



# Research and Development Expenditure and Personnel in Greece in 2021 Main Indicators





Research and Development  
Expenditure and Personnel  
in Greece in 2021  
Main Indicators



NATIONAL DOCUMENTATION CENTRE

The European Research & Development (R&D) statistics and the relevant data on R&D expenditure and personnel are produced in Greece by the National Documentation Centre, the competent national authority of the Hellenic Statistical System in association with the Hellenic Statistical Authority.

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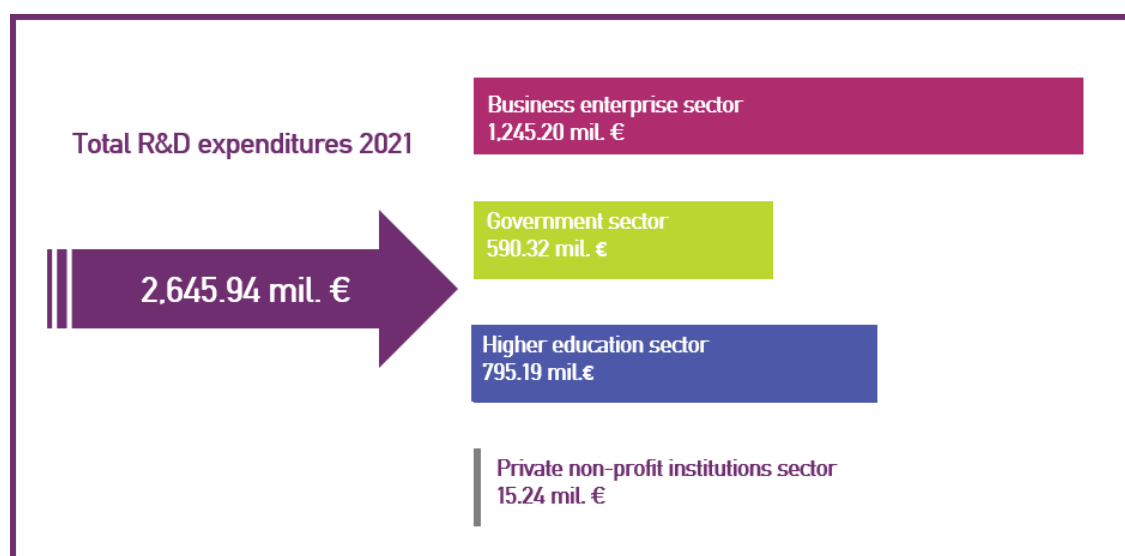
# 1. Summary

This summary report presents the final figures for the main Research and Development (R&D) Expenditure and Personnel indicators in Greece in 2021.

R&D statistics in Greece are produced by the National Documentation Centre, member of the Hellenic Statistical System, with the cooperation of the Hellenic Statistical Authority (ELSTAT).

Data presented in this report are the data of the main indicators that have already been submitted to Eurostat.

## R&D Expenditure



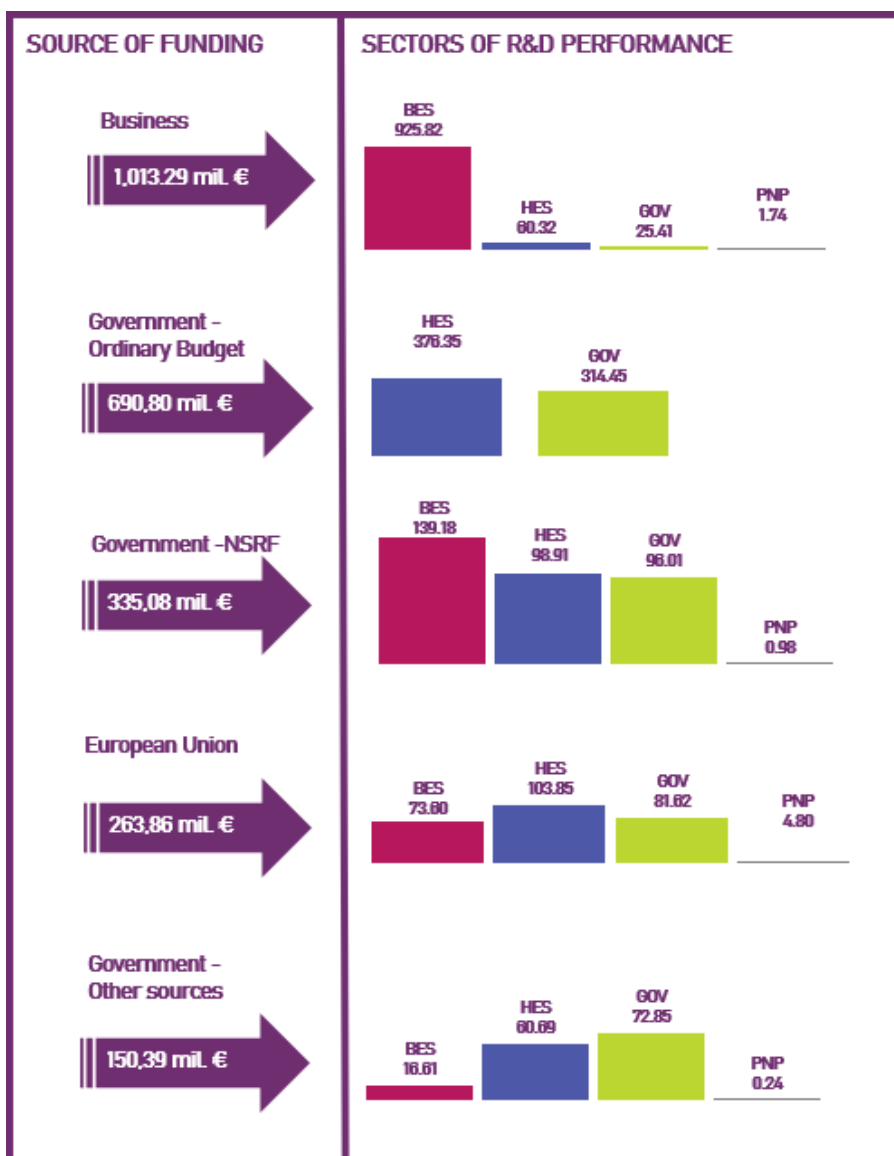
Total R&D expenditure in Greece in 2021 was €2,645.94 mil., showing an increase of €151.74 mil. (6.1% increase) compared to 2020. R&D expenditure is included in the country's GDP as, according to the revised European System of Accounts ESA 2010, it is recorded as fixed capital expenditure.

Based on R&D expenditure and GDP values in Greece, in 2021, the R&D expenditure as a percentage of GDP ('R&D intensity') was 1.46% from 1.51% in 2020, showing a decrease of 0.05 percentage points. The R&D intensity indicator is included in the monitoring indicators in Pillar 9 - Industry, Innovation and Infrastructure of the UN Sustainable Development Goals and in the indicators of the European Commission's Macroeconomic Imbalance Procedure (MIP) Scoreboard.

Specifically,

- In the Business Enterprise Sector, the R&D expenditure amount to €1,245.20 mil., 8.3% higher than 2017.
- In the Government Sector, the R&D expenditure amount to €590.32 mil., 9.9% higher than 2020.
- In the Higher Education Sector, the R&D expenditure amount to €795.19 mil., 0.3% higher than 2020.
- In the Private Non-Profit Sector, the R&D expenditure amount to €15.24 mil., 5.4% higher than 2020.

Sources of funding





An analysis of R&D expenditures by source of funding shows that in 2021:

- Business-funded R&D were equal to €1,013.29 mil, showing an increase of 1.7% when compared to 2020.
- Government R&D funding accounted for €1,176.27mil., showing an increase of 10.5% when compared to 2020.

