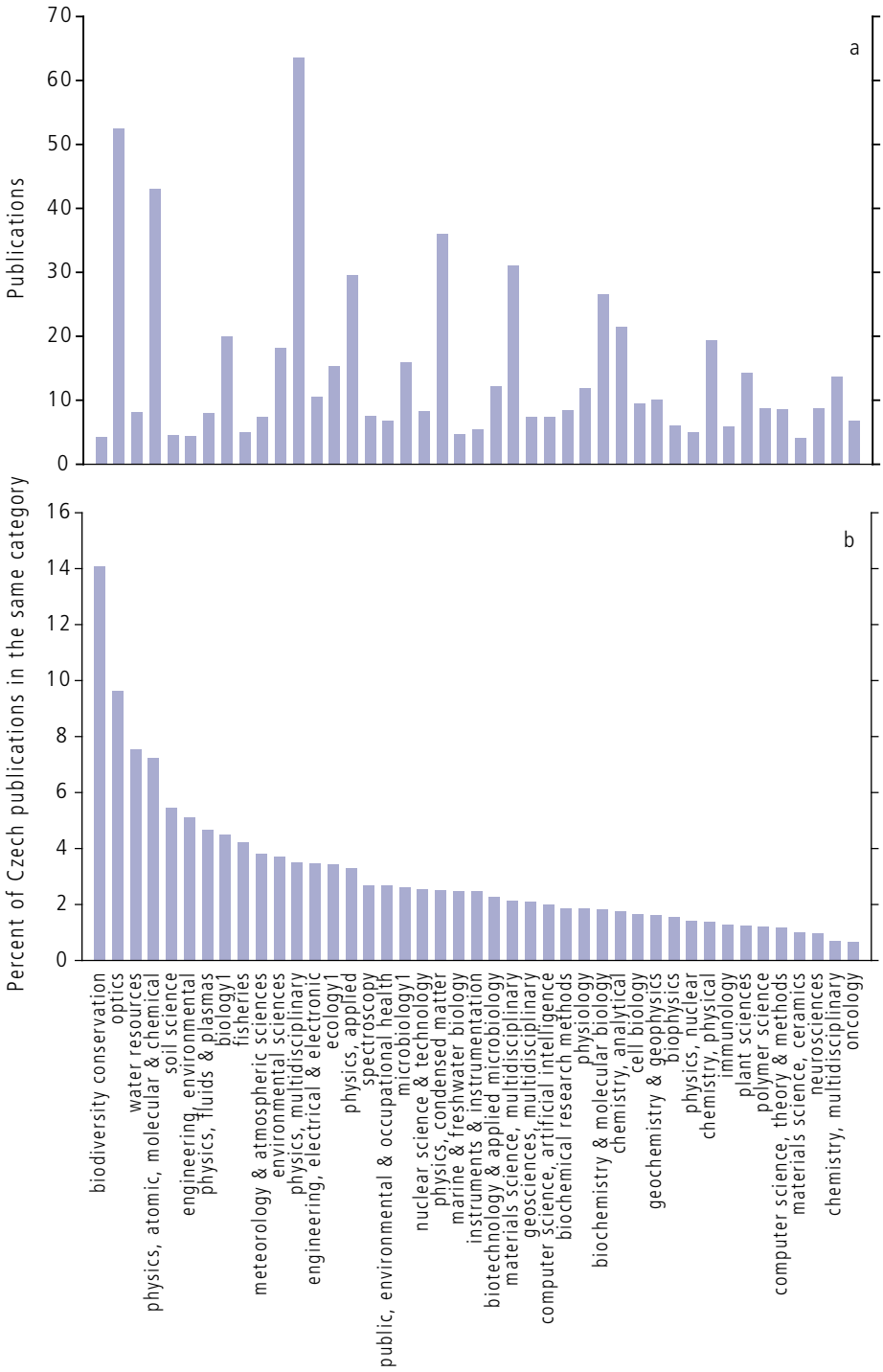

Figure 2 – Publications resulting from the FP projects in selected fields/categories (a) and their share of the total Czech publications (b).

