



ΕΘΝΙΚΟ ΚΕΝΤΡΟ  
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# Research & Development Expenditure and Personnel in Greece in 2013

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## Preface

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This is the second edition in a series of bi-annual publications by the National Documentation Centre (EKT) presenting the national statistics for Research and Development Expenditure and Personnel for the year 2013. The publication presents data for the R&D activities, in academic, research and business fields, the sources of funding, the personnel involved and classifications of personnel, as well as the regional distribution of R&D activities.

Despite the fact that, in 2013, Greece was in its fifth consecutive year of economic crisis –a crisis still looming large as of writing these lines–, the national R&D activity proved to be resilient during times of extreme fiscal consolidation. An indication of this has been the R&D intensity ratio, which increased from 0.67% in 2011 to 0.81% in 2013. This is largely attributable to the ability of the domestic R&D performers making good use of available financial resources (namely structural financing, such as NSRF, and European competitive funds) recording high participation and absorption rates, in effect balancing off the drastically negative effects of a shrinking GDP on the availability of ordinary public sources of funding. Also, to some extent, the decreasing GDP as the denominator of the R&D intensity ratio is to be credited with this increase.

Given this macro-environment, EKT continued to strive for high quality performance in delivering statistics that would be employed towards evidence-based policies. Towards, this, having established a close working arrangement with the involved Public Administration bodies, such as the Hellenic Ministry of Education, Research and Religious Affairs, and the Special Service for the NSRF Monitoring Information System (M.I.S) of the Ministry of Economy, Development and Tourism, EKT has gained access to the bodies' administrative sources, allowing us to compliment and refine the data accrued via surveys, reaching, thus, a higher degree of completeness and overall accuracy. In addition, the indicators provided by EKT are put to use in different policy contexts, signaling an increase both in awareness of the availability of such metrics and of the cutting across of these indicators in various economic activities.

Following upon our cooperation with the Hellenic Statistical Authority (ELSTAT), recognized through the signing of two Memorandum of Cooperation, as the official provider of the national statistics on Research, Development and Innovation, we have been undertaking conscientious efforts to uphold the high

quality of the produced statistics according to international standards and procedures.

Closely associated is EKT's objective to be part of and actively contribute to the relevant European and international fora. This has allowed us not only to keep abreast of any new statistical methodologies, regulations and tools, such as the SDMX standard for the electronic transmission of data, thus, 'tuning in' flawlessly with our European partners, but also to put forward concrete proposals for the improvement of the overarching statistical methodological frameworks, such as the 6<sup>th</sup> revision of the Frascati Manual.

With the programming period 2007-2013 at its end, I should not omit to mention that the majority of activities for the production of R&D indicators were financed through the project 'National Information System for Research & Technology (NISRT) / Social Networks-User Generated Content' (MIS number 296115; beneficiary: National Documentation Centre - [www.epset.gr](http://www.epset.gr)). This project is carried out under the Operational Programme 'Digital Convergence' (NSRF) co-financed by Greece and the European Union - European Regional Development Fund.

For a complete series of data, metadata and quality reports, as well as a large number of electronic publications, please refer to <http://metrics.ekt.gr/en>.

Dr Evi Sachini



Director EKT

## Table of Contents

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1. Main R&D Indicators .....	1
2. R&D Expenditure .....	7
3. R&D Personnel.....	15
4. R&D performance across regions .....	21
5. Business Sector (BES).....	31
6. Government Sector (GOV) .....	41
7. Higher Education Sector (HES) .....	47
8. Private Non-Profit Sector (PNP) .....	53
9. Methodological Notes.....	59



## CHAPTER 1

# Main R&D Indicators

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In 2013, Greece spent EUR 1 465.7 million on R&D activities, which is equivalent to 0.81% of the GDP.

The total personnel working in R&D accounted for 82 684 people (in Head Counts – HC). The total number of R&D personnel measured as full-time equivalents (FTE) was 42 187.6.

**TABLE 1-1: Main R&D indicators in Greece, 2013**

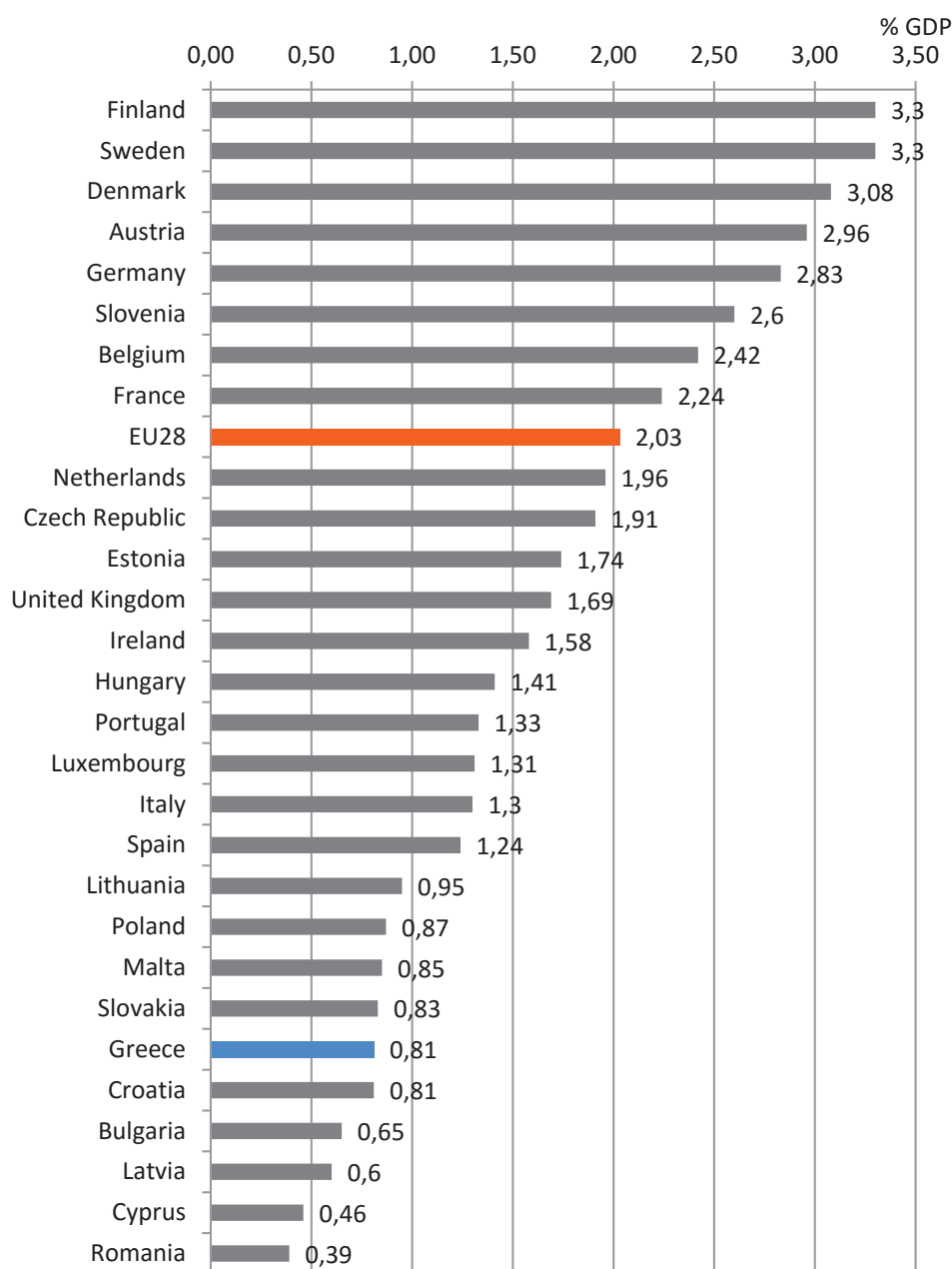
R&D Intensity (R&D Expenditure as % GDP)	<b>0.81</b>
Intramural R&D Expenditure (million EUR)	<b>1 465.7</b>
R&D Personnel (Head count)	<b>82 684</b>
R&D Personnel (Full-time equivalent)	<b>42 187.6</b>
Researchers (Head count)	<b>53 744</b>
Researchers (Full-time equivalent)	<b>29 228.2</b>



## R&D Intensity (% of GDP)

In 2013, R&D Intensity (R&D Expenditure as a percentage of GDP), which is the key indicator used to measure progress towards the European Union strategic target for investment in R&D, reached 0.81%. Greece is ranked 23<sup>rd</sup> among the EU28 Member States.

**FIGURE 1-1. R&D Intensity (R&D Expenditure as % of GDP) in Greece and in other EU28 Member States, 2013**



Sources:

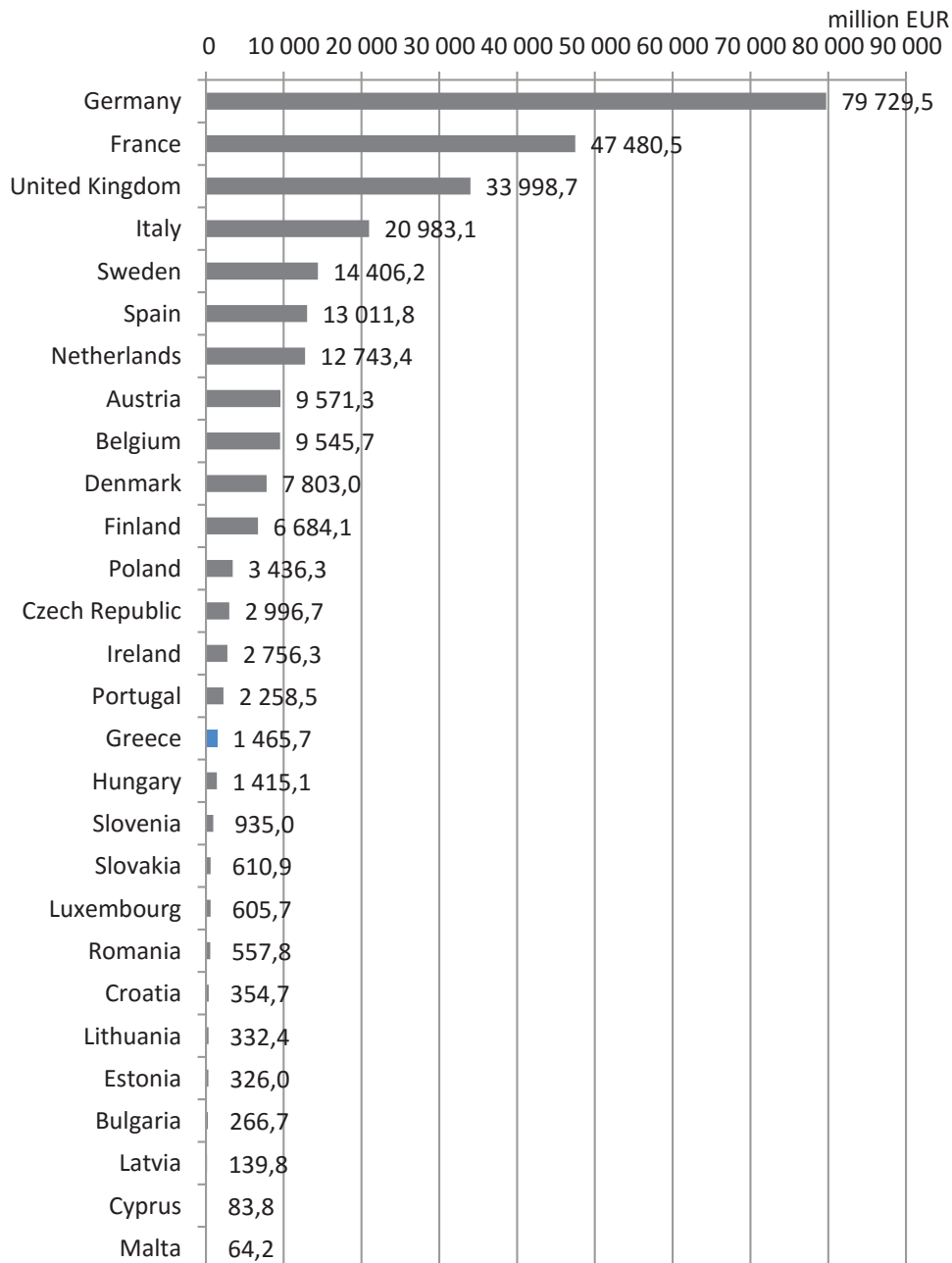
Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ2)

## R&D Expenditure (million EUR)

A total amount of EUR 1 465.7 million was invested in R&D activities in 2013, which places Greece in the 16<sup>th</sup> position among the EU28 Member States.

**FIGURE 1-2. R&D Expenditure (in million EUR) in Greece and in other EU28 Member States, 2013**



**Sources:**

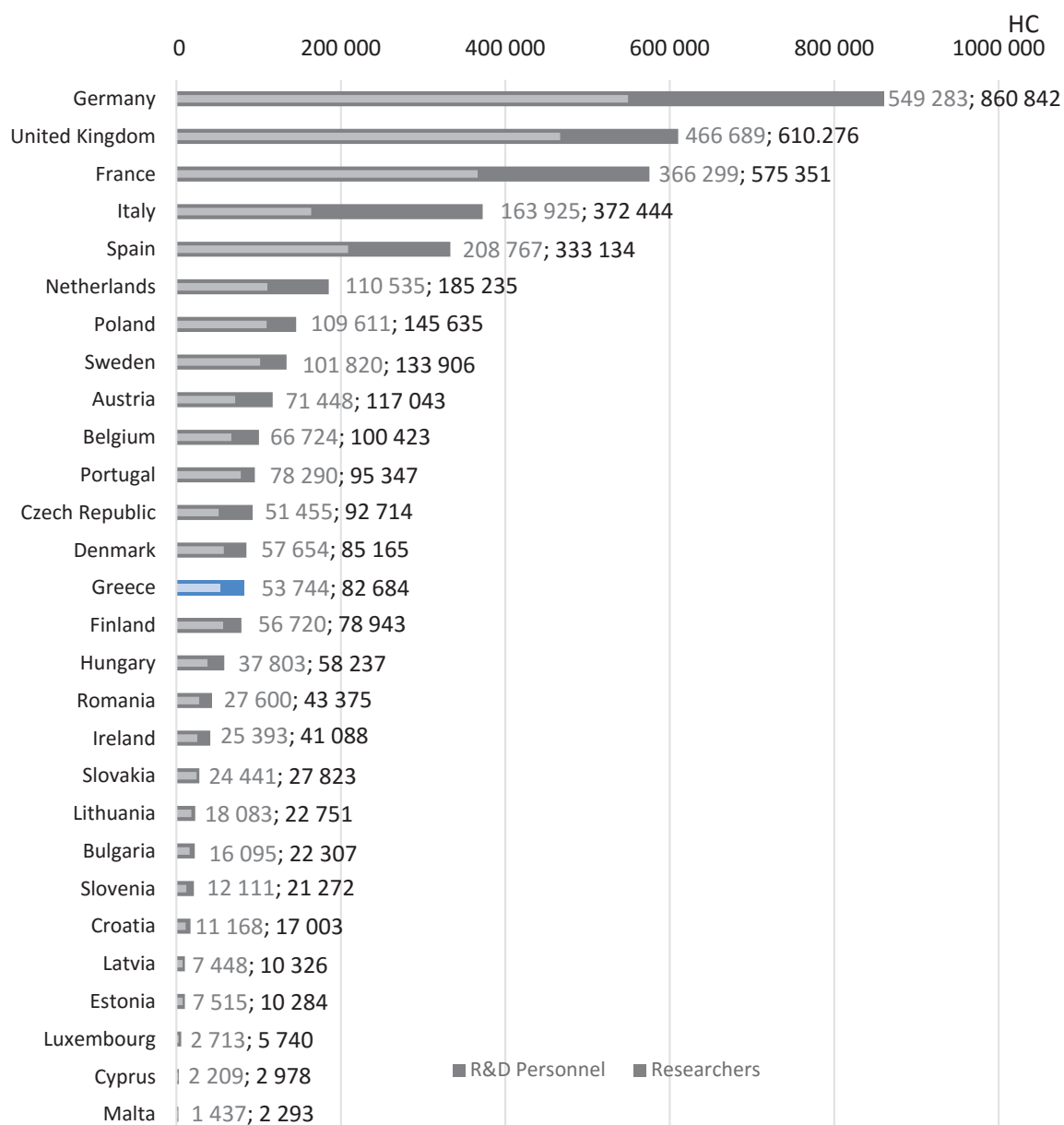
Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)

## R&D Personnel and Researchers (Head counts)

The total number of people working in R&D activities in Greece in 2013 was 82 684 in head counts, of which 53 744 were researchers. Greece is ranked 14<sup>th</sup> among the EU28 Member states, concerning both R&D personnel and researchers.

**FIGURE 1-3. R&D Personnel and Researchers (in Head counts) in Greece and in other EU28 Member States, 2013**



Sources:

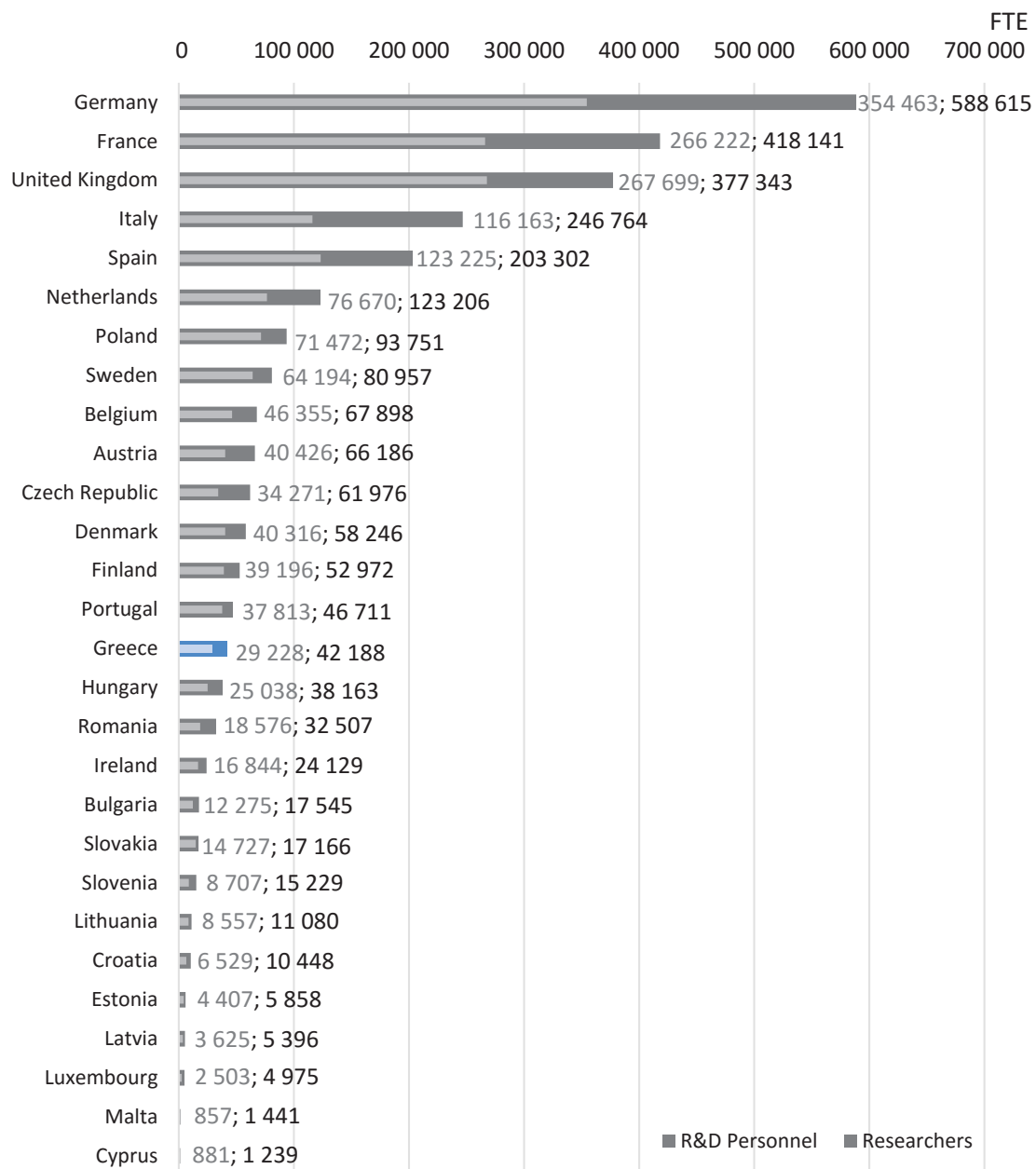
Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_p\_persocc, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1)

## R&D Personnel and Researchers (Full-time equivalents)

The total R&D personnel, in terms of full-time equivalents, in Greece in 2013 was 42 187.6, according to which Greece is ranked 15<sup>th</sup> among the EU28 Member States. Researchers accounted for 29 228.2 FTEs, according to which Greece retains the same ranking.

**FIGURE 1-4. R&D Personnel and Researchers (in Full-time equivalents) in Greece and in other EU28 Member States, 2013**



Sources:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_p\_persocc, last update: 15.11.2015)

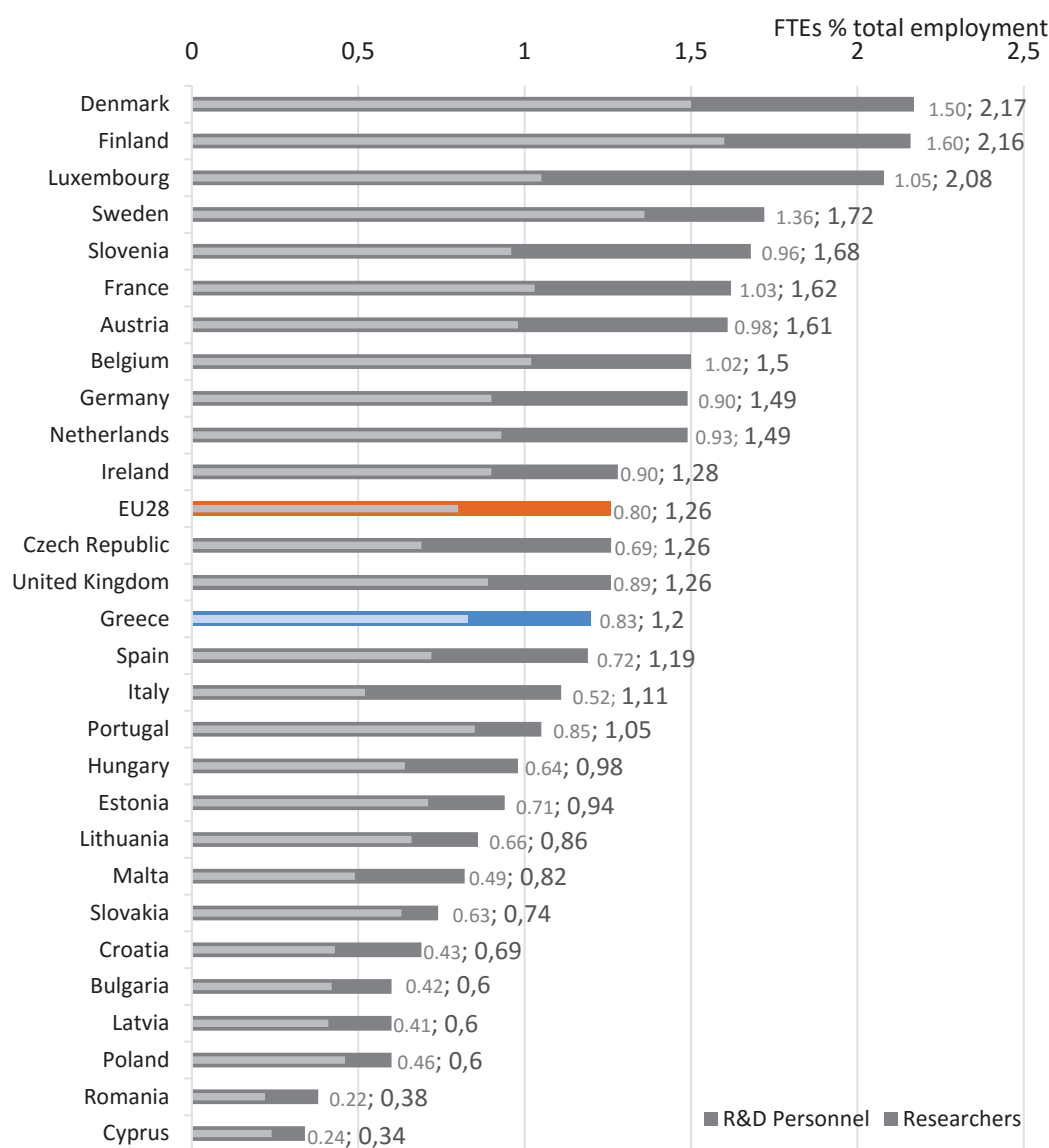
EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1)

## R&D Personnel and Researchers (as % of total employment)

The total R&D personnel, in terms of FTEs as percentage (%) of total employment, was 1.2% in Greece in 2013, placing Greece in the 14<sup>th</sup> position among the EU28 Member States. EU28 average is 1.26%.

