

# INQUÉRITO AO POTENCIAL CIENTÍFICO E TECNOLÓGICO NACIONAL - IPCTN16

PROVISIONAL R&D DATA



**Title**

**INQUÉRITO AO POTENCIAL CIENTÍFICO E TECNOLÓGICO NACIONAL - IPCTN16 – Provisional R&D data**

**Author**

Directorate-General of Education and Science Statistics (DGEEC) |  
Directorate of Statistics on Science and Technology and Information Society (DSECTSI) |  
Unit of Statistics on Science and Technology (DECT)

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Directorate-General of Education and Science Statistics (DGEEC)

Av. 24 de Julho, n.º 134  
1399-054 Lisbon, Portugal  
Tel.: (+351) 213 949 200  
Fax: (+351) 213 957 610  
E-mail: [dgeec@dgeec.mec.pt](mailto:dgeec@dgeec.mec.pt)  
URL <http://www.dgeec.mec.pt>

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## EXECUTIVE SUMMARY

The Directorate-General of Education and Science Statistics (DGEEC) presents in this publication the 2016 provisional data on Research and Development (R&D) personnel and expenditure in Portugal, collected through the national R&D survey (*Inquérito ao Potencial Científico e Tecnológico Nacional* - IPCTN16).

This survey is part of the National Statistical System and is the official inquiry for collection and dissemination of statistical information on R&D activities in Portugal. It is a census-based survey conducted in accordance with criteria defined at international level by Eurostat and OECD.

The data in this publication is organized in tables and graphics with a time series from 2012 to 2016. Regarding the new data, we highlight the following results:

- Gross Domestic Expenditure on R&D (GERD) in Portugal reached 2 348 million euro in 2016, representing 1.27% of the national GDP and approximately 228 euro per inhabitant.
- These figures show a slight increase when compared to the results of 2015 – 2 234 million euro, representing 1.24% of GDP – thus reversing the recent trend of decreasing national R&D expenditure.
- The Business Enterprise sector expended 48% of national GERD whereas the Higher Education sector expended 45%. Expenditures by the Government and the Private Non-Profit sectors represented only 5% and 2% of GERD, respectively.
- In 2016, R&D expenditure increased in the Business Enterprise, Higher Education and Private Non-Profit sectors, when compared to 2015, while decreasing in the Government sector.
- Total R&D personnel, measured in full-time equivalent (FTE), was 50.912 in 2016; the number of researchers was 40.746 (FTE). These figures are equivalent to, respectively, 9.8 and 7.9 FTE per thousand labor force.
- Higher Education (26.432 FTE) and Business Enterprise (12.490 FTE) comprise almost all the researchers in Portugal.

The final R&D data for 2016 will be released in the following publications:

- The series "Statistical Summaries": five publications with detailed data for national and sectorial R&D expenditures and personnel (including indicators such as expenditure by type of costs, source of funds, field of science, socio-economic objective and region; and personnel classified by occupation, sex, qualification, field of science and region).
- The list of companies and hospitals with the highest R&D expenditure, in Portugal, in 2016.
- The directory of units/companies performing R&D activities in Portugal, updated to 2016.

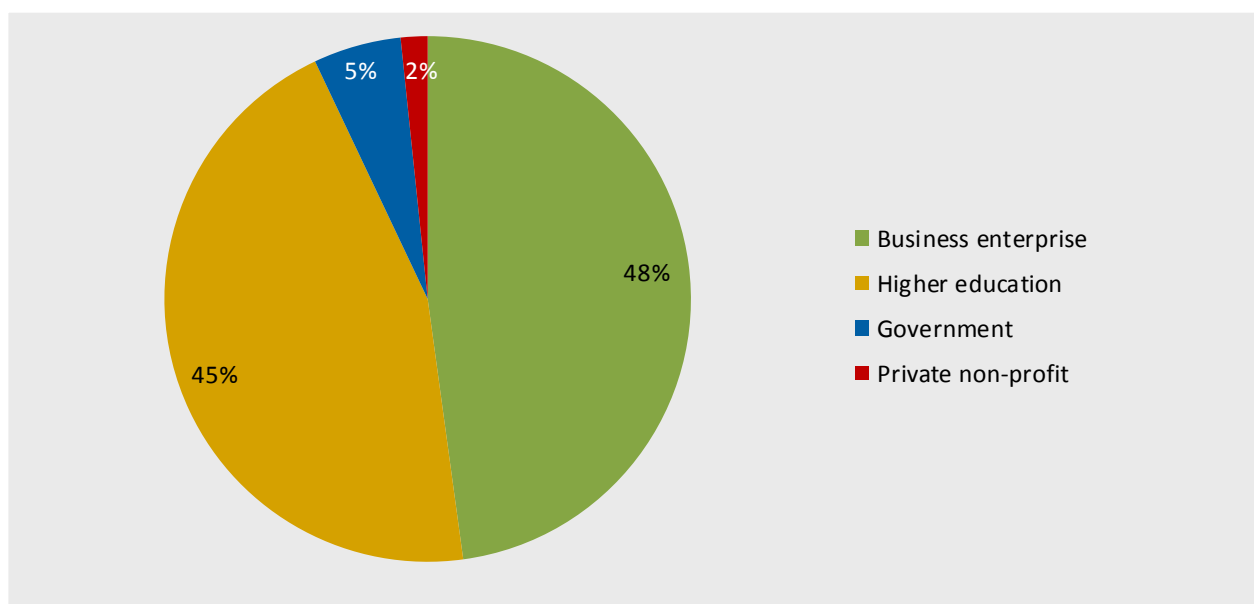
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**Table 1.** Gross Domestic Expenditure on R&D (GERD), by sector of performance (2016p)