A further analysis of the sub-components of the government funding indicates that in 2020:

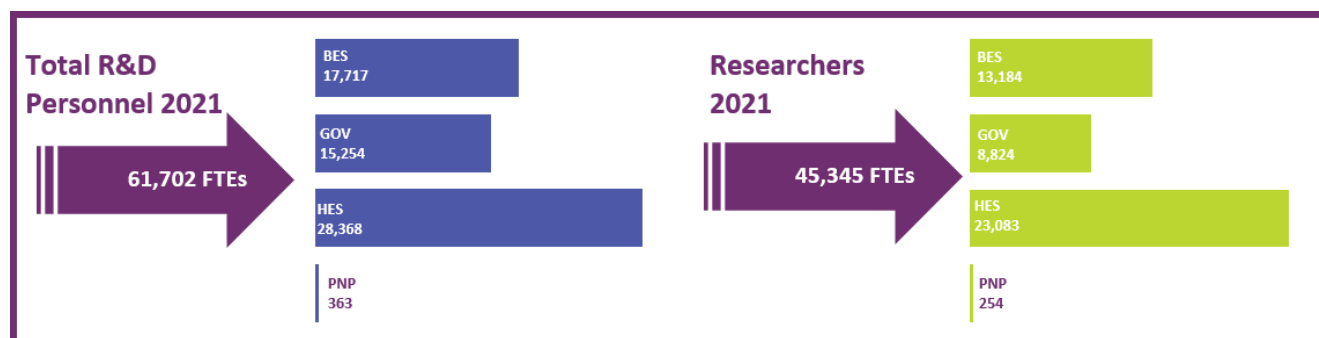
- Funds from the ordinary budget came to €690.80 mil., an increase of 2.1% compared to 2020.
- Funds from the National Strategic Reference Framework (NSRF) came to €335.08 mil., an increase of 33.3% compared to 2020.
- Funds from other sources (mainly from Public Investment Programme) were equal to € 150.39mil., showing an increase of 10.6% compared to 2020.

As far as external funding is concerned, the main source was the European Commission's R&D programmes. R&D expenditures funded by the EU in 2021 was €263.86 mil., a decrease of 4.9% when compared to 2020.

In 2020, the main source of funding for each sector of performance was as follows:

- In the Business Enterprise Sector, 74.4% (€925.82 mil.) of the R&D expenditure was financed by own funds.
- In the Government Sector, 79.8% (€471.15 mil.) of the R&D expenditure was funded by government (53.3% coming from ordinary budget, 16.3% from NSRF and 10.3% from other government sources).
- In the Higher Education Sector, 68.9% (€548.11 mil.) of the R&D expenditure was funded by government (47.3% coming from ordinary budget, 12.4% from NSRF and 9.2% from other government sources).
- In the Private Non-Profit Sector, 41.1% (€6.26 mil.) of the R&D expenditure was financed by own funds.

## R&amp;D Personnel



In 2021 there was also a significant increase in the R&D personnel and researchers (in full time equivalents, FTE).

More precisely, in 2021 the total R&D personnel in Greece rose to 61,702 FTE, which marked an increase of 6.2% when compared to 2020. For researchers, the figure was 45,345 FTE, increasing by 5.6% when compared to 2020.

In 2021 the R&D Personnel by sector of performance was as follows:

- In the Business Enterprise Sector, the number of total R&D personnel was equal to 17,717 FTE, an increase of 11.0% when compared to 2020. The number of researchers came to 13,184 FTE, 13.0% higher than 2020.
- In the Government Sector, the number of total R&D personnel was equal to 15,254 FTE, 7.8% higher than 2020. The number of researchers came to 8,824 FTE, 5.2% higher than 2020.
- In the Higher Education Sector, the number of total R&D personnel was equal to 28,368 FTE, 2.7% higher than 2020. The number of researchers came to 23,083 FTE, 1.9% higher than 2020.
- In the Private Non-Profit Sector, the number of total R&D personnel was equal to 363 FTE. The number of researchers came to 254 FTE.

## 2. R&D Intensity

This chapter presents the R&D intensity indicator for Greece, that is the R&D expenditure as a percentage of GDP.

TABLE 1.

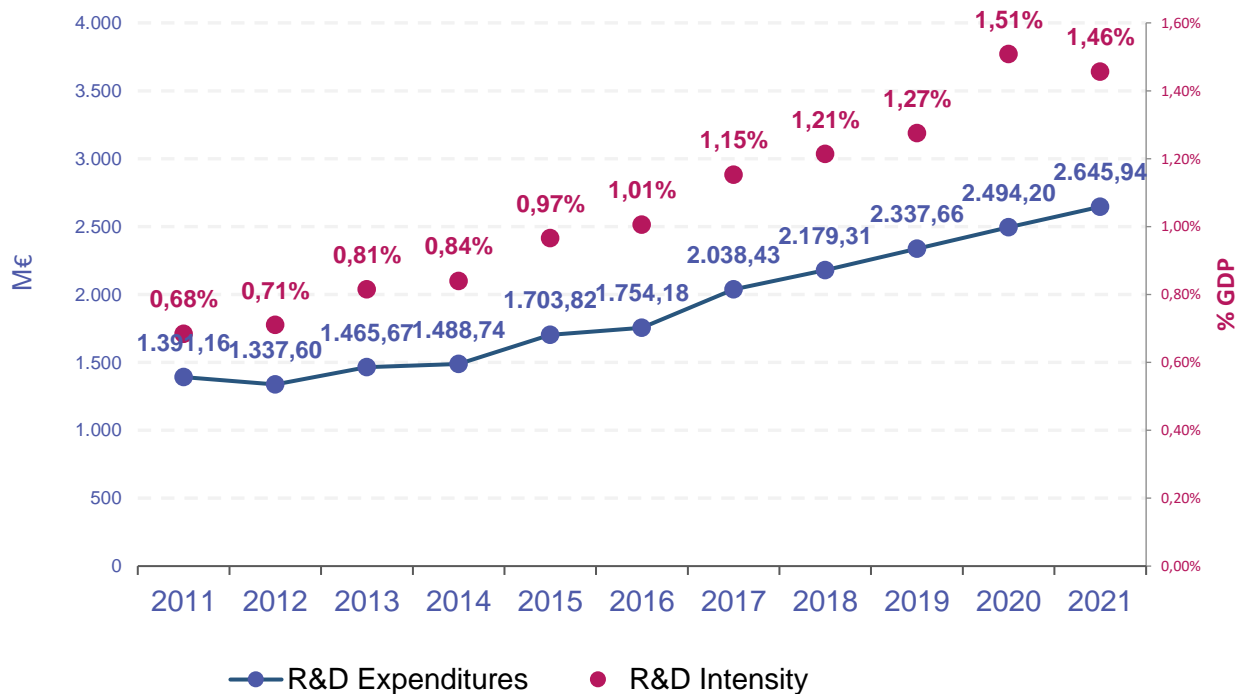
R&D Expenditures, national GDP (in million EUR) and R&D Intensity (R&D Expenditure as % GDP), 2011 – 2021

Year	R&D Expenditure (mil. €)	GDP (mil. €)	R&D Intensity (R&D Expenditure as % GDP)
2011	1,391.16	203,308.2	<b>0.68%</b>
2012	1,337.6	188,380.6	<b>0.71%</b>
2013	1,465.67	179,884.4	<b>0.81%</b>
2014	1,488.74	177,236.0	<b>0.84%</b>
2015	1,703.82	176,368.9	<b>0.97%</b>
2016	1,754.18	174,494.2	<b>1.01%</b>
2017	2,038.43	176,903.4	<b>1.15%</b>
2018	2,179.31	179,557.7	<b>1.21%</b>
2019	2,337.66	183,351.2	<b>1.27%</b>
2020	2,494.20	165,405.9	<b>1.51%</b>
2021	2,645.94	181,674.6	<b>1.46%</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data codes: Δ1,Δ2

FIGURE 1.

