

Stairway to Excellence

Cohesion Policy and the Synergies with the
Research and Innovation Funds

Czech Republic (CZ)

Facts & Figures



July 2015

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Please include the following information to reference this report:

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Introduction

Background of Stairway to excellence project

The European Commission Framework Programme (FP) for research and technology development has been vital in the development of European knowledge generation. However, there is considerable disparity across EU countries and regions in terms of FP participation and innovation performance.

Horizon 2020 will continue to provide funding on the basis of excellence, regardless of geographical location. However, it will also introduce novel measures for "spreading excellence and widening participation" by targeting low Research & Innovation (R&I) performing countries - most of whom are eligible for innovation funding under Cohesion Policy for the period 2014-2020.

In addition, the new regulations for ESIF aim to use funds more effectively to build regional/national excellence and capacities. By doing so, the two funding sources (ESIF and Horizon 2020) can complement one another along the entire innovation process.

Objectives of S2E

The Stairway to Excellence (S2E) project (<http://s3platform.jrc.ec.europa.eu/stairway-to-excellence>) is centred on the provision of support to enhance the value of two key European Union (EU) funding sources for research, development and innovation (ESIF and H2020) by actively promoting their combination. The project has two main objectives, namely:

- Providing of assistance to regions and countries that joined the EU since 2004 in closing the innovation gap, in order to promote excellence in all regions and EU countries;
- Stimulating the early and effective implementation of national and regional Smart Specialisation Strategies.

Main purpose of the document

The main aim of this document is to draw the European profile of a territory (region or country) with statistical and financial information coming from the EU 7th framework programme and Structural funds dedicated to Research and innovation during the previous financial period (2007-2013). Other information is used in support of this aim. The document is guided by the following questions:

- What is the overall position of the territory in terms of FP7 budget captured and Structural funds dedicated to R&I?
- What are the specialisation areas emerging from FP7 participation? Are they corresponding with areas chosen in the smart specialisation strategy (S3)?
- What are the main R&I stakeholders involved in EU programmes? Are there any regional/ national specificities in terms of participation in EU programmes?
- What are the main European collaboration axes of the territory in the EU framework programme?

The document provides national authorities and the European Commission with relevant and useful information to facilitate the creation of synergies between structural funds dedicated to research and innovation and the Horizon 2020 programme.

The document is divided in four sections: (1) the keys messages coming from the direct interpretation of tables and figures provided in the following sections, (2) the main characteristics of the territory, (3) the specialisation areas, and (4) the Characterization of organisations participating in the FP with the identification of the key players and the main European organisations collaborating with the territory.

Complementarity with other analysis

This document contains key messages only based on the presented quantitative indicators. This "facts and figures" document provides as full a picture as possible of how and where European funding dedicated to R&I is spent in EU13 territories. Within the wider context of the Stairway to excellence project this work complements other analyses to give further insights into R&I funding in EU13 and related issues. Such complementary work includes:

- National profiles based on the input of country experts giving an updated picture of the strategy and governance at the national level.
- Knowledge flow analysis including the use of various types of indicators such as patents, bibliometrics, and FP/H2020 participations.
- Case studies giving examples of success stories of existing synergies between ESIF and other types of funding from across Europe.

The document will also provide background and context to workshops and meetings organised at the national and regional levels.

Source of information

The regional macro-economic indicators are provided by Eurostat. Regional specialisation areas and structural closeness are extracted from the S3 platform. The FP7 related information comes from the last updated FP7 contracts database (June 2014) provided by DG RTD J5. The information about Structural Funds¹ is provided by DG REGIO database.

Disclaimer

This document aims to give an instantaneous picture about the expenditure of EU funding at NUTS2 level but it is NOT a monitoring report. Some gaps may occur in indicators without calling into account the key messages provided at the beginning of the document.

¹ ERDF = European Regional Development Fund, ESF = European Social Fund, CF = Cohesion Fund

1. Key messages

Overall economic performance of the country by comparing macro-economic indicators, FP7 and Structural Funds indicators

- The level of R&D expenditure based on GDP in the Czech Republic (1.91%) is higher than the EU13 average (1.05%) but less than the EU15 countries (2.09%). R&D expenditure is primarily concentrated in the Business Enterprise sector (Table 1).
- The Prague region takes the largest proportion of FP7 funding (48.6% of total FP funding received by the Czech Republic) followed by the Jihovychod region (Brno region) (31.3%). In terms of Structural funds, Jihovychod was allocated the biggest amount (more than 1 Bn€) whereas Prague was allocated 305.4 M€. The Prague region is not a convergence region (Table 2).
- As is the case for many of the EU13 countries, the Czech Republic did not manage to maintain its funding share from FP6 in FP7. Overall the EU13 countries are even outperformed by the countries associated to FP7 (Figure 1).
- In FP7 the Czech Republic accounts for 1 409 participations and 120 project coordinations. The FP7 financial contribution per inhabitant (27.3 €/inhabitant) is higher than the EU13 average (17.8 €/inhabitant) and is far below the EU15 average (95.2 €/inhabitant) (Table 3).

EU funding allocation

- The largest FP7 financial contribution to the Czech Republic is from the Cooperation Specific Programme (the thematic part of FP7) and this share is the same as in FP7 overall, which is a difference compared to the other EU13 countries. Nevertheless, as in the other EU13 countries we can observe a strong bias towards the Capacities Specific Programme (SME Measures, Research infrastructures initiatives) as it accounts for around 18.2% of their contribution but only accounts for 8.5% of FP7 (Table 4 & Figure 2). The same bias occurs to a lesser extent for the EURATOM programme. In terms of FP7 funding instruments, it appears that Czech organisations have had a slight preference for Coordination and Support Actions, infrastructure initiatives and SME measures and also for JTI initiatives (Figure 3 & Table 5).
- During 2007-2013 programming period Structural funds dedicated to Research and Innovation are managed at the national level through three Operational Programmes (Innovative Economy OP, Infrastructure OP and R&D for innovation OP). The absorption rate is at 95% with few disparities (in funding and absorption rate) among priority themes. This is particular to the Czech Republic compared to other EU13 countries (Tables 6 & 7).

Specialisation areas

- The Czech Republic has designed its S3 strategy at the national level (with an annex containing the specialisation areas chosen by the 14 NUST3 "regions") and at the regional level (NUST2) for 2 regions: Prague and South Moravia. The four specialisation areas (engineering industries, healthcare and medical technologies, ICT and transport means) chosen by the Czech Republic are partially aligned with specialisation information observed from the Czech participation in FP7. About 64% of the FP7 funding received by the country can be estimated as being aligned to Czech specialisation areas chosen in the S3 (Tables 9 & 10).
- Participants have shown stronger interest in FP7 priorities linked to Food, Agriculture and Fisheries, Biotechnology, Nanosciences & Nanotechnologies, Aeronautics, Rail and Urban Transport that account for a greater proportion of Czech Republic's funding than FP7 overall. However, the most funding for the Czech Republic comes from ICT (22.7%) although this is less than the proportion for FP7 (28.5%). (Figure 4, Tables 11).

Beneficiaries profile including SME participation

- The Czech Republic corresponds, more or less, to the average FP7 profile in terms of distribution of funding among participant categories. The largest proportion of the FP7 funding is received by the Higher or Secondary Education sector, 41.6% which is slightly less than the FP7 average (43.5%) while Private Firms represent slightly more (29.8% versus 24.7%) (Table 12 & Figure 5).
- The financial contribution to Czech SMEs is proportionally much larger than FP7. The Czech Republic accounts for 220 participations of SMEs in the FP7 thematic programme (25.2% of the Czech total), representing 23.6% of the EC budget for thematic programme open to all types of Czech participants. Czech SMEs are particularly

involved in the ICT theme (52 participations), Nanosciences and Nanotechnologies (21), Environment (20) and Space (17) (Table 13 & Figure 6).

- The overall success rate for the Czech Republic (19.2%) is slightly lower than the average FP7 success rate (20.4%). The Czech success rate is higher in themes or activities dedicated to Food and Agriculture, Nanosciences and Nanotechnologies, calls launched by Joint Technology Initiatives (JTI), Research infrastructures initiatives, Research Potential and activities related to EURATOM (Table 14).

Main collaboration axis between Czech Republic and other European countries

- The EU regions that Czech organisations collaborated with the most in FP7 were in France (Paris area), Italy (Roma area), Spain (Madrid area and Catalonia), Germany (Oberbayern), Austria (Wien area), Belgium (Brussels) and UK (London) (Table 15 & Figure 7).
- Czech participation in FP7 is organised around all four categories of participant; structured into two distinct groups. Network analysis shows that Czech Private Firms appear as strongly linked to Czech Public Research organisations as to Public Research organisation (REC) and Higher Education Sector (HES) organisations. Czech Universities seems to have a central position being at the interface between the two types of participants (Figure 8).

2. Main country characteristics

2.1 General macro-economic indicators

Table 1 demonstrates some selected macro-economic variables appertaining to the research and development activities, including the R&D expenditure and number of full time equivalent research personnel by different sectors. While the significant gap between EU15 and EU13 Member States is observable in this table, it also provides a general understanding of the position of the MS in the European context.