	Total <sup>1</sup>	Business Enterprise	Government	Higher Education	Private non-profit
million euro	2.347,7 €	1.123,2 €	126,6 €	1.059,3 €	38,6 €
percentage of GDP <sup>2</sup>	1,27%	0,61%	0,07%	0,57%	0,02%
euro per inhabitant	227,7 €	108,9 €	12,3 €	102,8 €	3,7 €

**Figure 1.** Percentage of Gross Domestic Expenditure on R&D (GERD), by sector of performance (2016p)



**Footnotes:**

<sup>1</sup> The sum of the breakdown does not add to the total due to rounding procedures.

<sup>2</sup> Gross domestic product (B.1\*g) at current prices (Base 2011 - €); updated 23rd June 2017.

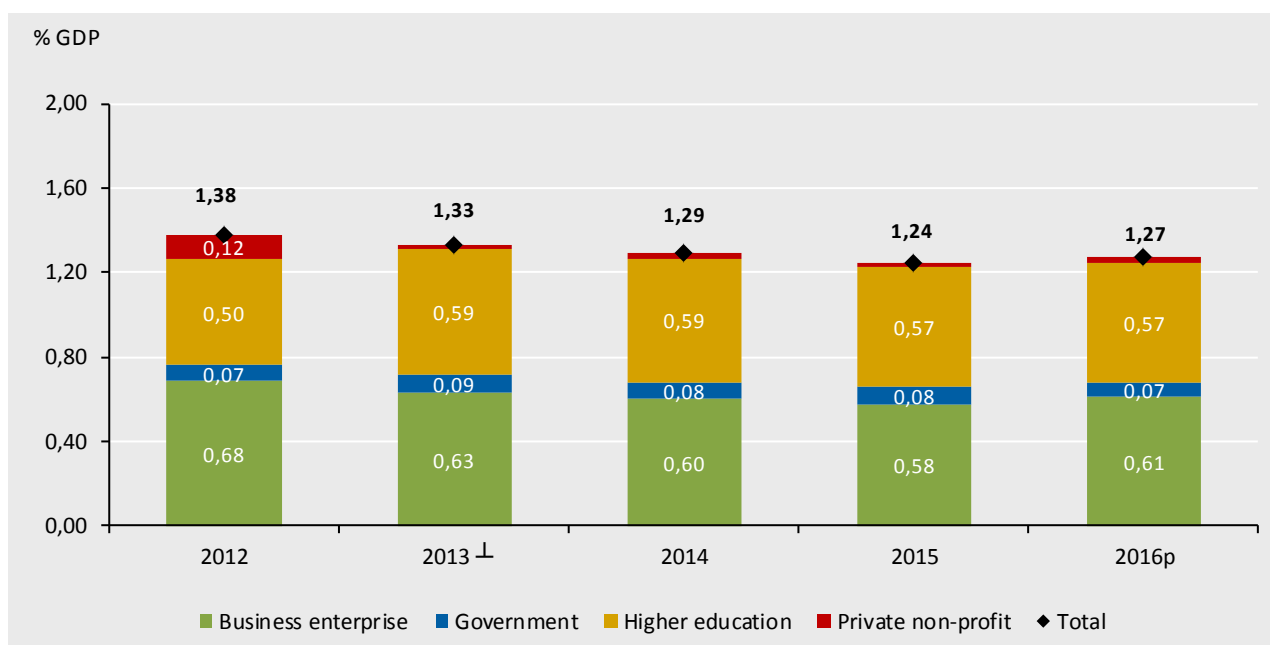
p - Provisional data.