R&D Expenditure and R&D Intensity (R&D expenditure as % GDP) 2011-2021



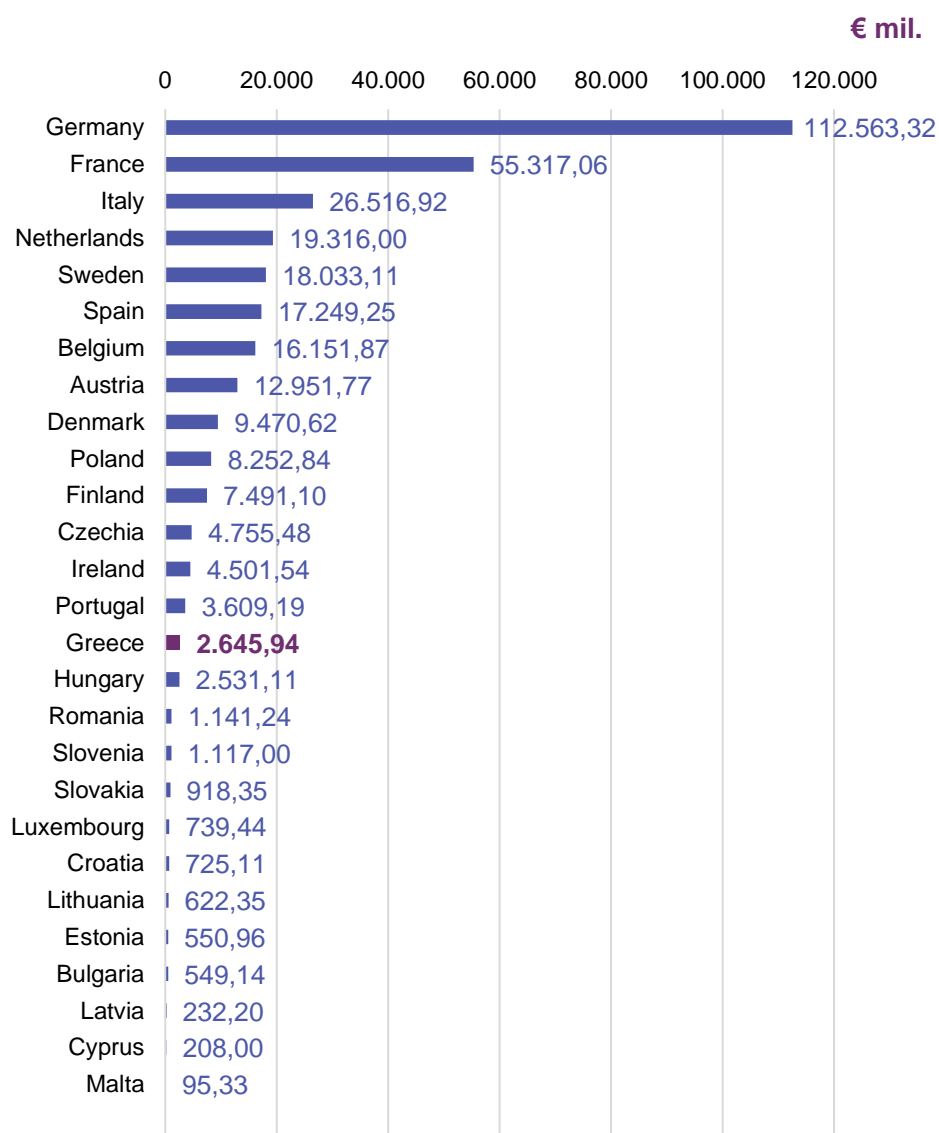
Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ1,Δ2

### 3. R&D Expenditure - Greece's ranking within EU 27

The following figures show Greece's ranking within the EU27 Member States, according to the R&D expenditure (in millions €) and the R&D intensity (% GDP) for 2021.

FIGURE 2.

R&D Expenditure (in millions €) in Greece (final figures 2021) and in EU27 Member States (preliminary data 2021)

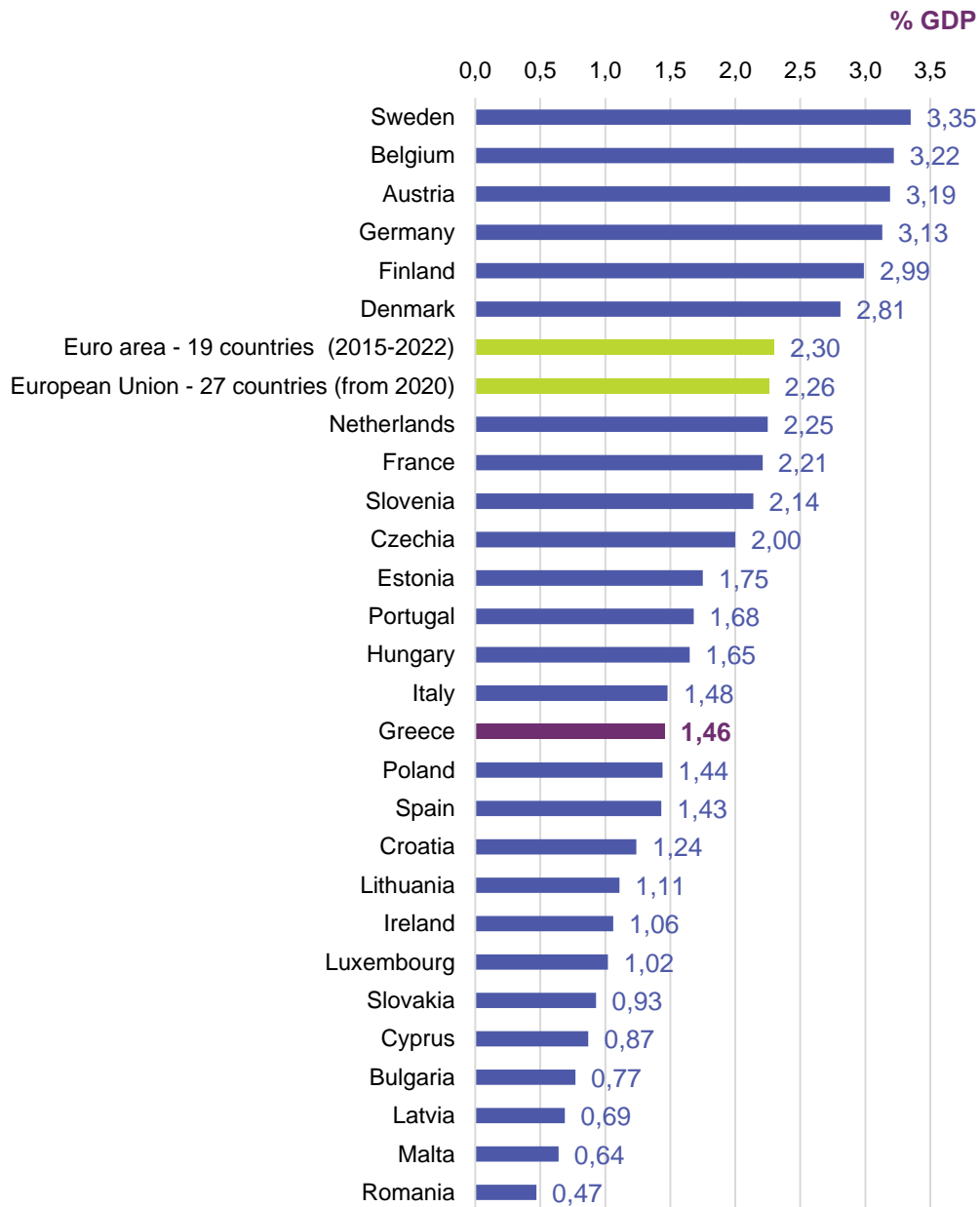


Source: EE27 countries: Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdot, extracted 30.03.2023, last update 11.07.2023).

Greece: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ1

FIGURE 3.

R&D intensity (R&D Expenditure as % GDP) in Greece (final figures 2021) and in other EU27 Member States (preliminary data 2021).



Source: EE27 countries: Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_e\_gerdtot, extracted 11.07.2023, last update 30.03.2023).: Greece EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ2

## 4. R&D Expenditure by sector of performance

This chapter presents R&D expenditure across the four sectors of performance identified by the Frascati Manual.

Throughout the tables and figures of this report, the four R&D sectors of performance which are used to classify the institutions that perform R&D activities, are presented below according to the order and acronyms adopted by Eurostat:

- **BES - Business Enterprise Sector**
- **GOV - Government Sector**
- **HES - Higher Education Sector**
- **PNP - Private Non Profit Sector**

TABLE 2.