The average number of collaborations with EU-25 countries varied from about 0.5 per FP paper in the year 2000 to more than 1.2 in the year 2007 (Fig 3a). During all the years the number of collaborations was clearly higher than the average number of Czech papers published during the same years. However, the average number of collaborations per paper depends greatly on the field of research. For example, the average number of collaborations in all Czech papers published from 2000 to 2007 in the Mathematics category was 0.43 while papers in the Nuclear physics category had an average of 1.19 collaborations per paper (data not shown). When the number of collaborations in the FP papers was compared with the average number of collaborations in all Czech papers in the corresponding field or category, the FP papers had always more collaborating countries in the byline of the paper than the Czech standard (Fig. 3b). The relative collaboration index of FP papers ranged from 1.38 to 2.01, while the value of the Czech standard was always equal to 1.0. The overall average collaboration index of 1.77 indicates a 77 % increase of collaborations in the FP papers.

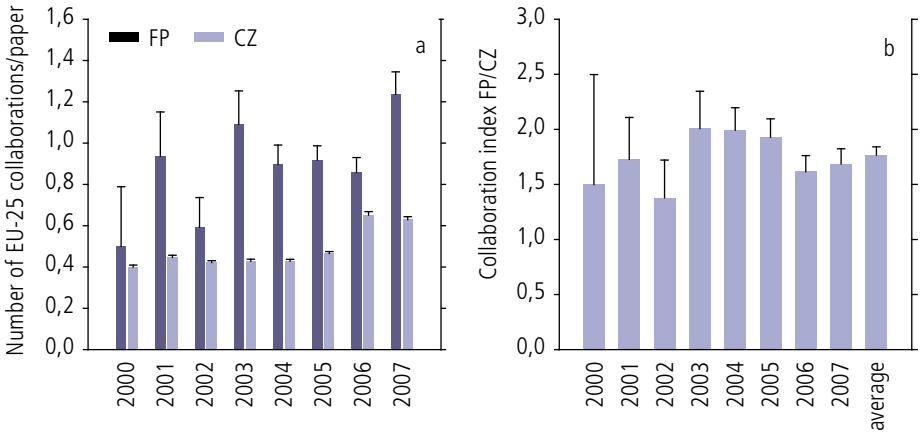

Figure 3 – Collaborations with EU-25 countries in the papers resulting from the FP projects (FP) and in all Czech papers (CZ). Part a: Comparison of average numbers of collaborations. Part b: Relative collaboration indexes of the FP papers calculated as average number of collaborations of the analyzed papers divided by the average number of collaborations of all Czech papers published in the same field/category and year.

The number of citations per paper was the highest in the papers published in 2000 and decreased thereafter (Fig. 4a). It is clearly due to the longer citation window of the older papers. When compared to the citation rate of the average Czech paper, the FP papers had a higher citation rate over this whole period. However, it has been

shown a number of times, the citation rates are markedly dependent on the field of research (Glanzel & Schubert, 2003; Podlubny, 2005). When the citation rates of the FP papers were compared to the citation rates of all Czech papers published the same year in the same field/category, the FP papers had always been more cited than the Czech standards (Fig. 4b). The relative citation index of FP papers ranged from 1.06 in 2007 to 2.63 in 2001, resulting in overall average index of 1.42, while the value of the Czech standard being always equal to 1.0.

