

II. Expenditure on Research and Development

II.1 Total expenditure on research and development in the Czech Republic (GERD)

Among crucial indicators measuring activities in research and development belong expenditure (intramural) on research and development.¹ In 2004, total domestic expenditure on research and development (GERD) in the Czech Republic measured in current prices reached value of 35 083 million CZK. Compared with the previous Year 2003 the total R&D expenditures (GERD) in the Czech Republic has increased by 8,8 %, from value of 32 247 million CZK in 2003. The share of total R&D expenditure (GERD) on GDP (R&D intensity) in 2004 was about 1,27 % in the Czech Republic.

Figure 2.1 Total R&D expenditure (GERD) in the Czech Republic in 2003 and 2004

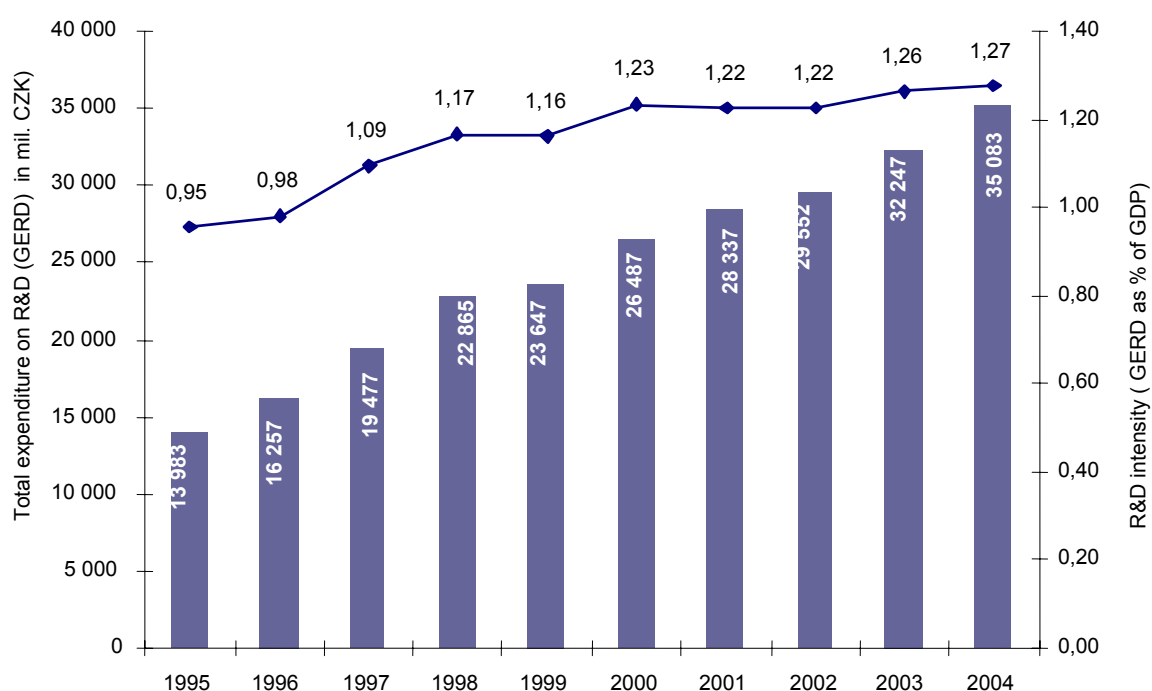


Table 2.1 Total R&D expenditures (GERD) in the Czech Republic in 1995-2004

Indicator	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total R&D expenditure (GERD) in million CZK (current prices)	13 983	16 257	19 477	22 865	23 647	26 487	28 337	29 552	32 247	35 083
<i>Annual growth (%)</i>	x	16,3	19,8	17,4	3,4	12,0	7,0	4,3	9,1	8,8
Total R&D expenditure (GERD) in million CZK (at 2000 prices)	19 072	20 399	22 570	23 825	23 973	26 487	27 009	27 410	29 366	30 817
<i>Annual growth (%) in real terms</i>	x	7,0	10,6	5,6	0,6	10,5	2,0	1,5	7,1	4,9

Compared to the Year 1995, the total R&D expenditure (GERD) in the Czech Republic has increased by 150,9 %. In real terms the total R&D expenditure related to the price level of the Year 2000, has increased in the same period (since 1995 until 2004) by 61,6 %.

¹ In the international terminology of OECD and Eurostat are total expenditures on R&D known as **GERD (Gross Expenditure on R&D)**, which mean, in line with the methodology of Frascati manual 2002, total (gross) national expenditures on R&D.

II.2 Financial sources for research and development

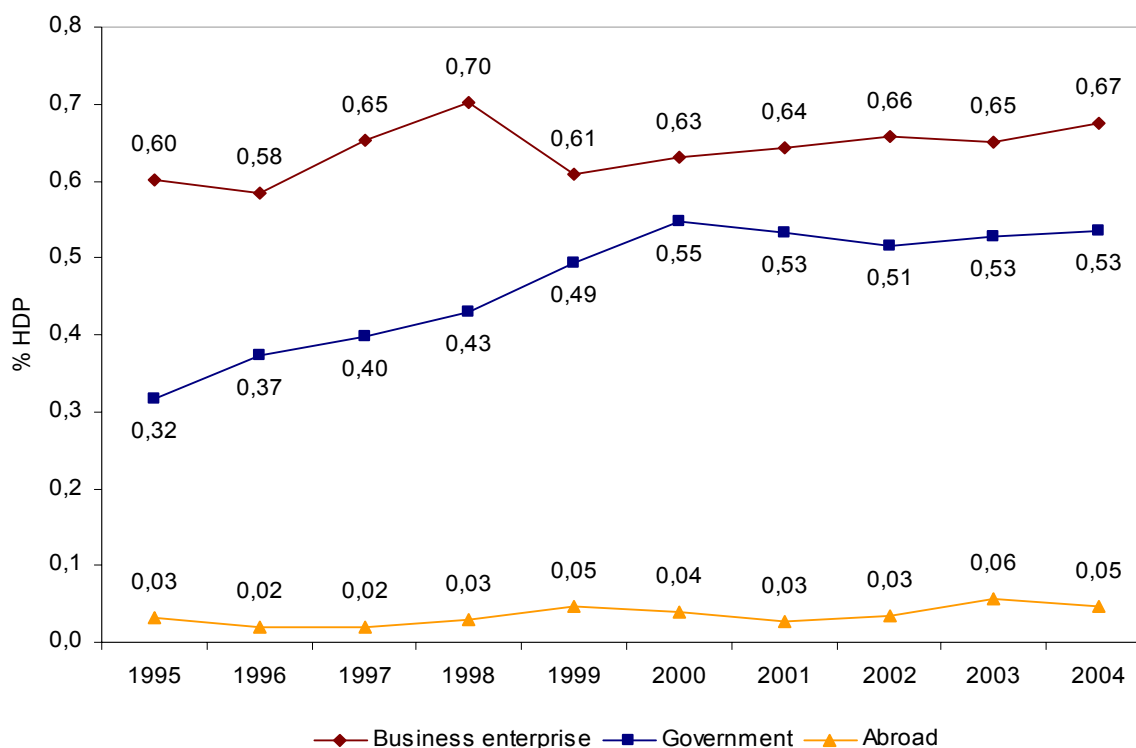
II.2.1 Total R&D expenditure according to the source of funds (sectors of financing)

In 2004, the business enterprise sector was the main source of funds (sector of financing) of total R&D expenditure (GERD) in the Czech Republic. Business enterprise sector R&D expenditures as source of R&D funds reached 18 530 million CZK in 2004, or about 0,67 % of overall gross domestic product (GDP). From government sources was provided for support of R&D the amount of 14 695 million CZK. Public expenditures, in line with government conception of financing R&D in the Czech Republic, reached 0,53 % GDP. Financial sources from abroad devoted to R&D, reached the above mentioned share 0,05 % GDP.