**Sources:** DGEEC, IPCTN; INE (Statistics Portugal), Quarterly National Accounts.

**Table 2.** Gross Domestic Expenditure on R&D (GERD) as a percentage of GDP<sup>1</sup>, by sector of performance (2012 to 2016p)

	Total <sup>2</sup>	Business Enterprise	Government	Higher Education	Private non-profit
2012	1,38%	0,68%	0,07%	0,50%	0,12%
2013	1,33%	0,63%	0,09%	0,59% ±	0,02% ±
2014	1,29%	0,60%	0,08%	0,59%	0,02%
2015	1,24%	0,58%	0,08%	0,57%	0,02%
2016p	1,27%	0,61%	0,07%	0,57%	0,02%

**Figure 2.** Gross Domestic Expenditure on R&D (GERD) as a percentage of GDP<sup>1</sup>, by sector of performance (2012 to 2016p)



**Footnotes:**

<sup>1</sup> Gross domestic product (B.1\*g) at current prices (Base 2011 - €); updated 23rd June 2017.

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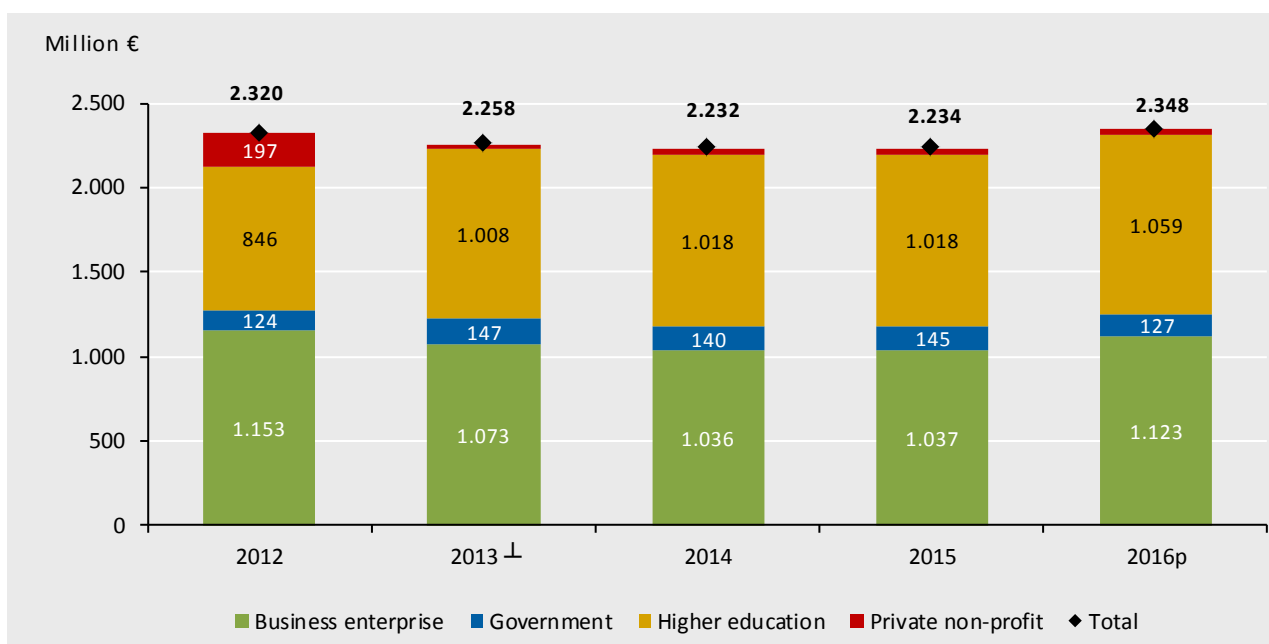
± Break in time series in the HE and PNP sectors: the break was due to a reclassification process of units made according to the recommendations and criteria of the Frascati Manual. As a significant number of the entities previously classified in the PNP sector were allocated to the HE sector, there was a sharp reduction in R&D resources in the PNP sector. This break does not affect the comparability of the total national R&D expenditure.

**Sources:** DGEEC, IPCTN; INE (Statistics Portugal), Quarterly National Accounts.

**Table 3.** Gross Domestic Expenditure on R&D (GERD), by sector of performance (2012 to 2016p)

	Total <sup>1</sup>	Business Enterprise	Government	Higher Education	Private non-profit
2012	2.320,1 €	1.153,3 €	124,2 €	846,0 €	196,6 €
2013	2.258,5 €	1.072,9 €	147,2 €	1.008,3 € ±	30,1 € ±
2014	2.232,2 €	1.036,0 €	139,8 €	1.018,0 €	38,4 €
2015	2.234,4 €	1.036,5 €	144,9 €	1.017,6 €	35,4 €
2016p	2.347,7 €	1.123,2 €	126,6 €	1.059,3 €	38,6 €

**Figure 3.** Gross Domestic Expenditure on R&D (GERD), by sector of performance (2012 to 2016p)



**Footnotes:**

<sup>1</sup> The sum of the breakdown does not add to the total due to rounding procedures.