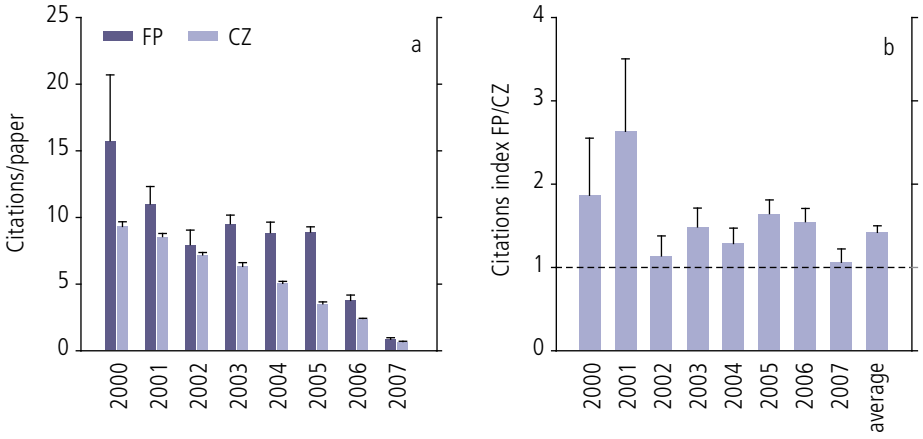

Figure 4 – Citation rate of the Czech publications resulting from the FP projects. Part a: Comparison of average numbers of citations per paper in the papers resulting from the FP projects (FP) and in all Czech papers (CZ). Part b: Relative citation indexes of the FP papers calculated as average number of citations of the analyzed papers divided by the average number of citations of all Czech papers published in the same field/category and year.

3.3.2. Analysis 2: Publication activity of the Czech principal investigators (PI) of the 5th and 6th FP projects starting from 1999 to 2004

The selected group of the Czech principal investigators (PI) consisting of 441 researcher names has published 1698 papers during the 4-year period before the start of the FP project and 2459 papers during the 4-year period after the beginning of the FP project (Fig. 5a). These amounts corresponded to 7.71 % and 9.08 % respectively of all Czech papers published in the same years (Fig. 5b). However, because we do not know, whether the PI's teams have not grown in number of researchers, these data do not allow us to make any conclusions about the productivity of the teams.

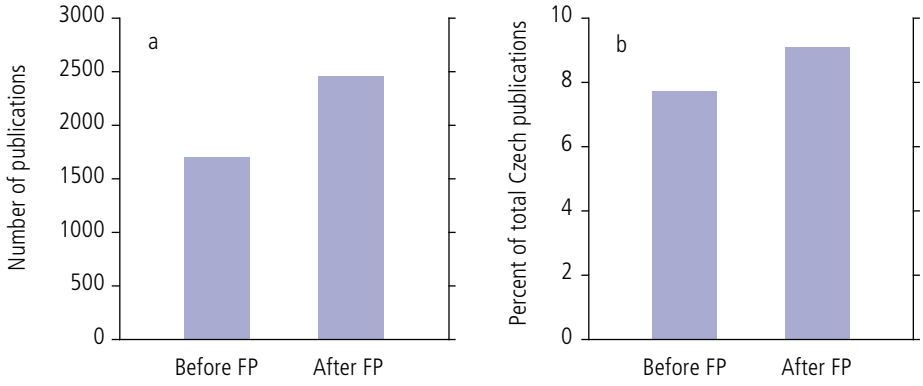

Figure 5 – Number of papers published by the principal investigators of the FP 5 and FP 6 projects during the 4-year periods preceding and following the start of the FP project. Part a: absolute number of publications, part b: percent of all Czech papers published during same time.

The average number of collaborations with EU-25 countries slightly increased from 0.49 per paper before the FP project to 0.53 after the project (Fig. 6a). However, when compared to the collaboration indexes of all Czech papers in the same category and year, the FP papers had the same values of about 1.0 before and after the start of the project (Fig. 6b). This finding indicates that the participation in the FP project does not influence the overall collaboration activity of the research groups.