Table 1: General macro-economic indicators of the country in 2013

	Czech Republic	EU13*	EU15	EU28
Population	10 516 125	105 127 027	401 484 800	506 611 827
GDP - Euro per capita	14 200	10 417	29 800	25 700
GDP - Euro per capita in % of EU average	55	40.5	115.3	100
R&D expenditure - Total (million Euro)	2 996.67	11 521.81	260 036.97	271 558.78
R&D expenditure - Total [% of GDP]	1.91	1.05	2.09	2.01
R&D expenditure - Business Enterprise Sector (BES) [% of GDP]	1.03	0.54	1.34	1.28
R&D expenditure - Government Sector (GOV) [% of GDP]	0.35	0.23	0.25	0.25
R&D expenditure - Higher Education Sector (HES) [% of GDP]	0.52	0.27	0.49	0.47
R&D expenditure - Private non-Profit Sector (PnP) [% of GDP]	0.01	0.004	0.02	0.02
R&D Personnel** - Total (% of active population)	1.17	0.62	1.25	1.12
R&D Personnel - BES (% of active population)	0.64	0.25	0.69	0.60
R&D Personnel - GOV (% of active population)	0.22	0.15	0.15	0.15
R&D Personnel - HES (% of active population)	0.31	0.22	0.39	0.36
R&D Personnel - PnP (% of active population)	0.01	0.002	0.01	0.01
Unemployment Rate***	-	9.9	9.50	9.60

Source: Compiled and calculated by using Eurostat 2013

* As EU13 indicators are not available in the data sources, the values are calculated over national statistics provided by Eurostat 2013.

** R&D personnel refer to the number of full time equivalent R&D personnel.

***Unemployment uses latest available figures for 2013 age group 15 years and over.

2.2 Main EU funding targeting Research and Innovation received by the country

2.2.1 Breakdown of the main EU funding received

The data in **Table 2** is for FP7 and the Structural Funds 2007-2013. The FP7 data represents the total EU contribution to projects for each NUTS2 region in Czech Republic. The information is from the contract database for FP7 and it represents funding to beneficiaries in the regions for projects that have been successfully evaluated. The table is ranked by the first region being the one with the largest contribution from FP7.

The data on structural funds is from the Annual Implementation Report (AIR)² for 2013 and represents the EU support allocated to selected projects. The values presented in Table 1 are only for priority themes that represent research and technological development, innovation and entrepreneurship (categories 1-9) and category 74 "Developing human potential in the field of research and innovation" as described in the Official Journal³. Hereafter categories 1-9 and 74 are collectively known as research and technological development, and innovation (RTDI). It should be noted that these values do not represent

² The Annual Implementation Reports are progress reports produced by the Structural Fund managing authority they monitor information on (1) allocations decided, (2) amounts allocated to projects and (3) the core indicators used for ERDF and Cohesion Fund.

³ See Annex IV in Council Regulation (EC) No 1083/2006 available at <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32006R1083&from=EN>

the funding available, only the total allocated to projects at the time of the 2013 AIR and NUTS3 allocations were aggregated to NUTS2.

Table 2: Regional breakdown of FP7 and Structural funds EU Contribution received by the country

NUTS2 Region	FP7 EU Contribution (€M)	% of the national total	FP7 EU contribution per capita (in €/inhab)	Structural funds (€M)	% of the national total	Structural funds dedicated to RTDI per capita (in €/inhab)
Prague-Praha (CZ01)	139.2	48.6%	110.98	321.5	7.2%	257.4
Central Bohemia-Střední Čechy (CZ02)	13.4	4.7%	10.76	746.5	16.6%	598.4
South West-Jihozápad (CZ03)	16.2	5.6%	13.37	398.8	8.9%	329.7
North West-Severozápad (CZ04)	2.7	0.9%	2.37	213.9	4.8%	187.0
North East-Severovýchod (CZ05)	12.6	4.4%	8.35	525.7	11.7%	348.2
South East-Jihovýchod (CZ06)	89.7	31.3%	53.81	1194.8	26.6%	716.9
Central Moravia-Střední Morava (CZ07)	8.2	2.9%	6.66	591.0	13.2%	479.3
Silesia-Moravskoslezsko (CZ08)	4.4	1.5%	3.53	496.4	11.1%	398.0
Total	286.4	100%	27.3	4488.7	100%	427.2

Source: EC FP7 contract database June 2014 and Annual Implementation Report (AIR) for 2013

2.2.2 The Czech Republic in the FP7⁴

This section presents how the country participated in the FP7 by comparison with the EU13, the EU15 and FP7 in

- The EU FP7 budget captured (also per inhabitant), the number of participation and coordination (**Table 3**), by the yearly trend of EU FP7 budget received since the FP6 (**Figure 1**).
- The breakdown between FP7 specific programmes (**Figure 2** and **Table 4**) and funding instruments (comparison only with the FP7) (**Figure 3** and **Table 5**).

Table 3: General FP7 indicators (Source: EC FP7 contract database June 2014)

	Czech Republic (% of FP7)	EU13 (% of FP7)	EU15 (% of FP7)	FP7 ⁵
EU Contribution (in M€)	286.4 (0.65%)	1 883.6 (4.2%)	37 852.2 (85.3%)	44 364.1
Number of participations	1 409 (1.06%)	10 637 (8.0%)	105 731	132 382
Number of coordinations	120 (0.48%)	1 011 (4.0%)	20 301	25 052
EU Contribution per inhabitant (in €)	27.3	17.8	95.2	78.9 (EU28)

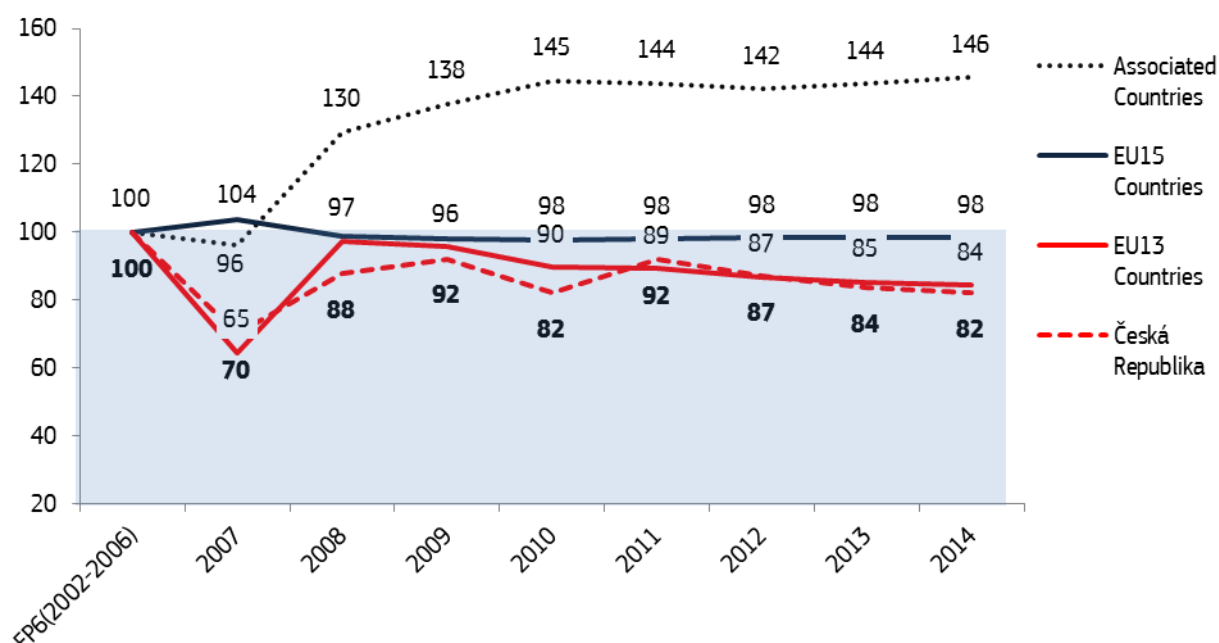
Source: JRC/IPTS calculated using the EU FP7 contract database June 2014

The following graph shows the evolution of the share of FP7 budget for the 15 "old" members States (EU15), the 13 "new" member States, the associated countries and the country under consideration. The share of budget from FP6 is considered as the reference (Base 100). The graph shows the share of cumulated funding by year for each of these categories. Therefore, the year 2014 represents the total share of budget taken in the FP7.

⁴ The "Headquarter effect" in the FP7 contract database can be an important issue for Regions (especially in the most centralized countries). If available, the location of a research department has been used as the "true" location if this differs from the headquarter location.