R&D Expenditure by sector of performance (in millions €) 2011 – 2021

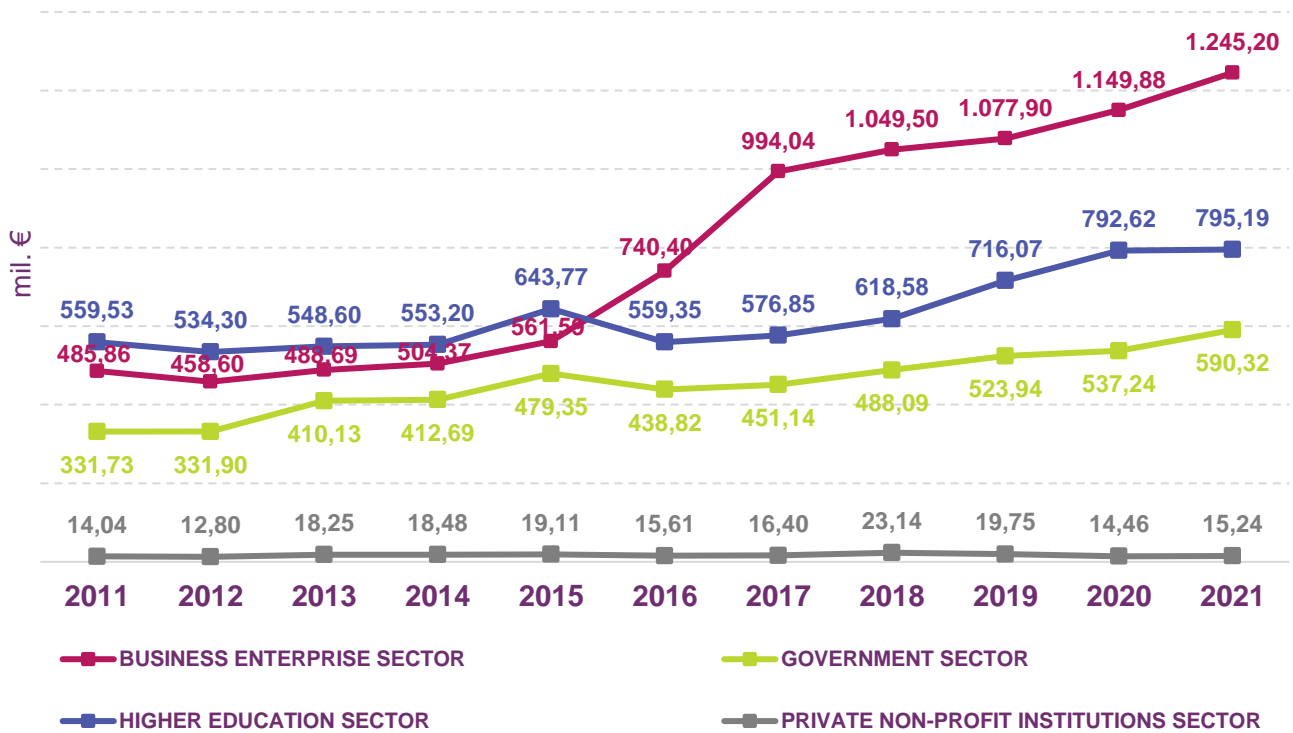
	BES Sector	GOV Sector	HES Sector	PNP Sector	TOTAL
<b>2011</b>	485.86	331.73	559.53	14.04	<b>1,391.16</b>
<b>2012</b>	458.60	331.90	534.30	12.80	<b>1,337.60</b>
<b>2013</b>	488.69	410.13	548.60	18.25	<b>1,465.67</b>
<b>2014</b>	504.37	412.69	553.2	18.48	<b>1,488.74</b>
<b>2015</b>	561.59	479.35	643.77	19.11	<b>1,703.82</b>
<b>2016</b>	740.40	438.82	559.35	15.61	<b>1,754.18</b>
<b>2017</b>	994.04	451.14	576.85	16.40	<b>2,038.43</b>
<b>2018</b>	1,049.50	488.09	618.58	23.14	<b>2,179.31</b>
<b>2019</b>	1,077.90	523.94	716.07	19.75	<b>2,337.66</b>
<b>2020</b>	1,149.88	537.24	792.62	14.46	<b>2,494.20</b>
<b>2021</b>	1,245.20	590.32	795.19	15.24	<b>2,645.94</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ1

A further analysis of the classification of the statistical units in the four sectors is made in Chapter 7 - Methodological Notes.

FIGURE 4.

R&D Expenditure by sector of performance (in millions €), 2011 – 2021



Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ1



TABLE 3.

R&amp;D Intensity (R&amp;D Expenditure as % GDP) by sector of performance 2011 - 2021

R&D Sector of Performance	BES Sector	GOV Sector	HES Sector	PNP Sector	TOTAL
2011	0.24%	0.16%	0.28%	0.01%	<b>0.68%</b>
2012	0.24%	0.18%	0.28%	0.01%	<b>0.71%</b>
2013	0.27%	0.23%	0.30%	0.01%	<b>0.81%</b>
2014	0.28%	0.23%	0.31%	0.01%	<b>0.84%</b>
2015	0.32%	0.27%	0.37%	0.01%	<b>0.97%</b>
2016	0.42%	0.25%	0.32%	0.01%	<b>1.01%</b>
2017	0.56%	0.26%	0.33%	0.01%	<b>1.15%</b>
2018	0.58%	0.27%	0.34%	0.01%	<b>1.21%</b>
2019	0.59%	0.29%	0.39%	0.01%	<b>1.27%</b>
2020	0.70%	0.32%	0.48%	0.01%	<b>1.51%</b>
2021	0.69%	0.32%	0.44%	0.01%	<b>1.46%</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ2

## 5. Sources of funding for R&D activities

This section presents the sources from which R&D expenditure is funded. Tables 4-6 analyse the sources of funding for R&D expenditure in the country as a whole and Tables 7-18 refer to each of the four R&D sectors of performance.

According to the Frascati Manual, the sources of funding for R&D expenditure are divided into 5 main categories as follows:

**Business Enterprise** - funding from enterprises using own funds. This includes either financing of R&D expenditure carried out within the enterprises themselves (own funds) or the financing of R&D in other institutions (research centres, universities, other enterprises, etc.).

**Government** - funding coming from the state (central government and regions). It covers the following individual sources of funding:

- Ordinary budget: R&D expenditure funded through the ordinary budget.
- NSRF: R&D expenditure funded through NSRF projects.
- Other Sources: R&D expenditure funded by the Public Investment Programme except for the NSRF (e.g. projects funded by national resources, national participation in Horizon 2020 projects), by Regions, Municipalities, etc
- Government sector institutions using their own funds to implement their internal R&D activities (use of their own assets, donations, property, inheritance, rents, income from services other than research, etc.).

**Higher Education** - funding coming from higher education sector bodies. This category includes the funding of HES institutions for the implementation of their internal R&D activities using their own funds (use of their own assets, donations, property, inheritance, rents, income from services other than research, etc.).

**Private Non-Profit** - funding originating from institutions of the private non-profit sector. This category includes funding of PNP institutions for the implementation of their internal R&D activities using their own funds (use of their own assets, donations, property, inheritance, rents, income from services other than research, etc.).

**Abroad** – funding from:

- the European Union (e.g. Horizon Europe, Horizon 2020, other competitive programmes).
- Other sources from abroad: R&D implemented by Greek entities and funded by foreign companies, international organisations (OECD, United Nations, etc) or other foreign entities (foundations, organisations, etc)

## 5.1 Funding for the country as a whole

TABLE 4.

Sources of funding for R&D expenditure in the country as a whole (in millions €), 2011 - 2021

Year	Source of Funds					TOTAL
	Business	Government	HES Institutions	PNP Institutions	Abroad	
2011	455.45	684.99	31.57	13.92	205.23	<b>1,391.16</b>
2012	414.80	673.60	26.20	12.10	210.90	<b>1,337.60</b>
2013	443.87	766.14	38.09	12.64	204.93	<b>1,465.67</b>
2014	444.27	793.24	41.56	12.88	196.79	<b>1,488.74</b>
2015	535.00	903.98	41.97	7.13	215.74	<b>1,703.82</b>
2016	705.52	746.76	39.52	7.08	255.30	<b>1,754.18</b>
2017	912.55	766.92	44.12	9.53	305.30	<b>2,038.43</b>
2018	926.15	885.28	41.72	13.59	312.57	<b>2,179.31</b>
2019	968.55	961.80	51.03	14.59	341.69	<b>2,337.66</b>
2020	996.38	1,064.25	64.12	9.71	359.74	<b>2,494.20</b>
2021	1,013.29	1,176.27	67.41	8.37	380.61	<b>2,645.94</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 5.

'Government' funding for R&D expenditure in the country as a whole by individual sources (in millions €), 2011 – 2021

Year	Ordinary budget	NSRF	Other sources	Government Total
2011	504.44	124.72	55.77	<b>684.99</b>
2012	481.19	137.80	54.55	<b>673.60</b>
2013	411.30	296.54	58.30	<b>766.14</b>
2014	407.92	308.12	77.18	<b>793.24</b>
2015	442.70	388.07	73.21	<b>903.98</b>
2016	547.53	101.60	97.63	<b>746.76</b>
2017	588.74	72.37	105.81	<b>766.92</b>
2018	631.73	149.64	103.91	<b>885.28</b>
2019	660.97	202.4	98.42	<b>961.80</b>
2020	676.90	251.34	136.00	<b>1,064.25</b>
2021	690.80	335.08	150.39	<b>1,176.27</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 6.