Papers published before the FP project received much more citations than papers published after the project, this being obviously due to the longer citation window

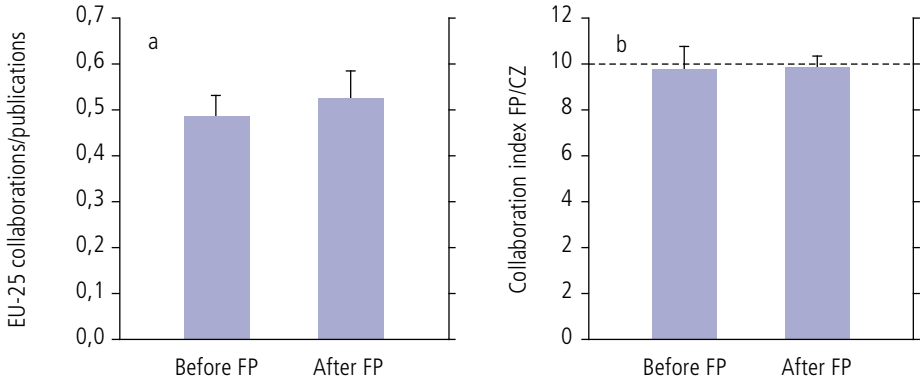

Figure 6 – Number of collaborations with EU-25 countries per paper published by the principal investigators of the FP 5 and FP 6 projects during the 4-year periods preceding and following the start of the FP project. Part a: absolute number of collaborations per paper, part b: relative collaboration indexes calculated as quotient of collaborations in the analyzed papers and the Czech standards in the same field and year.

(Fig. 7a). When compared to the Czech citation standards in the same category and year, the papers published before the FP project had index 1.21 and the papers published after the start of the FP project had citation index 1.18 (Fig. 7b). Because the index value is higher than 1.0, the research groups participating in the FP projects are clearly better-than-average in citation rate. However, because there was no difference between papers published before and after the start of the project participation in the FP project had no effect on the citation rate.

Finally, we have also examined the effect of participation in the FP projects on the field/category of the published papers (Fig. 8). In 55 categories, a marked increase of published papers has been observed after the start of the FP project. In 10 of these categories, there were no papers authored by the PI before the start of the FP project and several papers published after the project start. In order to determine, whether these changes were not due to the general trends in the Czech research, we have expressed the papers published by the FP participants as percents of all Czech papers published in each category in the same years (Fig. 8b). In 25 out of the 55 research categories, at least two-fold increase of the share of the total Czech publication output has been observed in the PI's papers published after the start of the FP project and in other 15 categories the increase of their share has been in the range of 150 % to 200 %. This finding indicates that the increase of the publishing activity in some categories is specific for the groups participating in the FP projects and may thus be caused by the FP.

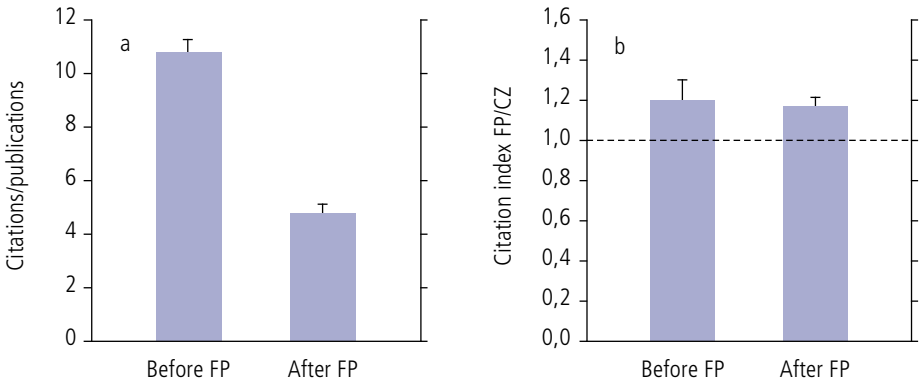

Figure 7 – Number of citations per paper published by the principal investigators of the FP 5 and FP 6 projects during the 4-year periods preceding and following the start of the FP project. Part a: absolute numbers of citations per publication, part b: relative citation indexes calculated as quotient of citation rate of the analyzed papers and the Czech standards in the same field and year.