Researchers account for 0.83% of total employment, according to which ranks 14<sup>th</sup> among EU28 Member States and is slightly above the EU28 average (0.80%).

**FIGURE 1-5. R&D Personnel and Researchers (FTEs as % total employment) in Greece and in other EU28 Member States, 2013**



Sources:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_p\_perslf, last update: 15.11.2015)

## CHAPTER 2

# R&D Expenditure

In 2013, Intramural R&D Expenditure in Greece amounted to EUR 1 465.7 million.

The table below presents the analysis of R&D Expenditure (in million EUR) broken down by source of funds and sector of performance.

Table 2-1: R&D Expenditure (in million EUR) by sector of performance and source of funds, 2013<sup>1</sup>

Sector of performance	Total R&D Expenditure	Source of Funds					
		Government (State budget)		Private Sector (Enterprises)	Other national sources <sup>2</sup>	Abroad	
		Total	of which from the NSRF <sup>3</sup>			Total	of which from the EU
BES	<b>488.7</b>	34.0	28.7	398.7	0.3	55.7	36.3
GOV	<b>410.1</b>	333.5	139.7	14.6	0.2	61.8	54.4
HES	<b>548.6</b>	395.7	125.5	30.0	41.4	81.5	74.6
PNP	<b>18.3</b>	2.9	2.6	0.5	8.9	5.9	2.1
<b>Total</b>	<b>1 465.7</b>	<b>766.1</b>	<b>296.5</b>	<b>443.9</b>	<b>50.7</b>	<b>204.9</b>	<b>167.4</b>

Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)

<sup>1</sup> Differences between aggregates and components can be due to rounding.

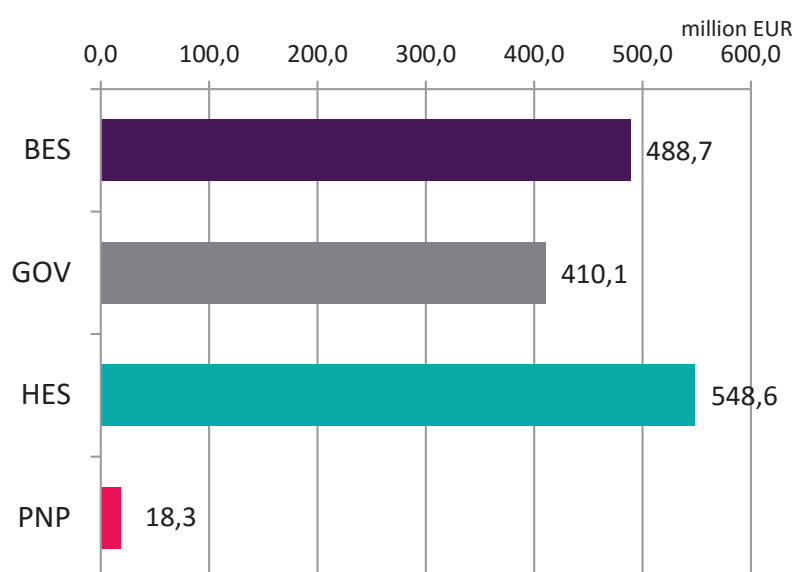
<sup>2</sup> The 'Other national sources' category comprises the HE and PNP sectors as funding sources. The bulk of the HES component comprises of Universities' own funds.

<sup>4</sup> NSRF: National Strategic Reference Framework (<http://www.espa.gr/en/pages/staticwhatisespa.aspx>)

## Sectors of R&D Performance

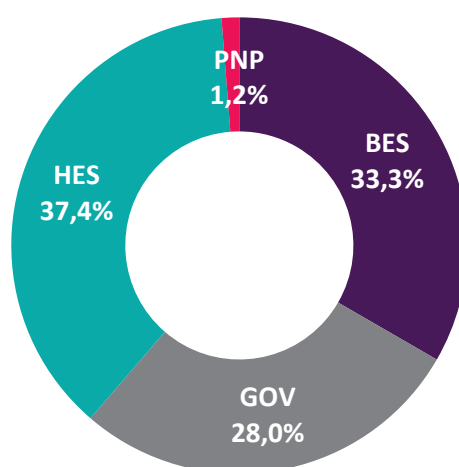
In 2013, R&D Expenditure in the Higher Education Sector (HES) accounted for 37.4% (EUR 548.6 million) of total domestic Expenditure on R&D. This sector was followed by the Business Enterprise Sector (BES) with EUR 488.7 million (or 33.3% of the total), and the Government Sector (GOV) with EUR 410.1 million (or 28.0% of the total). The share of the Private non-Profit Sector (PNP) in the total R&D Expenditure reached 1.2% (EUR 18.3 million).

**FIGURE 2-1: R&D Expenditure (in million EUR) by sector of performance, 2013**



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)

**FIGURE 2-2: Percentage (%) distribution of R&D Expenditure by sector of performance, 2013**

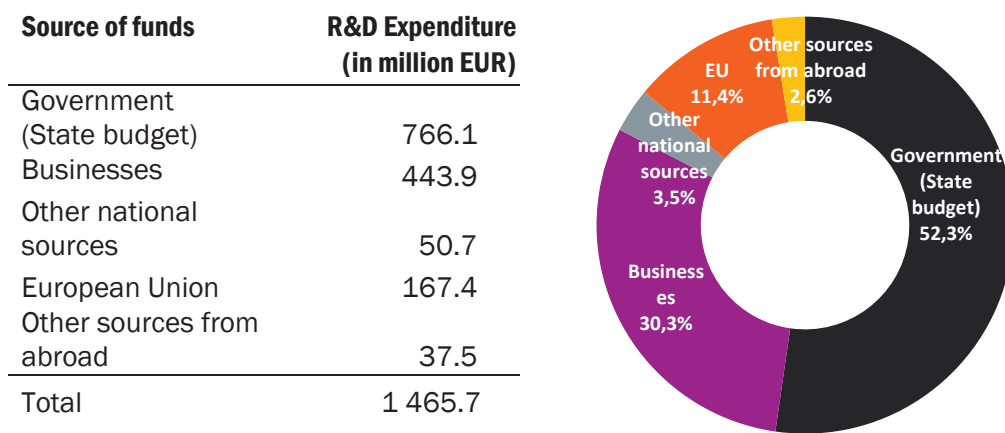


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)

## Source of funds

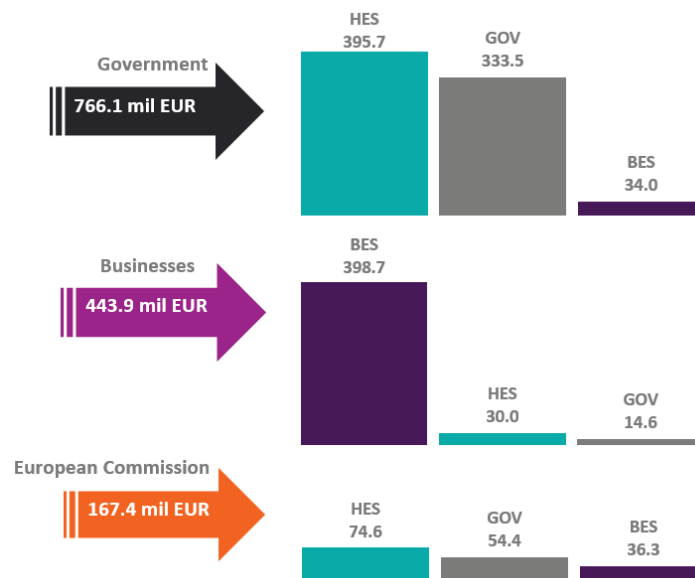
In 2013, Government financed 52.3% (EUR 766.1 million) of total R&D Expenditure in Greece through the Ordinary Budget, the Public Investment Programme and the National Strategic Reference Framework (NSRF). Funding originating from the private sector (enterprises) accounted for 30.3% (EUR 443.9 million) of total R&D Expenditure. A further 11.4% (EUR 167.4 million) was financed by the European Commission within the framework of European research projects.

FIGURE 2-3: R&D Expenditure (in million EUR and as % of total) by source of funds, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)

FIGURE 2-4: Overview of the three major sources of funds of R&D Expenditure (in million EUR), 2013



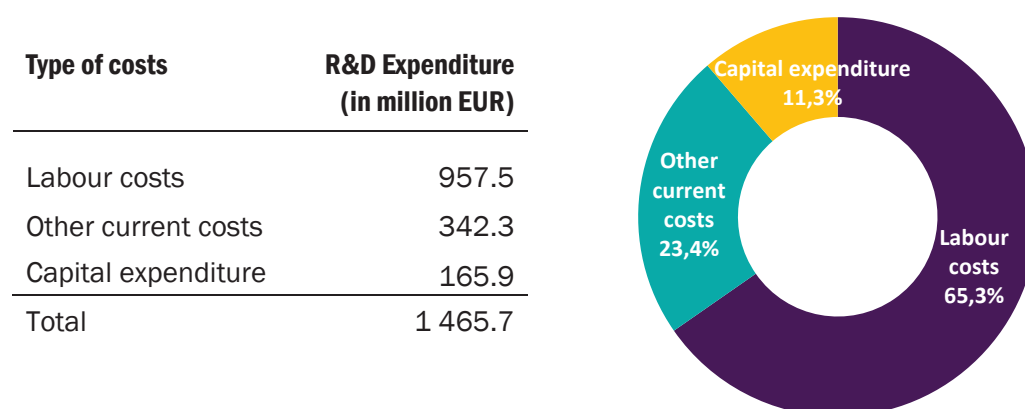
Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)



## Type of costs

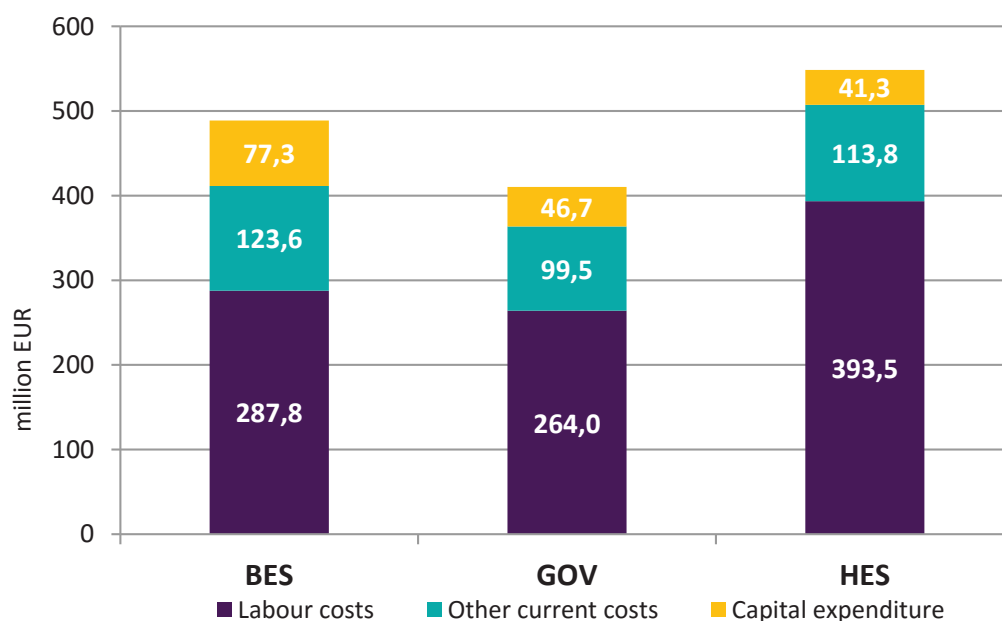
Labour costs were the largest component of total R&D Expenditure (EUR 957.7 million or 65.3% of total R&D Expenditure) followed by other current costs (i.e. non-capital purchases of materials, supplies and services to support R&D) (EUR 342.3 million or 23.4% of total R&D Expenditure). Capital expenditure (expenditure on instruments and equipment, land and buildings) amounted to EUR 165.9 million and were mainly incurred by enterprises in BES (EUR 77.3 million).

FIGURE 2-5: R&D Expenditure (in million EUR and as % of total) by type of costs, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ5)

FIGURE 2-6: R&D Expenditure (in million EUR) by type of costs in BES, GOV and HES, 2013

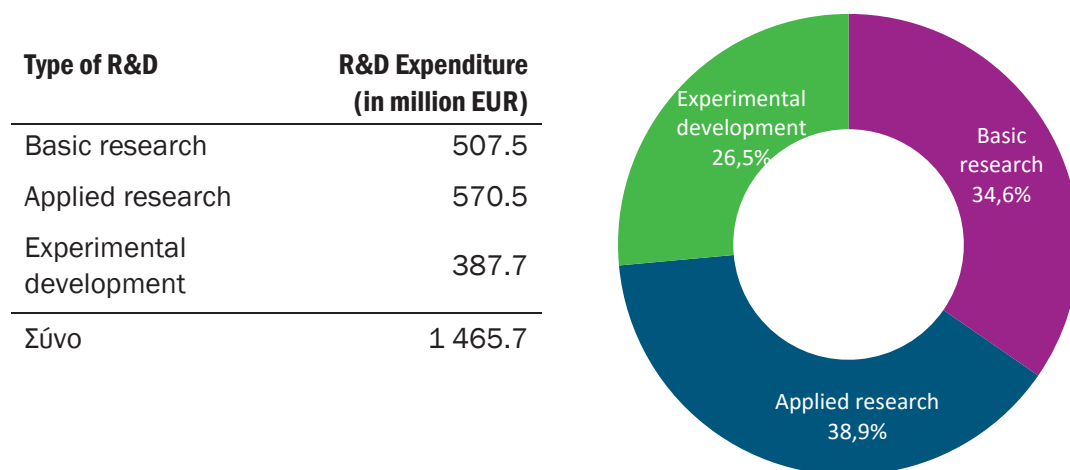


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ5)

## Type of R&D

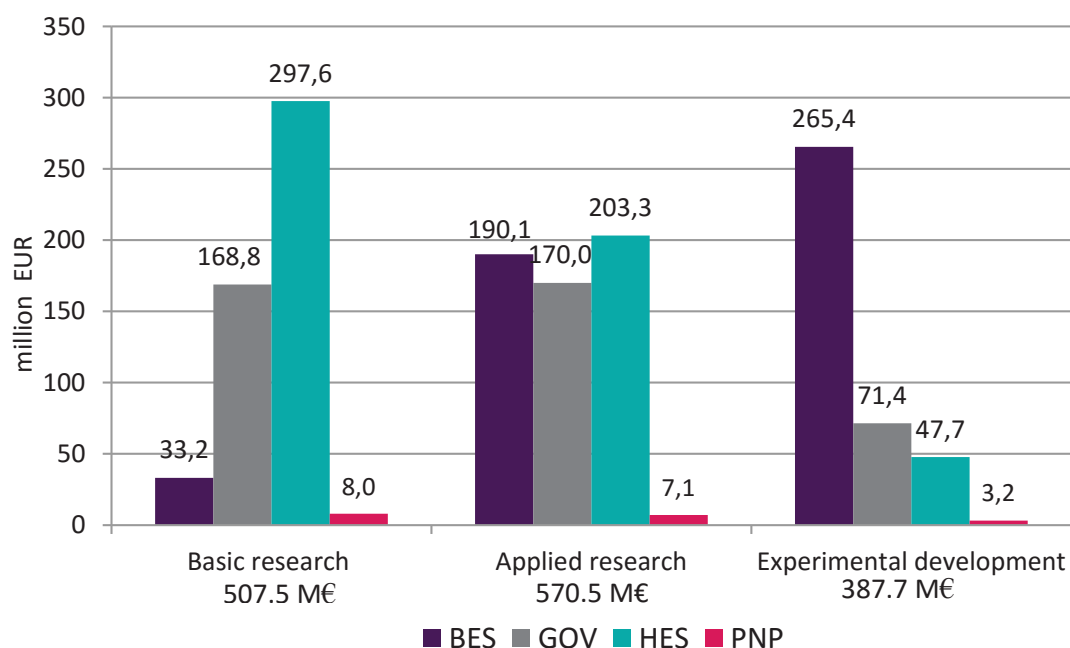
In 2013, the highest share of R&D Expenditure was allocated to applied research (38.9% of total R&D Expenditure or EUR 570.5 million), followed by basic research (34.6% of total R&D Expenditure or EUR 507.5 million) and experimental development (26.5% of total R&D Expenditure or EUR 387.7 million).

FIGURE 2-7: R&D Expenditure (in million EUR and as % of total) by type of R&D, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ6)

FIGURE 2-8: R&D Expenditure (in million EUR) by type of R&D and sector of performance, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ6)

## Fields of science

In the Government Sector (GOV), R&D activity was mainly undertaken in the scientific field<sup>5</sup> “Humanities” (EUR 138.5 million or 33.8% of total R&D Expenditure in GOV).

In the Higher Education Sector (HES), R&D activity was mainly undertaken in the field “Engineering & Technology” (EUR 158.8 million or 28.9% of total R&D Expenditure in HES).

**TABLE 2-2: R&D Expenditure (in million EUR) by major field of science in GOV, HES and PNP sectors, 2013**

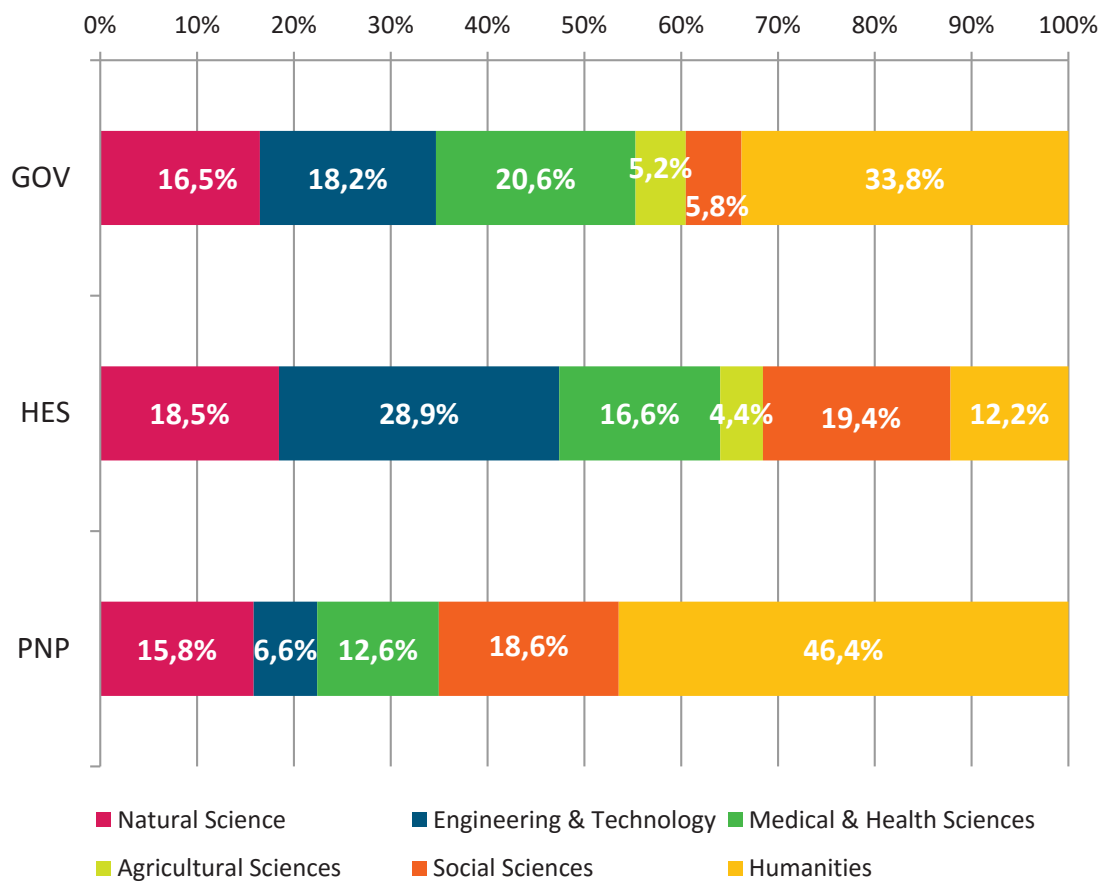
Major field of science	GOV	HES	PNP
Natural sciences	67.6	101.3	2.9
Engineering and technology	74.6	158.8	1.2
Medical sciences	84.5	91.2	2.3
Agricultural sciences	21.3	24.3	0.0
Social sciences	23.6	106.3	3.4
Humanities	138.5	66.8	8.5
Total	410.1	548.6	18.3

Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ4)

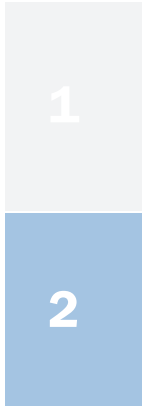
<sup>5</sup> In R&D statistics, fields of science are described according to the revised Field of Science (FOS) classification in the Frascati Manual:

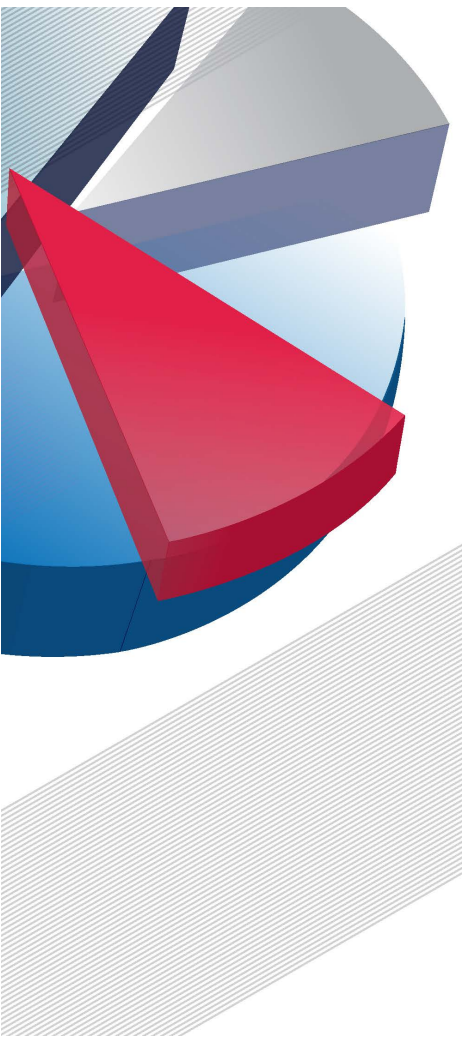
- **Natural Sciences:** Mathematics, Computer and Information Sciences, Physical sciences, Chemical sciences, Earth and related Environmental sciences, Biological sciences, Other natural sciences
- **Engineering & Technology:** Civil engineering, Electrical engineering, Electronic engineering, Information engineering, Mechanical engineering, Chemical engineering, Materials engineering, Medical engineering, Environmental engineering, Environmental biotechnology, Industrial biotechnology, Nano-technology, Other engineering and technologies
- **Medical & Health Sciences:** Basic medicine, Clinical medicine, Health sciences, Medical biotechnology, Other medical sciences
- **Agricultural Sciences:** Agriculture, Forestry and Fisheries, Animal and Dairy science, Veterinary science, Agricultural biotechnology, Other agricultural sciences
- **Social Sciences:** Psychology, Economics and Business, Educational sciences, Sociology, Law, Political science, Social and economic geography, Media and communication, Other social sciences
- **Humanities:** History and Archaeology, Languages and Literature, Philosophy, Ethics and Religion, Arts (arts, history of arts, performing arts, music), Other humanities

FIGURE 2-9: Percentage (%) distribution of R&D Expenditure in GOV, HES and PNP sectors by major field of science, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ4)





## CHAPTER 3

# R&D Personnel

In 2013, the total R&D Personnel in Greece was 82 684 people, comprising researchers and other R&D personnel, i.e. technicians and other supporting staff.