⁵ EU28 and associated countries

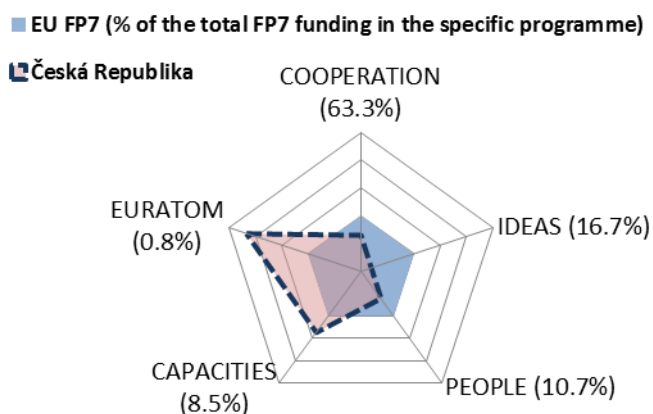
Figure 1: Evolution of the Share of EU FP contribution received between 2006 and 2014 (EU FP6 budget share taken as base 100)



Source: JRC/IPTS using the EC FP7 contract database June 2014

Figure 2 and **Table 4** below show the difference between national profile and FP7 specific programmes where the FP7 breakdown is taken as the reference.

Figure 2: Comparison of the EU Contribution breakdown among FP7



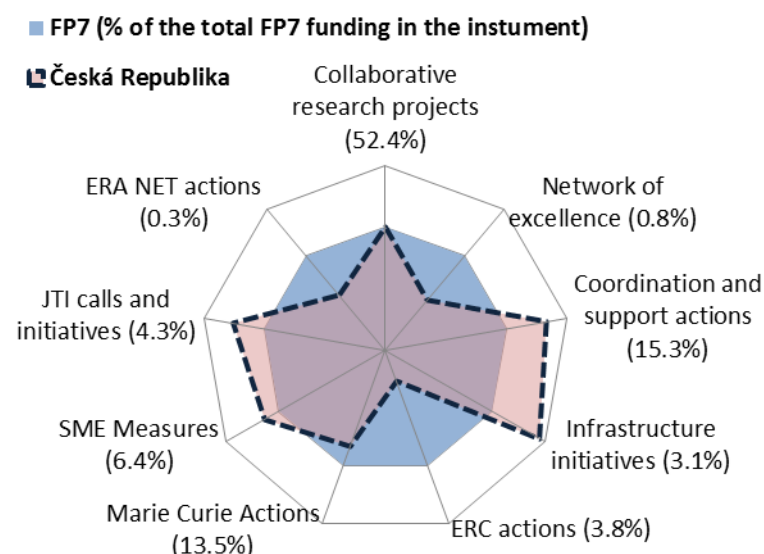
Source: JRC/IPTS using the EC FP7 contract database June 2014

Table 4: Breakdown of the FP7 EU Contribution among specific programmes

	% of EU Contribution	
	Czech Republic	FP7
COOPERATION	63.7%	63.3%
IDEAS	5.1%	16.7%
PEOPLE	10.3%	10.7%
CAPACITIES	18.2%	8.5%
EURATOM	2.7%	0.8%
	100%	100%

Source: JRC/IPTS calculated using the EC FP7 contract database June 2014

Figure 3: Comparison of funded participations breakdown among FP7 funding instruments



Source: JRC/IPTS using the EC FP7 contract database June 2014

Table 5: Breakdown of the participations among FP7 funding instruments

	% of EU Contribution	
	Czech Rep.	FP7
Collaborative research projects	50.9%	52.4%
Network of excellence	0.4%	0.8%
Coordination and support actions	19.7%	15.3%
Infrastructure initiatives	4.4%	3.1%
ERC actions	1.0%	3.8%
Marie Curie Actions	10.9%	13.5%
SME Measures	7.1%	6.4%
JTI calls and initiatives	5.3%	4.3%
ERA NET actions	0.1%	0.3%
TOTAL	100%	100%

Source: JRC/IPTS calculated using the EC FP7 contract database June 2014

2.2.3 Structural funds dedicated to Research and innovation in the country

Table 6 shows the estimated funds for the Czech Republic National and Regional Operational Programmes and that dedicated to the priority themes identified as research and technological development, innovation and entrepreneurship (RTDI). The absorption rate is based on the proportion of the dedicated funding that has been allocated to projects as reported in the 2013 Annual Implementation Reports (AIR).

Table 6: Funding estimated in the OP, allocated to projects and absorption rate for all Czech Republic national and regional OPs 2001-2013

Operational Programmes 2007-2013	Fund	Estimate in Adopted OP(s)		AIR 2013		Absorption %	
		ME All	ME RTDI	ME All	ME RTDI	All	RTDI
NUTS II Jihovýchod	ERDF	720.4		566.1		78.6 %	
NUTS II Střední Morava	ERDF	672.2	2.0	480.8	2.6	71.5 %	133.9%
Innovative Economy	ERDF	3 120.7	2 232.4	3 106.2	2 326.2	99.5 %	104.2 %
NUTS II Severovýchod	ERDF	671.3	12.4	548.9	11.4	81.8 %	91.7%
Infrastructure & Environment	ERDF & CF	4643.2		2561.6		55.2 %	
Transport	ERDF & CF	5 821.5		4877.6		83.8 %	
NUTS II Severozápad	ERDF	762.8		497.9		65.3 %	
NUTS II Střední Čechy	ERDF	571.7		458.1		80.1 %	
NUTS II Moravskoslezsko	ERDF	751.0		552.0		73.5 %	
Research and Development for Innovation	ERDF	2 070.7	1 985.2	1 796.6	1 739.8	86.8 %	87.6 %
NUTS II Jihozápad	ERDF	633.7		512.2		80.8 %	
Prague Competitiveness	ERDF	250.8	79.9	185.0	54.5	73.8 %	68.2%
Technical assistance	ERDF	155.4		188.9		121.6 %	
Integrated Operational Programme	ERDF	1 617.5		12 99.6		80.3 %	
Total ERDF and CF		22 455.2	4 277.9	17 631.3	4 066.0	78.5 %	95.9 %
Education for Competitiveness	ESF	1661.5	375.6	1571.7	347.8	94.6 %	92.6 %
Praha Adaptability	ESF	114.8	13.6	103.2	6.4	89.9 %	47.2 %
Total ESF		1 776.3	389.2	1 674.9	354.2	94.3 %	91.0 %
Overall Total		24 231.5	4 701.0	19 306.2	4 488.7	79.7 %	95.5 %

Source: JRC/IPTS calculated from the Operational Programme and funding allocated to projects in AIR 2013

Table 7 shows the funding estimated in the adopted OP, allocated to projects and absorption for the Czech Republic national operational programmes that address RTDI priority themes. Only those priority themes that actually have funds attributed to them are shown in the table. There are ten priority themes identified as RTDI:

1. R&TD activities in research centres
2. R&TD infrastructure and centres of competence in a specific technology
3. Technology transfer and improvement of cooperation networks
4. Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)
5. Advanced support services for firms and groups of firms
6. Assistance to SMEs for the promotion of environmentally-friendly products and production processes
7. Investment in firms directly linked to research and innovation
8. Other investment in firms
9. Other measures to stimulate research and innovation and entrepreneurship in SMEs
74. Developing human potential in the field of research and innovation, in particular through post-graduate studies.

Table 7: Funding estimated in the OP, allocated to projects and absorption for three Czech national OPs by priority theme

Priority Code	Innovative Economy 2007-2013			Infrastructure and Environment 2007 - 2013			Research and Development for Innovation 2007-2013			Education for Competitiveness		
	Estimate Adopted OP	AIR 2013	Absorb.	Estimate Adopted OP	AIR 2013	Absorb.	Estimate Adopted OP	AIR 2013	Absorb.	Estimate Adopted OP	AIR 2013	Absorb.
	ME	ME	%	ME	ME	%	ME	ME	%	ME	ME	%
1							506.7	458.9	90.6%			
2	180.6	206.4	114.3%				1417.4	1234.9	87.1%			
3	90.3	101.5	112.4%				52.5	39.4	75.0%			
4	289.7	275.1	95.0%				4.5	3.5	77.5%			
5	247.3	236.9	95.8%									
6	183.4	177.7	96.9%	60.3	0	0						
7	679.2	606.5	89.3%				4.1	3.1	75.7%			
8	449.1	614.3	136.8%									
9	112.9	107.9	95.6%									
74										375.6	347.8	92.6 %
Total RTDI	2 232.4	2 326.2	104.2%	60.3	0	0	1 985.2	1 739.8	87.6 %	375.6	347.8	92.6 %

Source: JRC/IPTS calculated from the Operational Programmes and funding allocated to projects in AIR 2013

Table 8 shows the funding associated with RTDI that has been allocated to projects as reported in the Annual Implementation Report for 2013. This funding is shown for the three Czech Republic national operational programmes that have RTDI relevant funding and, if identified, the region where the funds were allocated. The OP Infrastructure and Environment has RTDI funds dedicated in the OP but none were allocated to projects as reported in the AIR 2013.