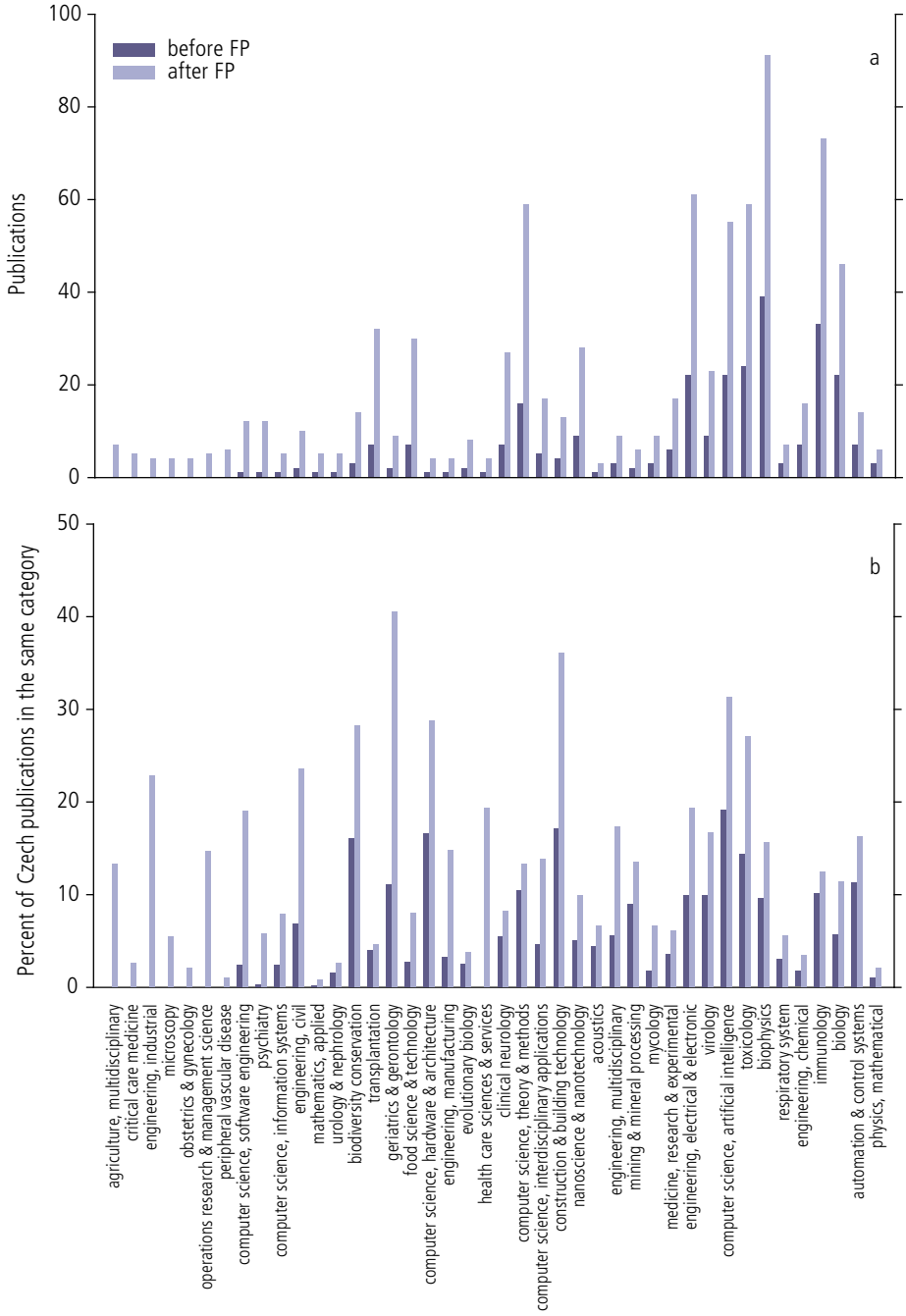

Figure 8 – Number of publication published in selected field by the principal investigators of the FP 5 and FP 6 projects during the 4-year periods preceding and following the start of the FP project. Part a: absolute numbers of PI's publications, part b: relative share of the PI's publications in all Czech publications in the same field and the same year.

3.4. Discussion and conclusions

Our bibliometric study analyses two sets of publications. The first set consists of publications directly resulting from the FP projects. The second set includes all publications of the Czech PIs of the FP projects; by comparing the papers published before and after the start of the FP projects the impact of participation in the FP on publication activity of the PI's research teams is analyzed.