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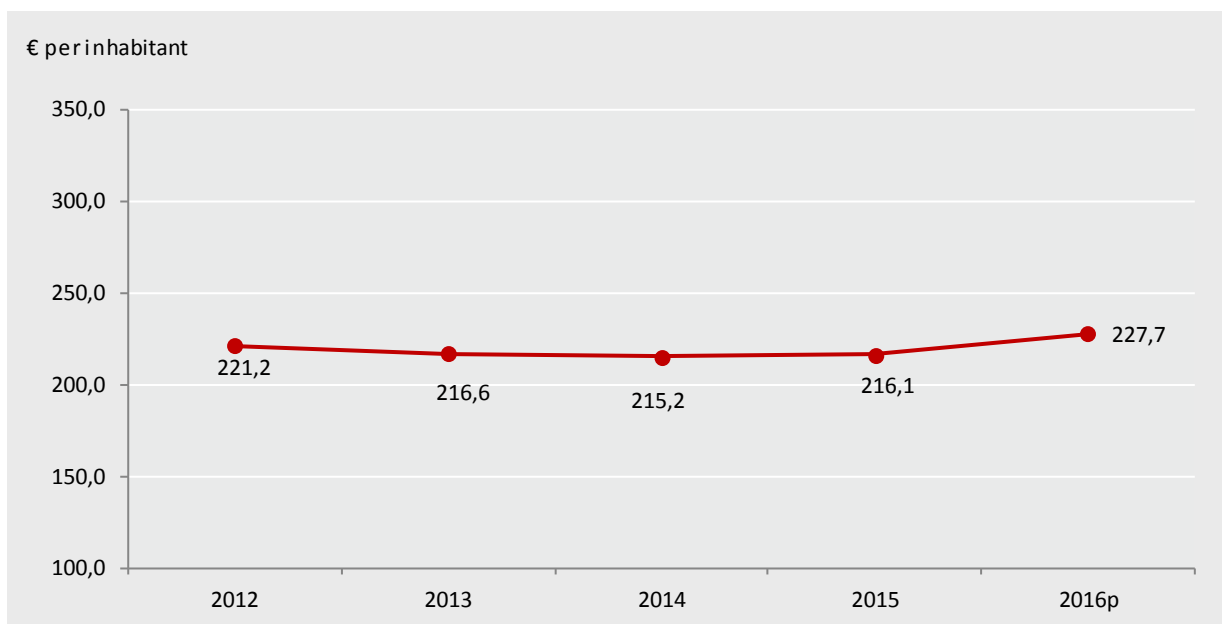
± Break in time series in the HE and PNP sectors: the break was due to a reclassification process of units made according to the recommendations and criteria of the Frascati Manual. As a significant number of the entities previously classified in the PNP sector were allocated to the HE sector, there was a sharp reduction in R&D resources in the PNP sector. This break does not affect the comparability of the total national R&D expenditure.

Source: DGEEC, IPCTN

**Table 4.** Gross Domestic Expenditure on R&D (GERD), by sector of performance, euro per inhabitant<sup>1</sup> (2012 to 2016p)

	Total <sup>2</sup>	Business Enterprise	Government	Higher Education	Private non-profit
2012	221,2	110,0	11,8	80,7	18,7
2013	216,6	102,9	14,1	96,7 <sup>⊥</sup>	2,9 <sup>⊥</sup>
2014	215,2	99,9	13,5	98,1	3,7
2015	216,1	100,2	14,0	98,4	3,4
2016p	227,7	108,9	12,3	102,8	3,7

**Figure 4.** Gross Domestic Expenditure on R&D (GERD), by sector of performance, euro per inhabitant<sup>1</sup> (2012 to 2016p)



**Footnotes:**

<sup>1</sup> Resident population (No.), by place of residence, sex and age group; Annual - Statistics Portugal, Annual estimates of resident population.

<sup>2</sup> The sum of the breakdown does not add to the total due to rounding procedures.

p - Provisional data.

⊥ Break in time series in the HE and PNP sectors: the break was due to a reclassification process of units made according to the recommendations and criteria of the Frascati Manual. As a significant number of the entities previously classified in the PNP sector were allocated to the HE sector, there was a sharp reduction in R&D resources in the PNP sector. This break does not affect the comparability of the total national R&D expenditure.