According to the Lisbon strategy (see document Action plan for Europe) approved for EU Member States, should the total support to R&D (total R&D expenditure regardless of the source of finance-GERD) in the Czech Republic reached 3 % of GDP by 2010. Research and development expenditure financed from public sources (by government sector), should then reach in the same Year 1 % of GDP.

Trend of total R&D expenditure (GERD) in the Czech Republic according to the source (sectors) of funds in 1995-2004 shows following figure 2.2.

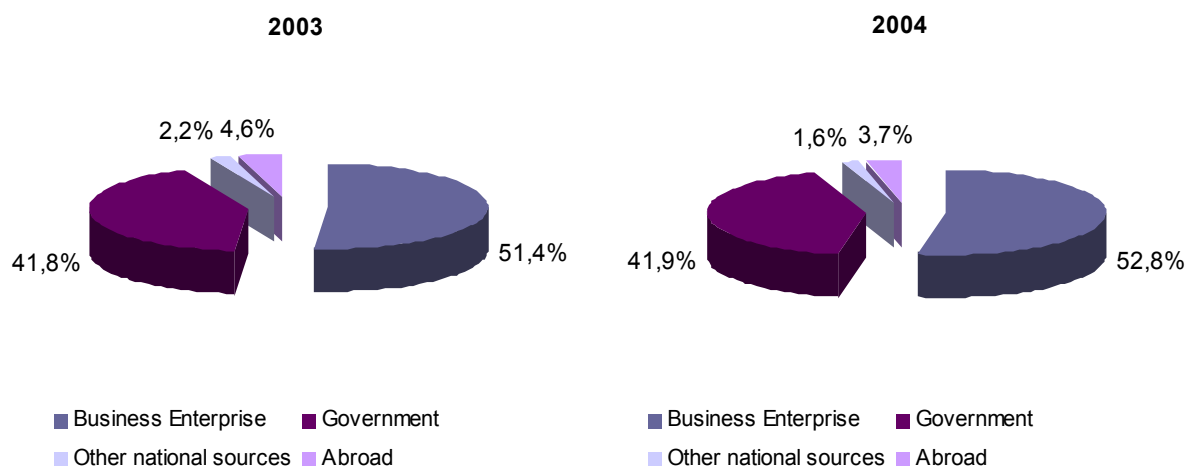
Figure 2.2 GERD in the Czech Republic by its sector of financing in 1995-2004 (as %GDP)



Note: In addition to the sectors illustrated in above figure 2.2, the other sources of funds are: high education sector, private non-profit sector and abroad.

In 2004, the most important financial source supporting research and development activities in the Czech Republic was, like in the previous Years, business enterprise sector, which contributed to the total R&D expenditure (GERD) in the Czech Republic by 52,8 %. The second most important provider of financial sources was with 41,9 % share, government sector. In 2004 decreased the share of expenditure on R&D financed from abroad compared to previous Year 2003 from 4,6 % to 3,7 %. Structure and value of the total R&D expenditure according to the source (sectors) of funds in the Czech Republic in 2003 and 2004 shows following figure and table.

Figure 2.3 Structure of GERD in the Czech Republic by source of funds in 2003 and 2004 (%)



The increased of financial sources for in expenditures on R&D between 2003 and 2004 occurred at the business enterprise sector, government sector and sector of higher education. The highest year-on-year increased (by 4,5 %) was recorded in the sector of higher education. On the contrary, in case of expenditures coming from abroad was recorded the decrease by 12 %. In absolute numbers business enterprise sector recorded in year on year comparison the biggest increase of financial sources for R&D, for almost 2 milliards CZK.

Table 2.2 GERD in the Czech Republic by its sector of financing in 2003 and 2004

SECTOR	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
Business Enterprise	16 590	51,4	18 530	52,8	1,1169
Government	13 488	41,8	14 695	41,9	1,0895
Higher Education	374	1,2	542	1,5	1,4492
Private Non-profit	322	1	19	0,1	0,0590
Abroad	1 473	4,6	1 297	3,7	0,8805
Total	32 247	100,0	35 083	100,0	1,0879

Methodological note: The definition of private non-profit sector was adjusted in 2004 according to the methodology of Frascati manual.

Another look on evaluation of R&D expenditure, except for above mentioned breakdown according to the financial sources of R&D expenditure, provides breakdown according to the use of R&D expenditure, i.e. according to the sector of R&D performance (see Chapter II.3) Following table enables combined look at R&D expenditure both from the point of view of individual sectors and from the point of view of its using (performance).

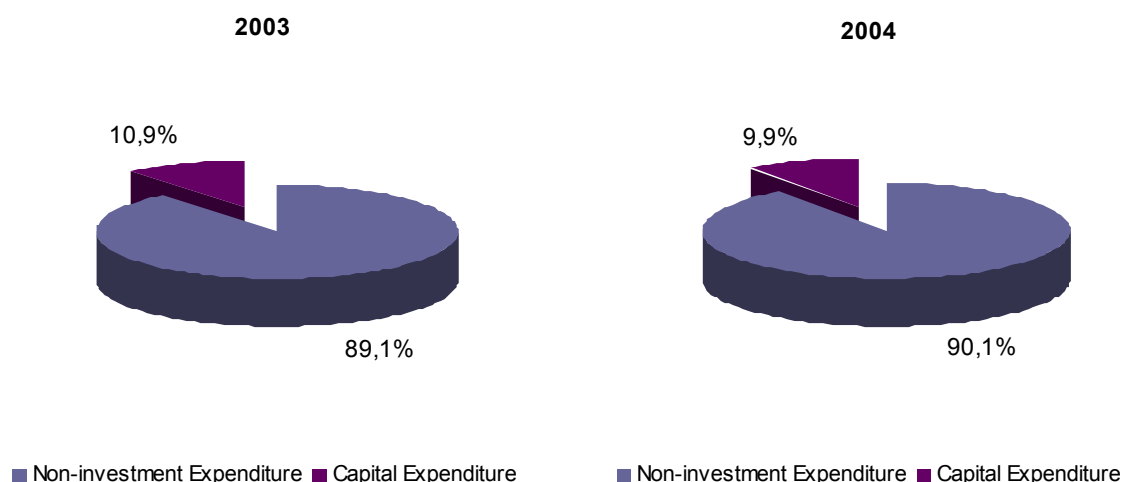
Table 2.3 GERD in the Czech Republic by its sector of financing and performance in 2004 (million CZK)

SECTOR OF FINANCING	SECTOR OF PERFORMANCE				
	Business Enterprise	Government	Higher Education	Private Non-profit	Total
Business Enterprise	17 785	696	31	18	18 530
Government	3 395	6 431	4 761	108	14 695
Higher Education	305	50	187	.	542
Private Non-profit	.	7	8	3	19
Abroad	859	241	194	3	1 297
Total	22 344	7 425	5 181	132	35 083

II.2.2 Total R&D expenditure (GERD) by the type of expenditure

In 2004 prevailed in the structure of R&D expenditure non-investment expenditures. Their share on total R&D expenditure reached 90,1 %. The outstanding part (9,9 %) created investment expenditure. Personnel costs formed 40,2 % of total non-investment (current) expenditures. In Investment (capital) costs formed the biggest item with 73,0 % share other long-term tangible property, among which are included e.g. equipment and machinery. For land, building, halls and tangible property was spent 15,7 % of total investment costs. Outstanding 11,3 % of investment expenditure (costs) created long-term intangible property.