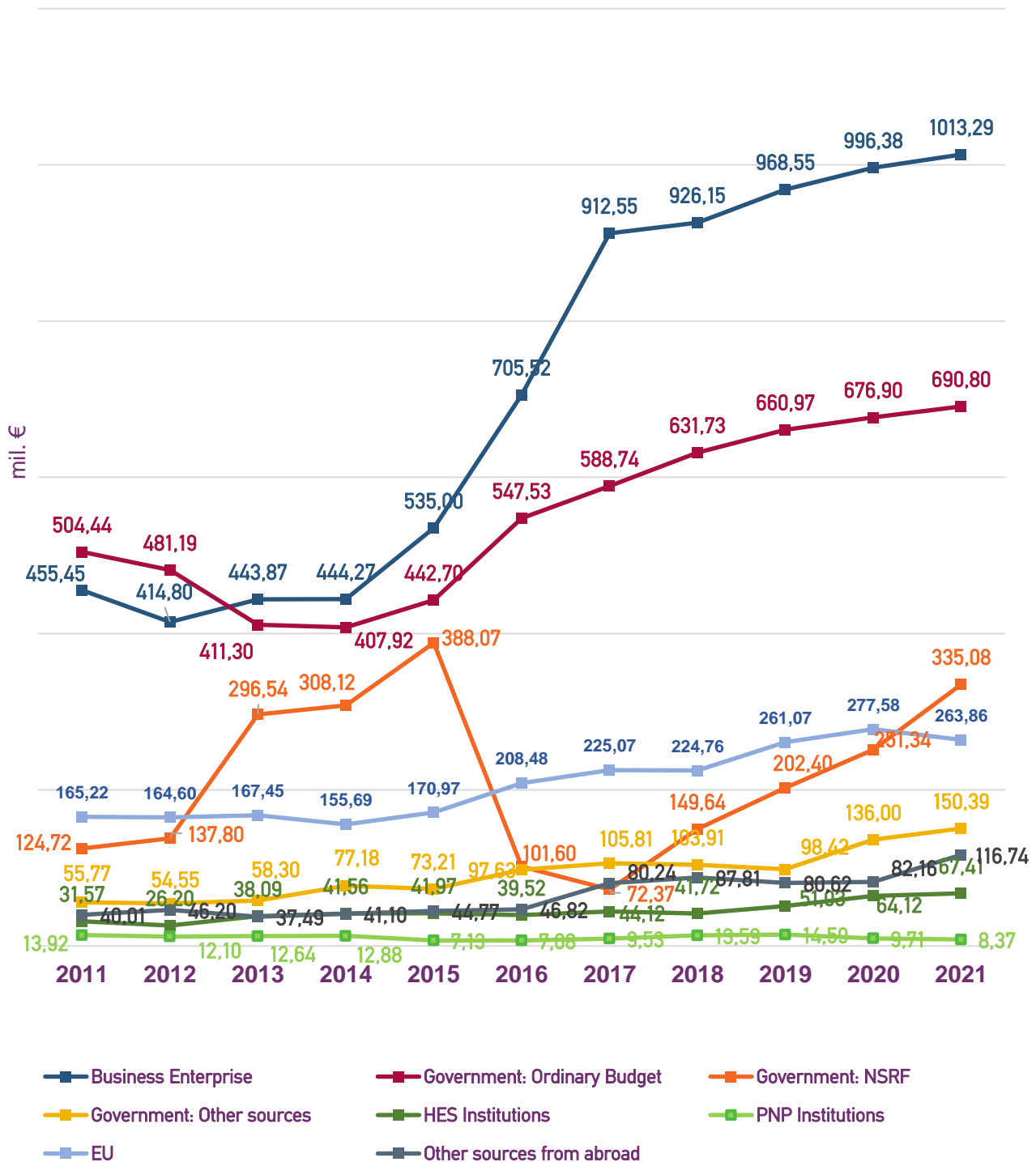
Funding from abroad for R&D expenditure in the country as a whole by individual sources (in millions €), 2011 - 2021

Year	European Union	Other sources from abroad	Abroad Total
2011	165.22	40.01	205.23
2012	164.60	46.20	210.90
2013	167.45	37.49	204.93
2014	155.69	41.10	196.79
2015	170.97	44.77	215.74
2016	208.48	46.82	255.30
2017	225.07	80.24	305.30
2018	224.76	87.81	312.57
2019	261.07	80.62	341.69
2020	277.58	82.16	359.74
2021	263.86	116.74	380.61

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

FIGURE 5.

Sources of funding for R&D expenditure in the country as a whole (in millions €) 2011 – 2021



Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

## 5.2 Business Enterprise Sector

TABLE 7.

Sources of funding for R&D expenditure in the Business Enterprise sector (in millions €), 2011 - 2021

Sources of funding for R&D in Business Enterprise Sector						
Year	Own enterprise (internal funds)	Government	HES institutions	PNP institutions	Abroad	TOTAL
2011	382.79	39.09	0.63	0.33	63.02	<b>485.86</b>
2012	354.10	37.60	0.50	0.20	66.20	<b>458.60</b>
2013	398.68	34.03	0.27	0	55.71	<b>488.69</b>
2014	397.86	52.93	0.22	0	53.37	<b>504.37</b>
2015	462.37	49.48	0.03	0	49.71	<b>561.59</b>
2016	648.49	24.60	0.18	0	67.13	<b>740.40</b>
2017	836.28	40.61	0.22	0.31	116.62	<b>994.04</b>
2018	855.10	63.36	0.29	0.02	130.73	<b>1,049.50</b>
2019	891.93	67.54	0.27	0.70	117.46	<b>1,077.90</b>
2020	925.92	85.74	0.29	0.81	137.12	<b>1,149.88</b>
2021	925.82	155.79	0.55	0.45	162.58	<b>1,245.20</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 8.

Government funding for R&D expenditure in the Business Enterprise sector (in millions €), 2011 – 2021) by individual sources

Year	NSRF	Other sources	Government Total
2011	26.50	12.50	<b>39.09</b>
2012	24.90	12.70	<b>37.60</b>
2013	28.74	5.29	<b>34.03</b>
2014	45.19	7.74	<b>52.93</b>
2015	45.78	3.70	<b>49.48</b>
2016	22.24	2.36	<b>24.60</b>
2017	35.13	5.48	<b>40.61</b>
2018	58.72	4.64	<b>63.36</b>
2019	66.37	1.17	<b>67.54</b>
2020	82.56	3.18	<b>85.74</b>
2021	139.18	16.61	<b>155.79</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3



TABLE 9.

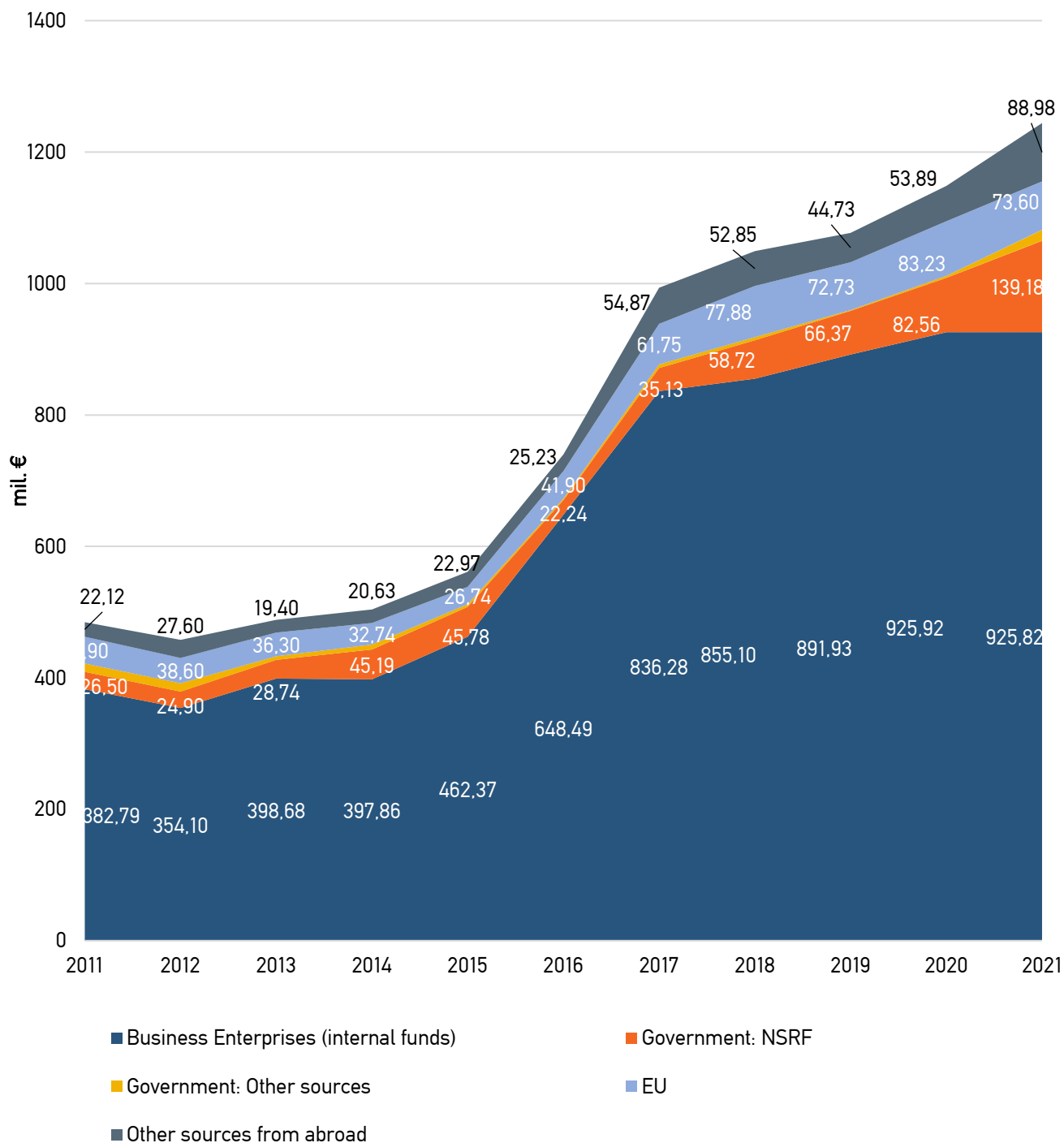
Funding from abroad for R&D expenditure in the Business Enterprise Sector (in millions €), 2011 – 2021 by individual sources