Table 8: RTDI funding allocated to projects for national OPs showing the national/regional breakdown

	<i>Funding allocated to projects (AIR 2013) for RTDI (M€)</i>		
	Infrastructure and Environment	Research and Development for Innovation	Education for Competitiveness
Praha (CZ01)	250.9		9.6
Střední Čechy (CZ02)	291.8	429.0	25.6
Jihozápad (CZ03)	164.6	196.2	38.0
Severozápad (CZ04)	180.3	26.4	7.2
Severovýchod (CZ05)	331.3	149.2	33.9
Jihovýchod (CZ06)	462.1	599.5	133.2
Střední Morava (CZ07)	363.9	160.9	63.6
Moravskoslezsko (CZ08)	281.3	178.5	36.6
Total	2 326.2	1 739.8	347.8

Source: JRC/IPTS calculated from the Operational Programme and funding allocated to projects in AIR 2013

3. National specialisation areas

3.1 Specialisation areas chosen in the smart specialisation strategy for the period 2014-2020

The following tables show the specialisation areas chosen by the Czech Republic in the design of their smart specialisation strategy. Based on information that regional and national authorities submit to the Eye@RIS3⁶ database the following related information is added:

- the national/regional capability for the priority;
- the target market that will be addressed; and
- the EU priority to which this specialisation area connects.

Capability and market categories are based on NACE⁷ sectoral codes. Often these capability and market categories overlap, as is the case in for Czech Republic. Any subcategories were combined with the main category.

Table 9: Specialisation areas chosen in the smart specialisation strategy of Czech Republic

Description of chosen specialisation area	Identified capability	Identified target market	EU priority connected to
Engineering industries and electrotechnics.	Information & communication technologies (ICT) - Telecommunications	Manufacturing & industry - Electrical equipment	KETs - Micro/Nano-electronics
Healthcare and medical technology and devices.	Human health & social work activities - Human health activities (medical services)	Information & communication technologies (ICT) - Computer programming, consultancy & related activities	Public health & security - Public health & well-being
ICT, automatisisation and electronics.	Information & communication technologies (ICT) - Telecommunications	Manufacturing & industry - Computer, electronic & optical products	KETs - Advanced manufacturing systems
Transport means (automotive, aerospace, including connected ecosystem of supplying and supporting industries).	Manufacturing & industry - Machinery & equipment n.e.c.	Transporting & storage - Road transport & related services	Sustainable innovation - Eco-innovations

Source: S3 web platform <http://s3platform.jrc.ec.europa.eu/eye-ris3>

3.2 Regional & national specialisation indication through the participation in FP7 for the period 2007-2014

In the innovation Union progress report published in 2014⁸, the science and technology classifications were matched with FP7 thematic priorities thereby offering the possibility of further analysis of co-developments of science and technologies at the EU and national level. We choose here to follow the same taxonomy in order to offer the reader the possibility to compare easily specialisation information provided by the IU progress report and those provided in this report.

The following table shows the participation breakdown by EU Contribution among research areas. Correspondence with specialisation areas chosen by the region and countries in their Smart Specialisation strategy is shown in the last column according to JRC-IPTS interpretation. Some specialisation areas chosen by the region or country can be too generic or on the contrary too specific with regard to the taxonomy used. In this case, we consider the research area not being fully covered by S3 strategy.

⁶ <http://s3platform.jrc.ec.europa.eu/eye-ris3>

⁷ http://epp.eurostat.ec.europa.eu/portal/page/portal/nace_rev2/introduction

⁸ http://ec.europa.eu/research/innovation-union/pdf/state-of-the-union/2014/iuc_progress_report_2014.pdf#view=fit&pagemode=none

FP7 participations can be analysed with regard to specialisation indicators provided with bibliometric and patents indicators provided in the Innovation Union progress report (only) at national level.

- yes = Research area fully included into S3 priority definition;
- yes partially= Research area only partially included into S3 priority definition (S3 priority definition do not cover the full scope the research area).

Table 10: General assessment of the participation of the country in the FP7 themes and activities and correspondence with specialisation areas of S3

Research area	EU Contribution (in M€)	S3 Priority
Food, Agriculture and Fisheries	10.64	
Biotechnology	5.10	
Health	20.33	yes partially
Information & communication technologies (ICT)	41.34	yes partially
Nanosciences & Nanotechnologies	10.63	
Materials	6.38	
New production technologies (incl. Construction technologies)	7.17	yes partially
Integration of nanotechnologies for industrial applications (JTI ENIAC Incl.)	23.19	yes partially
Energy	7.01	
Environment	10.63	
Aeronautics	16.99	yes partially
Space	4.82	yes partially
Automotive	1.33	yes partially
Rail	1.46	yes partially
Waterborne	0.08	
Urban transport and intermodalities	5.71	
Socio economic sciences and humanities	3.78	
Security	5.79	
TOTAL Cooperation Programme	182.39	
TOTAL Cooperation Programme related to S3 priorities	116.63 (63.9%)	

Source: data: FP7 contracts database-June 2014, processed by JRC-IPTS

Regarding specialisation areas emerging from the FP7 participation, the following graph shows the difference in the budget breakdown between themes for FP7 overall and the FP7 contribution received by the country (or the region). This is not a performance indicator because we are only comparing the territory (Country or Region) with itself. In order to avoid a mass effect of better funded themes (such as Health, ICT for instance) it has been decided to consider a uniform distribution of the overall FP7 funding among themes.

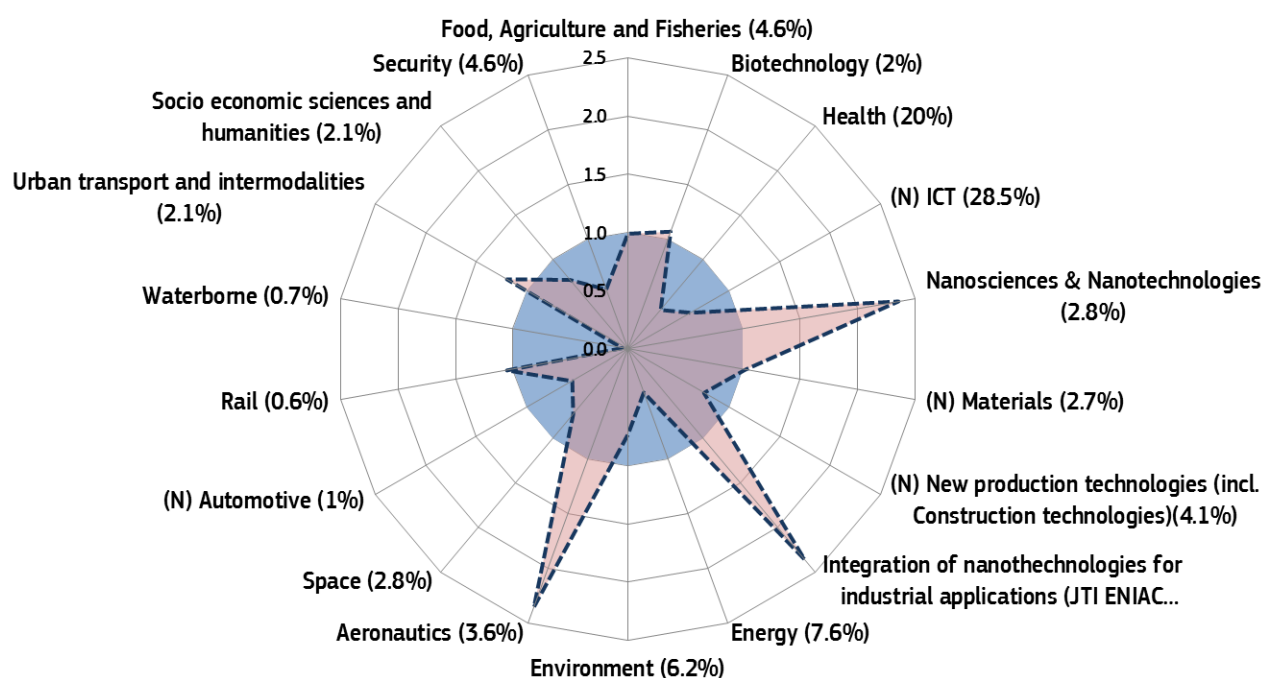
If a theme has a value greater than 1 then the proportion of FP7 funding received for that theme in the country or region is larger than the proportion of funding available for that theme in the entire FP7. Therefore, the graph must be read with the table below that demonstrates the weight of each theme in the total funding for both the country and FP7.

Regarding specialisation areas emerging from the FP7 participation, the following graph shows the difference in the budget breakdown between overall FP7 funding and the FP7 contribution received by the country (or the region) among themes. This is not a performance indicator because we are only comparing the territory (Country or Region) with itself. In order to avoid mass effect of better funded themes (such as Health, ICT for instance) It has been decided to consider a uniform distribution of the overall FP7 funding among themes. Graph show if indicator is superior to 1 an "over-distribution" or a "sub-distribution" if indicator inferior to 1. The graph must be read with the table hereunder. The table show the weight of each theme in the total funding.

The matching between smart specialisation areas chosen by (national or regional) authorities should be treated with care in the case of specialisation areas that are more detailed than FP7 or conversely less detailed. The theme funded by FP7 encompasses a broad range of activities (see table in annex 1 to see research activities funded under each theme) whereas Specialisation areas concern only one or a limited number of activities.