Figure 2.4 Structure of GERD in the Czech Republic by type of expenditure (costs) in 2003 and 2004 (%)



In year-on-year comparison of the R&D expenditure structure by type of costs occurred only minor changes. Share of personnel costs annually increased in total non-investment expenditure (current costs) from 38,4 % in 2003 to 40,2 % in 2004.

Compared with the previous Year 2003 came to the increase on non-investment expenditure (costs) for 1,6 %. From non-investment expenditure, the costs on wages increased the most in year on year comparison, it was by 15,1 %, and rewards for contracts of services in research and development increased for 15,5 %. From investment expenditure (costs) increased the most (by 17,5 %) the item of tangible property (land, building, etc.)

Table 2.4 GERD in the Czech Republic by type of expenditure (costs) in 2003 and 2004

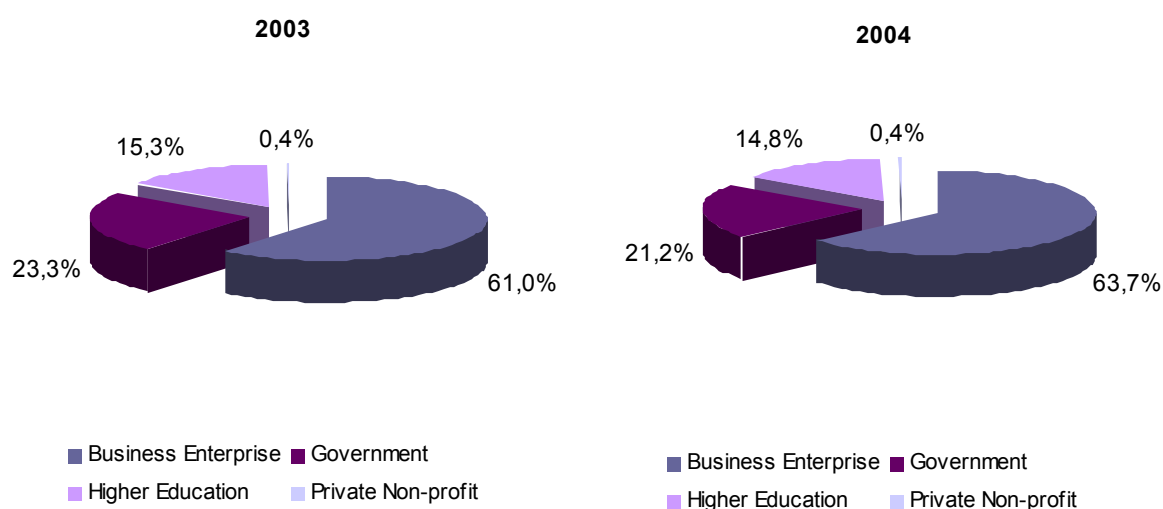
TYPE OF EXPENDITURE	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
Current costs (non-investment expenditure)	28 723	89,1	31 617	90,1	1,1008
Labour costs	10 799	33,5	12 428	35,4	1,1508
Labour costs for short term contract	240	0,7	277	0,8	1,1547
Other current costs	17 683	54,8	18 912	53,9	1,0695
Capital expenditure	3 524	10,9	3 466	9,9	0,9835
Long-term intangible property	371	1,2	391	1,1	1,0530
Land and buildings	464	1,4	545	1,6	1,1746
Other capital expenditure	2 688	8,3	2 530	7,2	0,9413
Total	32 247	100,0	35 083	100,0	1,0879

II.3 Using financial sources in Research and Development

II.3.1 Total R&D expenditure according to the sectors of performance

In 2004, business enterprise sector is like in case of sector of financing R&D activities, the most important sector of R&D performance in the Czech Republic. In 2004 was in this sector spent 22 344 million CZK on R&D activities, which means about 63,7 % of GERD. The second most important sector of R&D performance is according to the criterion using of financial sources government sector. In this sector was spent on R&D 7 424 million CZK in 2004 or about 21,1 % of GERD. In the sector of higher education was spent 5 181 million CZK from the total R&D expenditure, which means share of 14,8 %. At this sector of R&D performance, the most of the financial sources comes, with regard to the system of financing R&D at universities, from government sector.

Figure 2.5 Structure of GERD in the Czech Republic by sectors of performance in 2003 and 2004 (%)



Methodological note: The definition of private non-profit sector was adjusted in 2004 according to the methodology of Frascati manual.

From year-on-year comparison was the highest share of expenditure spent on R&D reached in business enterprise sector. The year-on-year increase of expenditure reached 13,6 % here and the share on the total R&D expenditure increased from 61,0 % in 2003 to 63,7 % in 2004. On the contrary, at government sector and sector of higher education decreased the share on the total R&D expenditure, even though that at the second mentioned sector the expenditure between 2003 and 2004 increased for 5,3 %. At government sector came to both, decrease in the share on the total R&D expenditure used in this sector (from 15,3 % in 2003 to 14,8 % in 2004) as well as in the absolute numbers, for 1,3 %.

Table 2.5 GERD in the Czech Republic by sectors of performance in 2003 and 2004

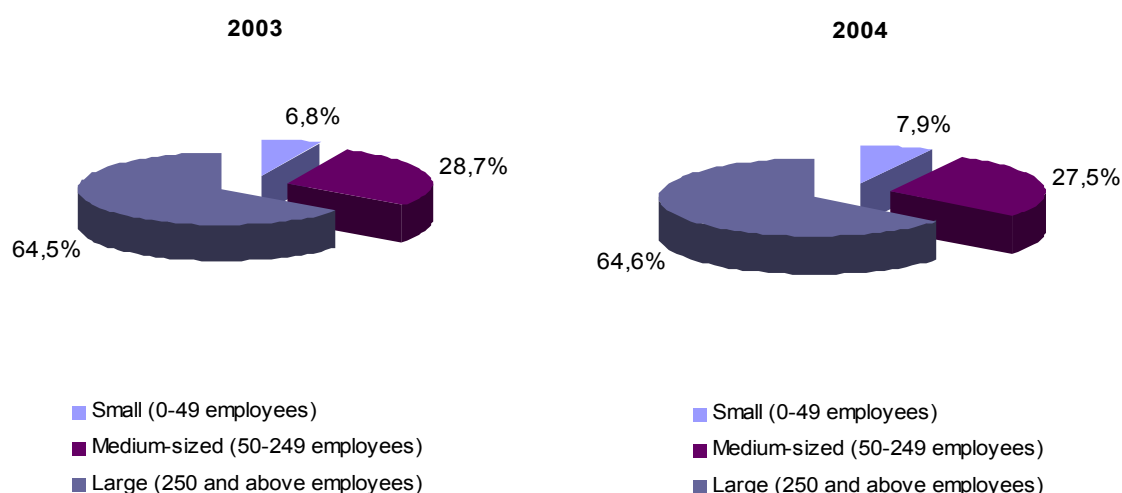
SECTOR	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
Business Enterprise	19 668	61,0	22 344	63,7	1,1361
Government	7 525	23,3	7 425	21,2	0,9867
Higher Education	4 922	15,3	5 181	14,8	1,0526
Private Non-profit	132	0,4	133	0,4	1,0076
Total	32 247	100,0	35 083	100,0	1,0879

Methodological note: The definition of private non-profit sector was adjusted in 2004 according to the methodology of Frascati manual.