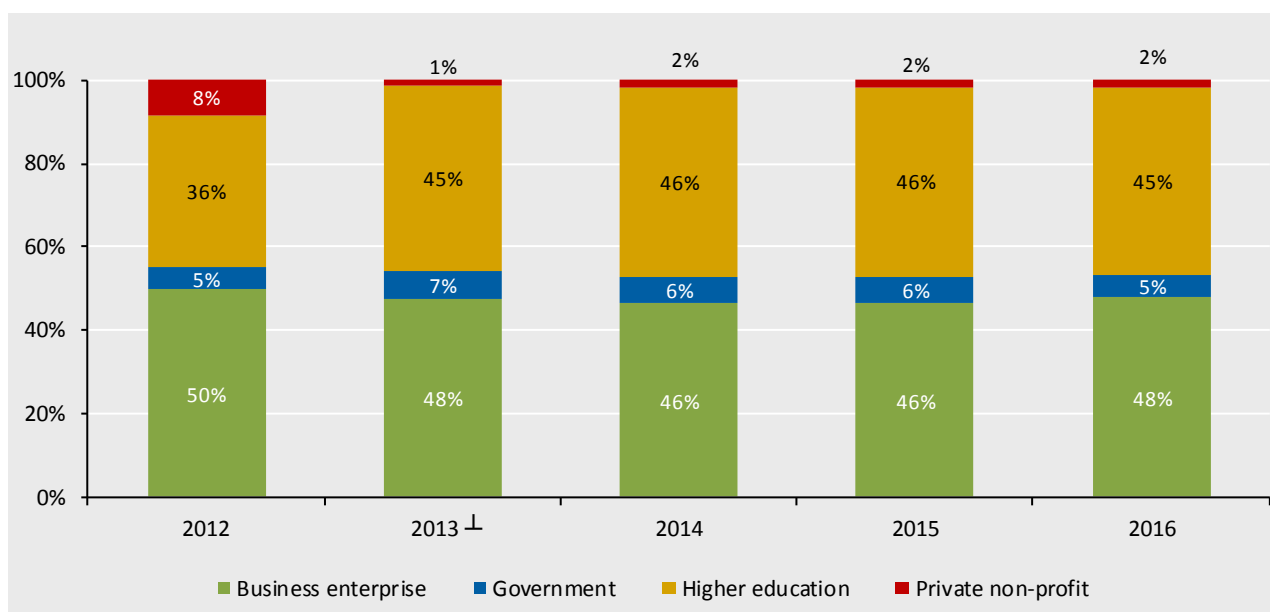
**Sources:** DGEEC, IPCTN; INE (Statistics Portugal), Annual estimates of resident population.



**Table 5.** Percentage of Gross Domestic Expenditure on R&D (GERD), by sector of performance (2012 to 2016p)

	Business Enterprise	Government	Higher Education	Private non-profit
2012	49,7%	5,4%	36,5%	8,5%
2013	47,5%	6,5%	44,6% ±	1,3% ±
2014	46,4%	6,3%	45,6%	1,7%
2015	46,4%	6,5%	45,5%	1,6%
2016p	47,8%	5,4%	45,1%	1,6%

**Figure 5.** Percentage of Gross Domestic Expenditure on R&D (GERD), by sector of performance (2012 to 2016p)



**Footnote:**

p - Provisional data.

± Break in time series in the HE and PNP sectors: the break was due to a reclassification process of units made according to the recommendations and criteria of the Frascati Manual. As a significant number of the entities previously classified in the PNP sector were allocated to the HE sector, there was a sharp reduction in R&D resources in the PNP sector. This break does not affect the comparability of the total national R&D expenditure.