Figure 4: S&T specialisation areas according to the EU Contribution received by FP7 participants

■ Framework programme 7 (% of FP7 budget dedicated to cooperation programme in the area) (N): National smart specialisation area chosen
 ■ Česká Republika



Source: data: FP7 contracts database-June 2014, processed by JRC-IPTS

Table 11: Budget breakdown among themes (Figure 4 is only the graphical interpretation of this table)

Research area	Czech Republic	FP7
Food, Agriculture and Fisheries	5.8%	4.6%
Biotechnology	2.8%	2.0%
Health	11.1%	20.0%
ICT	22.7%	28.5%
Nanosciences & Nanotechnologies	5.8%	2.8%
Materials	3.5%	2.7%
New production technologies (incl. Construction technologies)	3.9%	4.1%
Integration of nanotechnologies for industrial applications	12.7%	3.9%
Energy	3.8%	7.6%
Environment	5.8%	6.2%
Aeronautics	9.3%	3.6%
Space	2.6%	2.8%
Automotive	0.7%	1.0%
Rail	0.8%	0.6%
Waterborne	0.0%	0.7%
Urban transport and intermodalities	3.1%	2.1%
Socio economic sciences and humanity	2.1%	2.1%
Security	3.2%	4.6%
Total Cooperation Programme	100%	100%

Source: IPTS/JRC calculated using the FP7 contracts database-June 2014

4. EU funding users profile

4.1 FP7 beneficiaries profile

4.1.1 Participation profile by type of activity

Figure 5 shows graphically the difference between national (in dark blue) and regional (red line) participation profile by type of participant with the FP7 breakdown taken as the reference (in Base 100). We observe the difference in the distribution at country level and at regional level. **Table 12** complements the figure comparing the breakdown of FP7 contribution among the participant typology for the region, the country and the whole FP7 participants.

Figure 5: Comparison of the EU Contribution breakdown by type of participant between FP7 profile (in base 100), national profile and regional profile

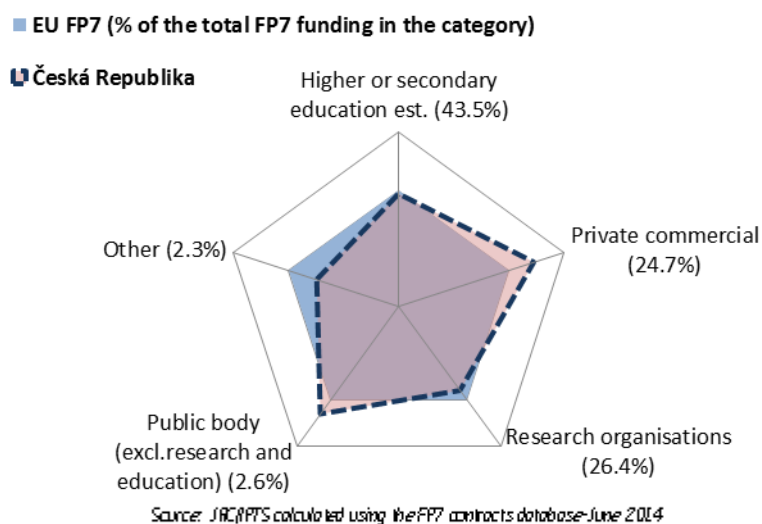


Table 12: Breakdown of the FP7 EU Contribution

	% of EU Contribution	
	Czech Republic	FP7
Higher or secondary education est.	41.6%	43.5%
Private commercial	29.8%	24.7%
Research organisations	23.8%	26.9%
Public body (excl. research and education)	3.0%	2.6%
Other	1.7%	2.3%
	100%	100%

Source: JRC/IPTS calculated using the FP7 contracts database-June 2014

FP7 SME Participation

This section shows the participation of SMEs from the country in the FP7 cooperation programme and other activities and compares figures with the national level. **Table 13** provides information about SMEs' participation in the regional research and innovation landscape. The official EU target is 15% of FP7 budget dedicated to the cooperation programme (thematic) should go to SMEs. The country level (i) is compared in budget and in number of participations and coordinations to and to the overall FP7 (column ii).

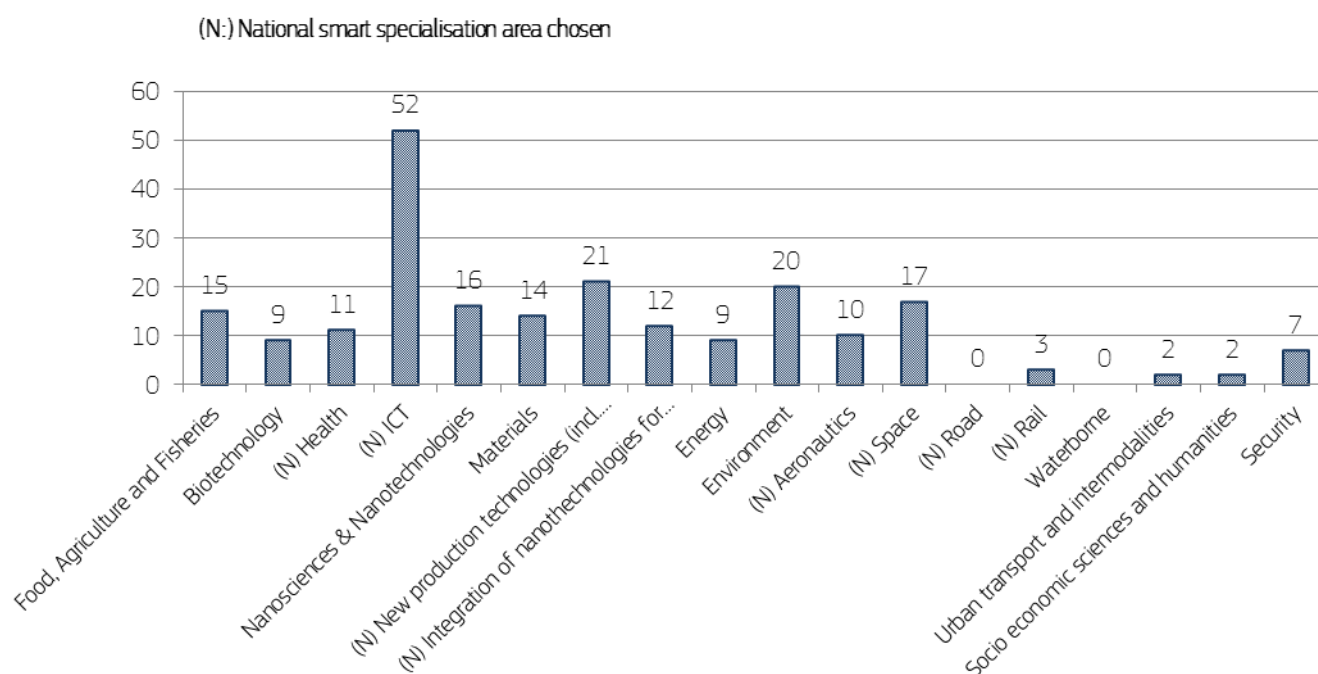
Table 13: General indicators about SME participation in the FP7 Cooperation programme

	Czech Republic (i)	FP7 (ii)
EC Financial Contribution- Cooperation Programme	43.58 (23.9%)	2 560.42 (9.1%)
Number of SME participation- Cooperation Programme	220 (25.2%)	9 483 (10.9%)
Number of SME coordination- Cooperation Programme	1 (8.3%)	555 (7.1%)

Source : data: FP7 contracts database-June 2014. processed by JRC-IPTS

The participation of Czech Republic SMEs among the various research areas is shown with **Figure 6**. Information about the chosen national (N) specialisation areas are given to assess the extent to which the research theme participation of SMEs corresponds to the specialisation areas.

Figure 6: Number of SMEs in FP7 research themes for Czech Republic



Source: data: FP7 contracts database-June 2014. processed by JRC-IPTS

4.1.2 Success rates: Comparison between national and overall FP7 in FP7 themes and activities

The following table shows a comparison of success rates by FP7 themes and activities between national and FP7 level. Information at regional level is not shown because it is not reliable enough to be considered in the analysis.

● : National success rate is above EU average

▼ : National success rate is below EU average

Table 14: Success rates by Themes or activities- Comparison between national and European level

FP7 specific programme	Themes/Activities	Czech Republic			FP7		
		Nbr of Participations*	Nbr of Retained participations*	Success Rate	Nbr of Participations*	Nbr of Retained participations*	Success Rate
COOPERATION	Health	371	70	▼ 18.9%	41 361	10 275	24.8%
	Food, Agriculture, and Biotechnology	420	92	● 21.9%	35 362	7 465	21.1%
	Information and Communication Technologies	1 081	164	▼ 15.2%	131 030	21 356	16.3%
	Nanosciences, Nanotechnologies, Materials and new Production Technologies	467	129	● 27.6%	35 451	9 354	26.4%
	Energy	166	29	▼ 17.5%	17 415	4 072	23.4%
	Environment (including Climate Change)	401	71	▼ 17.7%	31 912	6 825	21.4%
	Transport (including Aeronautics)	483	113	▼ 23.4%	30 340	8 779	28.9%
	Socio-economic sciences and Humanities	365	32	▼ 8.8%	23 830	2 492	10.5%
	Space	108	27	▼ 25.0%	8 277	2 397	29.0%
	Security	242	32	▼ 13.2%	18 826	3 595	19.1%
	General Activities (Annex IV)	0	0		120	50	41.7%
	Joint Technology Initiatives (Annex IV-SP1)	242	102	● 42.1%	15 299	6 277	41.0%
	TOTAL COOPERATION	4 346	861	▼ 19.8%	389 223	82 937	21.3%
IDEAS	European Research Council	487	29	▼ 6.0%	54 789	5 312	9.7%
PEOPLE	Marie-Curie Actions	1 064	183	▼ 17.2%	111 266	22 530	20.2%
CAPACITIES	Research Infrastructures	145	68	● 46.9%	10 677	4 564	42.7%
	Research for the benefit of SMEs	687	108	▼ 15.7%	48 493	8 426	17.4%
	Regions of Knowledge	72	11	▼ 15.3%	3 844	746	19.4%
	Research Potential	55	11	● 20.0%	3 107	362	11.7%
	Science in Society	132	31	▼ 23.5%	7 329	1 961	26.8%
	Coherent development of research policies	6	0	▼ 0.0%	390	89	22.8%
	Activities of International Cooperation	23	3	▼ 13.0%	3 908	1 476	37.8%
EURATOM	Fusion Energy	3	3	● 100.0%	79	65	82.3%
EURATOM	Nuclear Fission and Radiation Protection	122	64	● 52.5%	3 113	1 539	49.4%
FP7	TOTAL	7 142	1 372	▼ 19.2%	636 218	130 007	20.4%