II.3.2 Total R&D expenditure according to the size of R&D units (subjects)

In 2004 like in previous Years large economic subjects with more than 250 employees mainly contributed to the total R&D expenditure in the Czech Republic. Their share on total R&D expenditure was 64,6 %. In the sector of higher education reached these large economic subjects on total R&D expenditure within this sector almost 100 %, exactly 99,4 %. Economic subjects with 50-249 employees (medium-size classed economic subjects) reached the share 27,5 % and subjects with less than 49 employees (small) 7,9 % within all R&D units in the Czech Republic.

Figure 2.6 Structure of GERD in the Czech Republic by size classes of R&D units in 2003 and 2004 (%)



With regard to year-on-year comparison between 2003 and 2004 expenditures increased in all above mentioned size classes. The highest increase was at small economic subjects, where the increase reached 26,7 %. Shares of individual size-classes on the total R&D expenditure did not change between Years 2003 and 2004, only at small economic subjects increased the share for one percentage point at the expense of medium-sized economic subjects.

Table 2.6 GERD in the Czech Republic by size classes of R&D subjects in 2003 and 2004

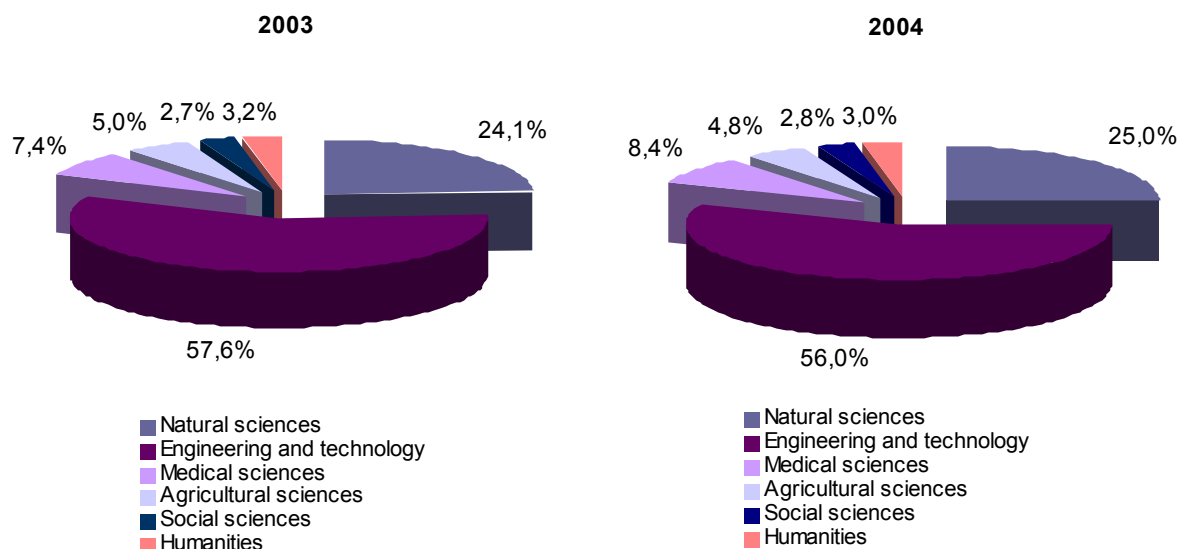
SIZE-CLASS	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
Small (0-49 employees)	2191	6,8	2775	7,9	1,2665
0-9 employees	426	1,3	569	1,6	1,3357
10-49 employees	1 765	5,5	2 206	6,3	1,2499
Medium-sized (50-249 employees)	9246	28,7	9659	27,5	1,0447
Large (250 and above employees)	20810	64,5	22649	64,6	1,0884
250-499 employees	3 905	12,1	4 767	13,6	1,2207
500 and above employees	16 905	52,4	17 882	51,0	1,0578
Total	32247	100,0	35083	100,0	1,0879

For complete breakdown of expenditure on R&D by size classes of economic subject see table annex (table 8).

II.3.3 Total R&D expenditure by fields of science

The largest amount of R&D expenditure was as usual spent in the field of engineering and technology, which has the evident connection to the most important sector of R&D performance i.e. business enterprise sector, where major dominate technical sciences. In 2004 were the expenditure on R&D in this field 19 632 million CZK, i.e. share 56,0 % from total R&D expenditure. The second most important field of science with R&D expenditures at the level of 8 777 million CZK and share 25 % were natural sciences. In the government sector are natural sciences with the share of 56,6 % the most important field of science. Shares of outstanding fields of science were under the level of 10 % (see following figure).

Figure 2.7 Structure of GERD in the Czech Republic by the main fields of science in 2003 and 2004



In year-on-year comparison between 2004/2003 the highest increase was reached in the field of medical sciences (22,6 %). Their share on the total R&D expenditure increased from 7,4 % in 2003 to 8,4 % in 2004. The same share of increase for one percentage point (from 24,1 % to 25 %) was recorded at natural sciences, where the year-on-year increase reached 12,8 %. Shares at other fields of science remain at the level of 2003.

Table 2.7 GERD in the Czech Republic by the main fields of science in 2003 and 2004

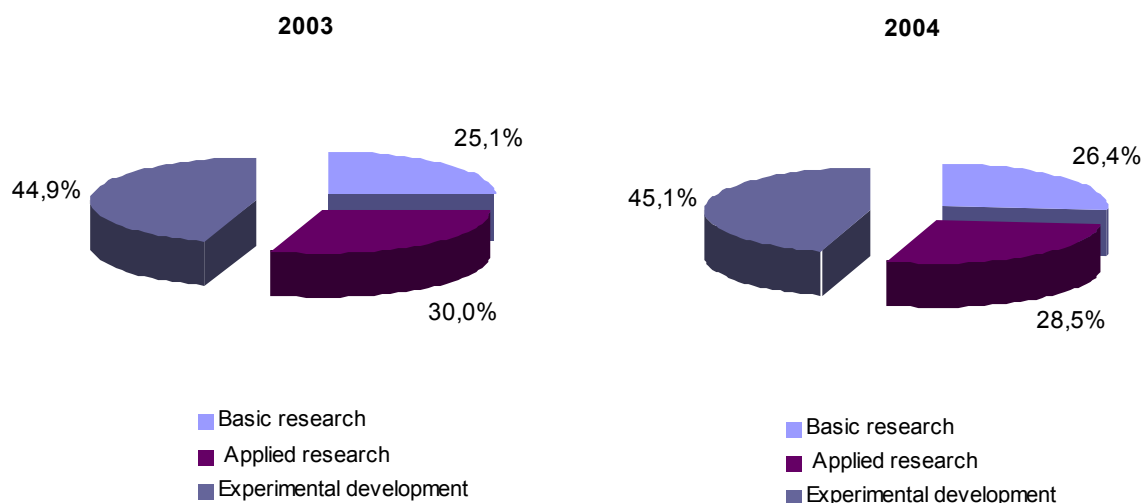
FIELDS OF SCIENCE	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
Natural sciences and Engineering	30 363	94,1	33 041	94,2	1,0882
Natural sciences	7 778	24,1	8 777	25,0	1,1284
Engineering and technology	18 577	57,6	19 632	56,0	1,0568
Medical sciences	2 398	7,4	2 940	8,4	1,2260
Agricultural sciences	1 610	5,0	1 692	4,8	1,0509
Social science and Humanities	1 884	5,9	2 042	5,8	1,0839
Social science	865	2,7	995	2,8	1,1503
Humanities	1	3,2	1	3,0	1,0275
Total	3	100	3	100	1,0879

II.3.4 Total R&D expenditure by type of R&D activity

In 2004 was the highest amount on R&D spent for experimental development. The total amount was 15 839 million CZK, which means share of 45,1 % on the total R&D expenditure (GERD) in the Czech Republic. Applied research contributed to the total R&D expenditure with the amount of 9 992 million CZK or about 28,5 % share. Share of basic research on the total R&D expenditure reached 26,4 %.