Year	European Union	Other sources from abroad	Abroad Total
2011	40.90	22.12	63.02
2012	38.60	27.60	66.20
2013	36.30	19.40	55.71
2014	32.74	20.63	53.37
2015	26.74	22.97	49.71
2016	41.90	25.23	67.13
2017	61.75	54.87	116.62
2018	77.88	52.85	130.73
2019	72.73	44.73	117.46
2020	83.23	53.89	137.12
2021	73.60	88.98	162.58

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

FIGURE 6.

Sources of funding for R&D expenditure in the Business Enterprise Sector (in millions €), 2011 – 2021



Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

## 5.3 Government Sector

TABLE 10.

Sources of R&amp;D funding in the Government sector (in millions €) 2011-2021

Sources of funding for R&D in Government Sector						
Year	Businesses	Government	HES Institutions	PNP Institutions	Abroad	TOTAL
2011	21.82	255.23	0	0.29	54.39	<b>331.73</b>
2012	18.10	257.30	0	0.30	56.20	<b>331.90</b>
2013	14.65	333.51	0.15	0.02	61.80	<b>410.13</b>
2014	12.92	338.86	0.32	0.03	60.56	<b>412.69</b>
2015	21.51	391.42	0.20	0.04	66.18	<b>479.35</b>
2016	14.11	349.88	0.12	0.17	74.54	<b>438.82</b>
2017	25.11	344.27	0.04	1.26	80.46	<b>451.14</b>
2018	16.04	391.64	0.14	1.10	79.17	<b>488.09</b>
2019	18.03	420.87	0.16	1.80	83.08	<b>523.94</b>
2020	17.07	446.24	0.15	1.80	71.98	<b>537.24</b>
2021	25.41	471.15	0.45	1.28	92.02	<b>590.32</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 11.

Distribution of Government R&D funding in individual sources that finance R&D Expenditure in the Government Sector (in millions €) 2011 – 2021

Year	Ordinary Budget	NSRF	Other Sources (including internal funds)	Government Total
2011	163.43	55.38	36.43	<b>255.23</b>
2012	159.97	61.80	35.50	<b>257.30</b>
2013	158.20	139.69	35.62	<b>333.51</b>
2014	164.14	126.53	48.19	<b>338.86</b>
2015	182.28	166.10	43.04	<b>391.42</b>
2016	248.70	45.81	55.37	<b>349.88</b>
2017	276.84	19.07	48.36	<b>344.27</b>
2018	295.48	44.09	52.07	<b>391.64</b>
2019	300.90	66.45	53.52	<b>420.87</b>
2020	307.37	77.67	61.20	<b>446.24</b>
2021	314.45	96.01	60.69	<b>471.15</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 12.

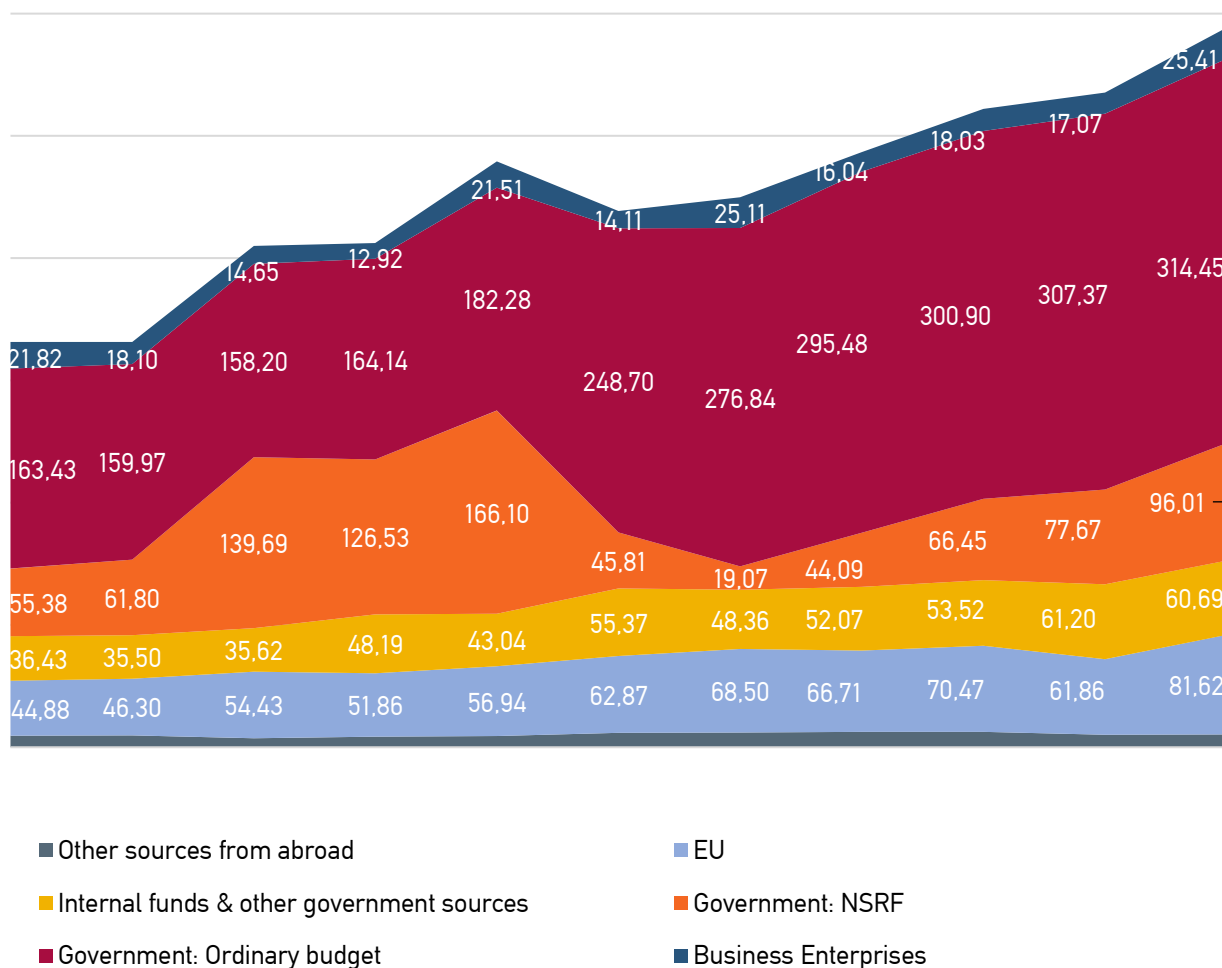
Distribution of R&D funding from abroad in individual sources that finance R&D Expenditure in the Government Sector (in millions €) 2011 – 2021

Year	European Union	Other sources from abroad	Abroad Total
2011	44.88	9.51	<b>54.39</b>
2012	46.30	9.80	<b>56.20</b>
2013	54.43	7.37	<b>61.80</b>
2014	51.86	8.70	<b>60.56</b>
2015	56.94	9.24	<b>66.18</b>
2016	62.87	11.67	<b>74.54</b>
2017	68.50	11.96	<b>80.46</b>
2018	66.71	12.46	<b>79.17</b>
2019	70.47	12.61	<b>83.08</b>
2020	61.86	10.12	<b>71.98</b>
2021	81.62	10.40	<b>92.02</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

FIGURE 7.

Sources of funds for R&D expenditure in Government sector (in millions €), 2011 – 2021



Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

## 5.4 Higher Education Sector

TABLE 13.