Source: data: FP7 proposals database-Feb 2014. processed by JRC-IPTS

4.2 FP7 Main collaboration axis and stakeholder analysis

4.2.1 From a territorial perspective

The map below shows the European regions (at NUTS2 level) collaborating the most with Czech Republic in the FP7 thematic activities.

Table 15 shows the list of the first regions collaborating. The figure represents the number of projects where at least one participant from Czech Republic collaborates with at least one participant from the other country.

Figure 7: Origins of organisations collaborating with Czech Republic in FP7

Source: EC FP7 Contract database-cooperation programme processed by JRC-IPTS

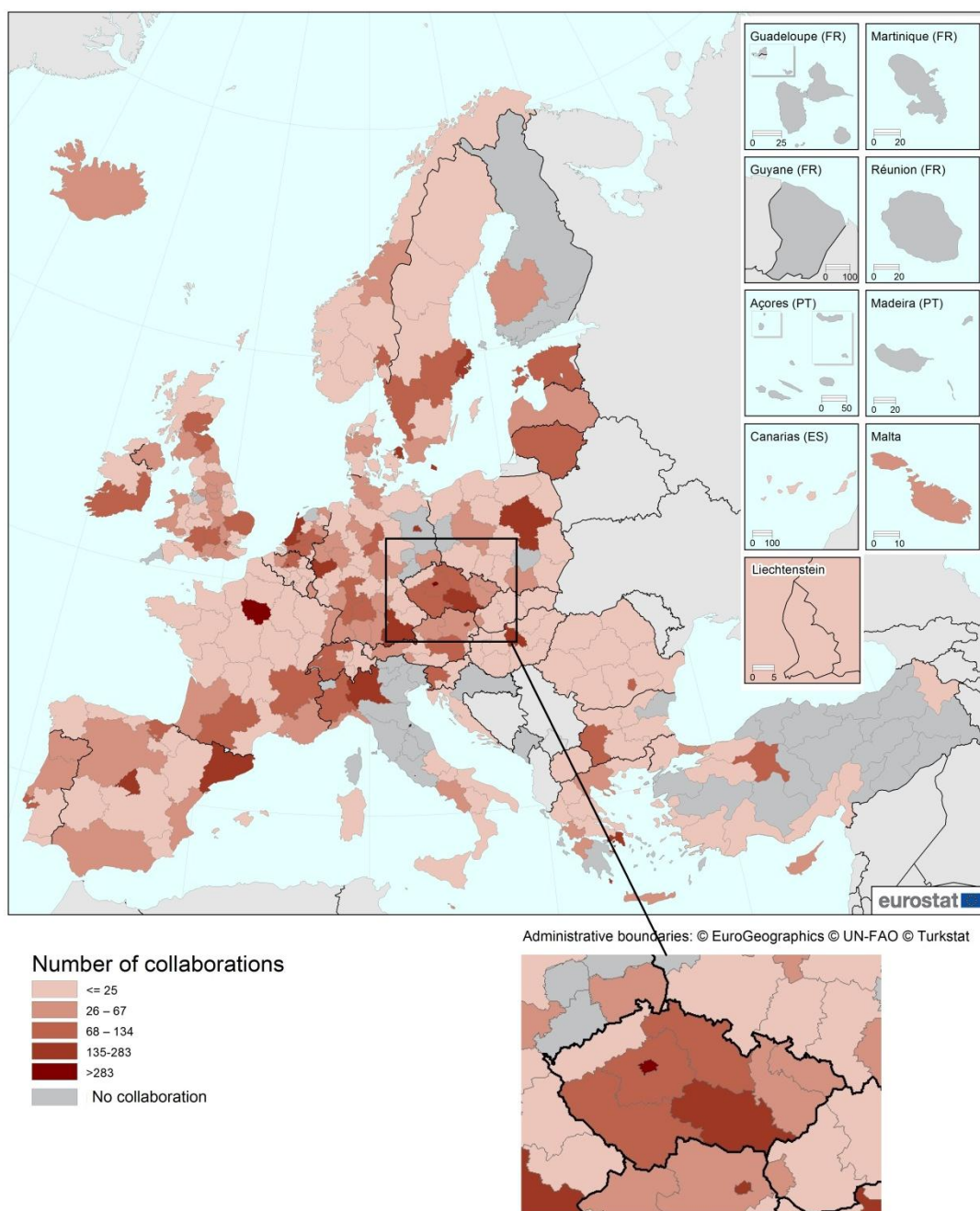


Table 15: The closest EU countries to Czech Republic in the FP7 cooperation programme

Rank	CODE	Country	Nbr of Collaborations
1	FR10	Île de France	441
2	ES30	Comunidad de Madrid	283
3	ITE4	Lazio	247
4	DE21	Oberbayern	221
5	ES51	Cataluña	211
6	AT13	Wien	204
7	BE10	Région de Bruxelles-Capitale / Brussels Hoofdstede	200
8	NL33	Zuid-Holland	198
9	UK11	Inner London	194

Source: JRC/IPTS calculated using the FP7 contracts database-June 2014

4.2.2 From a stakeholder perspective

This section reveals the main organisations in Europe and the region playing a key role in Research networks involving at least one participant of the Region. **Table 16** shows the organisations most frequently collaborating with organisations based in Czech Republic in the FP7 cooperation programme when Table 17 shows the leading organisations based in the country in the FP7 cooperation programme.

Table 16: the leading organisations collaborating with organisations based in Czech Republic in FP7

Legal name	Theme/activities	Type	NUTS2	Nbr of collab
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	Nuclear Fission and Radiation Protection	REC	FR10	37
Karlsruher Institut fuer Technologie	Nuclear Fission and Radiation Protection	HES	DE12	27
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE FONDATION D'UTILITE PUBLIQUE	Nuclear Fission and Radiation Protection	REC	BE21	25
NUCLEAR RESEARCH AND CONSULTANCY GROUP	Nuclear Fission and Radiation Protection	REC	NL32	23
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	Research Infrastructures	REC	FR10	23
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	Information and Communication Technologies	REC	DE21	23
STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	Food, Agriculture, and Biotechnology	REC	NL22	22
PAUL SCHERRER INSTITUT	Nuclear Fission and Radiation Protection	REC	CH03	21
INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	Food, Agriculture, and Biotechnology	REC	FR10	21
INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE	Nuclear Fission and Radiation Protection	REC	FR10	20
ELECTRICITE DE FRANCE S.A.	Nuclear Fission and Radiation Protection	PRC	FR10	19
TEKNOLOGIAN TUTKIMUSKESKUS VTT	Nuclear Fission and Radiation Protection	REC	FI18	19
HELMHOLTZ-ZENTRUM DRESDEN-ROSSENDORF EV	Nuclear Fission and Radiation Protection	REC	DED2	18
CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT	Nuclear Fission and Radiation Protection	REC	ES30	18
REGIA AUTONOMA TEHNOLOGII PENTRU ENERGIA NUCLEARA - RATEN	Nuclear Fission and Radiation Protection	PRC	RO31	17
MAGYAR TUDOMANYOS AKADEMIA ENERGIATUDOMANYI KUTATOKOZPONT	Nuclear Fission and Radiation Protection	REC	HU10	17
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV	Transport (including Aeronautics)	REC	DE91	17
EADS DEUTSCHLAND GMBH	Transport (including Aeronautics)	PRC	DE21	17
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	Research Infrastructures	REC	FR10	16
KATHOLIEKE UNIVERSITEIT LEUVEN	Health	HES	BE24	16