In terms of full-time equivalents (FTE), R&D Personnel numbered 42 187.6 people.

The following table gives an overview of the R&D Personnel by sector of performance and by occupation, both in head counts and in full-time equivalents.

**Table 3-1: R&D Personnel (in Head Counts and in Full-time equivalents) by sector of performance and by occupation, 2013**

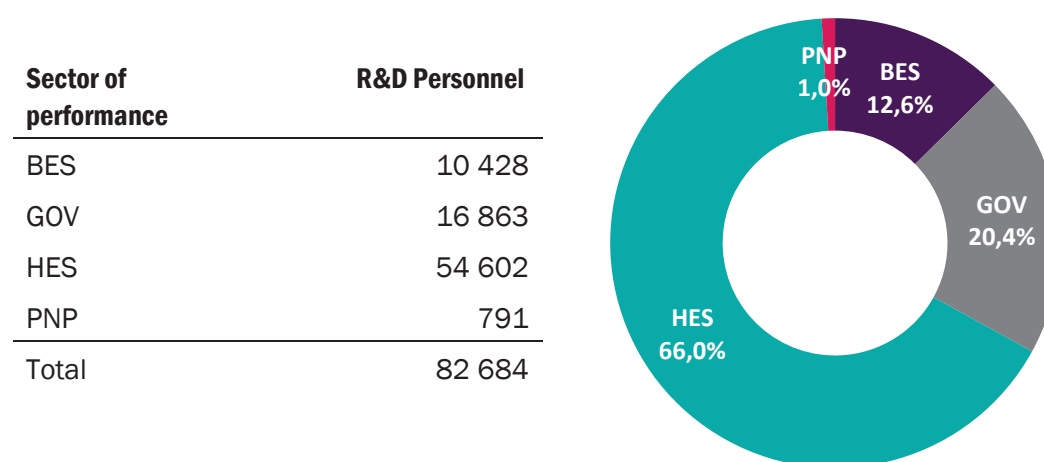
Sector of performance	R&D Personnel					
	Head count (HC)			Full-time equivalent (FTE)		
	Total	Researchers	Other R&D Personnel	Total	Researchers	Other R&D Personnel
BES	<b>10 428</b>	6 004	4 424	<b>6 832.0</b>	4 197.4	2 634.7
GOV	<b>16 863</b>	8 567	8 296	<b>11 435.6</b>	5 778.0	5 657.6
HES	<b>54 602</b>	38 724	15 878	<b>23 390.2</b>	18 956.7	4 433.5
PNP	<b>791</b>	449	342	<b>529.8</b>	296.2	233.6
<b>Total</b>	<b>82 684</b>	<b>53 744</b>	<b>28 940</b>	<b>42 187.6</b>	<b>29 228.2</b>	<b>12 959.4</b>

Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π2)

## R&D Personnel

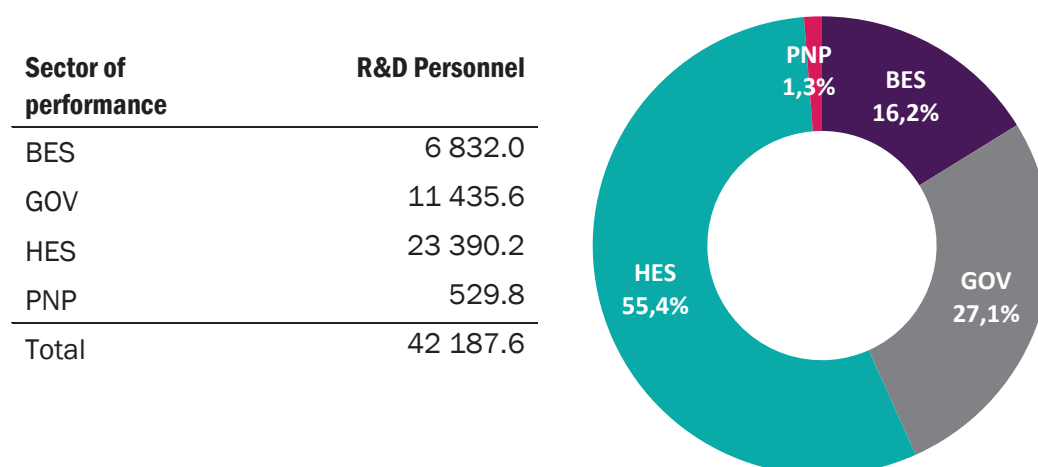
The Higher Education Sector (HES) employed a total of 54 602 R&D personnel (HC) as researchers and other R&D personnel. The sector accounted for 55.4% of the country's total R&D FTEs (23 390.2 full-time equivalents). The second largest sector, in terms of R&D personnel, was the Government Sector (GOV) with 16 863 persons (HC) and 11 435.6 FTEs, followed by the Business Enterprises Sector (BES) with 10 428 persons (HC) and 6 832.0 FTEs.

**FIGURE 3-1: R&D Personnel (in Head Counts and as % of total) by sector of performance, 2013**



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1)

**FIGURE 3-2: R&D Personnel (in Full-time Equivalents and as % of total) by sector of performance, 2013**

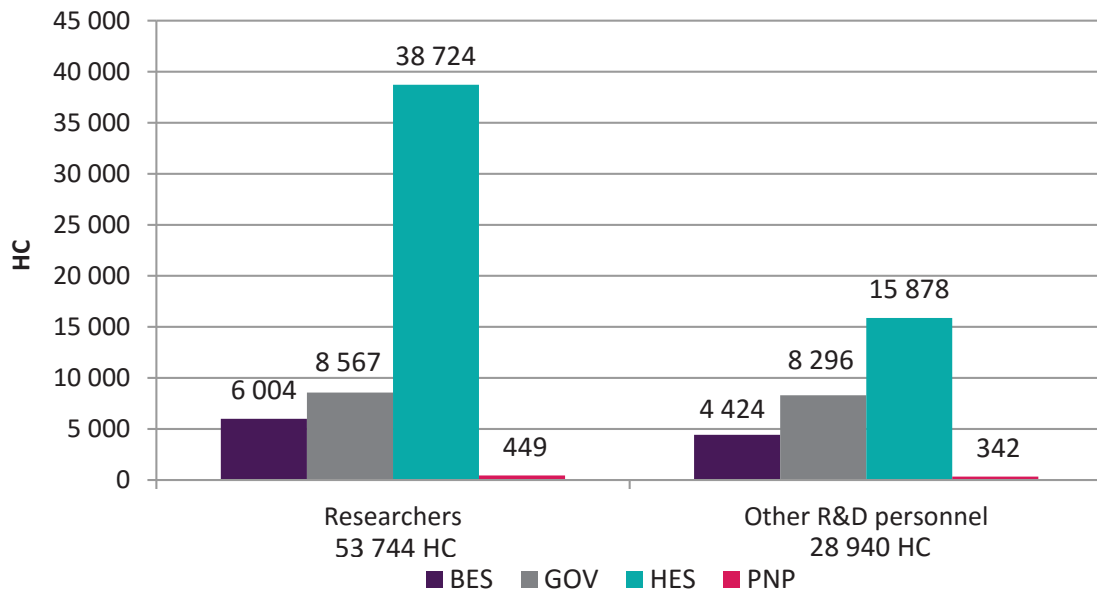


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π2)

## Occupation

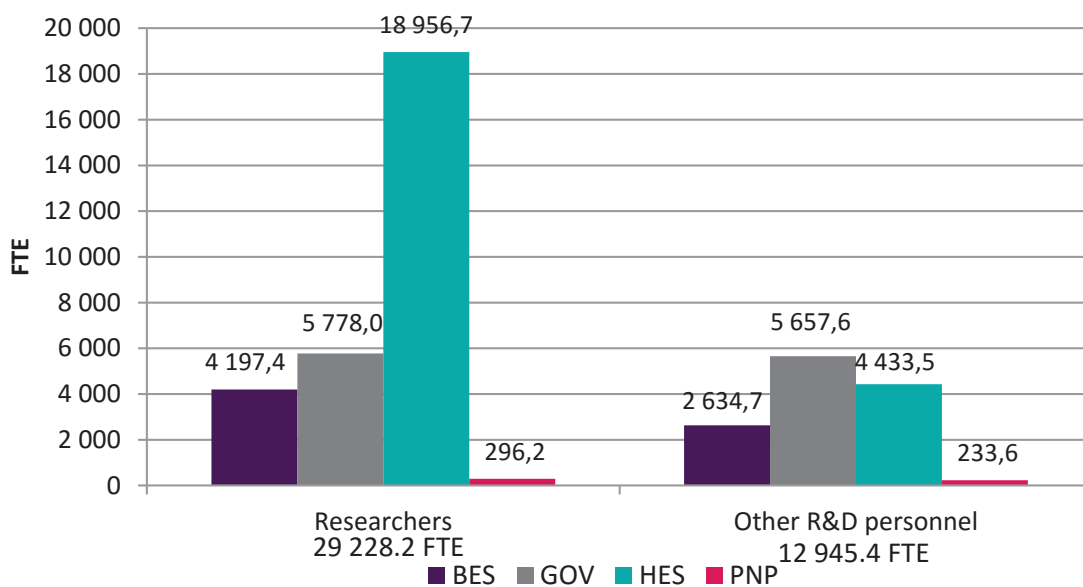
The largest proportion (65.0%) of total R&D Personnel were researchers (53 744 people in HCs).

FIGURE 3-3: R&D Personnel (in Head Counts) by occupation and sector of performance, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1)

FIGURE 3-4: R&D Personnel (in Full-time equivalents) by occupation and sector of performance, 2013



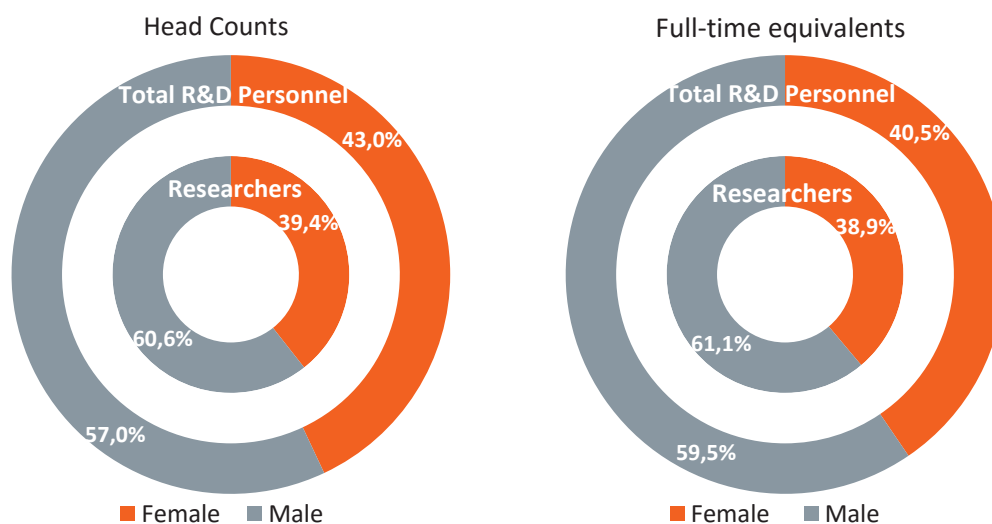
Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π2)



## Research & Development Expenditure and Personnel in Greece in 2013

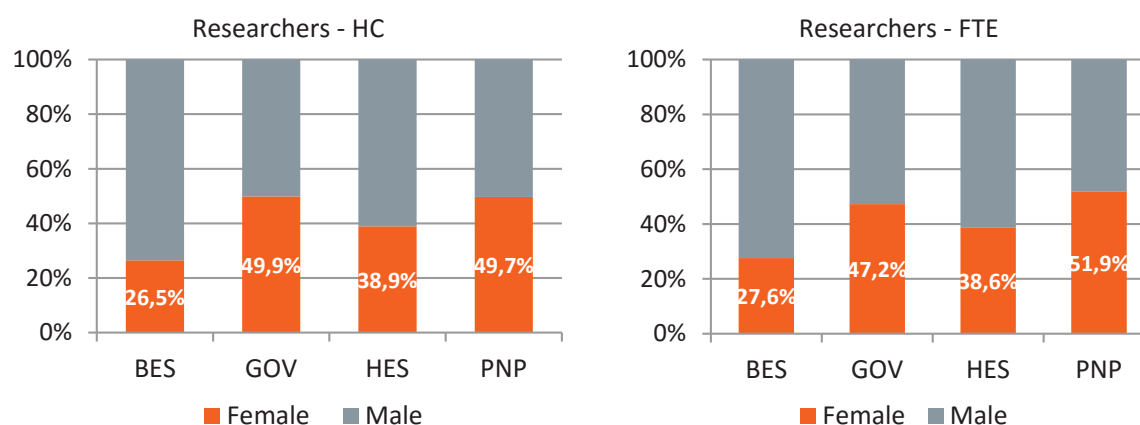
In 2013, women accounted for 43.0% of total R&D personnel in head counts (35 560 people) and 40.5% of the respective total FTEs (17 077.6 FTEs). Female researchers represent 39.4% of total in HCs and 38.9% of total in FTEs. The largest share of female researchers was reported by the Government Sector (49.9% of total HCs and 47.2% of total FTEs in GOV).

**FIGURE 3-5: Percentage (%) of women in total R&D Personnel and among researchers (in Head Counts and in Full-time equivalents), 2013**



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π1.Γ, Π2, Π2.Γ)

**FIGURE 3-6: Percentage (%) of women among researchers (in Head Counts and in Full-time equivalents) by sector of performance, 2013**

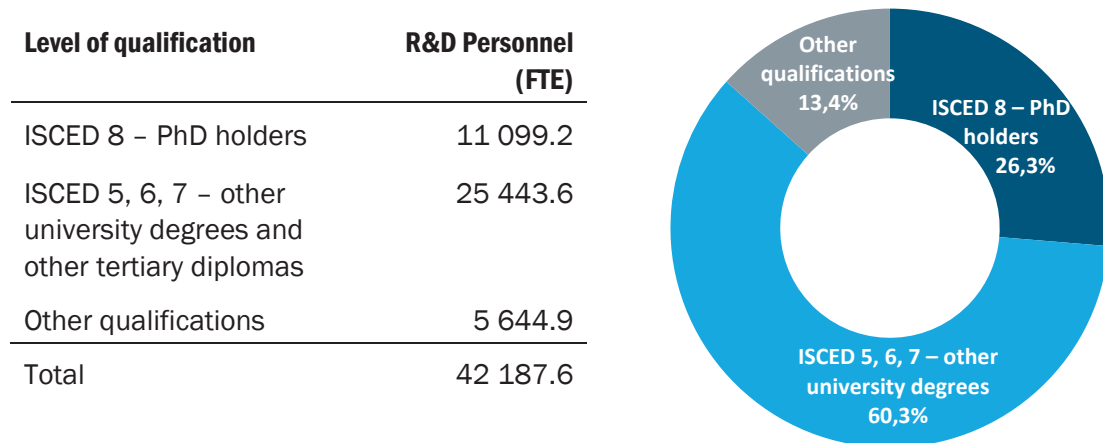


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π1.Γ, Π2, Π2.Γ)

## Qualification

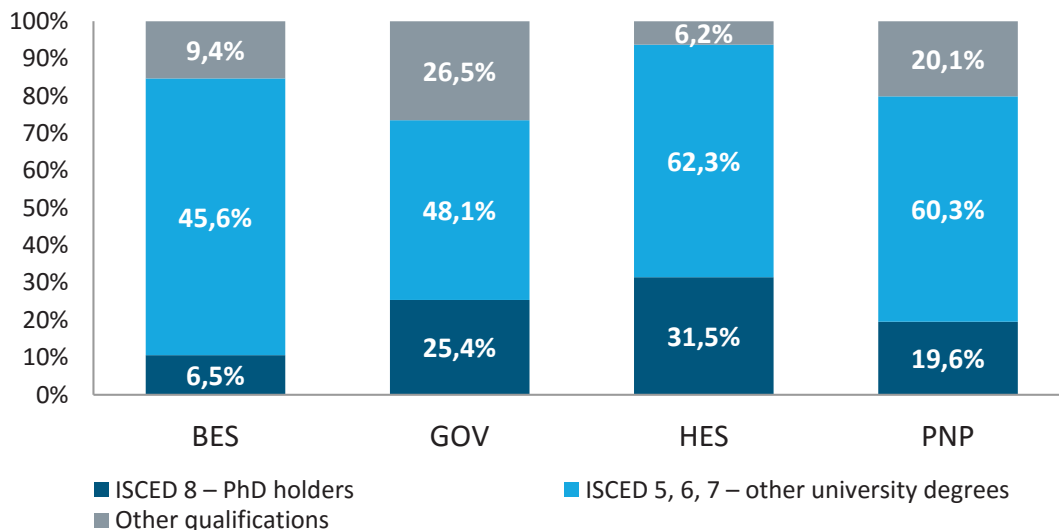
Overall, R&D labour force in Greece is highly qualified. In 2013, almost 90% of total R&D personnel, expressed in full-time equivalents, were holders of Doctorate degrees, and holders of other University degrees or other tertiary diplomas (R&D personnel at ISCED level 8<sup>7</sup> accounted for 26.3% of total and at ISCED levels 5, 6 and 7 accounted for 60.3% of total)

**FIGURE 3-7: R&D Personnel (in Full-time equivalents and as % of total FTEs) by qualification (ISCED 2011), 2013**



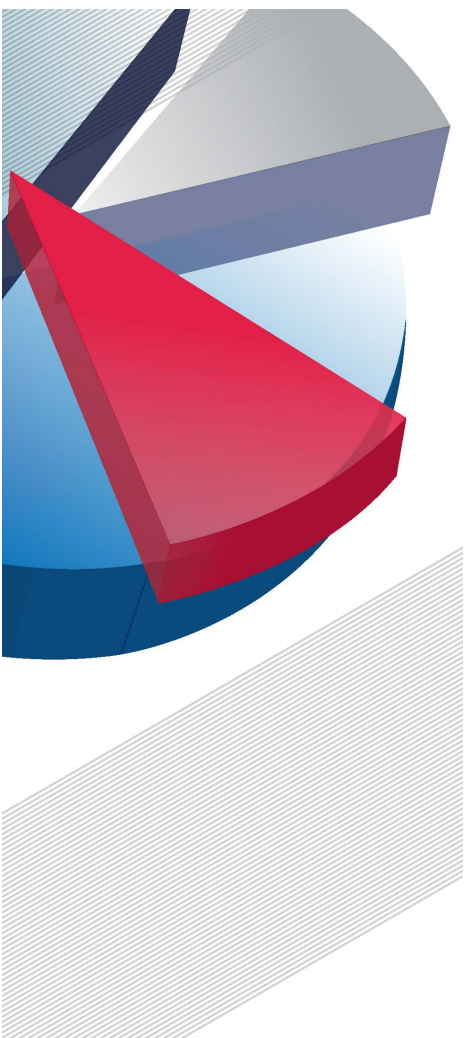
Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π4)

**FIGURE 3-8: R&D Personnel (as % of FTEs) by qualification (ISCED 2011) and sector of performance, 2013**



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π4)

<sup>7</sup> ISCED 2011 is the International Standard Classification of Education maintained by UNESCO that is also used to describe educational attainment of R&D personnel <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>



## CHAPTER 4

# R&D performance across regions

The following table presents the key R&D indicators (R&D Expenditure and R&D Personnel) in the thirteen Greek regions (NUTS 2)<sup>9</sup>.

**Table 4-1: R&D Expenditure (in million EUR) and R&D Personnel (in Head Counts and in Full-time equivalents) by NUTS 2 regions, 2013<sup>10</sup>**

Region (NUTS 2)*	R&D Expenditure					R&D Personnel	
	Total	Sector of performance				Head Count	FTE
		BES	GOV	HES	PNP		
ATTIKI	820.3	388.9	208.2	210.3	12.8	36 307	20 242.6
KENTRIKI MAKEDONIA	183.3	30.2	52.9	97.3	3.0	13 771	6 822.1
KRITI	120.7	5.6	59.4	54.7	0.9	7 003	4 050.8
DYTIKI ELLADA	79.7	12.4	16.2	51.1	0.0	5 780	2 351.8
THESSALIA	50.3	4.3	14.1	31.9	0.1	3 487	1 676.0
ANATOLIKI MAKEDONIA, THRAKI	43.2	10.1	9.7	23.4	0.1	4 130	1 924.5
IPEIROS	39.8	3.4	7.7	28.3	0.3	4 359	1 516.8
STEREA ELLADA	35.3	24.7	6.6	4.0	0.1	1 557	777.1
PELOPONNISOS	30.8	7.5	13.1	10.0	0.2	1 679	879.1
VOREIO AIGAIO	21.4	0.4	4.4	16.6	0.1	1 564	627.4
DYTIKI MAKEDONIA	17.8	1.0	6.5	10.1	0.2	952	473.0
NOTIO AIGAIO	15.0	0.2	7.9	6.3	0.6	1 224	519.6
IONIA NISIA	8.2	0.1	3.5	4.6	0.0	871	326.8
<b>TOTAL</b>	<b>1 465.7</b>	<b>488.7</b>	<b>410.1</b>	<b>548.6</b>	<b>18.3</b>	<b>82 684</b>	<b>42 187.6</b>

\*regions are presented in descending order by R&D Expenditure

Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ10, Π16, Π18)

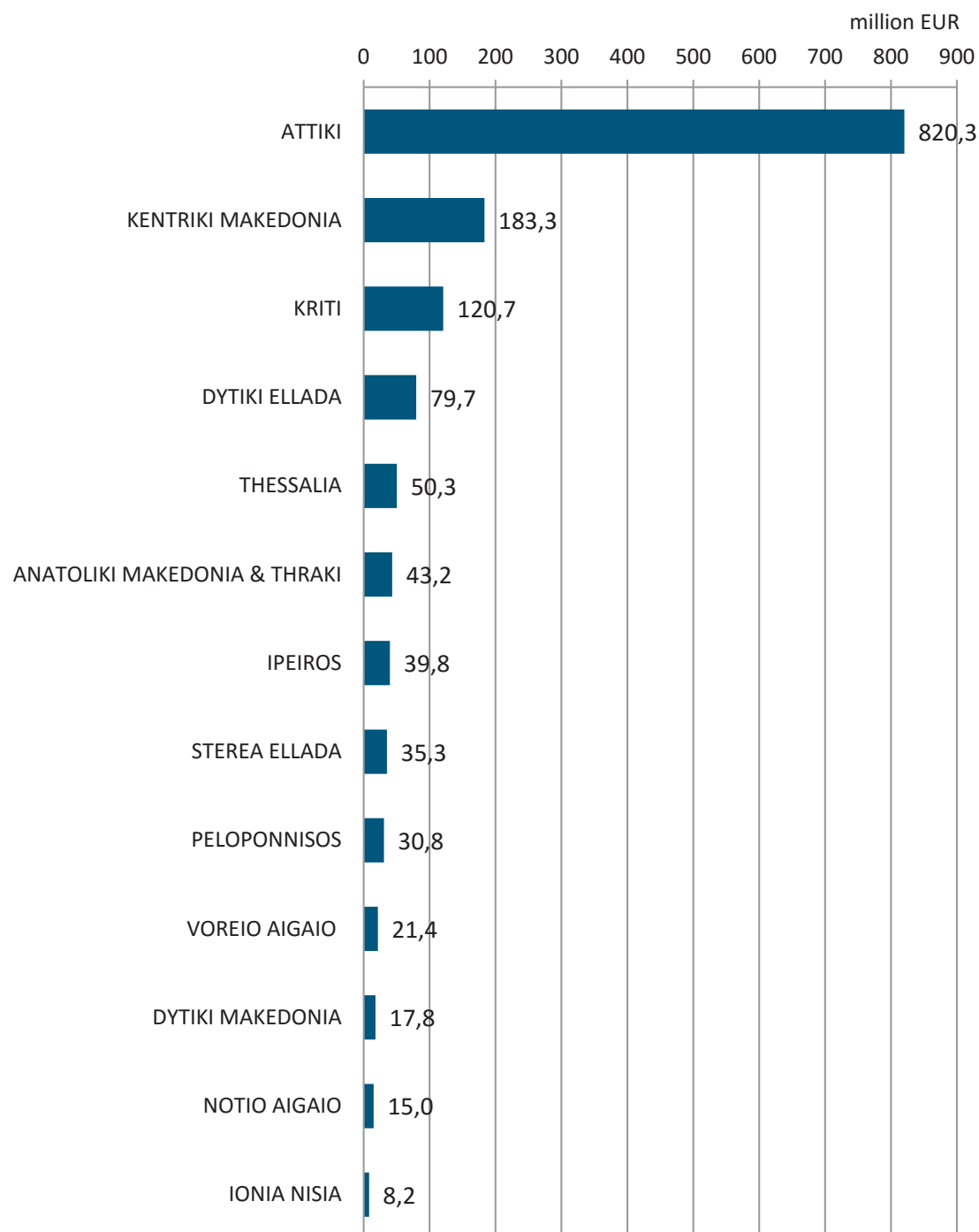
<sup>9</sup> Statistical units are attributed to regions on the basis of the reported intensity of R&D performance of their regional units, rather than the postal address of the entity.