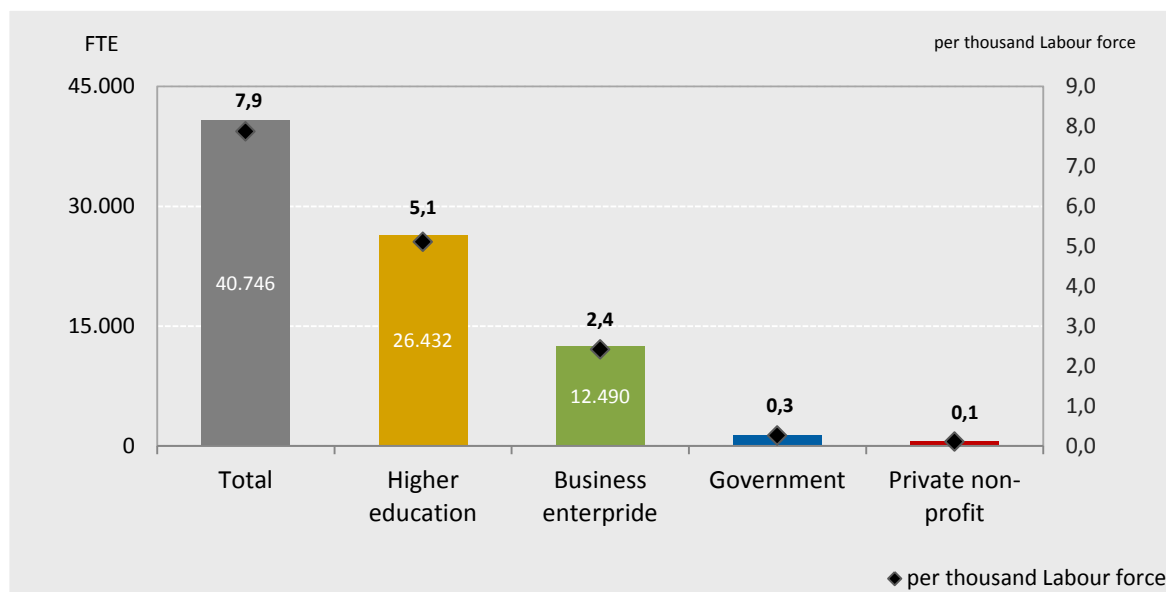
**Source:** DGEEC, IPCTN

## R&D PERSONNEL

**Table 6.** Total R&D personnel (FTE<sup>1</sup> and FTE per thousand labour force), by sector of performance (2016p)

		Total <sup>2</sup>	Business Enterprise	Government	Higher Education	Private Non-Profit
Researchers	FTE	40.746	12.490	1.301	26.432	524
	FTE per thousand labour force	7,9	2,4	0,3	5,1	0,1
Total R&D Personnel	FTE	50.912	19.650	2.023	28.539	700
	FTE per thousand labour force	9,8	3,8	0,4	5,5	0,1

**Figure 6.** Researchers (FTE<sup>1</sup> and FTE per thousand labour force), by sector of performance (2016p)



**Footnotes:**

<sup>1</sup> FTE - Full-Time Equivalent

<sup>2</sup> The sum of the breakdown does not add to the total due to rounding procedures.

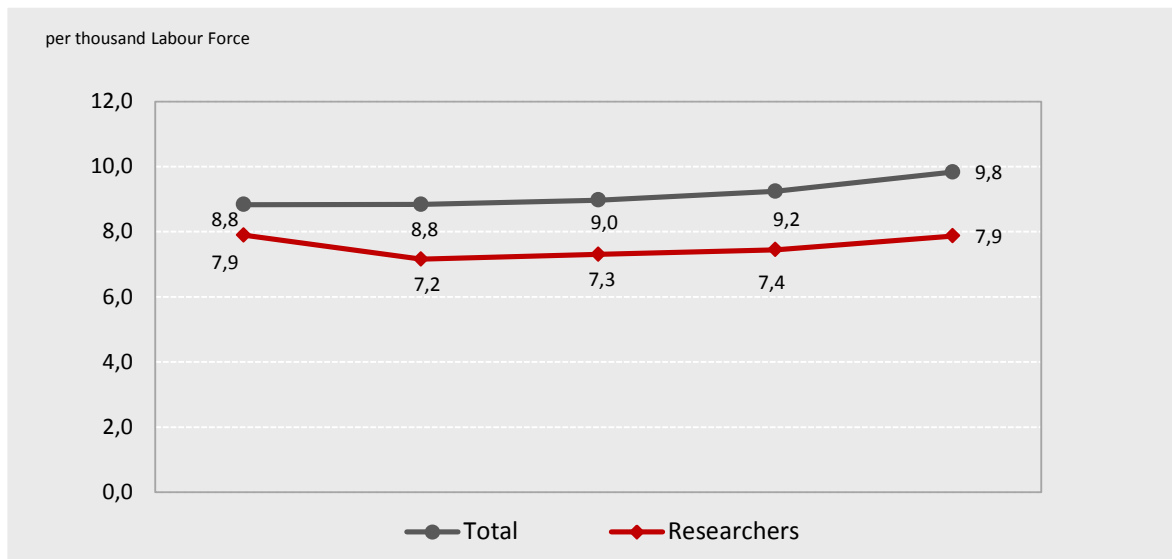
p - Provisional data.

**Sources:** DGEEC, IPCTN; INE (Statistics Portugal), Quarterly labour force survey (Series 2011 – No.)

**Table 7.** Total R&D personnel and Researchers: FTE<sup>1</sup> and FTE per thousand labour force (2012 to 2016p)

	Total R&D Personnel		Researchers	
	FTE	Per thousand labour force	FTE	Per thousand labour force
2012	47.554	8,8	42.498	7,9
2013	46.711	8,8	37.813 <sup>⊥</sup>	7,2
2014	46.878	9,0	38.155	7,3
2015	47.999	9,2	38.672	7,4
2016p	50.912	9,8	40.746	7,9

**Figure 7.** Total R&D personnel and Researchers: FTE<sup>1</sup> and FTE per thousand labour force (2012 to 2016p)



**Footnotes:**

<sup>1</sup> FTE - Full-Time Equivalent

p - Provisional data.