In business enterprise sector is the most of R&D realized in form of experimental development (67,0 %). As regards government sector and sector of higher education, the highest share on the total R&D expenditure belong to the basic research. In government sector was the share 68,4 % in 2003 and in the sector of higher education 54,7 %.

Figure 2.8 Structure of GERD in the Czech Republic by the type of R&D activity in 2003 and 2004



Comparing Years 2004 and 2003, the slight increase in the share of expenditure on experimental development was reached (from 44,9 % in 2003 to 45,1 % in 2004) as well as on basic research (from 25,1 % in 2003 to 26,4 % in 2004). Share of applied research decreased from 30 % in 2003 to 28,5 % in 2004. The highest year-on-year increase in expenditure was recorded in basic research, i.e. 14,3 %.

Table 2.8 GERD in the Czech Republic according to the type of R&D activity in 2003 and 2004

TYPE OF R&D ACTIVITY	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
Basic research	8 095	25,1	9 251	26,4	1,1428
Applied research	9 663	30,0	9 992	28,5	1,0340
Experimental development	14 489	44,9	15 839	45,1	1,0932
Total	3	1	3	1	1,0879

II.3.5 Total R&D expenditure by regions (at NUTS 3 level)

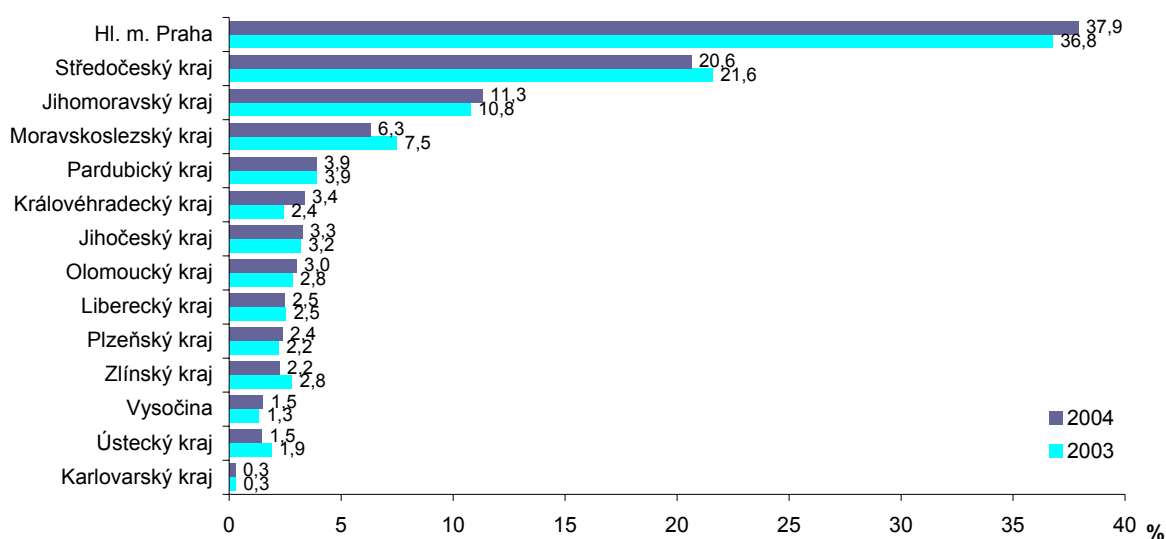
In 2004 the most of the financial sources on research and development was spent in the capital city of Prague, it was 37,9 % from the total R&D expenditure. On the second place, with the important share of 20,6 %, was Středočeský kraj. In Moravia the highest share in total GERD was recorded in Jihomoravský region (11,3 %). Only these three above mentioned regions realized shares exceeding 10 %. The lowest expenditure from all regions had Karlovarský region (0,3 %).

In year-on-year comparison were recorded stable shares at individual regions. Concerning capital city of Prague and Jihomoravský region, it was recorded increase for one percentage point compared to the previous Year 2003. On the other hand, the biggest decrease in share of R&D expenditure was realized in case of Středočeský region and Moravskoslezský region.

The highest increase of R&D expenditure in between Years 2003 and 2004 was in region Vysočina (23,6 %), followed by Plzeňský region (17,4 %) and Jihomoravský region (14,1 %). The biggest decrease appeared in between abovementioned years in Ústecký region (-15,7 %) and Zlínský region (-8,4 %).

Complete shares of R&D expenditure broken down by region and year-on-year indices 2004/2003 are available in figure 2.9 and table no. 2.9 on the following page.

Figure 2.9 Structure of GERD according to the regions (at NUTS 3 level) in 2003 and 2004



The main reason for the highest R&D expenditure, that are as usual recorded in capital city of Prague, is the high concentration of subjects carrying out R&D in the capital city, where are locally registered to perform their economic activity. To this situation also contributes concentration of most of the universities in Prague. See comparison between table no. 1.4 and table no. 2.9, or also table no. 2 in table Annex.

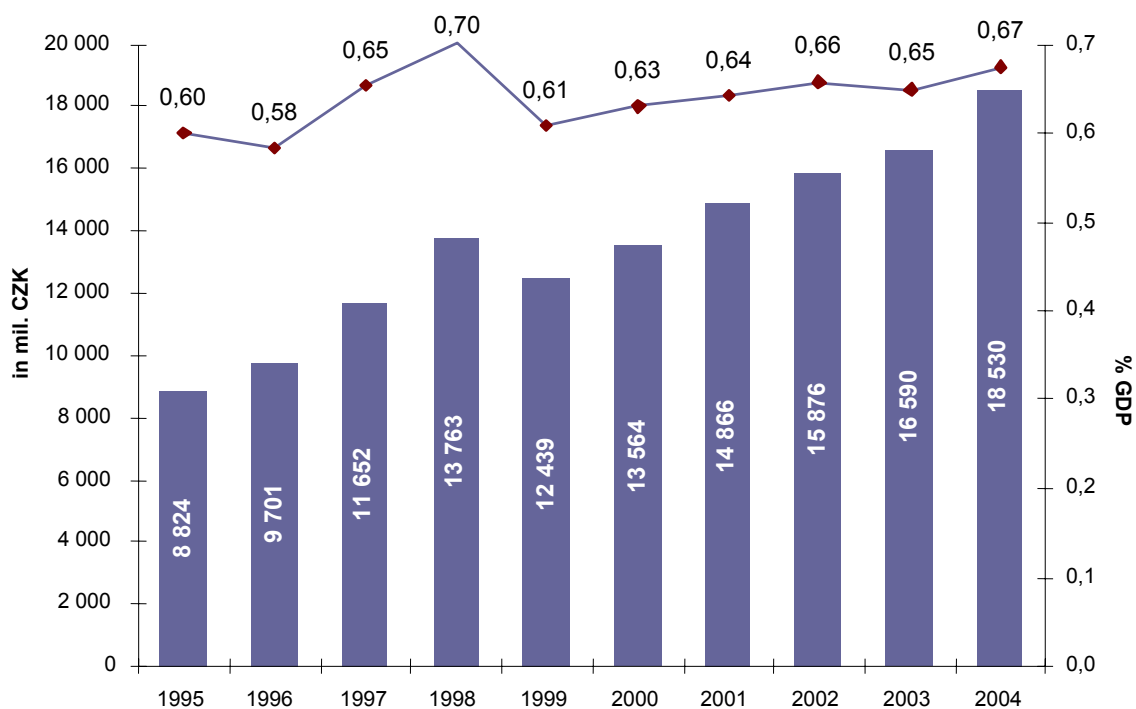
Table 2.9 GERD in the Czech Republic according to the regions (at NUTS 3 level) in 2003 and 2004