<sup>10</sup> Differences between totals and components can be due to rounding.

## R&D Expenditure by region

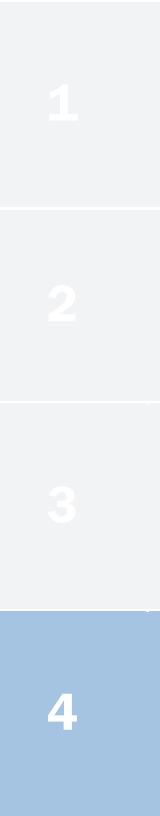
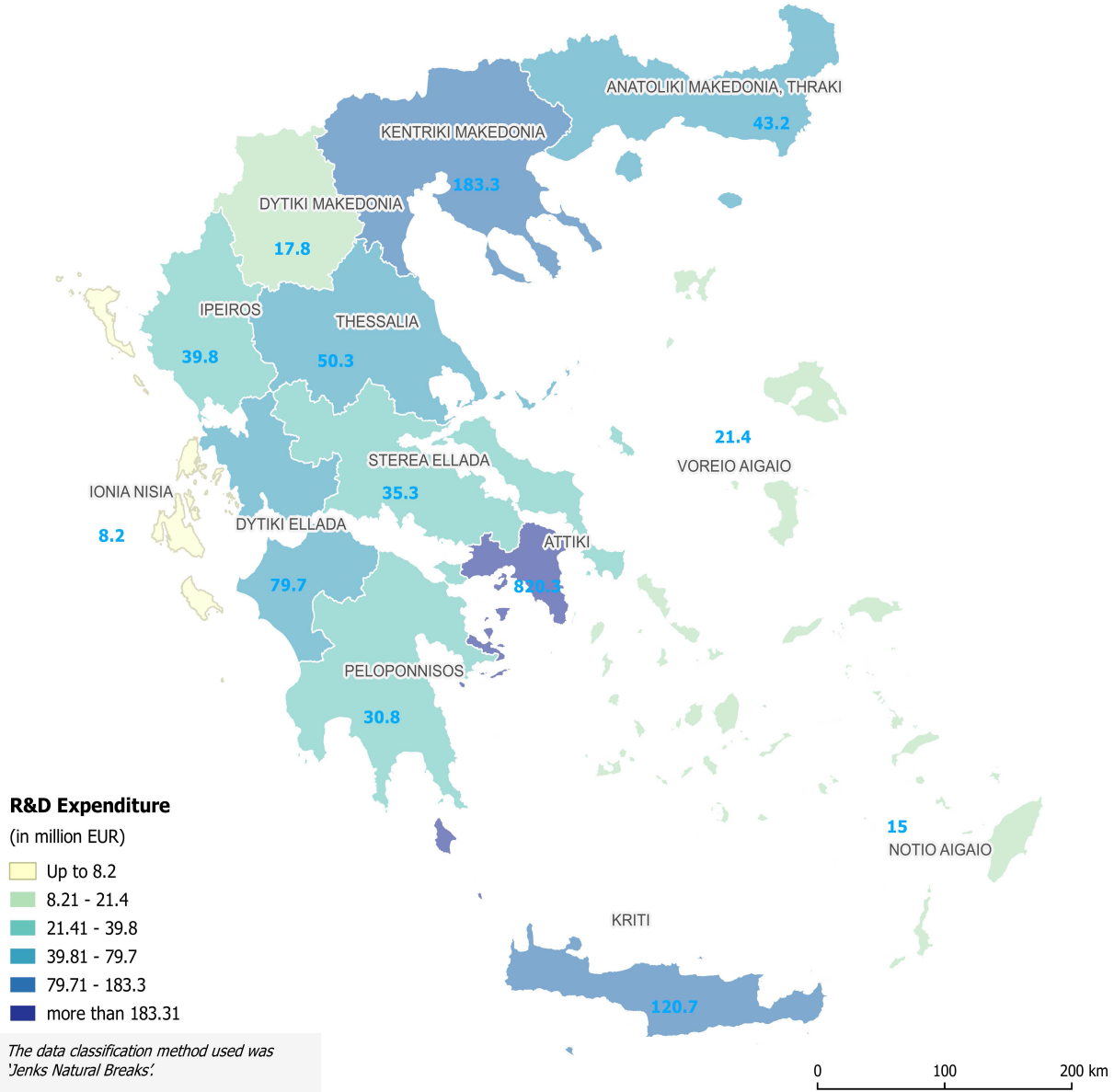
In 2013, Attiki recorded the highest regional R&D Expenditure in Greece (56.0% of total or EUR 820.3 million), followed by Kentriki Makedonia (12.5% of total or EUR 183.3 million) and Kriti (8.2% or EUR 120.7 million).

FIGURE 4-1. R&D Expenditure (in million EUR) by NUTS 2 regions, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ10)

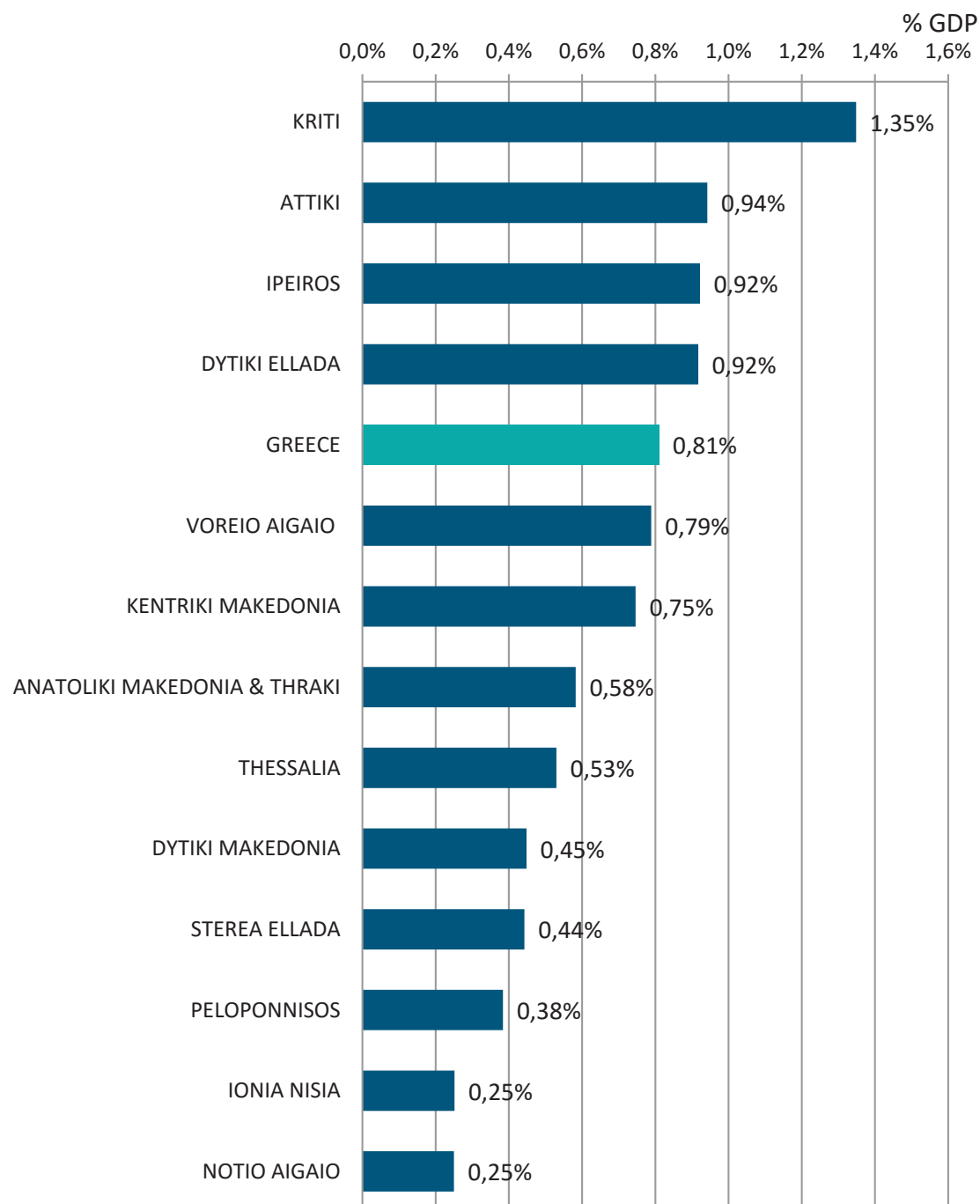
MAP 4-1. R&D Expenditure (in million EUR) by NUTS 2 regions, 2013



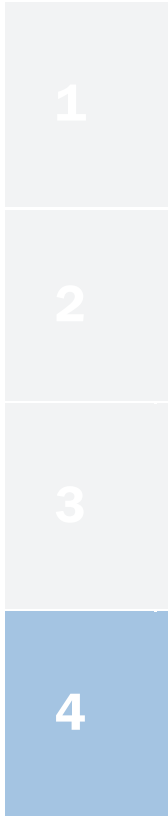
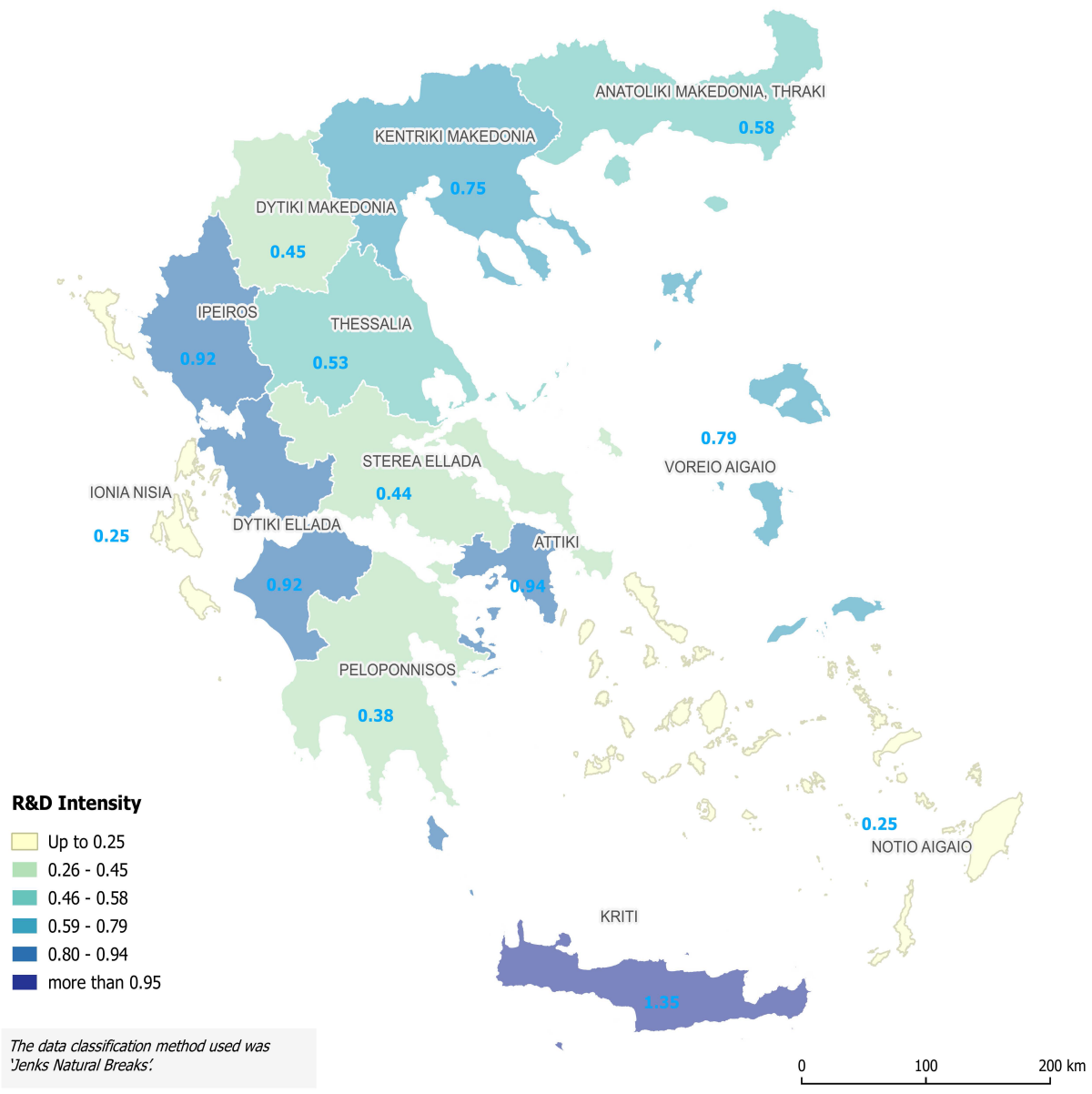
## R&D Intensity by region (% of GDP)

In 2013, Kriti recorded the highest R&D intensity (R&D Expenditure accounted for 1.35% of GDP). Attiki (0.94%), Ipeiros (0.92%) and Dytiki Ellada (0.92%) recorded R&D intensity above the Greek average (0.81% GDP).

FIGURE 4-2. R&D Intensity (R&D Expenditure as % of GDP) by NUTS2 regions, 2013



MAP 4-2. R&D Intensity (R&D Expenditure as % of GDP) by NUTS2 regions, 2013

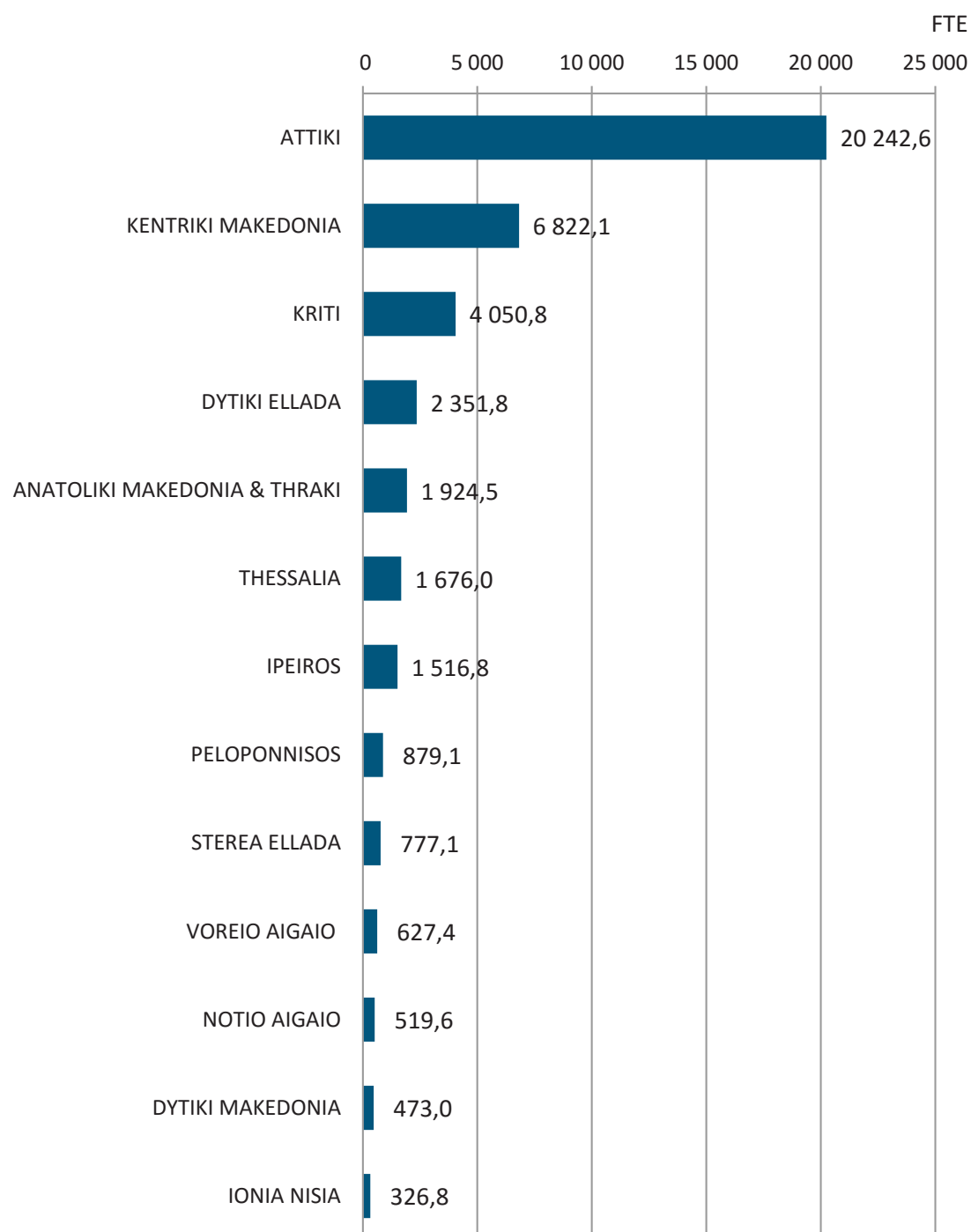




## R&D Personnel by region

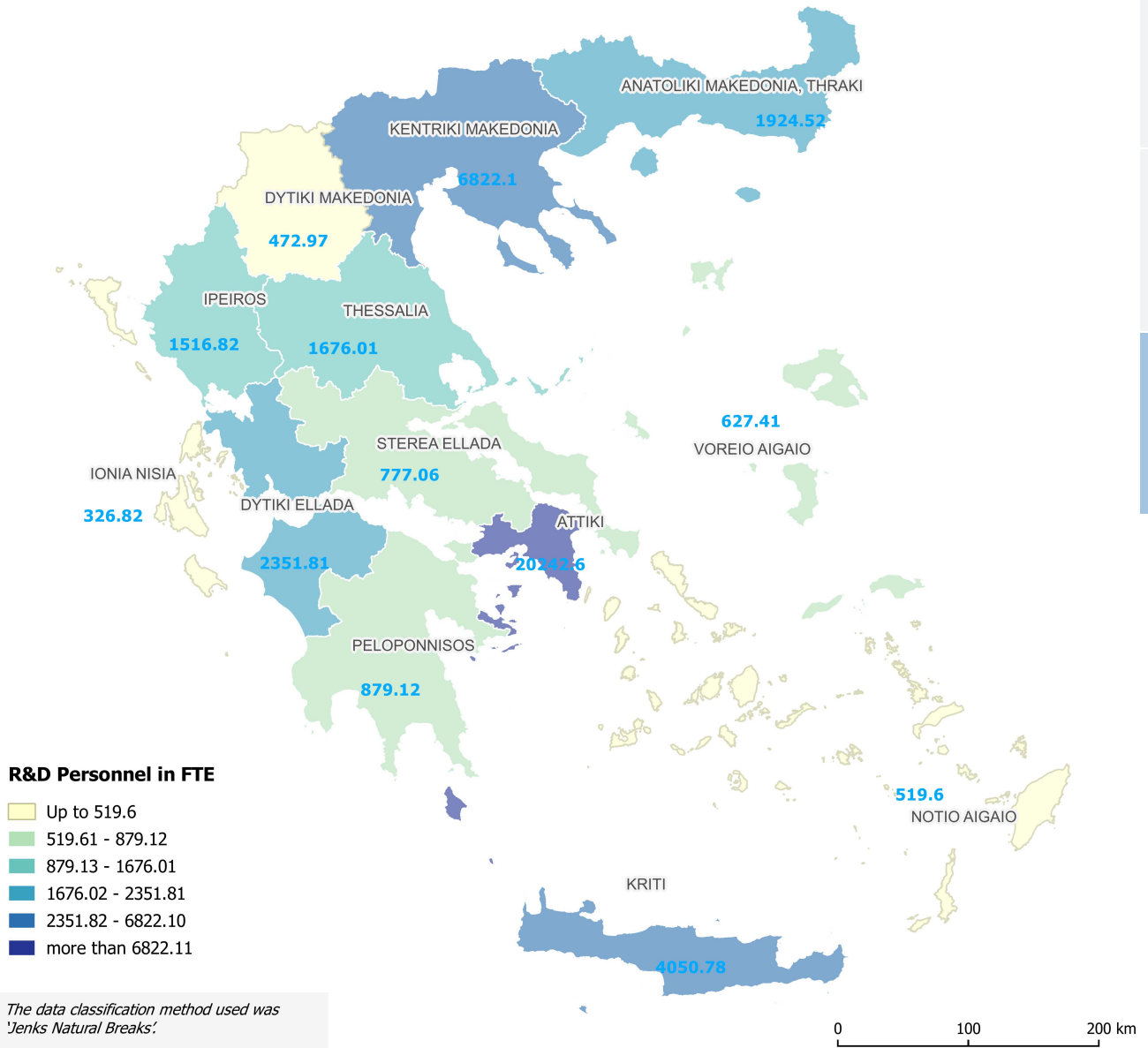
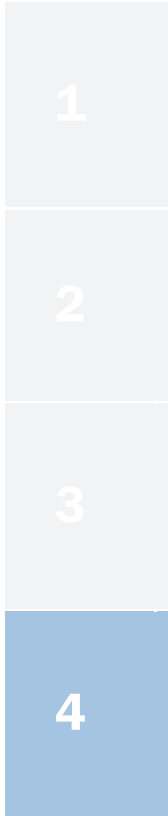
In 2013, Attiki recorded the highest number of R&D Personnel (48.0% of total or 20 242.6 FTEs), followed by Kentriki Makedonia (16.2% of total or 6 822.1 FTEs) and Kriti (9.6% of total or 4 050.8 FTEs).