Source: JRC/IPTS calculated using the FP7 contracts database-June 2014

Table 17: the leading organisations based in Czech Republic in FP7

Legal Name	Theme/activities	Type	Nbr of participations
UJV REZ, a.s.	Nuclear Fission and Radiation Protection	PRC	38
CESKE VYSOKE UCENI TECHNICKE V PRAZE	Information and Communication Technologies	HES	28
UNIVERZITA KARLOVA V PRAZE	Marie-Curie Actions	HES	26
UNIVERZITA KARLOVA V PRAZE	Health	HES	23
Masarykova univerzita	Marie-Curie Actions	HES	21
VYSOKE UCENI TECHNICKE V BRNE	Joint Technology Initiatives (Annex IV-SP1)	HES	17
VYZKUMNY A ZKUSEBNI LETECKY USTAV A.S.	Transport (including Aeronautics)	REC	14
CESKE VYSOKE UCENI TECHNICKE V PRAZE	Nanosciences, Nanotechnologies, Materials and new Production Technologies	HES	14
VYSOKE UCENI TECHNICKE V BRNE	Information and Communication Technologies	HES	14
UNIVERZITA KARLOVA V PRAZE	Information and Communication Technologies	HES	13
UNIVERZITA KARLOVA V PRAZE	Environment (including Climate Change)	HES	12
CENTRUM VYZKUMU REZ S.R.O.	Nuclear Fission and Radiation Protection	REC	11
CENTRUM DOPRAVNIHO VYZKUMU v.v.i.	Transport (including Aeronautics)	REC	11
VYSOKA SKOLA CHEMICKO-TECHNOLOGICKA V PRAZE	Food, Agriculture, and Biotechnology	HES	11
CESNET, ZAJMOVE SDRUZENI PRAVNICKYCH OSOB	Research Infrastructures	REC	11
CESKE VYSOKE UCENI TECHNICKE V PRAZE	Nuclear Fission and Radiation Protection	HES	10
INSTITUT MIKROELEKTRONICKYCH APLIKACI S.R.O.	Joint Technology Initiatives (Annex IV-SP1)	PRC	10
UNIVERZITA KARLOVA V PRAZE	Socio-economic sciences and Humanities	HES	9
CESKE VYSOKE UCENI TECHNICKE V PRAZE	Transport (including Aeronautics)	HES	9
Masarykova univerzita	Socio-economic sciences and Humanities	HES	9
UJV REZ, a.s.	Nuclear Fission and Radiation Protection	PRC	38
CESKE VYSOKE UCENI TECHNICKE V PRAZE	Information and Communication Technologies	HES	28

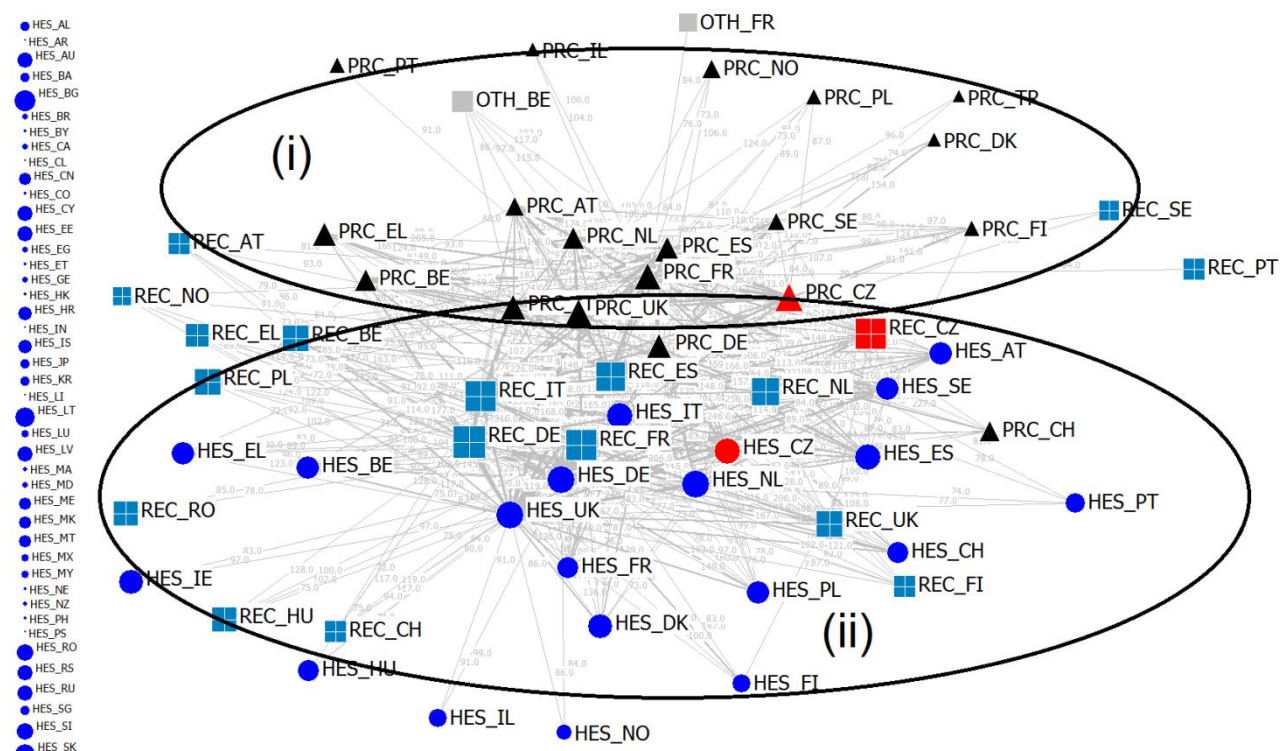
Source: JRC/IPTS calculated using the FP7 contracts database-June 2014

Figure 8 is a network analysis revealing the main collaboration links between organisations based in the country with national and international organisations. To improve the readability, organisations have been gathered in "groups" according to their type of activities (research, industry, higher education, governmental) and their geographical origins (according to country classification). The graph does not show the full picture, some groups (nodes) may not appear on the graph if they do not have at least one strong link to another group.

In the case of Czech Republic, two rather sub-networks can be easily identified:

- A first sub-network rather homogeneous with mostly Private firms (PRC). Czech Private firms appears as strongly linked to Czech public research organisations strongly;
- A second heterogeneous sub-network with Public research organisation (REC) and Higher education sector (HES). Czech Universities seems to have a central position being at the interface between the two types of participants.

Figure 8: The main collaboration network of Czech Republic in the FP7



Remark: -The graph does not show the full picture of regional collaborations. A node appears on the graph only if the number of connections (collaborations) is superior to 70.

HES Higher or secondary education est.

REC Public Research organisations

PRC Private commercial (Large companies and SME)

PUB Public body (excl. research and education)

OTH Other private organisations

AT	Austria
BE	Belgium
BG	Czech Republic
CY	Cyprus
CZ	Czech Republic
DE	Germany
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IL	Israel
IT	Italy
LV	Latvia
LT	Lithuania
ME	Montenegro
MT	Malta
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
TR	Turkey
UK	United Kingdom

Source: JRC/IPTS calculated using the FP7 contracts database-June 2014

Annexes

1. Participation in FP7 cooperation programme

Table 18: Detailed participation figures in FP7 research areas

		CZECH REPUBLIC			FP7	
		EC contrib. (In €M)	Nbr of part.		EC contrib. (In €M)	Nbr of part.
TOTAL FP7		182.41	873		27 902.29	85 994
Health		20.33	84		5 515.56	12 523
Biotechnology, generic tools and medical technologies for human health	CZ	9.09	27	FP7	2 377.05	4 377
High-throughput research	CZ	0.00	0	FP7	157.93	306
Detection, diagnosis and monitoring	CZ	2.26	8	FP7	272.30	577
Suitability, safety, efficacy of therapies	CZ	0.53	1	FP7	117.78	204
Innovative therapeutic approaches and interventions	CZ	3.40	9	FP7	457.80	833
Integrating biological data and processes: large-scale data gathering, systems biology	CZ	2.27	7	FP7	647.92	1 190
JTI-IMI (Innovative Medicines Initiative)	CZ	0.62	2	FP7	723.31	1 267
Translating research for human health	CZ	9.44	40	FP7	2 356.65	5 429
Research on the brain and related diseases: human development and ageing	CZ	2.00	9	FP7	518.12	1 094
Translational research in major infectious diseases: To confront major threats to public health	CZ	3.89	13	FP7	764.08	1 751
Translational research in other major diseases	CZ	3.56	18	FP7	1 074.45	2 584
Optimising the delivery of healthcare to European citizens	CZ	0.66	9	FP7	399.06	1 422
Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate use of behavioural and organisational interventions and new health therapies and technologies	CZ	0.12	2	FP7	106.73	361
Quality, efficiency and solidarity of healthcare systems including transitional health systems	CZ	0.29	2	FP7	99.32	375
Health promotion and prevention	CZ	0.23	4	FP7	81.77	323
International public health & health systems	CZ	0.02	1	FP7	86.37	289
Specific international cooperation actions for health system research	CZ	0.00	0	FP7	24.87	74
Other Actions across the Health Theme	CZ	1.14	8	FP7	382.80	1 295
Coordination and Support Actions across the Theme	CZ	0.21	4	FP7	46.70	436
Responding to EU policy needs	CZ	0.93	4	FP7	192.51	638
Specific International Cooperation Actions (SICA)	CZ	0.00	0	FP7	49.36	139
Horizontal topics for collaborative projects relevant for the whole of theme health	CZ	0.00	0	FP7	94.24	82
Food, Agriculture and Fisheries, and Biotechnology	CZ	15.74	95	FP7	1 841.70	7 847
Sustainable production and management of biological resources from land, forest, and aquatic environment	CZ	4.57	27	FP7	452.65	2 164
Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	CZ	3.49	20	FP7	326.56	1 557
Optimised animal health production and welfare across agriculture, fisheries and aquaculture	CZ	1.08	7	FP7	126.09	607
Fork to farm: Food (including seafood), health and well being	CZ	4.49	23	FP7	571.52	2 304
The Ocean of Tomorrow	CZ	0.00	0	FP7	70.04	217
Consumers	CZ	0.00	0	FP7	39.78	142
Nutrition	CZ	0.94	4	FP7	149.25	493
Food processing	CZ	0.87	7	FP7	127.13	590
Food quality and safety	CZ	2.51	11	FP7	101.10	467
Environmental impacts and total food chain	CZ	0.17	1	FP7	84.21	395
Life sciences, biotechnology and biochemistry for sustainable non-food products and processes	CZ	5.10	23	FP7	564.90	1 832
Novel sources of biomass and bioproducts	CZ	0.28	2	FP7	110.98	391
Marine and fresh-water biotechnology (blue	CZ	0.00	0	FP7	125.95	413