REGION (NUTS 3)	2003		2004		04/03
	mil. CZK	%	mil. CZ	%	
Capital city Prague	11 854	36,8	13 300	37,9	1,1220
Středočeský kraj	6 960	21,6	7 238	20,6	1,0399
Jihočeský kraj	1 027	3,2	1 146	3,3	1,1159
Plzeňský kraj	712	2,2	836	2,4	1,1742
Karlovarský kraj	92	0,3	96	0,3	1,0435
Ústecký kraj	605	1,9	510	1,5	0,8430
Liberecký kraj	817	2,5	868	2,5	1,0624
Královéhradecký kraj	784	2,4	1 177	3,4	1,5013
Pardubický kraj	1 265	3,9	1 365	3,9	1,0791
Vysočina	428	1,3	529	1,5	1,2360
Jihomoravský kraj	3 473	10,8	3 964	11,3	1,1414
Olomoucký kraj	909	2,8	1 054	3,0	1,1595
Zlínský kraj	905	2,8	787	2,2	0,8696
Moravskoslezský kraj	2 416	7,5	2 213	6,3	0,9160
Total	32	10	35	10	1,0879

II.4 R&D expenditure in business enterprise sector (BERD)²

As it was already mentioned in the previous text, business enterprise sector is the most important source of finance of R&D activities as well as the most important sector of R&D performance (using of financial sources for R&D activities). **In 2004, in the Czech business enterprise sector was spent 22 344 million CZK on the activities connected with R&D, what corresponds with the share of 0,81 % GDP.**

Figure 2.10 Business enterprise expenditure on R&D (BERD); 1995-2004 (% GDP)



In year on year comparison of 2003 and 2004 came to the increase of R&D expenditure spent in business enterprise sector (BERD) by 13,6 %. Share on GDP went up from 0,77 % in 2003 to 0,81 % in 2004. Research and development expenditure spent in business enterprise sector (BERD) are increasing each year since 1995 (except for the year 1999).

Table 2-10 BERD in the Czech Republic in 1995-2004

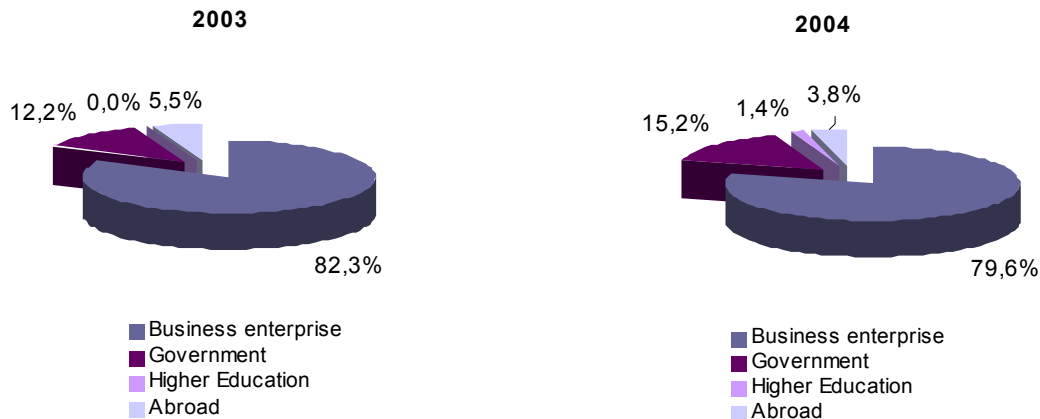
U k a z a t e l	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
R&D expenditure (BERD) in million CZK (current prices)	9 099	9 747	12 232	14 760	14 862	15 882	17 052	18 051	19 668	22 344
Annual growth (%)	x	7,1	25,5	20,7	0,7	6,9	7,4	5,9	9,0	13,6
R&D expenditure (BERD) in million CZK (at 2000 prices)	12 411	12 230	14 174	15 380	15 067	15 882	16 253	16 743	17 911	19 627
Annual growth in real terms (at 2000 prices)	x	-1,5	15,9	8,5	-2,0	5,4	2,3	3,0	7,0	9,6

² In the international terminology of OECD and Eurostat have R&D expenditure in business enterprise sector in line with methodology of Frascati manual the abbreviation **BERD (Business Expenditure on R&D)**.

II.4.1 Business enterprise expenditure on R&D according to its source of funds

In 2004 was from the total amount used on R&D in the Czech business enterprise sector financed 79,6 % (17 785 million CZK) from own sources of subjects from business enterprise sector and 15,2 % (3 395 million CZK) from government sources. From abroad received the subjects of business enterprise sector on their research and development 3,8 % (859 million CZK).

Figure 2.11 Structure of BERD in the Czech Republic by source of funds in 2003 and 2004 (%)

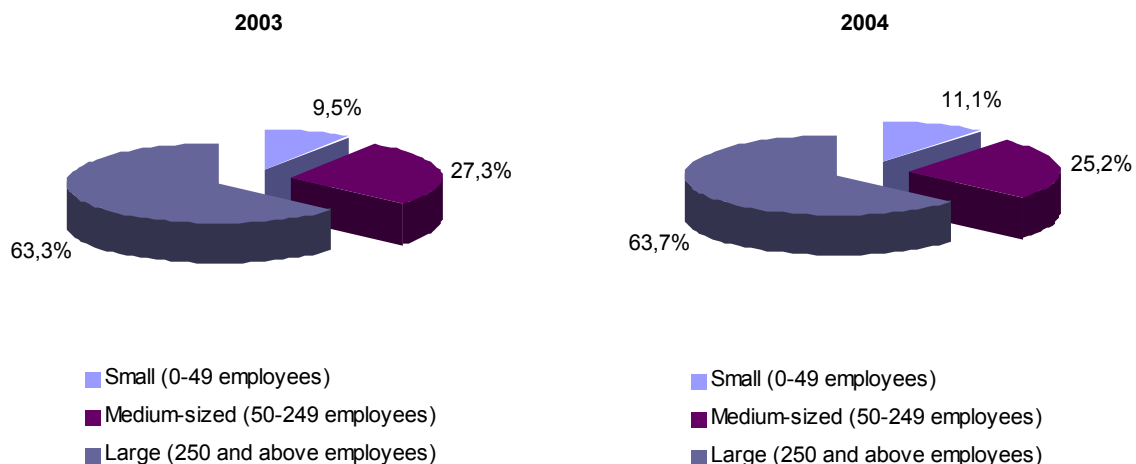


Share of own sources slightly decreased from 81,0 % in 2003 to 79,6 % in 2004. On the contrary more evidently increased share of government sector as a financial source of R&D in business enterprise sector. If the share of this sector was 12,0 % in 2003, then in 2004 it was already 15,2 %. Share of sources from abroad decreased in between Years 2003 and 2004 for 1,7 % (from 5,5 % in 2003 to 3,8 % in 2004).