<sup>⊥</sup> Break in time series in 2013: caused by a redefinition of the occupation categories of R&D personnel, in accordance with criteria based on the ISCO classification and the Frascati Manual. This redefinition affected the four sectors of R&D activities, increasing the number of technical and other support staff while decreasing the number of researchers. The total number of R&D personnel was not affected.

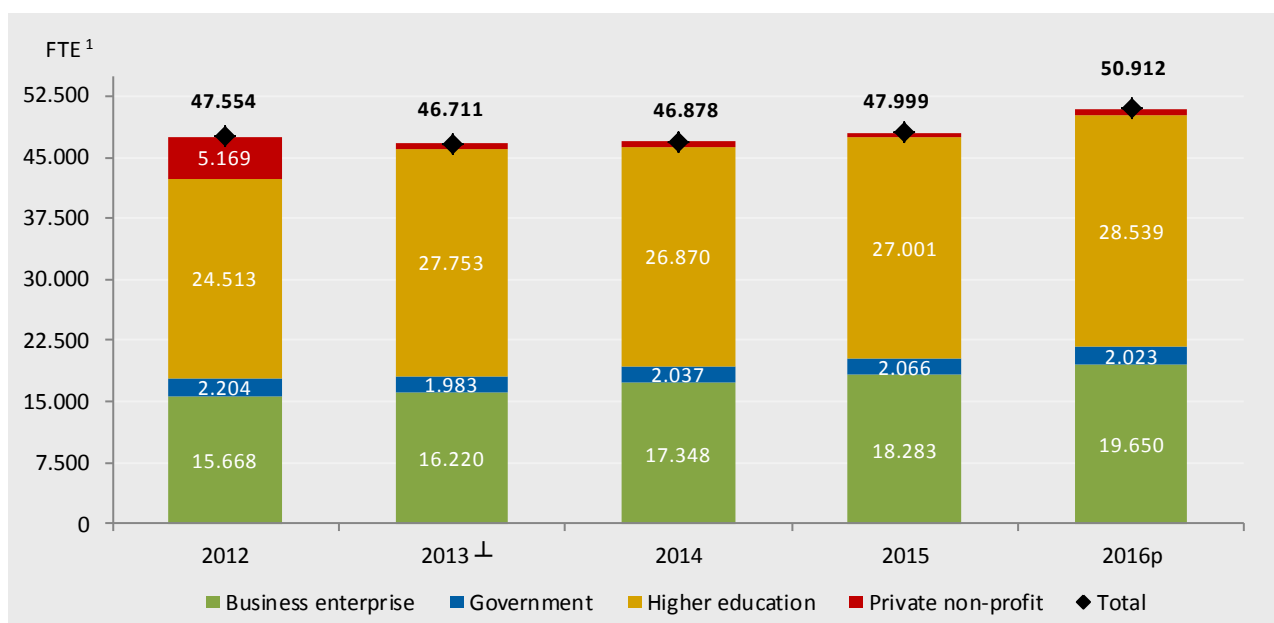
Break in time series in the HE and PNP sectors: the break was due to a reclassification process of units made according to the recommendations and criteria of the Frascati Manual. As a significant number of the entities previously classified in the PNP sector were allocated to the HE sector, there was a sharp reduction in R&D resources in the PNP sector. This break does not affect the comparability of the total national R&D personnel.

Sources: DGEEC, IPCTN; INE (Statistics Portugal), Quarterly labour force survey (Series 2011 – No.)

**Table 8.** Total R&D Personnel (FTE<sup>1</sup>), by sector of performance (2012 to 2016p)

	Total <sup>2</sup>	Business Enterprise		Government		Higher Education		Private Non-Profit	
	FTE	FTE	%	FTE	%	FTE	%	FTE	%
2012	47.554	15.668	33%	2.204	5%	24.513	52%	5.169	11%
2013	46.711	16.220	35%	1.983	4%	27.753 ±	59%	755 ±	2%
2014	46.878	17.348	37%	2.037	4%	26.870	57%	622	1%
2015	47.999	18.283	38%	2.066	4%	27.001	56%	649	1%
2016p	50.912	19.650	39%	2.023	4%	28.539	56%	700	1%