The most striking finding of the study is the marked influence of FP on direction of research. After the start of the FP projects, the research teams have published a number of papers in the fields or categories in which they published no papers before the project. In many other fields, more than 200 % increase of publication number occurred after the start of the FP project. This increase was specific for the teams participating in the FP projects, because it did not occur in other Czech publications. Moreover, these fields/categories often corresponded to the categories in which papers directly assigned to the FP projects represented 10 % or more of all Czech papers published. These fields included for example biodiversity conservation, biology, biophysics, immunology, electronic engineering, computer science-artificial intelligence and some others.

The explanation for this strong influence of the FP on the direction of research is not obvious, because the FP funding represents only about 5 % of the total R&D funding from public sources in the Czech Republic. However, because the FP funding is assigned to research activities only and is not intended for financing of the research infrastructure, its share in the project funding is probably much higher. Indeed, the total sum obtained by the Czech teams in 2007 from the FP is approximately the same as the budget of the Grant Agency of the Czech Republic, the main source of support for projects of basic research. Moreover, in the Czech Republic the basic research is mostly not targeted by funding programs and funding is allocated mainly on the basis of excellence. Therefore even a small additional funding from the FP, which is targeted to the selected areas only, may represent strong stimuli for the direction of Czech research.

Apart from the structural effect, the other effects of the FP seem to be somewhat weaker and less striking. The ratio of the papers published by primary investigators of the FP projects, increased from 7.71 % of the Czech total before the project to 9.08 % after the start of the project. However, it is not possible to tell, whether it

is caused by increased productivity of the research team or by an increased number of researchers in the team. Nevertheless, our data clearly indicate that in order to succeed in the competition for FP funding, the Czech teams have to be better-than--average, because citation rate of their papers was about 20 % higher than that of the average Czech papers. Participation in the FP projects did not cause further increase in the citation rate of the publications produced by the PI's team. On the other hand, the publications resulting directly from the FP projects had more than 40 % higher citation rate compared to the Czech average. This is at least partly due to the higher initial quality of the research teams participating in FP (see above). In part it could be caused by a higher number of international collaborations with EU-25 countries as the papers resulting from the FP projects had almost 80 % more collaborations than the Czech average. It has been shown previously, that international collaboration increases the citation rate of papers (Narin et al., 1991; Glanzel, 2001; Vanecek, 2008). In agreement with this observation, the PI's papers published after the start of the FP projects, which did not have a higher number of collaborations than papers published before the projects, did not have increased citations either.

Our finding concerning increased citation rate of the PI's papers closely correlates with the report on bibliometric evaluation of the FP results in 5 Swedish universities (Arnold et al., 2008). When the Swedish papers published between 1996 and 2006 were analyzed, the mean field normalized citation rate was about 20 % higher in the papers of FP participants than in papers of non-participating researchers. The authors conclude that FP participants are more cited already before the EU-financed project and that the project itself has no further effect on citation rate. On the other hand, there is some discrepancy between our and others' findings concerning the FP effect on the number of EU collaborations (Arnold et al., 2005). The same Swedish study as mentioned above has shown a slightly decreased number of collaborations in FP participant papers published during period the 1996 to 2000, but a 60 % increased number of collaborations during the 2001 to 2006 period (Arnold et al., 2008). Also the earlier Finnish study has found stimulatory effect of FP on European collaboration (Niskanen, 2001). The differences may be due to the short lapse of time (interval) used in our analysis. It could be possible that after a longer delay, more positive effects of FP participation on international collaboration would be found even in the Czech Republic.

Besides, we have to bear in mind, that our study analyzes only partial data, because neither of the two analyzed sets is complete. Only a part of publications

resulting from the FP projects has been detected and analyzed, because there is no central index or database of the Czech results of international projects including the FP projects. The only institution archiving these results is ASCR in its electronic database of results (ASEP), from where we have retrieved the vast majority of publications for our analysis.