II.4.2 Business enterprise expenditure on R&D by size-classes

In 2004 was the most of the R&D expenditure spent in large enterprises with more than 250 employees. Share of the large size-class on the total R&D expenditure in business enterprise sector reached 63,7 %, i.e. 14 233 million CZK in absolute number. The second most important group created medium size-classed firms with 50-249 employees. Their share on total R&D expenditure in business enterprise sector reached 25,2 %. Small enterprises (0-49 employees) contributed by 11,1 %.

Figure 2.12 Structure of BERD in the Czech Republic by size-classes in 2003 and 2004

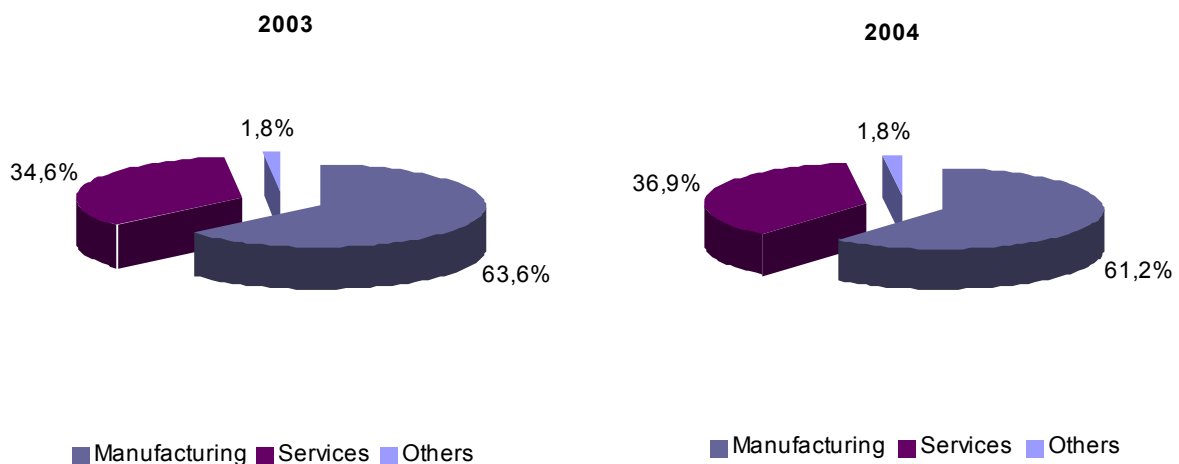


II.4.2 Business enterprise expenditure on R&D by industries (NACE branches) ³

In 2004 was most of R&D expenditure in business enterprise sector according to the classification of economic activities (NACE) spent in manufacturing. The share on total BERD of this industry reached 61,2 %. Research and development in services reached share of 36,9 %. R&D expenditure in other industries created only 1,8 % of total R&D expenditure in the Czech Business enterprise sector, from this Construction reached share of 1,3 %. Shares in outstanding industries did not exceed level of 1 %. For more details see figure 2.13 and table no. 2.11.

In 2004 compared to the Year 2003 appeared within BERD in the Czech Republic a change in shares in manufacturing and services. In services rose the share on BERD from 34,5 % in 2003 to 36,9 % in 2004, on the expenses of manufacturing, where the share decreased from 63,6 % in 2003 to 61,2 % in 2004. Shares of other industries remained at the same level.

Figure 2.13 BERD in the Czech Republic by main industries in 2003 and 2004



The highest increase between 2003 and 2004 was realized in Electricity, gas and water industry, where R&D expenditure went up four times, nevertheless share of this industry on BERD remained stable-de facto equals zero. Important year-on-year increase (by 21,3 %) appeared in services.

Table 2.11 BERD in the Czech Republic by main industries in 2003 and 2004

NACE Code	CZ-NACE	2003		2004		Index 04/03
		mil. CZK	%	mil. CZK	%	
A+B	Agriculture, forestry and fishing	77	0,4	87	0,4	1,1299
C	Mining and quarrying	23	0,1	37	0,2	1,6087
D	Manufacturing	12 513	63,6	13 685	61,2	1,0937
E	Electricity, gas and water supply	2	0,0	10	0,0	5,0000
F	Construction	250	1,3	273	1,2	1,0920
G-O	Services sector	6 802	34,6	8 252	36,9	1,2132
A-O	Total	1	1	2	1	1,1361

³ NACE means branch classification of economic activities. Classification of expenditure according to detailed NACE structure is available in table Annex (table no.14).

II.4.4 Business enterprise expenditure on R&D by socio-economic objectives ⁴

The most important socio-economic direction, where was spent the biggest amount of R&D expenditure within business enterprise sector in 2004 was manufacturing production and technology. Share of this socio-economic direction reached 65,8 % from the total R&D expenditure in business enterprise sector. Shares of other socio-economic directions did not exceeded level of 10 %. In case of infrastructure and landscape planning, as well as protection and improving of human health the share reached in both cases 9,2 %. At production, distribution and efficient using of energy, R&D expenditure reached 5,0 % from the total R&D expenditure in business enterprise sector. Complete summary of amounts and shares of individual socio-economic directions shows table 2.12.

Table 2-12 BERD in the Czech Republic by socio-economic objectives in 2003 and 2004

Socio-economic objectives	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
1. Exploration and exploitation of the Earth	25	0,1	82	0,4	3,2800
2. Infrastructure and general planning of land-use	2 342	11,9	2 065	9,2	0,8817
3. Protection of the environment	271	1,4	371	1,7	1,3690
4. Protection and improvement of human health	1 349	6,9	2 061	9,2	1,5278
5. Production, distrib. and rational utilisation of energy	1 062	5,4	1 114	5,0	1,0490
6. Agricultural production and technology	498	2,5	491	2,2	0,9859
7. Industrial production and technology	12 956	65,9	14 697	65,8	1,1344
8. Social structures and relationships	148	0,8	242	1,1	1,6351
9. Exploration and exploitation of space	10	0,1	16	0,1	1,6000
10. Research financed from Ministry of Education	3	0,0	6	0,0	2,0000
11. Non-oriented research	158	0,8	554	2,5	3,5063
12. Other civil research	581	3,0	200	0,9	0,3442
13. Defence	265	1,3	445	2,0	1,6792
Total	19 668	100,0	22 344	100,0	1,1361