FIGURE 4-3. R&D Personnel (in Full-time equivalents) by NUTS 2 regions, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π18)

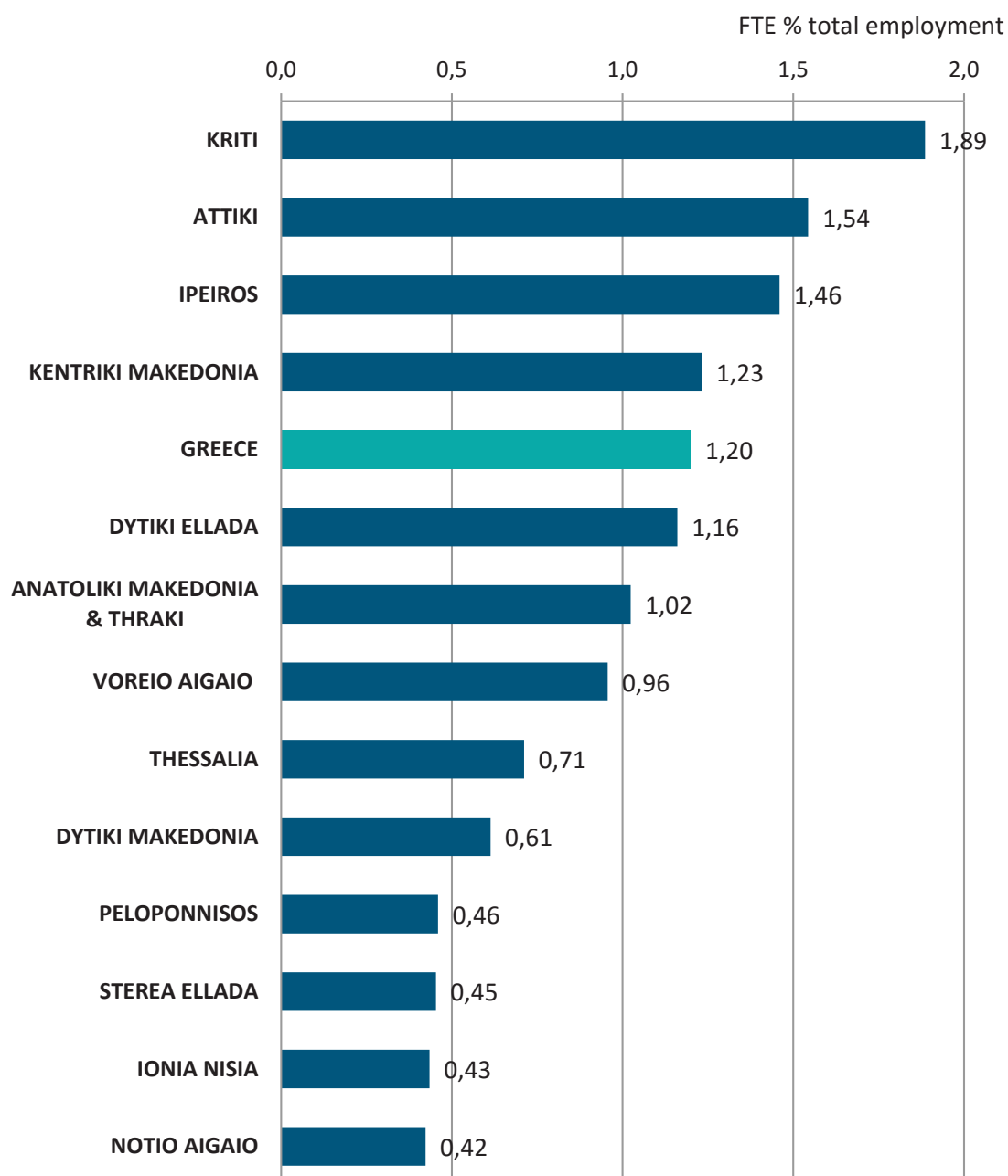
MAP 4-3. R&D Personnel (in Full-time equivalents) by NUTS 2 regions, 2013



## R&D Personnel as % of total employment by region

According to the share of R&D Personnel, expressed in full-time equivalent, in total employment for each region, Kriti recorded the highest concentration (1.89%). Attiki (1.54%), Ipeiros (1.46%) and Kentriki Makedonia (1.23%) followed and recorded shares of R&D Personnel in total employment that were above the Greek average (1.20%).

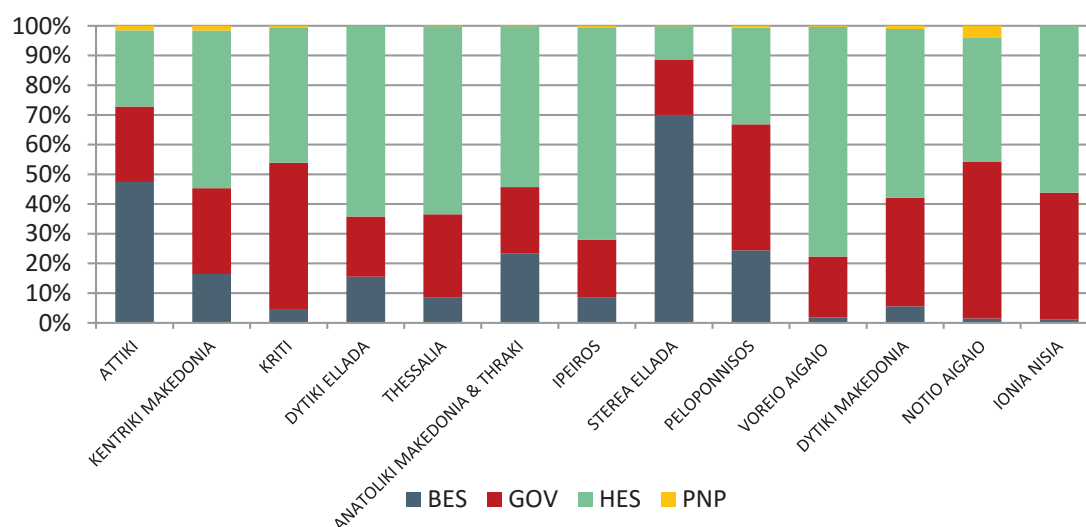
FIGURE 4-4. R&D Personnel (FTEs as % of total employment) by NUTS 2 regions, 2013



## Institutional distribution of R&D performance by region

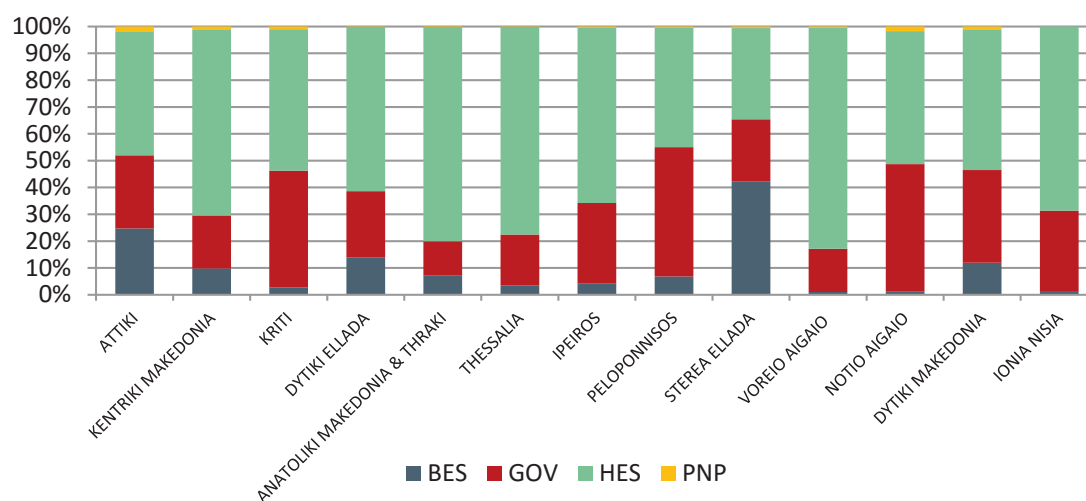
The contribution of different institutional sectors in total R&D Expenditure and total R&D Personnel varies between regions. This is demonstrated in the following figures. Regions are presented in descending order by R&D expenditure (Figure 4-5) and R&D personnel (Figure 4-6) respectively.

**FIGURE 4-5. Percentage (%) distribution of R&D Expenditure by sector of performance and by NUTS 2 regions, 2013**

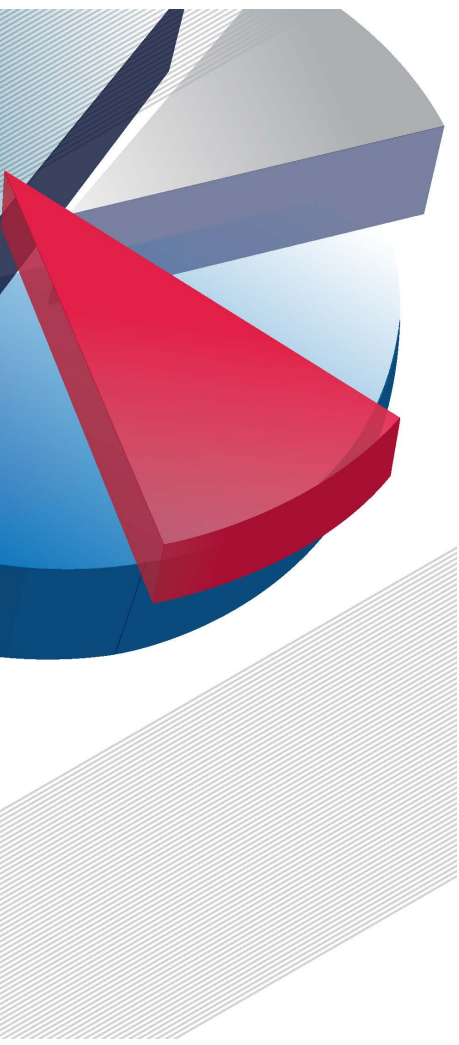


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ10)

**FIGURE 4-6. Percentage (%) distribution of R&D Personnel (in Full-time equivalent) by sector of performance and by NUTS 2 regions, 2013**



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π18)



## CHAPTER 5

# Business Sector (BES)

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Business Enterprise Sector (BES) includes all firms, organizations and institutions whose primary activity is the market production of goods or services (other than higher education)<sup>12</sup>. In addition, the sector includes public enterprises as well as non-profit institutions mainly serving the enterprises.

**TABLE 5-1: Main R&D indicators in BES, 2013**

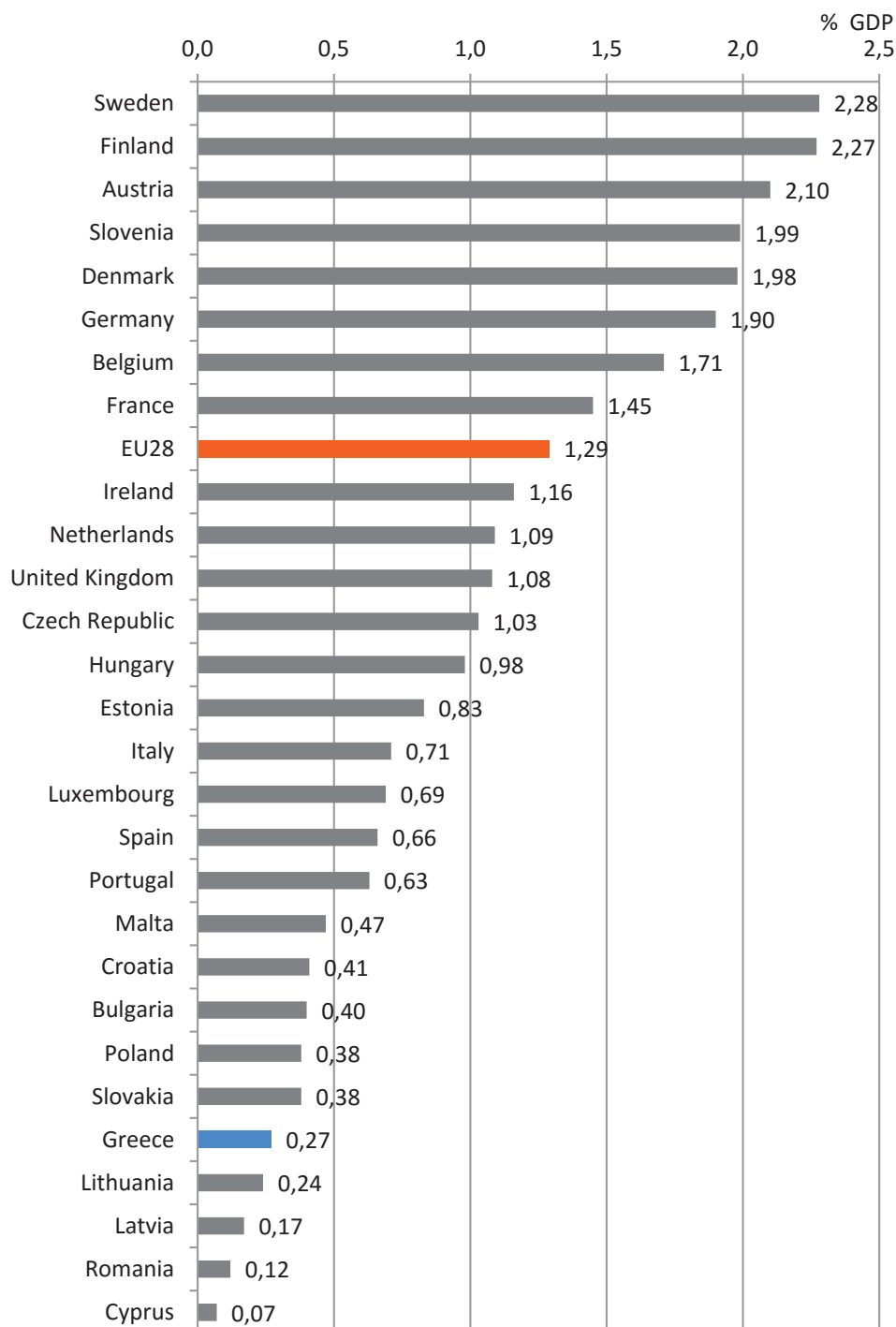
R&D Intensity (R&D Expenditure as % GDP)	<b>0.27</b>
Intramural R&D Expenditure (million EUR)	<b>488.7</b>
R&D Personnel (Head count)	<b>10 428</b>
R&D Personnel (Full-time equivalents)	<b>6 832.0</b>
Researchers (Head count)	<b>6 004</b>
Researchers (Full-time equivalents)	<b>4 197.4</b>

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<sup>12</sup> Minimum requirements for economic activity (NACE rev.2) and size class coverage are those determined by Commission Regulation 995/2004.

## R&D Intensity (R&D Expenditure as % of GDP)

FIGURE 5-1. R&D Intensity (R&D Expenditure as % of GDP) in BES in Greece and in other EU28 Member States, 2013



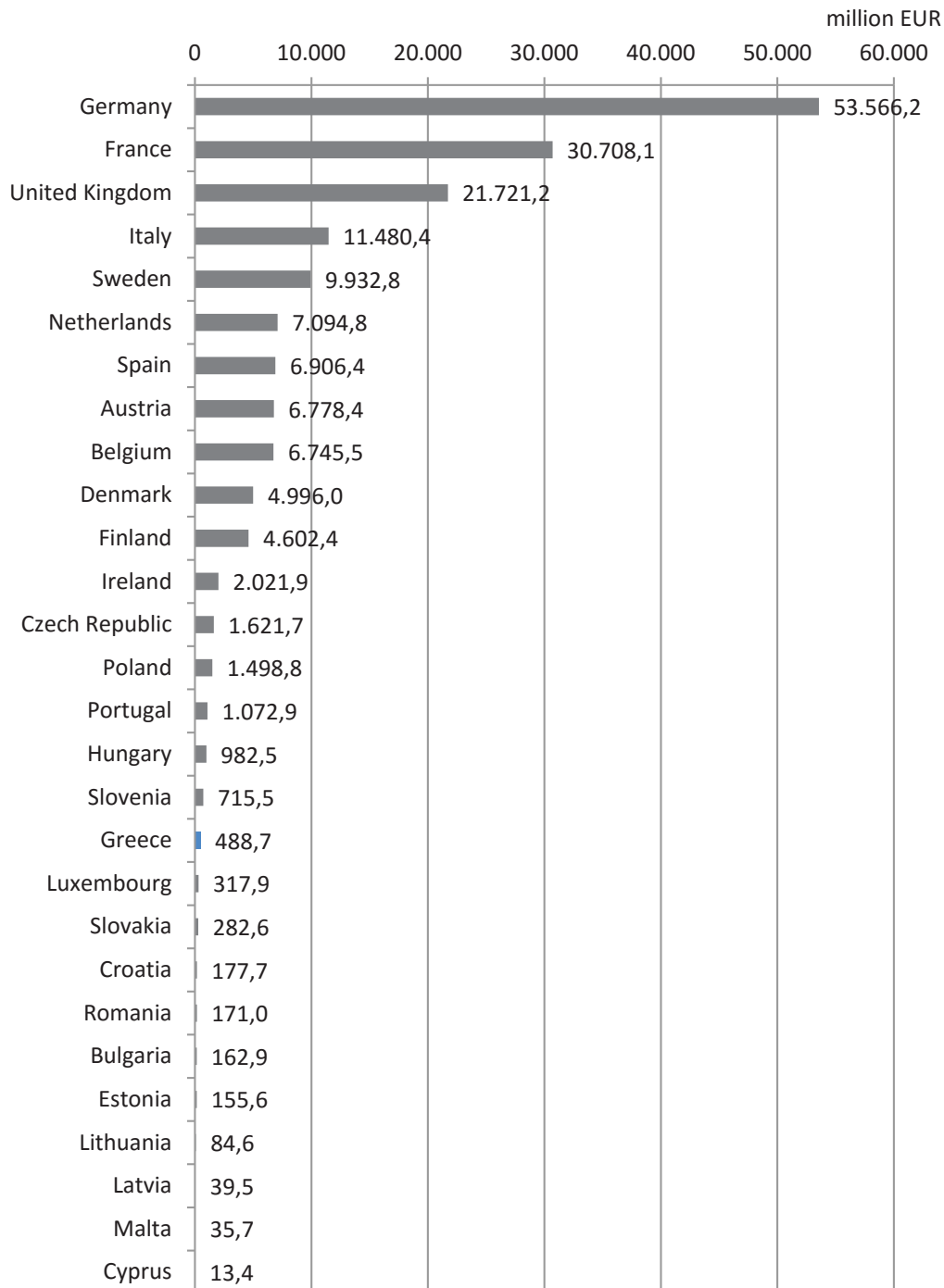
Sources:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ2)

## R&D Expenditure (in million EUR)

FIGURE 5-2. R&D Expenditure (in million EUR) in BES in Greece and in other EU28 Member States, 2013



Πηγές:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

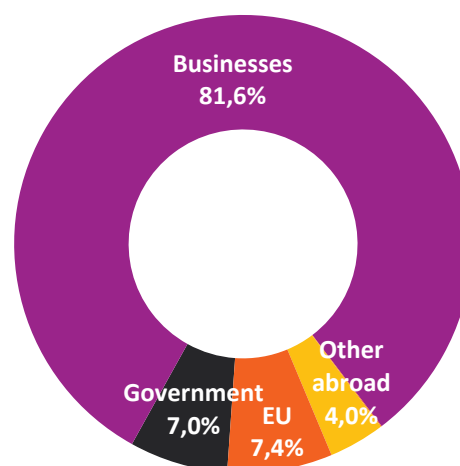
EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)



## Source of funds

FIGURE 5-3. R&D Expenditure in BES (in million EUR and as % of BES total) by source of funds, 2013

Source of funds	R&D Expenditure (in million EUR)
Government	34.0
Businesses*	398.7
Other national sources	0.3
European Union	36.3
Other sources from abroad	19.4
<b>Total</b>	<b>488.7</b>



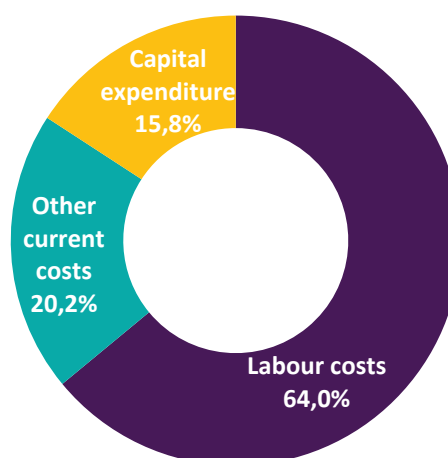
\* Own funds

Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)

## Type of costs

FIGURE 5-4: R&D Expenditure in BES (in million EUR and as % of BES total) by type of costs, 2013

Type of costs	R&D Expenditure (in million EUR)
Labour costs	287.8
Other current costs	123.6
Capital expenditure	77.3
<b>Total</b>	<b>488.7</b>



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ5)

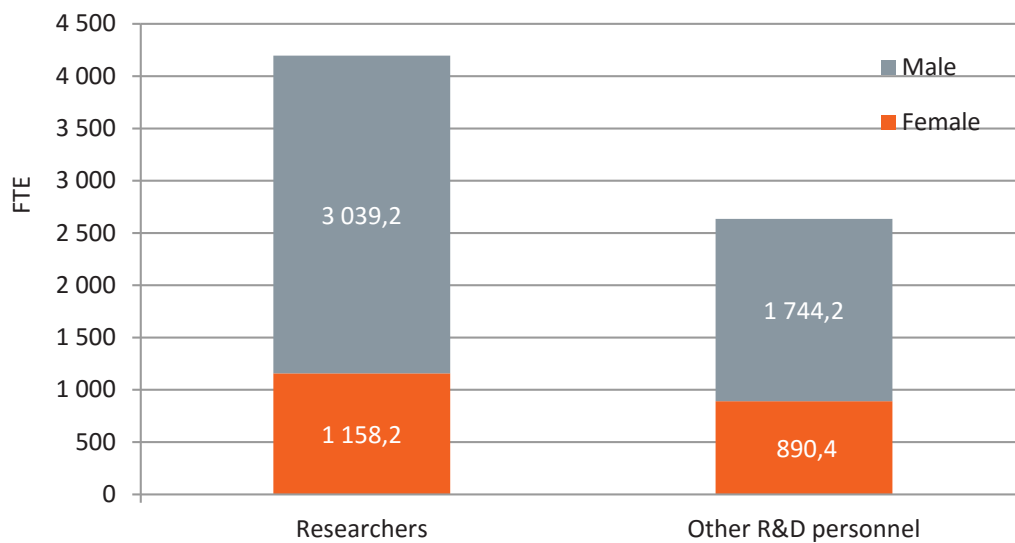
## R&D Personnel

FIGURE 5-5. R&D Personnel in BES (in Head Counts) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π1.Γ)

FIGURE 5-6. R&D Personnel in BES (in Full-time equivalents) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π2, Π2.Γ)

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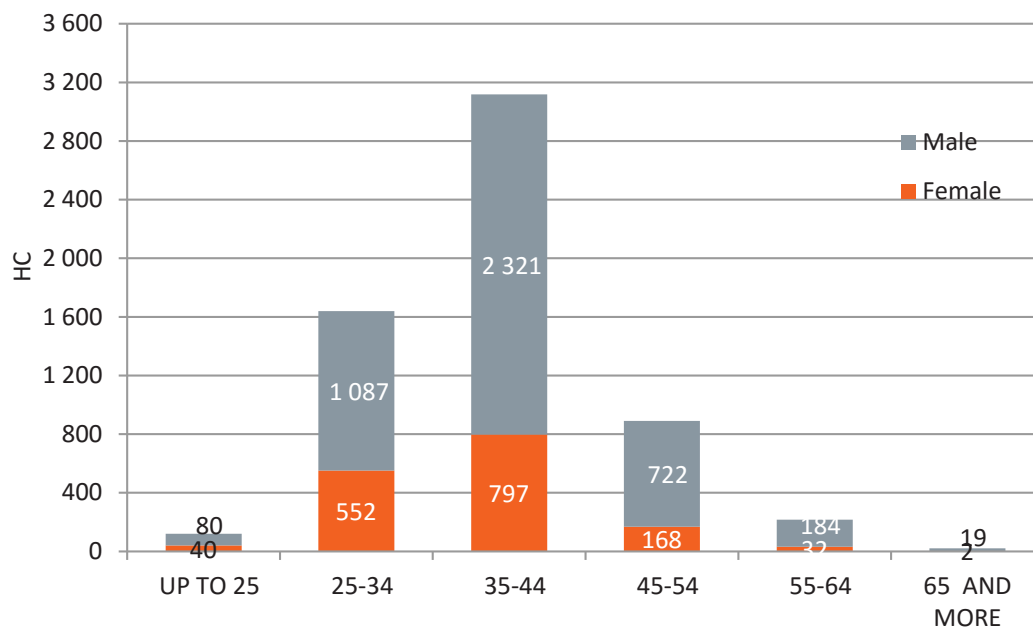
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## Demographic characteristics of Researchers (sex and age)