Also the list of the names of PIs of the FP projects is incomplete. Only the list of PIs involved in the FP 6 projects may be complete, because it has been retrieved from the official database of DG Research, E-CORDA. However, because we have analyzed papers published during the 4-year period after the beginning of the project, we could only include projects from the first 2 years of the FP 6, i.e. projects starting in 2003 and 2004. As for the FP 5 projects, there was no list of the PI names provided by DG Research, so we had to get their names by inquiry in their home institutions. However, we have been only partially successful as we have obtained the PI names of 241 FP 5 projects only. Because some of the PIs were involved in more than one FP project, our final list contained 441 researcher names and institutional addresses.

We have expected that most of the publications resulting from the FP projects will be included in the set of publications authored by the PIs of the FP projects. However, only 249 publications out of 736 were a subset of publications authored by the PIs of FP projects. Almost two thirds of the papers were authored by other researchers, although they were assigned as results of the FP projects. Some of these publications could be authored by the PIs of the FP5 projects whose names we have not been able to get. Another possible explanation would be that there are several independent researchers in the teams involved in the FP and the PI in many cases provides only an umbrella for the FP project but his name is not mentioned on all papers published by the team.

In conclusion, our study is the first to evaluate the results of the FP projects in the Czech Republic and the impact of the participation in the FP on the publication activity of the researchers.

4. Appendix
List of abbreviations

COUNTRY

Code	Name
AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

ACRONYM — MEMBER STATE GROUPING

EU-27	All EU Member States
EU-15, OMS	Old Member States (AT, BE, DE, DK, EL, ES, FI, FR, IE, IT, LU, NL, PT, SE, UK)
EU-11, NMS	New Member States without the CR (BG, CY, EE, HU, LT, LV, MT, PL, RO, SI, SK)
EU-12, NMS	EU-11 plus CZ, i.e. all New Member States

INSTRUMENT

Code	Description
CA	Coordination Actions
CLR	Collective Research Projects
CRAFT	Cooperative Research Projects
I3	Specific Actions to Promote Research Infrastructures
II	Specific Actions to Promote Research Infrastructures
IP	Integrated Projects
MCA	Marie Curie Actions
NOE	Networks of Excellence
SME	Specific Projects for SMEs
SSA	Specific Support Actions
STREP	Specific Targeted Research Projects

PARTICIPANT ACTIVITY TYPE

Code	Description
HES	Higher Education (i.e. organisations only or mainly established for higher education/training, e.g. universities, colleges)
IND	Industry (i.e. industrial organisations private and public, both manufacturing and industrial services such as industrial software, design, control, repair, maintenance)
N/A	Undefined
OTH	Others
REC	Research (i.e. organisations only or mainly established for research purposes)

ABBREVIATIONS DESIGNATING THE FP6 PRIORITIES

1. LSH:	1st thematic priority: Life sciences, genomics and biotechnology for health
2. IST:	2nd thematic priority: Information society technologies
3. NMP:	3rd thematic priority: Nanotechnologies and nanosciences, knowledge-based functional materials, new production processes and devices
4. AaS:	4th thematic priority: Aeronautics and Space
5. Food:	5th thematic priority: Food quality and safety
6. SD:	6th thematic priority include the Sustainable energy systems, Sustainable surface transport and Global change and ecosystems
7. Citi:	7th thematic priority: Citizens and governance in a knowledge-based society
Pol. sup-NEST:	Research for policy support and New and emerging science and technologies,
SMEs:	Specific research activities for small and medium-sized enterprises
INCO:	Specific measures in support of international cooperation (with third countries, i.e. non-EU Member States)
ERANET:	Support to coordination of research activities in the EU
Coh.dev.pol:	Coherent development of national research and innovation policies
Res. Inno:	Programmes for support of research and innovations
MCA:	Human resources and mobility (the so called Marie Curie Actions – MCA)
Infrastr.:	Programmes supporting the use of research infrastructures on a European scale
SaS:	Science and Society
EURATOM:	EURATOM FP6 Programme

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