Sources of funds for R&D expenditure in Higher Education sector (in millions €) 2011 – 2021

Sources of funding for R&D in Higher Education Sector						
Year	Businesses	Government	HES Institutions (internal funds)	PNP Institutions	Abroad	TOTAL
2011	50.12	389.20	30.93	4.05	85.23	<b>559.53</b>
2012	42.10	377.30	25.70	3.20	86.00	<b>534.30</b>
2013	30.00	395.65	37.67	3.77	81.51	<b>548.60</b>
2014	33.01	398.61	41.02	3.86	76.70	<b>553.20</b>
2015	48.77	457.96	41.74	1.35	93.95	<b>643.77</b>
2016	40.77	371.12	39.22	1.44	106.80	<b>559.35</b>
2017	48.17	380.18	43.86	1.31	103.33	<b>576.85</b>
2018	52.36	428.10	41.16	0.75	96.21	<b>618.58</b>
2019	56.35	471.82	50.53	0.57	136.80	<b>716.07</b>
2020	51.80	531.12	63.66	0.70	145.34	<b>792.62</b>
2021	60.32	548.11	66.41	0.37	119.98	<b>795.19</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 14.

Distribution of Government R&D funding in individual sources that finance R&D Expenditure in Higher Education Sector (in millions €) 2011 – 2021

Year	Ordinary budget	NSRF	Other sources	Government Total
2011	340.91	41.54	6.75	389.20
2012	321.20	49.80	6.30	377.30
2013	253.09	125.51	17.05	395.65
2014	243.77	133.85	20.97	398.61
2015	260.41	171.42	26.13	457.96
2016	298.78	33.07	39.27	371.12
2017	311.90	17.77	50.51	380.18
2018	336.25	45.69	46.16	428.10
2019	360.07	68.75	43.00	471.82
2020	369.53	90.21	71.38	531.12
2021	376.35	98.91	72.85	548.11

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3



TABLE 15.

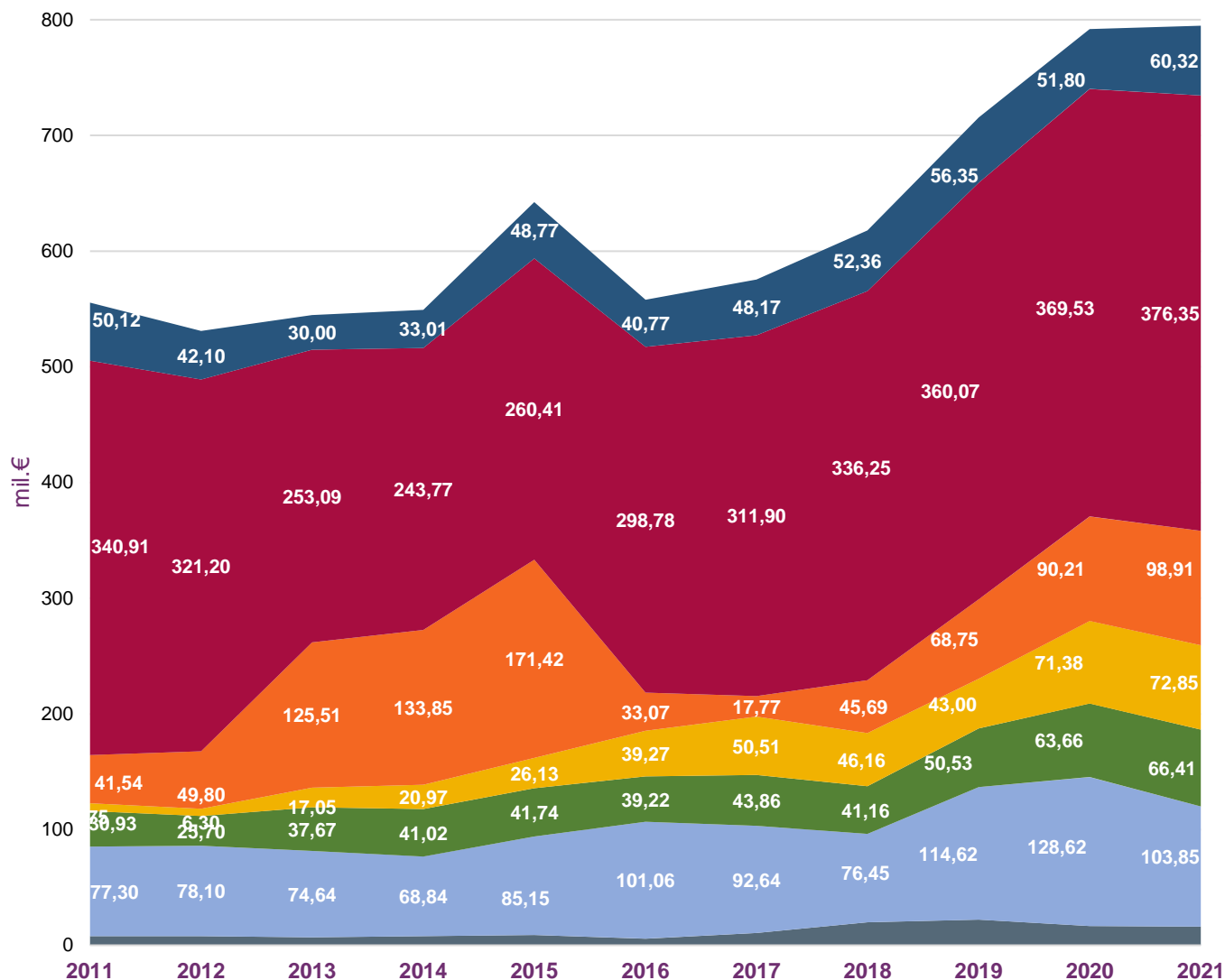
Distribution of R&D funding from abroad in individual sources that finance R&D Expenditure in Higher Education Sector (in millions €) 2011 – 2021

Year	European Union	Other sources from abroad	Abroad Total
2011	77.30	7.87	<b>85.23</b>
2012	78.10	7.90	<b>86.00</b>
2013	74.64	6.87	<b>81.51</b>
2014	68.84	7.86	<b>76.70</b>
2015	85.15	8.80	<b>93.95</b>
2016	101.06	5.74	<b>106.80</b>
2017	92.64	10.69	<b>103.33</b>
2018	76.45	19.76	<b>96.21</b>
2019	114.62	22.18	<b>136.80</b>
2020	128.62	16.72	<b>145.34</b>
2021	103.85	16.13	<b>119.98</b>

Source: EKT <https://metrics.ekt.gr/research-development/datatables.data> code Δ3

FIGURE 8.

Sources of funding for R&D expenditure in Higher Education sector (in millions €), 2011 – 2021



- Other sources from abroad
- EU
- Internal funds
- Government: other sources
- Government: NSRF
- Government: Ordinary budget
- Business Enterprises

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

## 5.5 Private Non-Profit Institutions Sector

TABLE 16.

Sources of funding for R&D expenditure in Private Non-Profit sector (in millions €), 2011 – 2021

Sources of funding for R&D in Private Non-profit Institutions Sector						
Year	Businesses	Government	HES Institutions	PNP Institutions (internal funds)	Abroad	TOTAL
2011	0.73	1.47	0.01	9.25	2.59	14.04
2012	0.50	1.40	0	8.40	2.50	12.80
2013	0.54	2.95	0	8.85	5.91	18.25
2014	0.49	2.84	0	8.99	6.16	18.48
2015	2.35	5.12	0	5.74	5.90	19.11
2016	2.15	1.16	0	5.47	6.83	15.61
2017	2.99	1.86	0	6.65	4.90	16.40
2018	2.65	2.18	0.13	11.72	6.46	23.14
2019	2.24	1.57	0.07	11.52	4.35	19.75
2020	1.59	1.15	0.02	6.40	5.30	14.46
2021	1.74	1.22	0	6.26	6.02	15.24

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 17.

Distribution of 'State' R&D funding in individual sources that finance R&D Expenditure in Private Non-Profit Institutions Sector (in millions €) 2011 – 2021

Year	Ordinary Budget	NSRF	Other sources	Government Total
2011	0.10	1.30	0.10	1.47
2012	0.02	1.30	0.05	1.40
2013	0.01	2.60	0.34	2.95
2014	0.01	2.55	0.28	2.84
2015	0.01	4.77	0.34	5.12
2016	0.05	0.48	0.63	1.16
2017	0	0.40	1.46	1.86
2018	0	1.14	1.04	2.18
2019	0	0.83	0.73	1.57
2020	0	0.90	0.24	1.15
2021	0	0.98	0.24	1.22

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

TABLE 18.