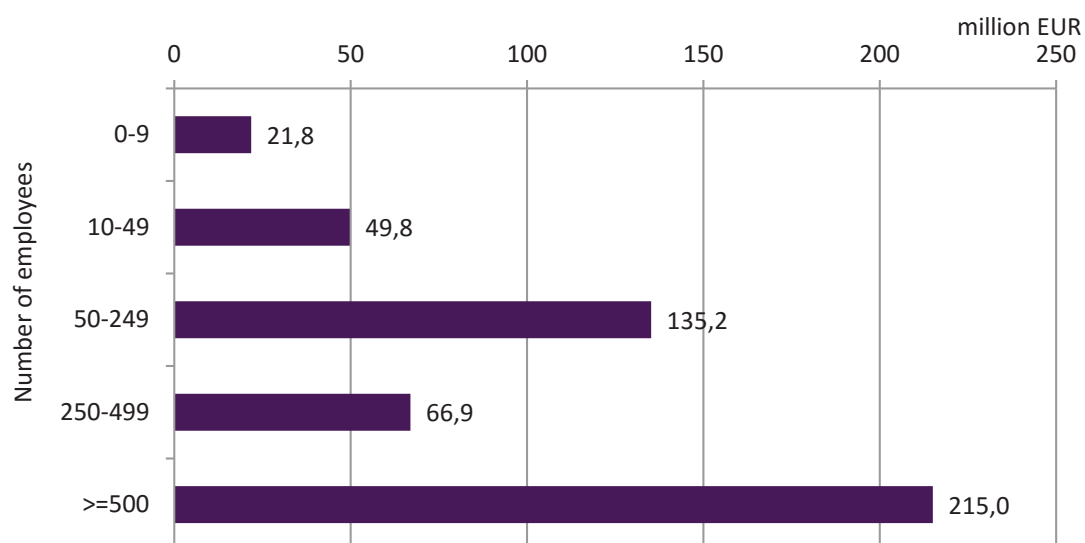
FIGURE 5-7. Number of researchers in BES (in Head Counts) by sex and age, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π11)

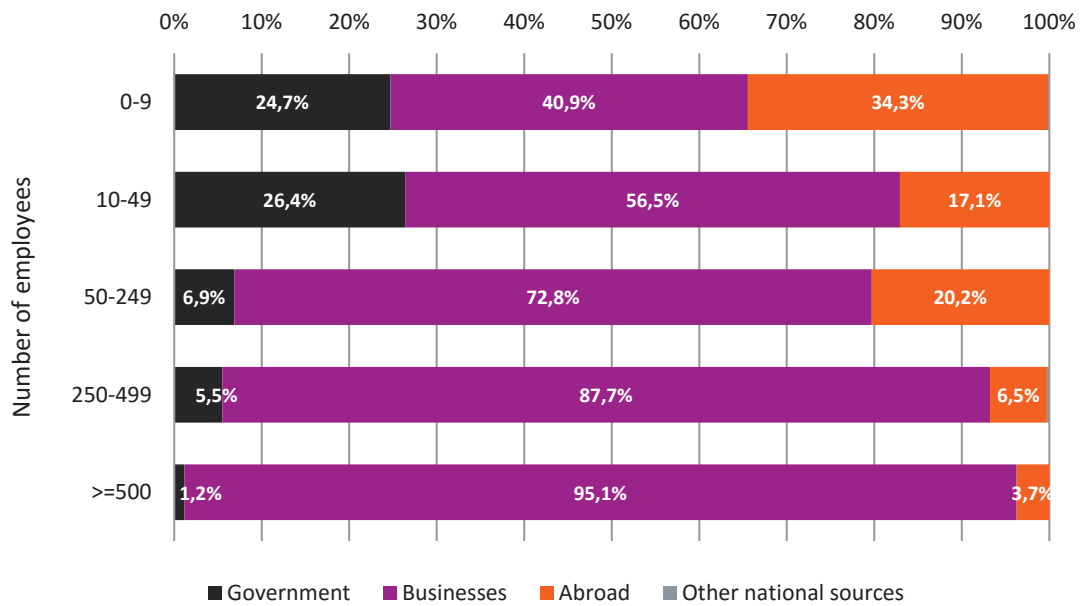
## R&D Statistics in BES by size class

FIGURE 5-8. R&D Expenditure in BES (in million EUR) by size class, 2013



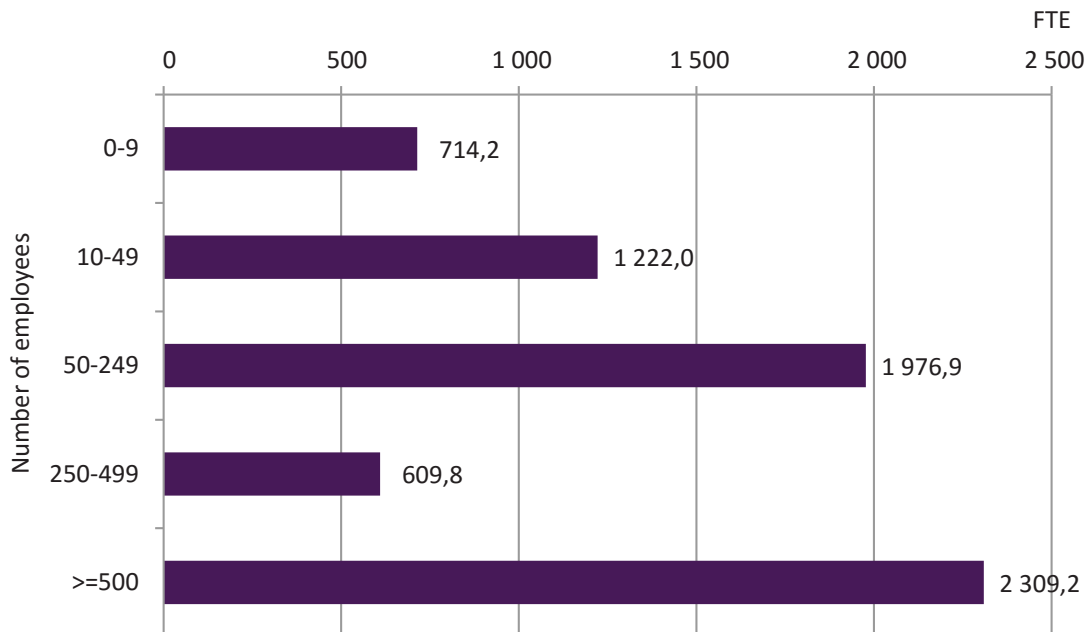
Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ9)

FIGURE 5-9. Percentage (%) distribution of R&D Expenditure in BES by source of funds in the different size classes, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ9)

FIGURE 5-10. R&D Personnel (in Full-time equivalents) in BES by size class, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π15)

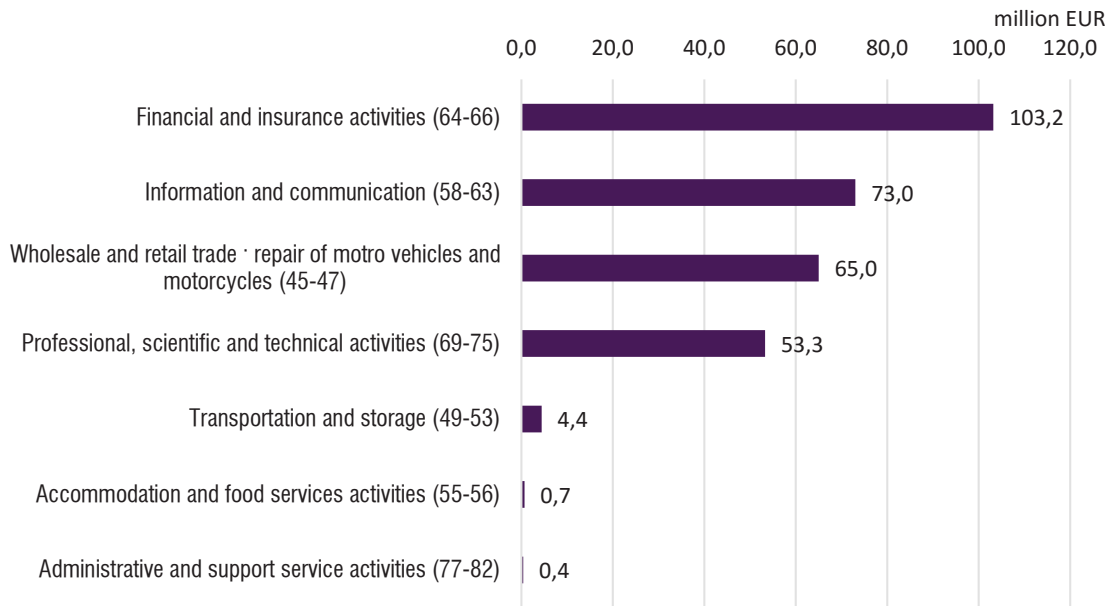
## R&D statistics in BES by economic activity (NACE rev2)

TABLE 5-2: R&D Expenditure in BES (in million EUR and as % of total BES) by economic activity (NACE rev.2), 2013

Main sections of economic activity and most dominant sub-sections (NACE rev.2 codes)	million EUR	% of total R&D Expenditure in BES
<b>Services (45-82)</b>	<b>300.1</b>	<b>61.4%</b>
Financial and insurance activities (64-66)	103.2	21.1%
Information and communication (58-63)	73.0	14.9%
Wholesale and retail trade · repair of motor vehicles and motorcycles (45-47)	65.0	13.3%
Professional, scientific and technical activities (69-75)	53.3	10.9%
Other services	5.5	1.1%
<b>Manufacturing (10-33)</b>	<b>175.8</b>	<b>36.0%</b>
Manufacture of basic pharmaceutical products and pharmaceutical preparations (21)	58.8	12.0%
Manufacture of fabricated metal products, computer, electronic and optical products, electrical equipment, motor vehicles, trailers and semi-trailers and other transport equipment (25-30)	48.6	9.9%
Manufacture of food products and beverages (10-11)	30.2	6.2%
Manufacture of coke and refined petroleum products, chemicals and chemical products, rubber and plastic products (19,20,22)	19.5	4.0%
Manufacture of basic metals (24)	11.0	2.3%
Other manufacturing	7.7	1.6%
<b>Other sections</b>	<b>12.7</b>	<b>2.6%</b>
Electricity, gas, steam and air conditioning supply (35)	3.7	0.8%
Water supply · sewerage, waste management and remediation activities (36-39)	2.4	0.5%
Construction (41-43)	2.4	0.5%
Agriculture, forestry and fishing (01-03)	1.0	0.2%
Mining and quarrying (05-09)	0.7	0.1%
Other sections	2.6	0.5%
<b>Total</b>	<b>488.7</b>	<b>100%</b>

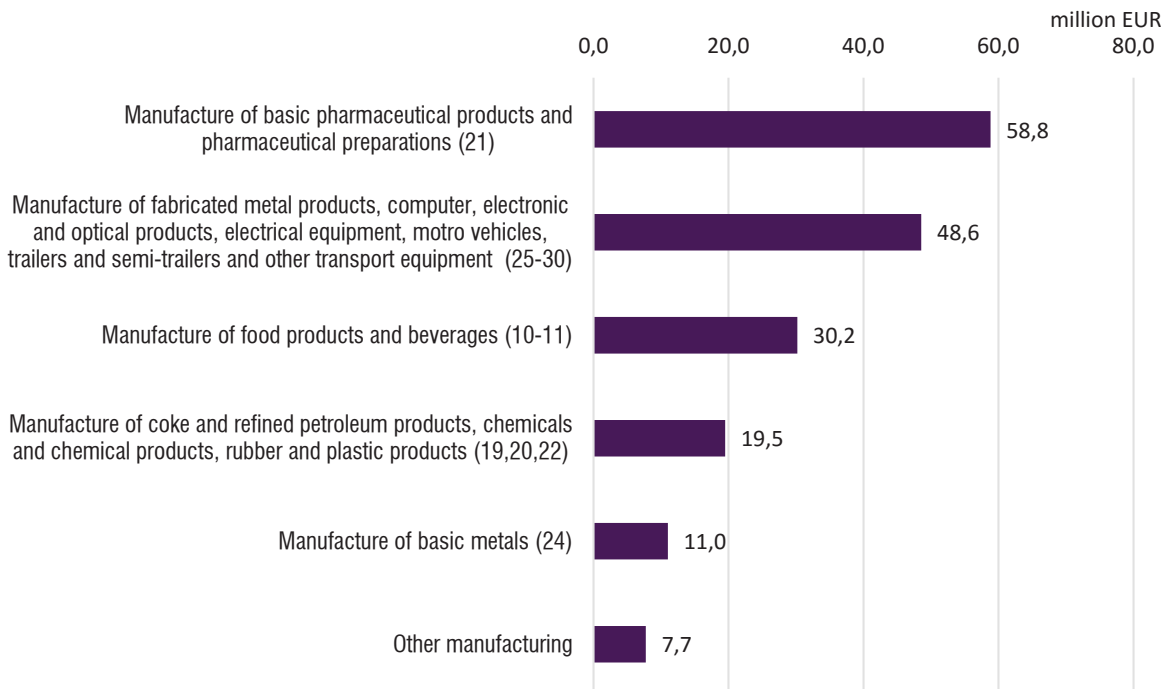
Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ8)

FIGURE 5-11. R&amp;D Expenditure (in million EUR) in Services, NACE rev.2, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ8)

FIGURE 5-12. R&amp;D Expenditure (in million EUR) in Manufacturing, NACE rev.2, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ8)

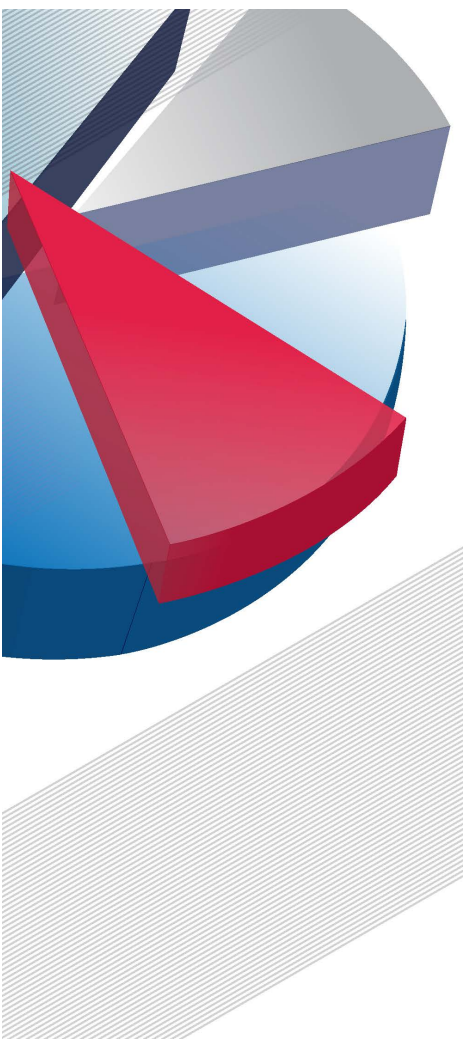
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## CHAPTER 6

# Government Sector (GOV)

Government Sector (GOV) includes departments, offices and other bodies administered and/or financed by Ministries, such as the Public Research Centers that are supervised by the General Secretariat for Research and Technology (GSRT)<sup>14</sup>, other Public Research Institutions<sup>15</sup> supervised by different Ministries, archaeological and cultural institutions, museums, public hospitals, public independent authorities, etc.

**TABLE 6-1: Main R&D indicators in GOV, 2013**

R&D Intensity (R&D Expenditure as % GDP)	<b>0.23</b>
Intramural R&D Expenditure (million EUR)	<b>410.1</b>
R&D Personnel (Head count)	<b>16 863</b>
R&D Personnel (Full-time equivalents)	<b>11 435.5</b>
Researchers (Head count)	<b>8 567</b>
Researchers (Full-time equivalents)	<b>5 777.9</b>

<sup>14</sup> In alphabetic order in Greek: National Observatory of Athens, National Hellenic Research Foundation, The Centre for Research and Technology, National Center for Scientific Research 'DEMOKRITOS', Hellenic Centre for Marine Research, National Centre for Social Research, Greek Atomic Energy Commission, Hellenic Pasteur Institute, "Alexander Fleming" Biomedical Sciences Research Center, Athena-Research and Innovation Center in Information, Communication and Knowledge Technologies, Foundation for Research & Technology – Hellas, Center for Research and Technology – Thessaly.

<sup>15</sup> An indicative and non-exhaustive list of GOV institutions is the following: Academy of Athens, Biomedical Research Foundation Academy of Athens, Hellenic Agricultural Organisation DEMETRA (former National Agricultural Research Foundation - NAGREF), Benaki Phytopathological Institute, Center for Renewable Energy Sources and Saving, Mediterranean Agronomic Institute of Chania, Computer Technology Institute and Press "Diophantus", etc.



## R&D Intensity (R&D Expenditure as % of GDP)

FIGURE 6-1. R&D Intensity (R&D Expenditure as % of GDP) in GOV in Greece and in other EU28 Member States, 2013



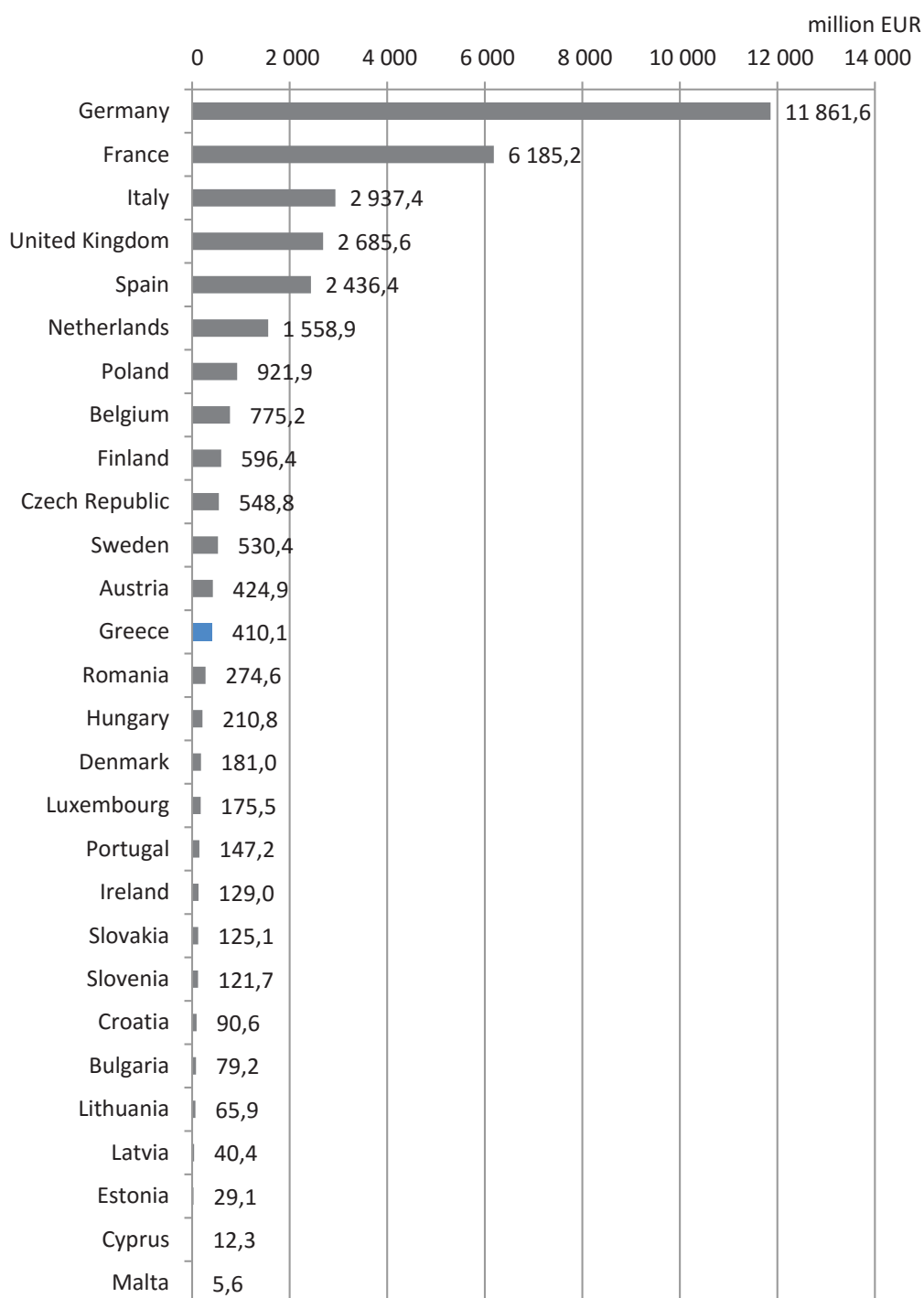
Sources:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ2)

## R&D Expenditure (in million EUR)

FIGURE 6-2. R&D Expenditure (in million EUR) in GOV in Greece and in other EU28 Member States, 2013



**Sources:**

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)

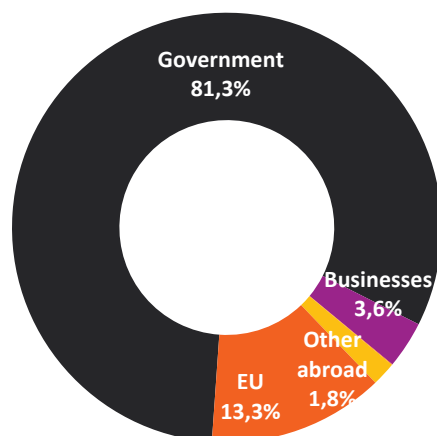
## Source of funds

FIGURE 6-3. R&D Expenditure in GOV (in million EUR and as % of GOV total) by source of funds, 2013

Source of funds	R&D Expenditure (in million EUR)
Government*	333.5
Businesses	14.6
Other national sources	0.2
European Union	54.4
Other sources from abroad	7.4

Total 410.1

\* 'Government' includes state budget as well as GOV institutions' own funds

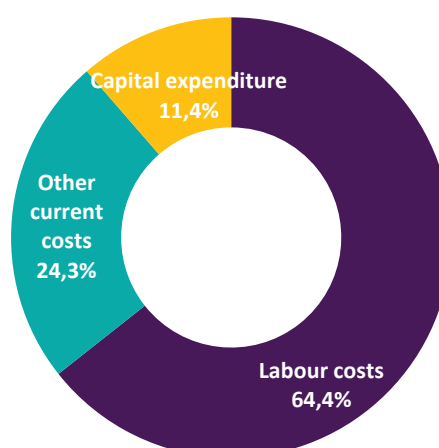


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)

## Type of costs

FIGURE 6-4. R&D Expenditure in GOV (in million EUR and as % of GOV total) by type of costs, 2013

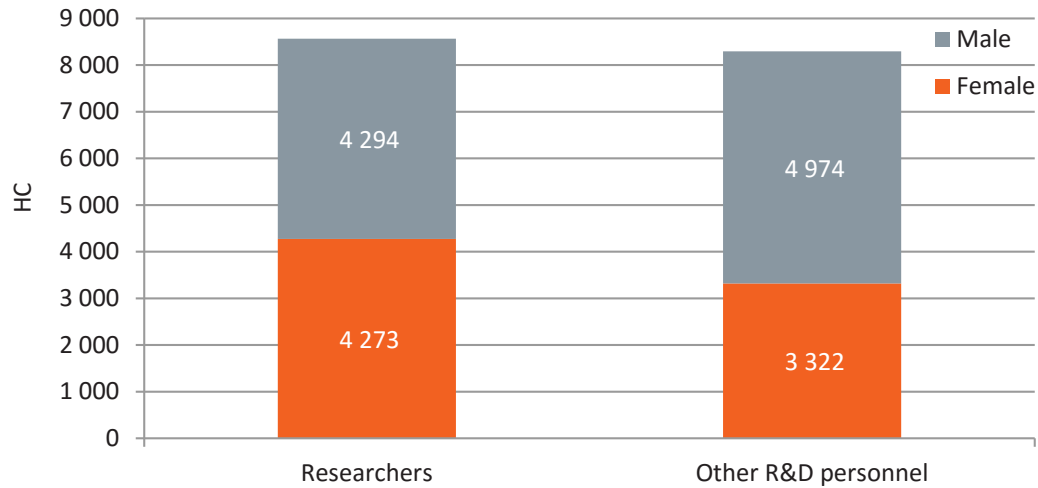
Type of costs	R&D Expenditure (in million EUR)
Labour costs	264.0
Other current costs	99.5
Capital expenditure	46.7
Total	410.1