**Figure 8.** Percentage of total R&D personnel (FTE<sup>1</sup>), by sector of performance (2012 to 2016p)



**Footnotes:**

<sup>1</sup> FTE - Full-Time Equivalent

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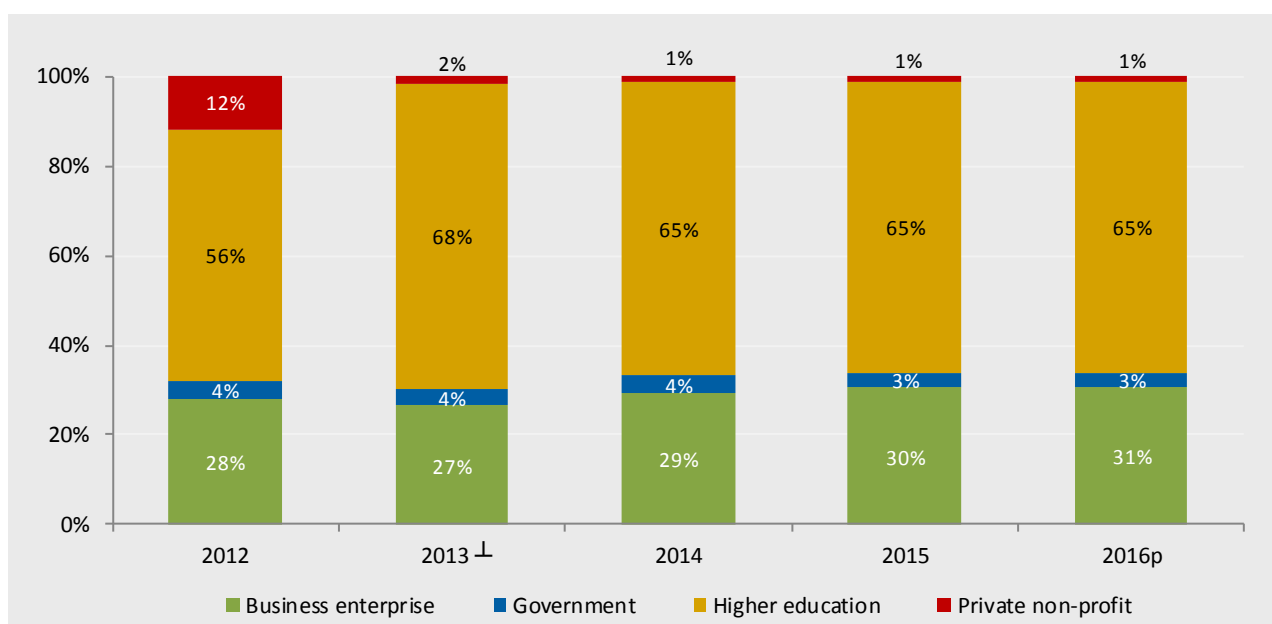
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Source: DGEEC, IPCTN

**Table 9.** Researchers (FTE<sup>1</sup>), by sector of performance (2012 to 2016p)

	Total <sup>2</sup>	Business Enterprise		Government		Higher Education		Private Non-Profit	
	FTE	FTE	%	FTE	%	FTE	%	FTE	%
2012	42.498	11.931	28%	1.682	4%	23.825	56%	5.060	12%
2013 <sup>⊥</sup>	37.813	10.025	27%	1.386	4%	25.760	68%	642	2%
2014	38.155	11.203	29%	1.447	4%	24.978	65%	527	1%
2015	38.672	11.785	30%	1.351	3%	25.043	65%	493	1%
2016p	40.746	12.490	31%	1.301	3%	26.432	65%	524	1%

**Figure 9.** Percentage of researchers (FTE<sup>1</sup>), by sector of performance (2012 to 2016p)



**Footnotes:**

<sup>1</sup> FTE - Full-Time Equivalent

<sup>2</sup> The sum of the breakdown does not add to the total due to rounding procedures.

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<sup>⊥</sup> Break in time series in 2013: caused by a redefinition of the occupation categories of R&D personnel, in accordance with criteria based on the ISCO classification and the Frascati Manual. This redefinition affected the four sectors of R&D activities, increasing the number of technical and other support staff while decreasing the number of researchers. The total number of R&D personnel was not affected.

Break in time series in the HE and PNP sectors: the break was due to a reclassification process of units made according to the recommendations and criteria of the Frascati Manual. As a significant number of the entities previously classified in the PNP sector were allocated to the HE sector, there was a sharp reduction in R&D resources in the PNP sector. This break does not affect the comparability of the total national R&D personnel.

**Source:** DGEEC, IPCTN

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Av. 24 de Julho, n.º134  
1399-054 Lisbon - Portugal  
Tel.: (+351) 213 949 200 Fax: (+351) 213 957 610