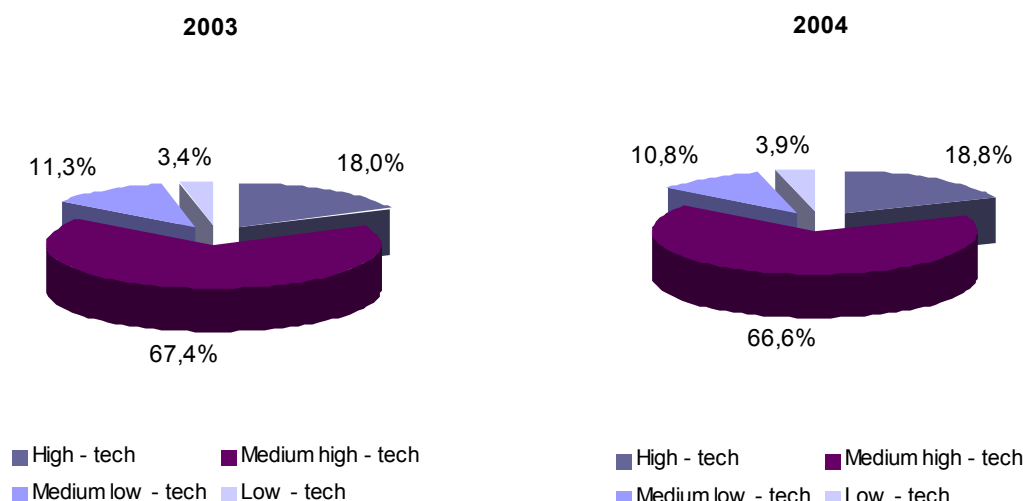
Because of small amounts in some socio-economic directions, the year-on-year increases (indices 04/03) are very high; nevertheless shares remain similar like in the previous Year 2003. Only in manufacturing was reached increase in R&D expenditure for 13,4 % in 2004 compared to 2003, but simultaneously also slight decrease of weight (share) of this socio-economic direction on the total R&D expenditure in business enterprise sector. Important increase of R&D expenditure (for 52,8 %) was recorded in protection and improvement of human health. The year-on-year share increased from 6,9 % in 2003 to 9,2 % in 2004. Also slight increase in R&D expenditure appeared in the field of defence (from 1,3 % to 2,0 %).

⁴ Breakdown by main socio-economic directions is in line with OECD methodology (version compatible with NABS).

II.4.5 Business enterprise expenditure on R&D by technological intensity of industries

Expenditures according to the technological intensity are measured only in manufacturing industries. The most of the R&D expenditure was used in medium technology intensive manufacturing industries (medium high-tech). Share of these industries reached 66,6 % on BERD in the Czech Republic. The second most important technological group of manufacturing industries was high-tech with share of 18,8 % in total BERD.

Figure 2.14 Structure of BERD in Czech manufacturing by technological intensity in 2003 and 2004 (%)



The biggest increase of R&D expenditure in between 2003 and 2004 was recorded in low-tech (25,5 %) followed by high-tech (14,0 %) manufacturing. In both of these cases was reached also increase of their shares on total R&D expenditure within manufacturing sector. For more details, please see table no. 2.13.

Table 2.13 BERD in manufacturing in the Czech Republic by technological intensity in 2003 and 2004

TECHNOLOGY INTENSITY	2003		2004		Index 04/03
	mil. CZK	%	mil. CZK	%	
High-tech	2 251	18,0	2 567	18,8	1,1404
Medium high-tech	8 430	67,4	9 114	66,6	1,0811
Medium low-tech	1 409	11,3	1 473	10,8	1,0454
Low-tech	423	3,4	531	3,9	1,2553
Total - Manufacturing	12	10	13	10	1,0937

II.4.6 Business Enterprise Expenditure on R&D by regions (at NUTS 3 level)

In 2004 was the highest amount of the R&D expenditure spent in Středočeský region, despite that the most of the subjects carrying out research and development are registered in Prague. The share of this region on total R&D expenditure in business enterprise sector reached 17,7 %. The second most important region was capital city of Prague, with the share of 16,8 %. The third region with the highest amount of R&D expenditure was Jihomoravský region (5,7 %). For more details, please see figure 2.14 on the following page.

Comparing 2003 and 2004 the important increase of share of R&D expenditure was reached in Prague, from 13,0 % in 2003 to 16,8 % in 2004. The share of Středočeský region slightly decreased, from initial 19,1 % in 2003 to 17,7 % in 2004.

Figure 2.15 BERD in the Czech Republic by regions at NUTS 3 level in 2003 and 2004

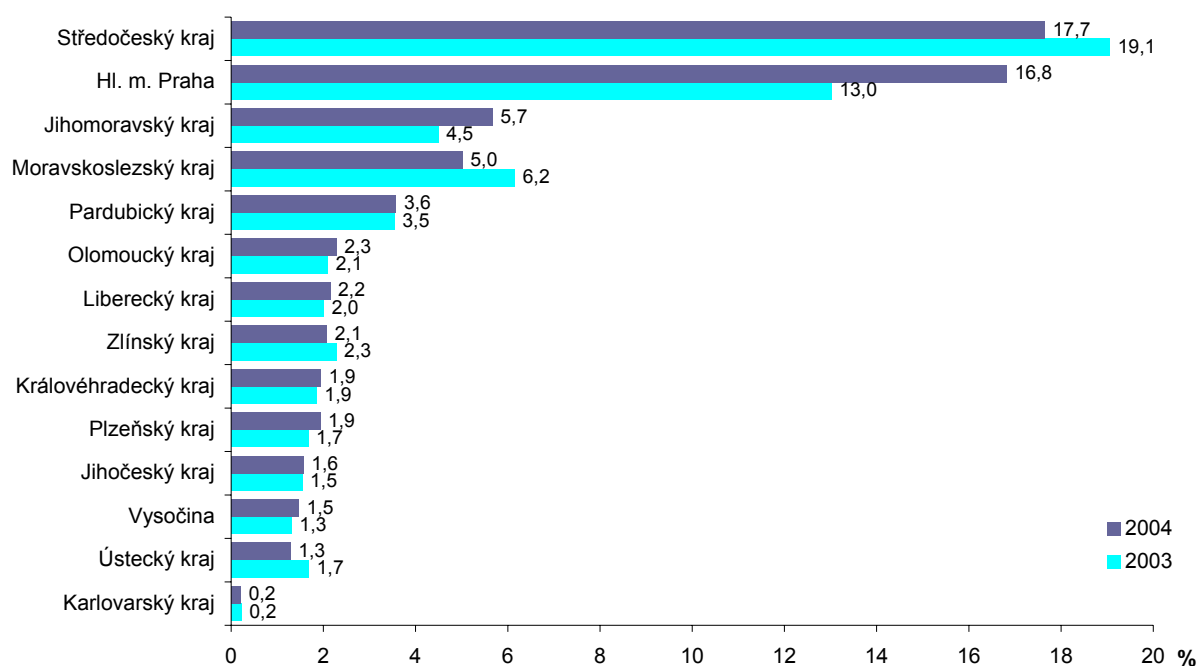


Table 2.14 BERD in the Czech Republic according to the regions (at NUTS 3 level) in 2003 and 2004

REGION (NUTS 3)	2003		2004		Index 04/03
	in mil. CZK	%	in mil. CZK	%	
Capital city Prague	4 199 010	13,0	5 902 805	16,8	1,4058
Středočeský kraj	6 147 391	19,1	6 193 428	17,7	1,0075
Jihočeský kraj	498 317	1,5	550 442	1,6	1,1046
Plzeňský kraj	538 963	1,7	677 802	1,9	1,2576
Karlovarský kraj	73 530	0,2	74 395	0,2	1,0118
Ústecký kraj	545 486	1,7	452 117	1,3	0,8288
Liberecký kraj	649 180	2,0	755 287	2,2	1,1634
Královéhradecký kraj	598 529	1,9	682 677	1,9	1,1406
Pardubický kraj	1 144 184	3,5	1 256 080	3,6	1,0978
Vysočina	424 680	1,3	515 585	1,5	1,2141
Jihomoravský kraj	1 450 531	4,5	1 989 856	5,7	1,3718
Olomoucký kraj	675 980	2,1	802 259	2,3	1,1868
Zlínský kraj	736 747	2,3	729 916	2,1	0,9907
Moravskoslezský kraj	1 985 389	6,2	1 761 673	5,0	0,8873
Total	32 246 596	100,0	35 083 039	100,0	1,0880