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ5)

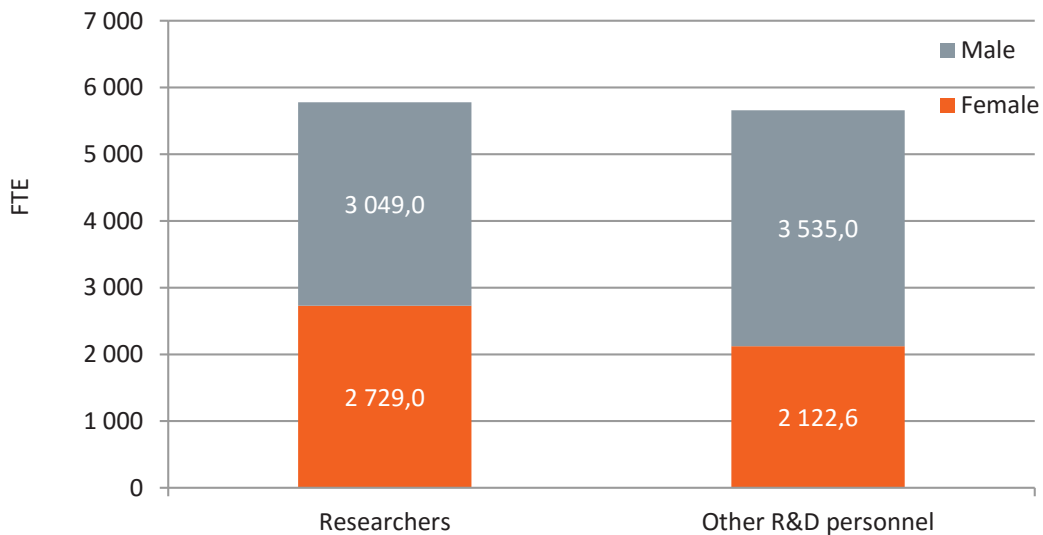
## R&D Personnel

FIGURE 6-5. R&D Personnel in GOV (in Head Counts) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π1.Γ)

FIGURE 6-6. R&D Personnel in GOV (in Full-time equivalents) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π2, Π2.Γ)

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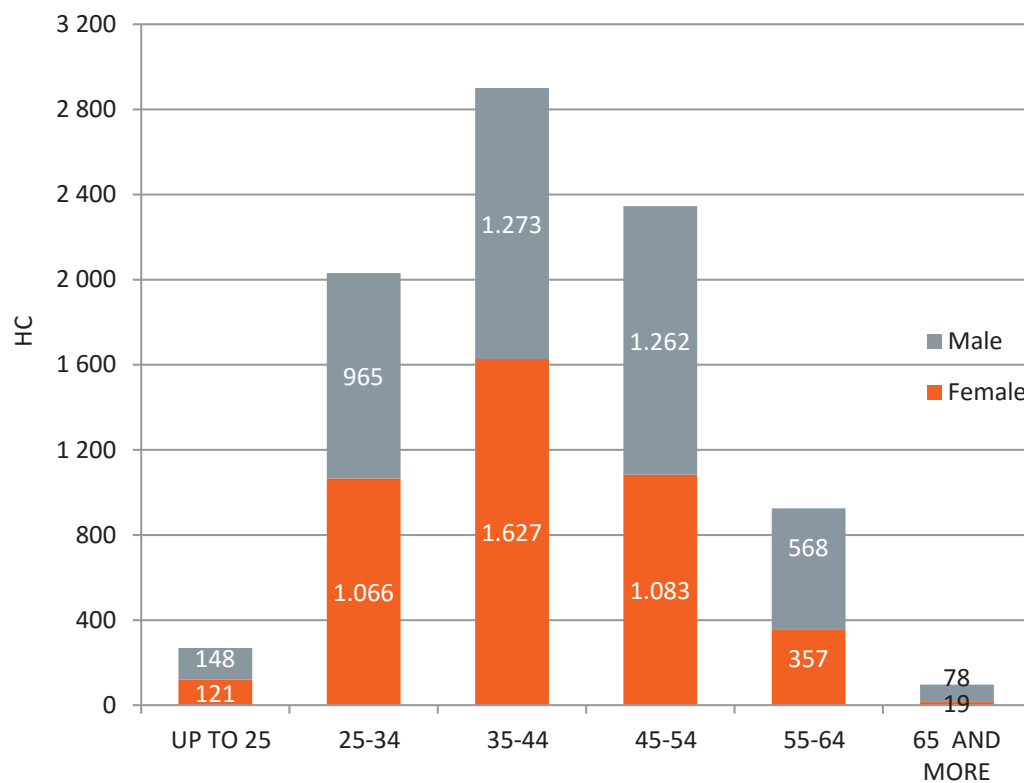
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## Demographic characteristics of Researchers (sex and age)

FIGURE 6-7. Number of researchers in GOV (in Head counts) by sex and age, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π11)

## CHAPTER 7

# Higher Education Sector (HES)

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Higher Education Sector (HES) includes Universities, Technological Educational Institutes (TEI), University research institutes (EPI), Technological Research Centres (KTE), Private Institutes of Vocational Training (IEK) accredited by the Ministry of Education and Religious Affairs, University Hospitals, other HE schools or academies<sup>18</sup>.

**TABLE 7.1: Main R&D indicators in HES, 2013**

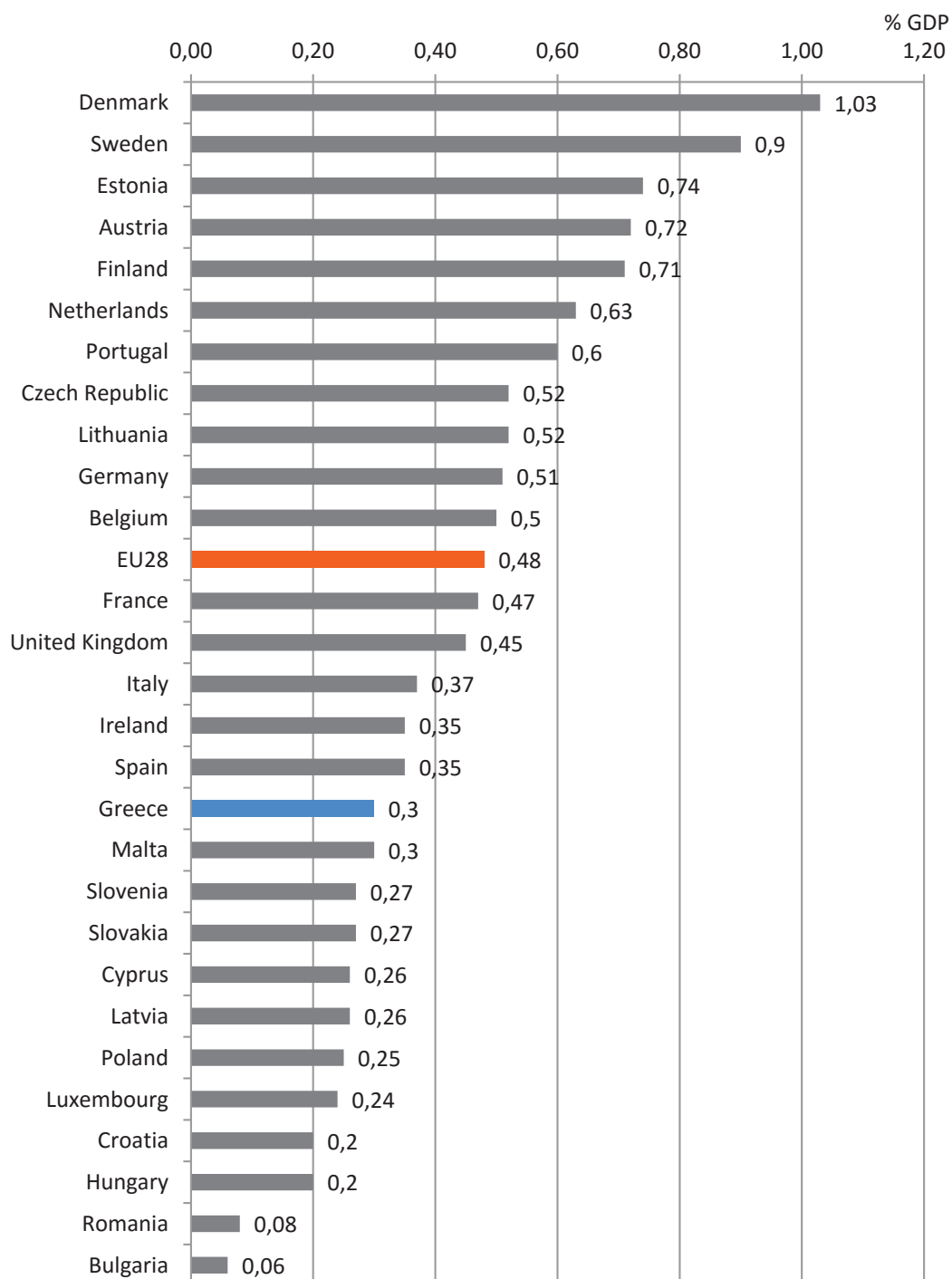
R&D Intensity (R&D Expenditure as % GDP)	<b>0.30</b>
Intramural R&D Expenditure (million EUR)	<b>548.6</b>
R&D Personnel (Head count)	<b>54 602</b>
R&D Personnel (Full-time equivalents)	<b>23 390.2</b>
Researchers (Head count)	<b>38 724</b>
Researchers (Full-time equivalents)	<b>18 956.7</b>

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<sup>18</sup> Higher Ecclesiastical Schools, Military Academies, National School of Public Health, etc.

## R&D Intensity (R&D Expenditure as % of GDP)

FIGURE 7-1. R&D Intensity (R&D Expenditure as % of GDP) in HES in Greece and in other EU28 Member States, 2013



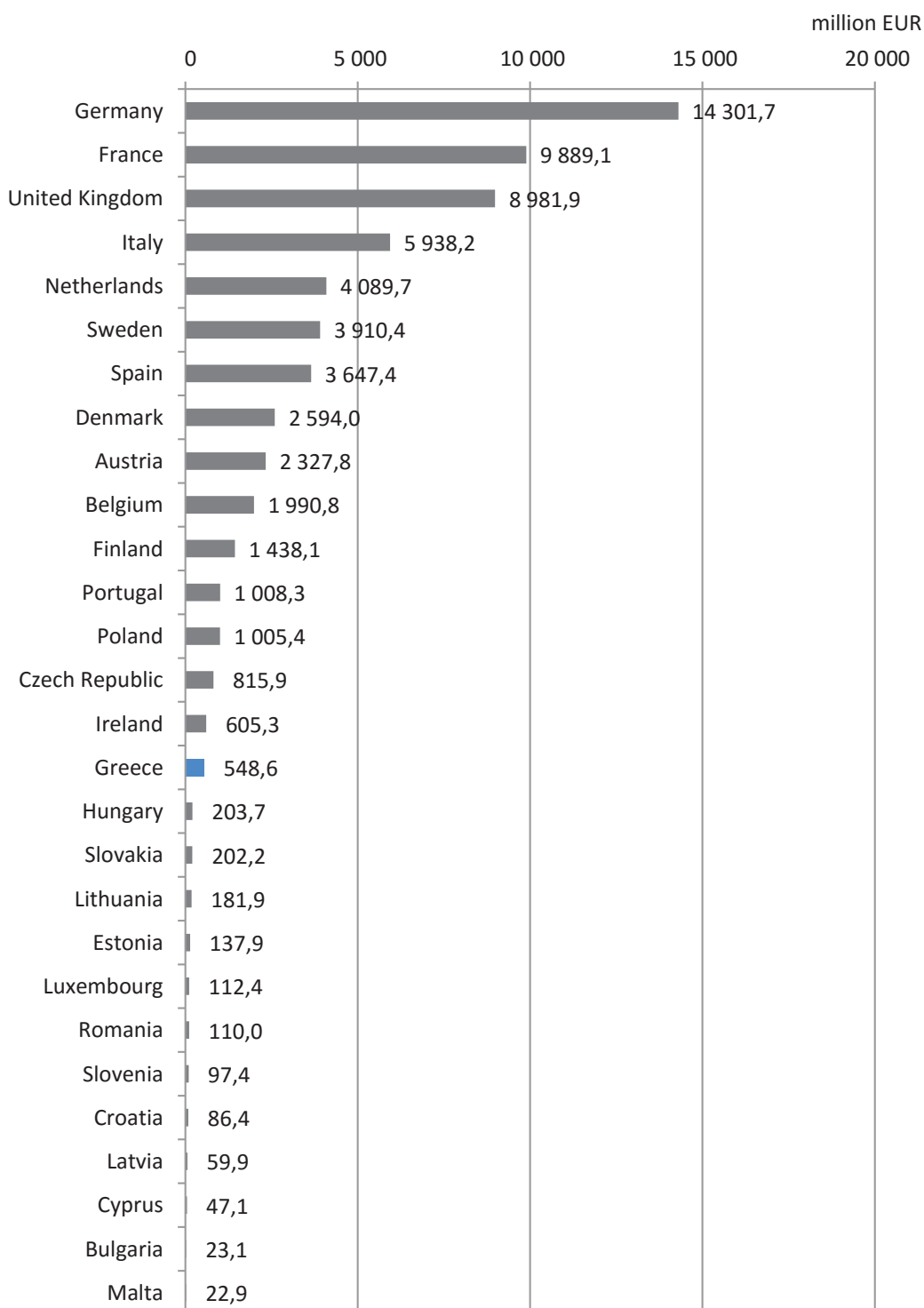
Sources:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ2)

## R&D Expenditure (in million EUR)

FIGURE 7-2. R&D Expenditure (in million EUR) in HES in Greece and in other EU28 Member States, 2013



**Sources:**

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)

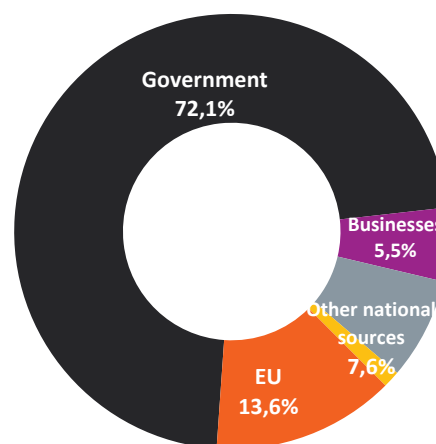


## Source of funds

FIGURE 7-3. R&D Expenditure in HES (in million EUR and as % of HES total) by source of funds, 2013

Source of funds	R&D Expenditure (in million EUR)
Government	395.7
Businesses	30.0
Other national sources*	41.5
European Union	74.6
Other sources from abroad	6.9
<b>Total</b>	<b>548.6</b>

\* Other national sources include own funds of the HE sector, funding from PNP, inheritances, etc.

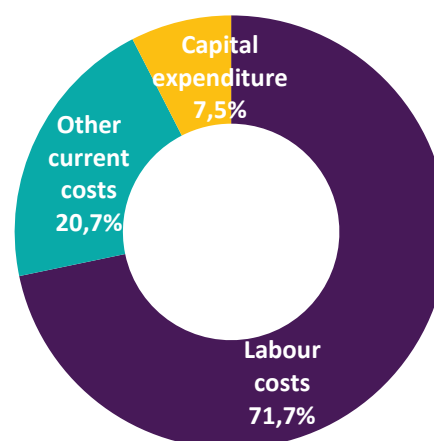


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)

## Type of costs

FIGURE 7-4. R&D Expenditure in HES (in million EUR and as % of HES total) by type of costs, 2013

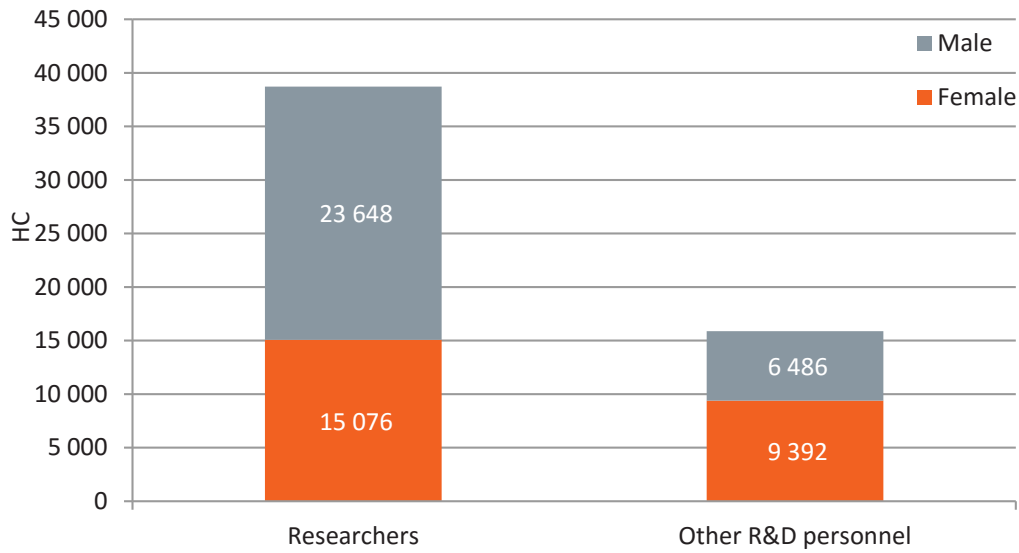
Type of costs	R&D Expenditure (in million EUR)
Labour costs	393.5
Other current costs	113.8
Capital expenditure	41.3
<b>Total</b>	<b>548.6</b>



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ5)

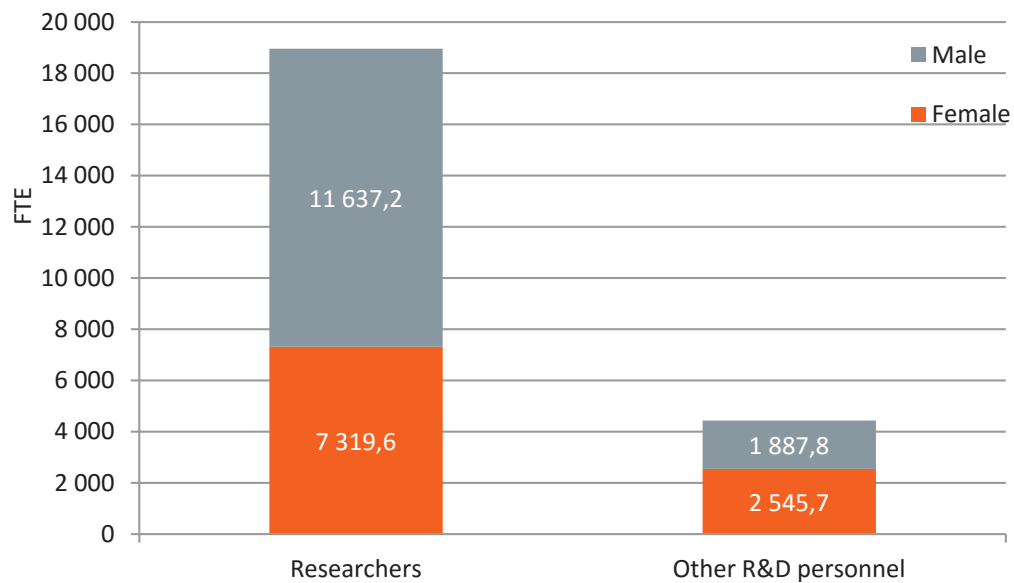
## R&D Personnel

FIGURE 7-5. R&D Personnel in HES (in Head Counts) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π1.Γ)

FIGURE 7-6. R&D Personnel in HES (in Full-time equivalents) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π2, Π2.Γ)

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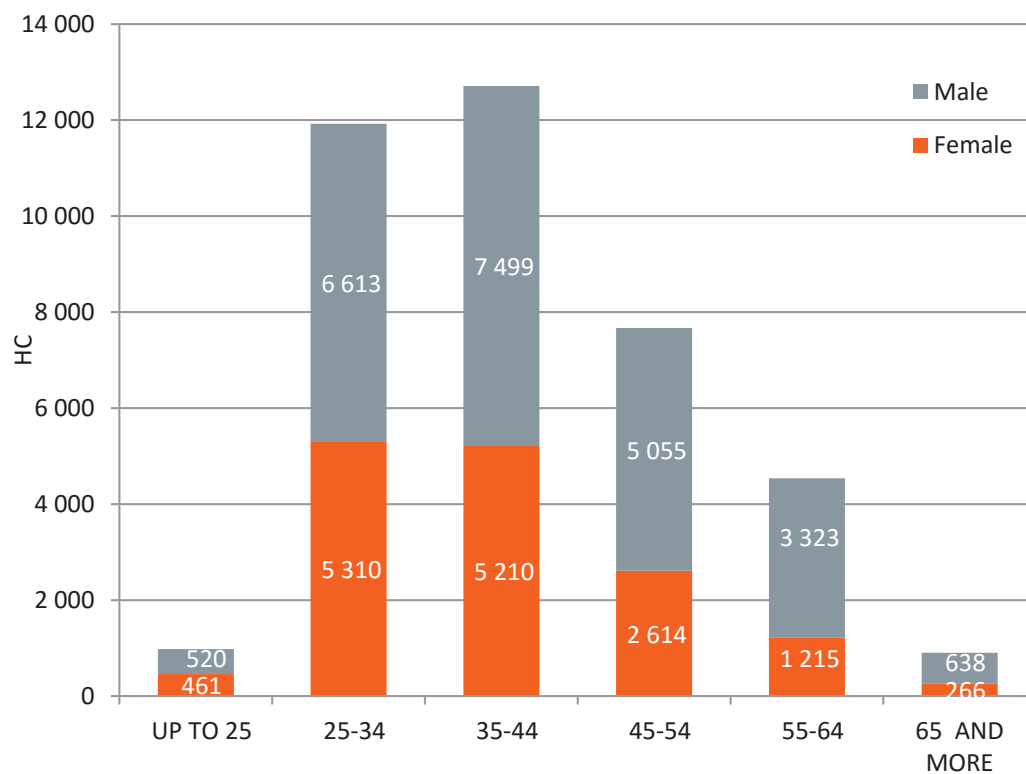
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## Demographic characteristics of Researchers (sex and age)

FIGURE 7-7. Number of researchers in HES (in Head counts) by sex and age, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π11)

## CHAPTER 8

# Private Non-Profit Sector (PNP)

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Private non-profit sector includes non-market, private non-profit institutions serving the general public, such as non-market units, professional and learned societies, charities, relief or aid agencies, trades unions, consumers' associations, etc<sup>20</sup>.