biotechnology)						
Industrial biotechnology: novel high added-value bio-products and bio-processes	CZ	1.85	8	FP7	11461	328
Biorefinery	CZ	0.61	3	FP7	78.68	227
Environmental biotechnology	CZ	0.84	5	FP7	58.30	268
Emerging trends in biotechnology	CZ	1.52	5	FP7	76.38	205
Other activities	CZ	1.57	22	FP7	252.64	1547
Socio-economic research and support to policies and Cross cutting activities	CZ	1.57	22	FP7	252.64	1547
Information and Communication Technologies	CZ	41.34	198	FP7	7 874.97	23202
Pervasive and Trustworthy network and service infrastructures	CZ	5.58	22	FP7	1 987.50	5557
Cognitive systems, interaction, robotics	CZ	6.63	16	FP7	615.93	1220
Components, systems, engineering	CZ	2.64	13	FP7	810.22	2398
Digital libraries and content	CZ	5.55	25	FP7	644.08	1790
ICT for mobility, environmental sustainability and energy efficiency	CZ	4.32	19	FP7	842.77	2695
ICT for Health, Ageing Well, Inclusion and Governance	CZ	7.16	32	FP7	883.60	2650
Future and emerging technologies	CZ	3.91	14	FP7	1 466.65	3983
Horizontal Actions	CZ	0.25	9	FP7	64.38	545
ICT for the Enterprise and Manufacturing	CZ	2.33	6	FP7	216.75	523
ICT for Learning and Access to Cultural Resources	CZ	0.63	4	FP7	171.24	495
International Cooperation	CZ	0.00	0	FP7	36.05	307
JTI-ARTEMIS (Embedded Computing Systems)	CZ	2.33	38	FP7	135.81	1039
Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	CZ	47.38	169	FP7	3 707.95	11548
Nanosciences and Nanotechnologies	CZ	10.63	40	FP7	771.56	2457
Materials	CZ	6.38	35	FP7	742.04	2226
New production processes	CZ	4.62	28	FP7	490.01	1525
Integration of nanotechnologies for industrial applications	CZ	4.98	27	FP7	594.25	2121
JTI-ENIAC (Nanoelectronics Technologies 2020)	CZ	18.22	24	FP7	468.96	1349
Recovery Package: Public-Private Partnership (PPP) topics within NMP	CZ	2.55	15	FP7	641.14	1870
Energy	CZ	7.01	33	FP7	2 094.31	5422
Hydrogen and fuel cells	CZ	0.31	2	FP7	23.94	69
JTI-FCH European Hydrogen and Fuel Cell Technology Platform)	CZ	1.61	7	FP7	415.67	1186
Renewable electricity generation	CZ	0.92	3	FP7	473.52	998
Renewable fuel production	CZ	0.28	3	FP7	239.19	508
Renewables for heating and cooling	CZ	1.31	5	FP7	59.28	174
CO2 capture and storage technologies for zero emission power generation	CZ	0.09	2	FP7	145.80	478
Clean coal technologies	CZ	0.50	1	FP7	58.13	130
Cross-cutting actions between activities Energy-5 and Energy-6	CZ	0.00	0	FP7	27.99	84
Smart energy networks	CZ	1.58	7	FP7	261.24	654
Energy efficiency and savings	CZ	0.23	2	FP7	221.38	551
Knowledge for energy policy making	CZ	0.00	0	FP7	17.82	115
Horizontal programme actions	CZ	0.18	1	FP7	150.35	475
Environment (including Climate Change)	CZ	10.63	76	FP7	1 719.15	7131
Pressures on environment and climate	CZ	1.39	9	FP7	360.13	1587
Sustainable management of resources	CZ	1.44	8	FP7	276.87	1106
Environmental technologies	CZ	3.19	28	FP7	290.21	1404
Earth observation and assessment tools for sustainable development	CZ	1.04	10	FP7	160.60	810
Horizontal activities	CZ	0.13	3	FP7	16.72	152
Coping with climate change	CZ	0.57	3	FP7	146.51	399
Sustainable use and management of land and seas	CZ	0.71	3	FP7	139.29	450
Improving resource efficiency	CZ	0.48	2	FP7	169.03	580
Protecting citizens from environmental hazards	CZ	0.00	0	FP7	86.87	270
Mobilising environmental knowledge for policy.	CZ	1.68	10	FP7	72.92	373

industry and society						
Aeronautics and air transport	CZ	16.99	55	FP7	1 004.78	3174
Green Aircraft	CZ	2.10	9	FP7	295.55	827
Time Efficient Air Transport Operations	CZ	0.22	2	FP7	40.45	108
Aircraft Safety	CZ	1.94	8	FP7	150.26	401
Aircraft Operational Cost	CZ	11.16	22	FP7	385.95	1034
Operational Security	CZ	0.54	2	FP7	13.48	45
Promising Pioneering Ideas in Air Transport	CZ	0.67	4	FP7	81.68	307
CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme	CZ	0.18	5	FP7	35.41	434
JTI-CLEAN SKY (Aeronautics and Air Transport)	CZ	0.17	3	FP7	2.00	18
Space	CZ	4.82	37	FP7	784.60	3203
Space-based applications at the service of the European Society	CZ	1.42	9	FP7	350.86	1245
Research to support space science and exploration	CZ	2.83	18	FP7	248.28	979
International Cooperation	CZ	0.14	2	FP7	109.56	400
GALILEO/Exploiting the Full Potential	CZ	0.39	7	FP7	48.23	386
GALILEO/Adapting Receivers to Requirements and Upgrading Core Technologies	CZ	0.00	0	FP7	13.94	69
GALILEO/Supporting Infrastructure Evolution	CZ	0.04	1	FP7	13.74	124
Sustainable surface transport (INCLUDING THE 'EUROPEAN GREEN CARS INITIATIVE')	CZ	8.58	54	FP7	1 203.53	5255
Rail	CZ	1.46	15	FP7	164.54	766
Road	CZ	1.33	8	FP7	287.80	1051
Urban mobility	CZ	4.02	8	FP7	142.53	429
Waterborne	CZ	0.08	1	FP7	184.66	776
Multimodal	CZ	0.62	11	FP7	364.33	1794
Cross cutting activities	CZ	1.08	11	FP7	59.67	439
Socio-economic sciences and Humanities	CZ	3.78	36	FP7	579.55	2766
Growth, employment and competitiveness in a knowledge society	CZ	1.34	10	FP7	108.37	473
Combining economic, social and environmental objectives in a European perspective	CZ	1.06	11	FP7	117.69	499
Major trends in society and their implications	CZ	0.69	6	FP7	93.80	485
Europe in the world	CZ	0.19	2	FP7	98.91	432
The Citizen in the European Union	CZ	0.24	4	FP7	92.55	397
Socio-economic and scientific indicators	CZ	0.00	0	FP7	23.44	150
Foresight activities	CZ	0.26	3	FP7	15.88	105
Horizontal Actions	CZ	0.00	0	FP7	28.92	225
Security	CZ	5.79	34	FP7	1 263.49	3741
Increasing the Security of citizens	CZ	0.73	4	FP7	235.78	656
Increasing the Security of infrastructures and utilities	CZ	0.36	3	FP7	248.96	710
Intelligent surveillance and enhancing border security	CZ	0.40	2	FP7	208.72	466
Restoring security and safety in case of crisis	CZ	1.31	8	FP7	289.53	733
Improving Security systems integration, interconnectivity and interoperability	CZ	0.87	2	FP7	74.50	212
Security and society	CZ	1.81	9	FP7	113.39	479
Security Research coordination and structuring	CZ	0.23	5	FP7	70.01	398
Security systems integration, interconnectivity and Interoperability	CZ	0.09	1	FP7	21.80	83
Horizontal Actions	CZ	0.00	0	FP7	0.79	4

Source: JRC/IPTS calculated using the FP7 contracts database-June 2014