**TABLE 8.1: Main R&D indicators in PNP, 2013**

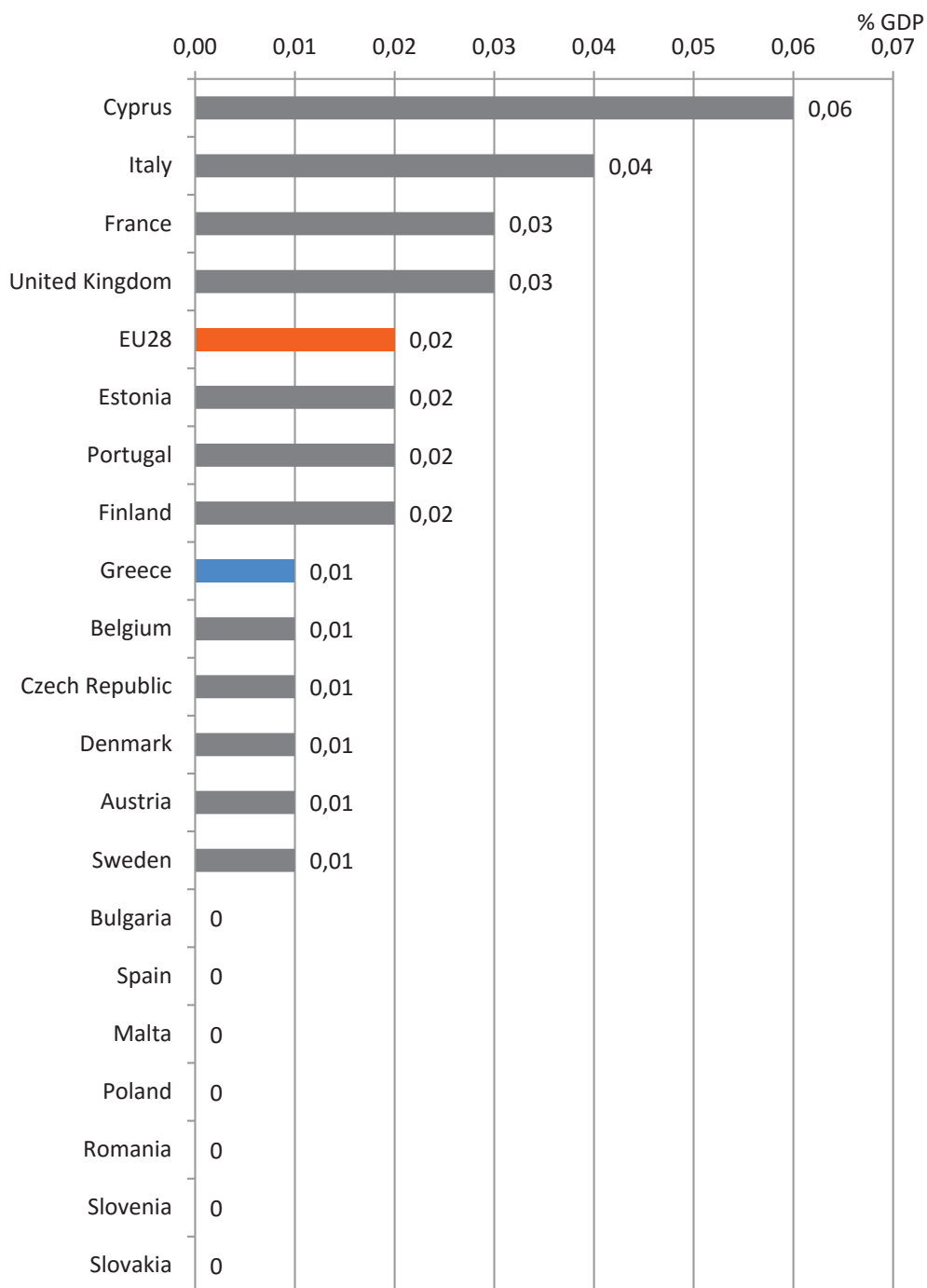
R&D Intensity (R&D Expenditure as % GDP)	<b>0.01</b>
Intramural R&D Expenditure (million EUR)	<b>18.3</b>
R&D Personnel (Head count)	<b>791</b>
R&D Personnel (Full-time equivalents)	<b>529.8</b>
Researchers (Head count)	<b>449</b>
Researchers (Full-time equivalents)	<b>296.2</b>

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<sup>20</sup> An indicative and non-exhaustive list of the R&D performing PNP institutions in Greece is the following: Foundation of the Hellenic World, Hellenic Foundation for European and Foreign Policy, Hellenic Cooperative Oncology Group, Lambrakis Foundation, THORAX Institute, Environmental Centre ARCTUROS, WWW Hellas, Institute of Therapy and Environment, Hellenic Institute for Research on Cancer, etc.

## R&D Intensity (R&D Expenditure as % of GDP)

FIGURE 8-1. R&D Intensity (R&D Expenditure as % of GDP) in PNP in Greece and in other EU28 Member States\*, 2013



\* Only those countries that report the PNP sector separately from other sectors appear on the figure.

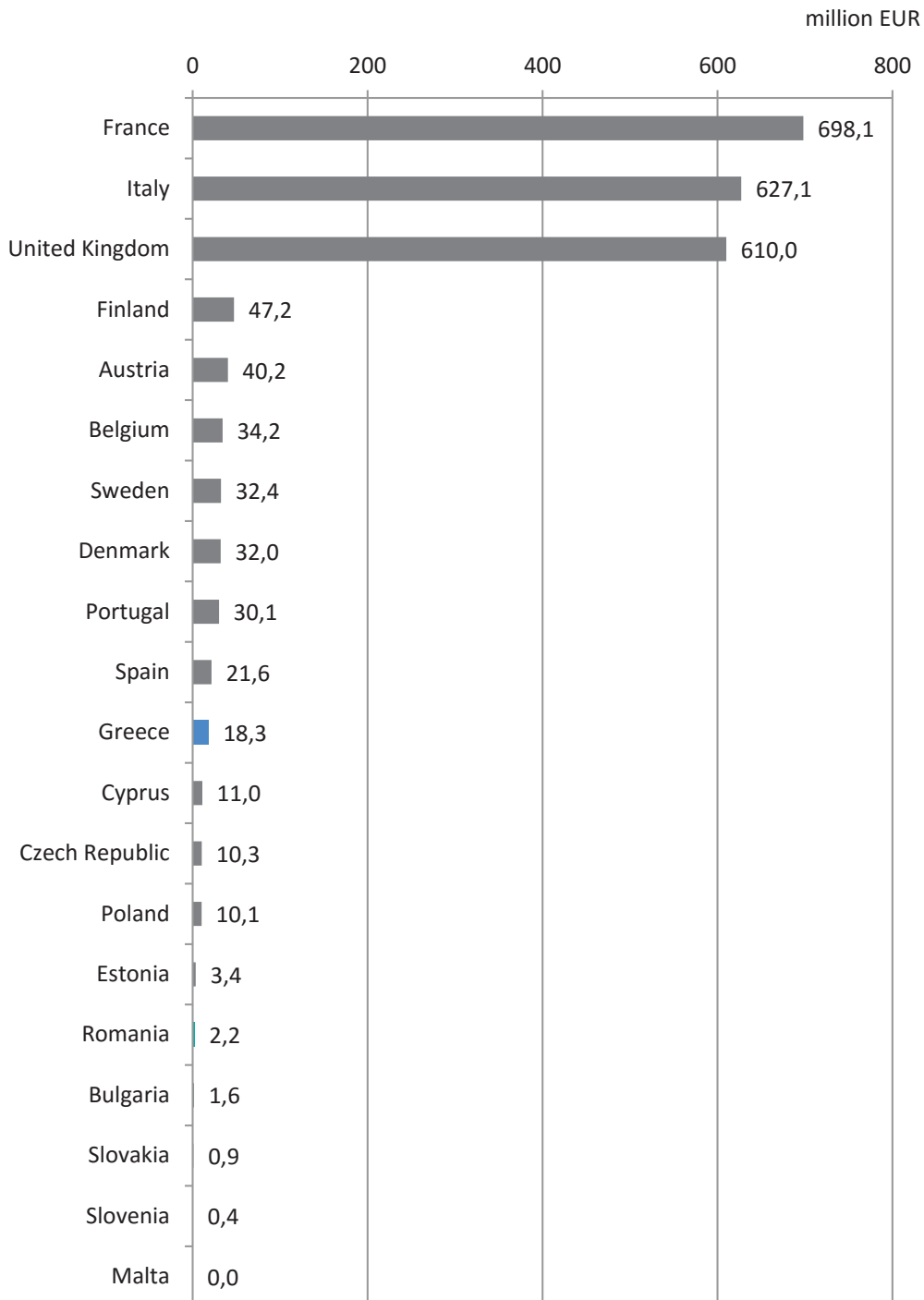
**Sources:**

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ2)

## R&D Expenditure (in million EUR)

FIGURE 8-2. R&D Expenditure (in million EUR) in PNP in Greece and in other EU28 Member States, 2013



\* Only those countries that report the PNP sector separately from other sectors appear on the figure.

Sources:

Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, last update: 15.11.2015)

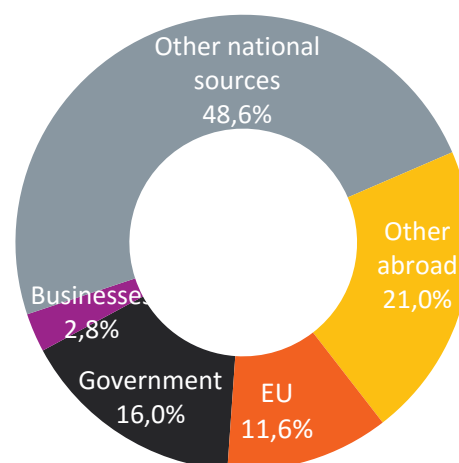
EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ1)

## Source of funds

FIGURE 8-3. R&D Expenditure in PNP (in million EUR and as % of PNP total) by source of funds, 2013

Source of funds	R&D Expenditure (in million EUR)
Government	2.9
Businesses	0.5
Other national sources (own funds)*	8.8
European Union	2.1
Other sources from abroad	3.8
<b>Source of funds</b>	<b>18.3</b>

\* 'Other national sources' includes own funds of PNP institutes

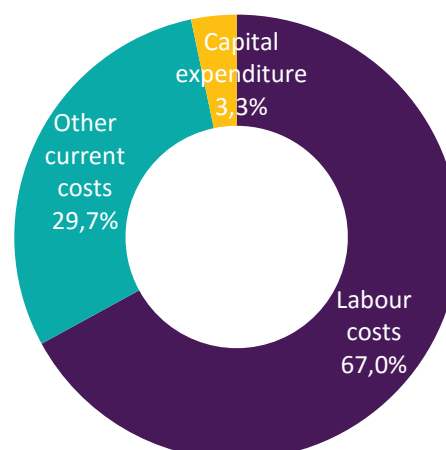


Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ3)

## Type of costs

FIGURE 8-4. R&D Expenditure in PNP (in million EUR and as % of PNP total) by type of costs, 2013

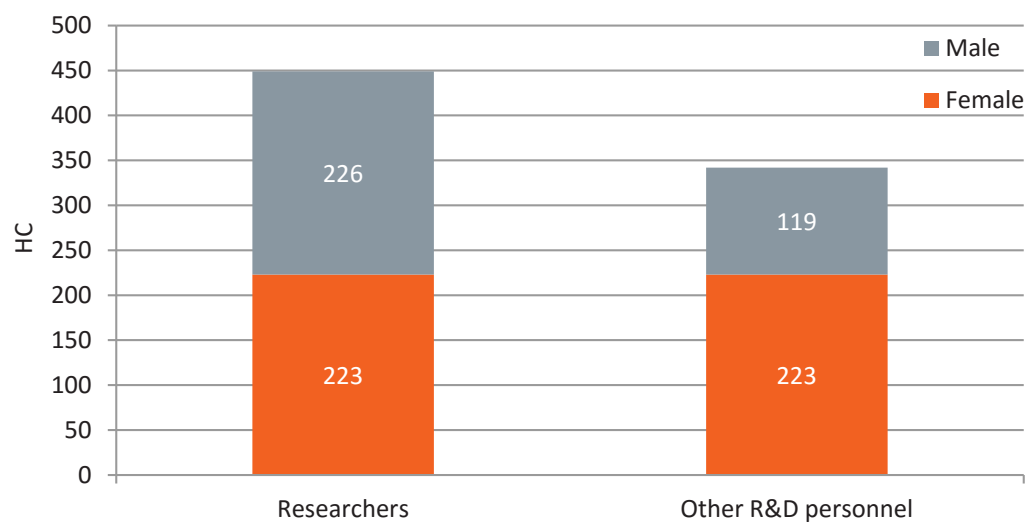
Type of costs	R&D Expenditure (in million EUR)
Labour costs	12.2
Other current costs	5.4
Capital expenditure	0.6
<b>Total</b>	<b>18.3</b>



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Δ5)

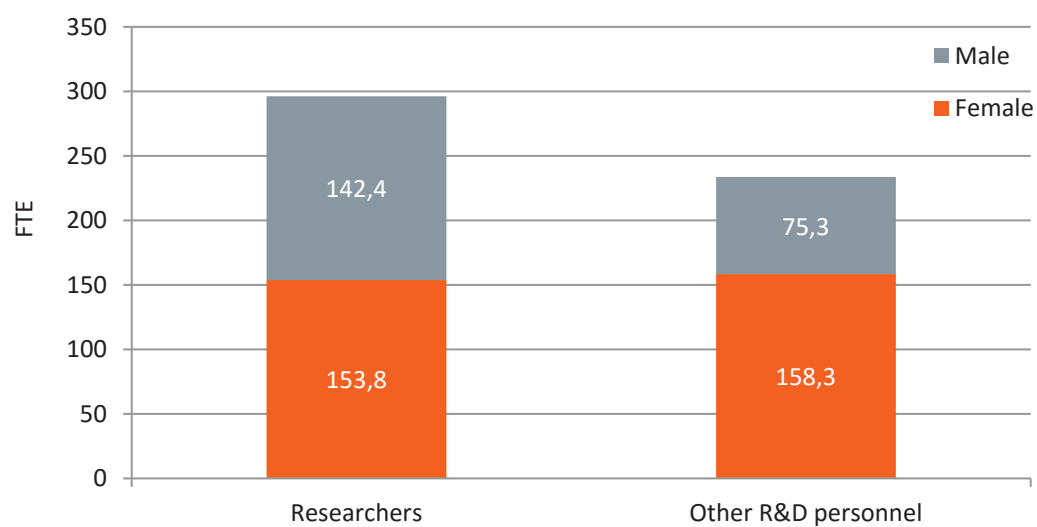
## R&D Personnel

FIGURE 8-5. R&D Personnel in PNP (in Head Counts) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π1, Π1.Γ)

FIGURE 8-6. R&D Personnel in PNP (in Full-time equivalents) by occupation and sex, 2013



Source: EKT (<http://metrics.ekt.gr/statistika-etak/datatables>, data code: Π2, Π2.Γ)

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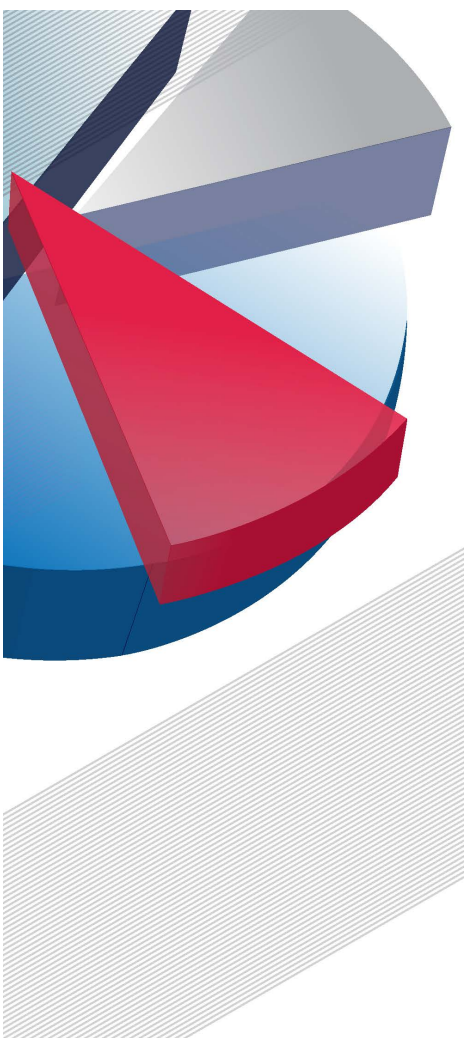
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## CHAPTER 9

# Methodological Notes

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<b>Data description</b>	<p>The aim of the <b>R&amp;D (Research and Development) survey</b> is to produce statistics about (intramural) R&amp;D Expenditure and R&amp;D personnel covering R&amp;D performing entities in the private and public sectors as follows: Business Enterprise Sector (BES), Government Sector (GOV), Higher Education Sector (HES), Private non-Profit Sector (PNP) as well as for the country as a whole.</p> <p>Personnel data are broken down by gender, by occupation (researchers, other R&amp;D personnel), by qualification, by major field of science, by region, by economic activity (NACE) and by size class (for BES only).</p> <p>R&amp;D (Intramural) Expenditure is broken down by source of funds, by type of R&amp;D ('basic research', 'applied research' and 'experimental development'), by type of cost ('current costs (labour costs and other costs)' and 'capital expenditure'), by major field of science, by economic activity (NACE) and by size class (for BES only).</p> <p>R&amp;D Expenditure as a percentage of GDP is used to calculate the <b>R&amp;D Intensity</b> of a country. This indicator is used <i>inter alia</i> to monitor progress towards the EU2020 target that 3% of GDP be invested in R&amp;D.</p>
<b>Institutional coverage</b>	<p>The main analysis of R&amp;D statistics is by four <b>institutional sectors of performance</b>. Statistical units, from which data are collected, are therefore classified into the following four categories:</p> <p><b>Business enterprise sector (BES)</b>, which includes all firms, organizations and institutions whose primary activity is the market production of goods or services (other than higher education). In addition, this sector includes public enterprises as well as non-profit institutions mainly serving the enterprises. Economic</p>

	<p>activity (NACE rev.2) and size class coverage is defined in Commission Regulation 995/2012<sup>22</sup>.</p> <p><b>Government (GOV) sector</b>, which includes all departments, offices and other bodies administered or/and financed by Ministries, such as the Public Research Centers that are supervised by the General Secretariat for Research and Technology (GSRT), other Public Research Institutions supervised by different Ministries, archaeological and cultural institutions, public hospitals, public independent authorities, etc.</p> <p><b>Higher education sector (HES)</b>, which includes all Universities and Technological Educational Institutes (TEI), University research institutes (EPI) and similar establishments in the Technological Educational Institutes (Technological Research Centres / KTE), University Hospitals, Private Institutes of Vocational Training (IEK) accredited by the Ministry of Education and Religious Affairs, as well as other HE schools/academies (e.g. Higher Ecclesiastical Schools, Military Academies).</p> <p><b>Private non-profit (PNP) sector</b>, which includes non-market, private non-profit institutions serving the general public, such as non-market units, professional and learned societies, charities, relief or aid agencies, trade unions, consumers' associations, etc.</p>
<p><b>Concepts and definitions</b></p>	<p>Basic statistical concepts and definitions, standard classifications and guidelines for the production of R&amp;D statistics are outlined in the Frascati Manual (OECD, 2002).</p> <p><b>Research &amp; Development – R&amp;D:</b> According to the Frascati Manual, R&amp;D comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.</p> <p>The term R&amp;D covers three activities: basic research, applied research and experimental development.</p> <p><b>Basic research</b> is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view.</p> <p><b>Applied research</b> is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective.</p> <p><b>Experimental development</b> is systematic work, drawing on existing knowledge gained from research and/or practical experience, which is directed to producing new materials, products or devices,</p>

<sup>22</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:299:0018:0030:EN:PDF>

to installing new processes, systems and services, or to improving substantially those already produced or installed.

R&D covers both formal R&D in R&D units and informal or occasional R&D in other units.

### Intramural R&D Expenditure (GERD)

R&D Expenditure data are compiled on the basis of performers' reports of intramural expenditure. Intramural expenditure are all expenditure for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.

Both **current** (i.e. labour cost and other current cost such as non-capital purchases of materials, supplies and equipment to support R&D) and **capital expenditure** (i.e. expenditure on land and buildings, instruments and equipment) are included.

Extramural expenditure incurred for the acquisition of R&D performed by other units and grants given to others for performing R&D are excluded.

### R&D personnel

R&D personnel consists of all persons employed directly on R&D, as well as those providing direct services such as R&D managers, administrators, and clerical staff.

R&D personnel includes the following categories.

**Researchers:** Professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. Postgraduate students at the PhD level also fall into this category.

**Other R&D Personnel:** Personnel involved in R&D activities by performing scientific and technical tasks, usually under the supervision of researchers (e.g. developers, programmers, manufacturers, personnel collecting bibliometric material or implementing surveys and interviews, etc.), as well as personnel performing various tasks directly related to R&D activities necessary for the completion of these tasks (e.g. workers, secretaries or other administrators).

R&D personnel data is available in head count (HC) and in full-time equivalent (FTE).

### Headcount (HC)

Headcount is the unit for measuring the total number of persons who are mainly or partly employed on R&D. It allows links to be made with other data series, for example education or employment data or the results of population censuses.

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	<p><b>Full-Time Equivalent (FTE)</b></p> <p>Full time equivalent (FTE) is the unit used to measure employed persons or students in a way that makes them comparable although they may work or study a different number of hours per week. It is therefore based on the time a person devotes to R&amp;D activities.</p> <p>FTE is calculated by comparing the time one devotes to R&amp;D activities with full-time work. One FTE may therefore be thought of as one person-year, while for a part-time R&amp;D worker FTE is calculated as the percentage of the time that he/she spends on R&amp;D over his/her total working time.</p> <p>More concepts and definitions are available in the online 'Glossary' (<a href="http://metrics.ekt.gr/el/lexicon/2">http://metrics.ekt.gr/el/lexicon/2</a>) in Greek only.</p>
<p><b>Legal framework</b></p>	<p>R&amp;D data collection is based on Commission Regulation 995/2012 (from reference year 2012 onwards) on statistics on Science and Technology.</p> <p>The National Documentation Centre, the national institution for the collection, documentation and provision of science and technology content (<a href="http://www.ekt.gr">www.ekt.gr</a>), was assigned the responsibility for the collection and compilation of R&amp;D statistics in April 2012 (Official Journal of Government 1359/B/25.04.2012) by the General Secretariat for Research and Technology (GRST).</p> <p>The collection of the data presented in this publication was made in collaboration with the Hellenic Statistical Authority (Memorandum of Understanding of 28.01.2014)<sup>23</sup>.</p>
<p><b>Data collection</b></p>	<p>The data are collected through census survey for all R&amp;D performers in the HE, GOV and PNP sectors as well as in all previously known enterprises that perform R&amp;D (~700 enterprises). For the needs of the survey, EKT developed a dedicated register of all known R&amp;D performers, based on information from administrative sources. The R&amp;D register is updated on a systematic basis.</p> <p>Especially for BES, the census part of the survey has been supplemented with sample survey in more than 4000 enterprises in collaboration with the Hellenic Statistical Authority (ELSTAT). The sample has been drawn from the National Business Register that is maintained by ELSTAT. More than 200 interviewers were drawn from the special ELSTAT register of 'temporary statistical interviewers' and were assigned to collect data for the needs of the R&amp;D survey.</p>

<sup>23</sup> All legal documents are available here: <http://metrics.ekt.gr/en/statistika-etak/eggrafa-anaforas>

	<p>EKT has developed tailor-made software that is based on open-source technologies to support data collection and data processing.</p> <p>Data validation and editing has been performed in collaboration with respondents, whenever necessary. Consistency checks have also been conducted between the collected data and relevant data provided by the following administrative sources:</p> <ul style="list-style-type: none"> <li>• Monitoring Information System (M.I.S.) the central information system about projects financed under the National Strategic Reference Framework (NSRF) – Source: Special Service for the Monitoring Information System (M.I.S.)</li> <li>• eCORDA database with information about signed grants and beneficiaries with regards to EU Framework Programme for Research (FP7) – Source: European Commission</li> <li>• General University Funds (GUF) and University personnel data – Source: Ministry of Education and Religious Affairs</li> <li>• Funds for Public Hospitals – Ministry of Health</li> <li>• Private Balance Sheets database – Source: ICAP</li> <li>• GBAORD data – Source: Official GBAORD data that have been collected and compiled by EKT and made available through Eurostat dissemination database</li> </ul> <p>Data processing and data analysis have been conducted using standard methodological techniques and Eurostat guidelines on the harmonized production of R&amp;D statistics across Member States.</p>	1 2 3 4 5 6
<p><b>Data and metadata dissemination</b></p>	<p>Data release calendar, tables with time-series from 2001 onwards, metadata and quality reports, are all disseminated in the dedicated for Research, Development and Innovation EKT webpage (<a href="http://metrics.ekt.gr/en">http://metrics.ekt.gr/en</a>). R&amp;D data are also presented and analysed in a number of electronic reports and publications that are available here: <a href="http://metrics.ekt.gr/en/statistika-etak/meletes">http://metrics.ekt.gr/en/statistika-etak/meletes</a>.</p>	7 8 9



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HELLENIC REPUBLIC  
Ministry of Education  
Research & Religious Affairs

The project is co-financed by Greece and the European Union