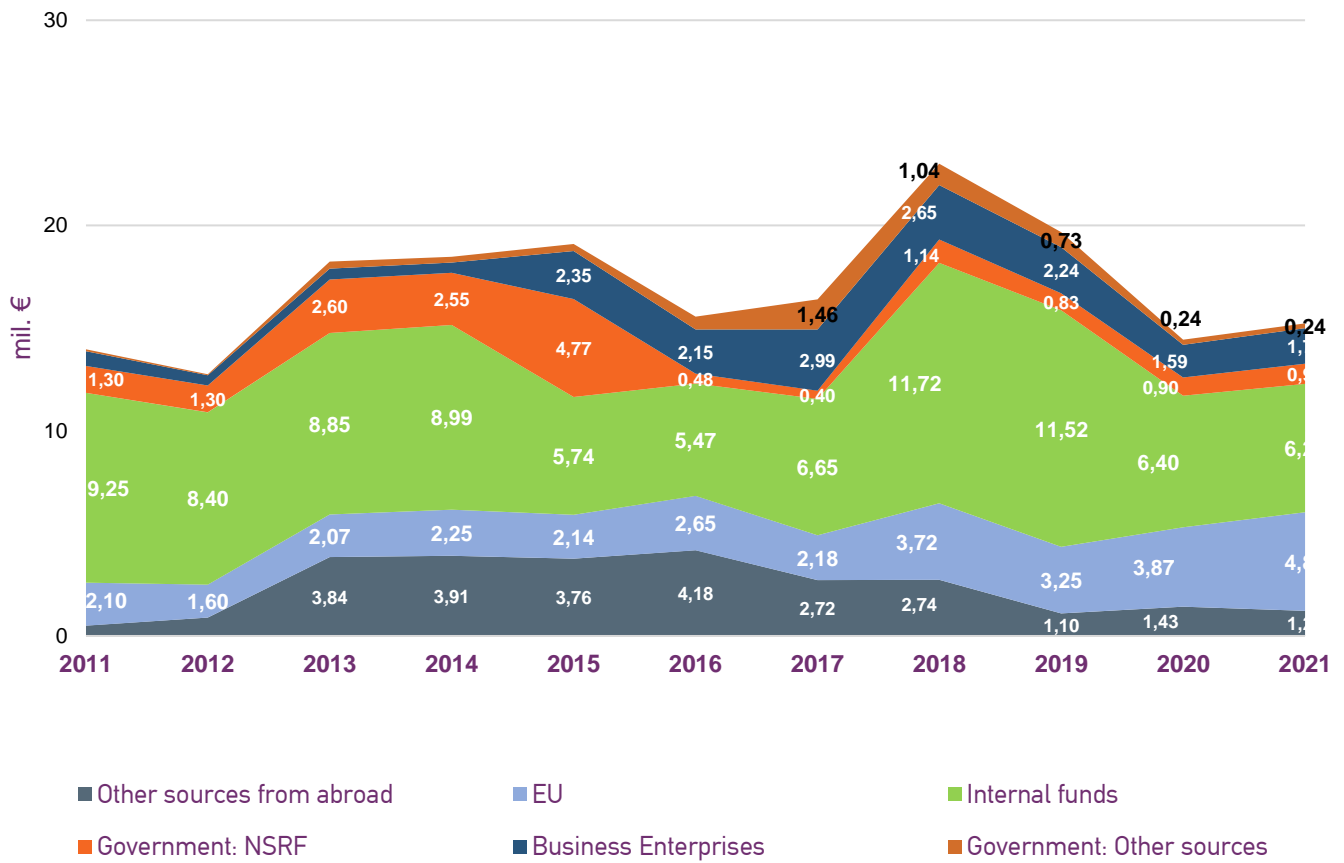
Distribution of R&D funding from abroad in individual sources that finance R&D Expenditure in Private Non-Profit Sector (in millions €) 2011 – 2021

Year	European Union	Other sources from abroad	Abroad Total
2011	2.1	0.5	2.59
2012	1.6	0.9	2.50
2013	2.07	3.84	5.91
2014	2.25	3.91	6.16
2015	2.14	3.76	5.90
2016	2.65	4.18	6.83
2017	2.18	2.72	4.90
2018	3.72	2.74	6.46
2019	3.25	1.1	4.35
2020	3.87	1.43	5.30
2021	4.80	1.22	6.02

Source: EKT <https://metrics.ekt.gr/research-development/datatables>, data code Δ3

FIGURE 9.

Sources of funding for R&D expenditure in Private Non-Profit sector (in millions €) 2011 – 2021

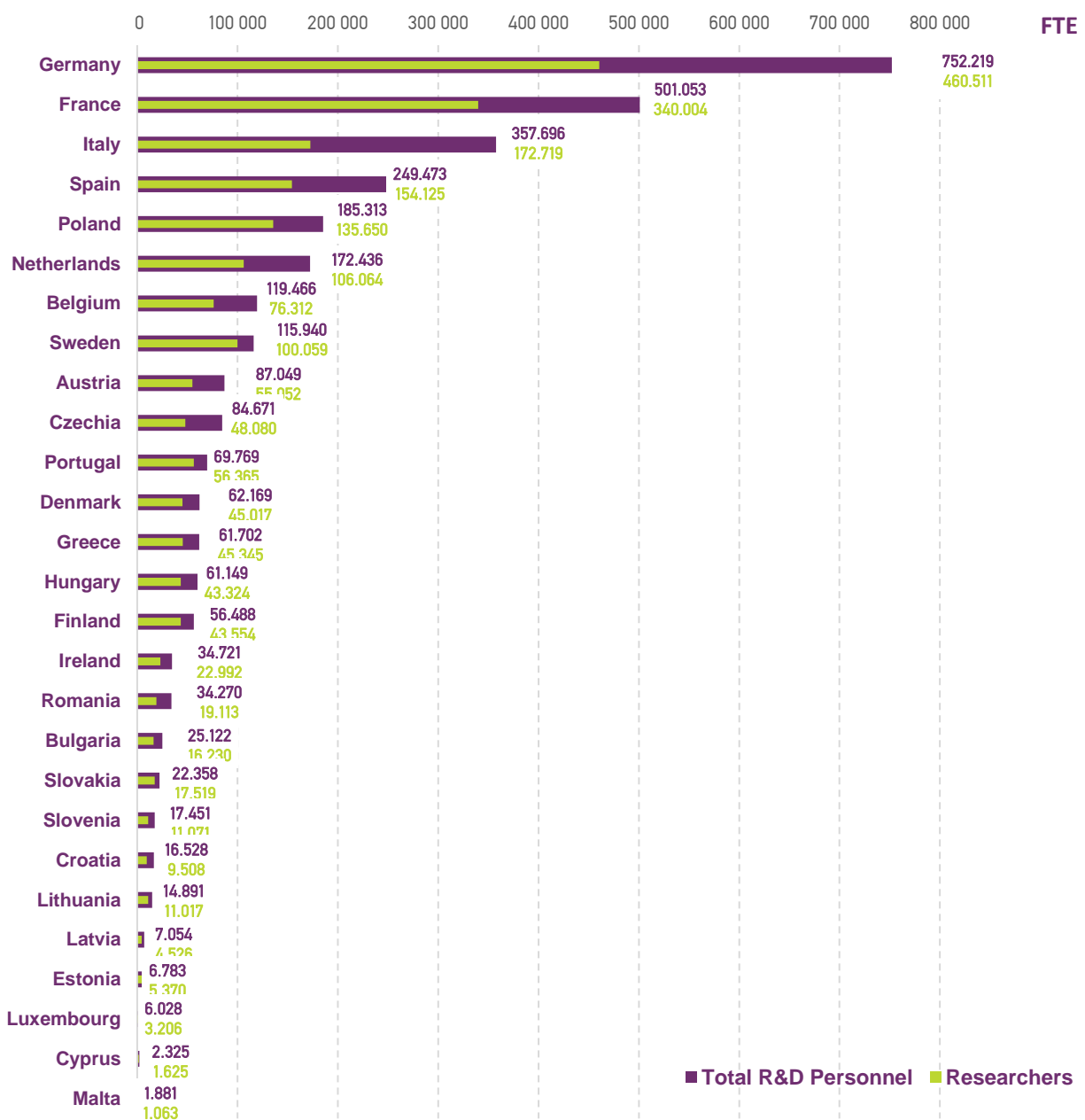


Source: EKT (<https://metrics.ekt.gr/research-development/datatables>, data code Δ3)

## 6. R&D Personnel – Greece’s ranking within EU 27

According to the final data, the total R&D personnel in Greece in 2021 was 61,702 (in full-time equivalents / FTE), 45,345 FTE of which were researchers. The following figures show Greece’s ranking among the EU27 Member States.

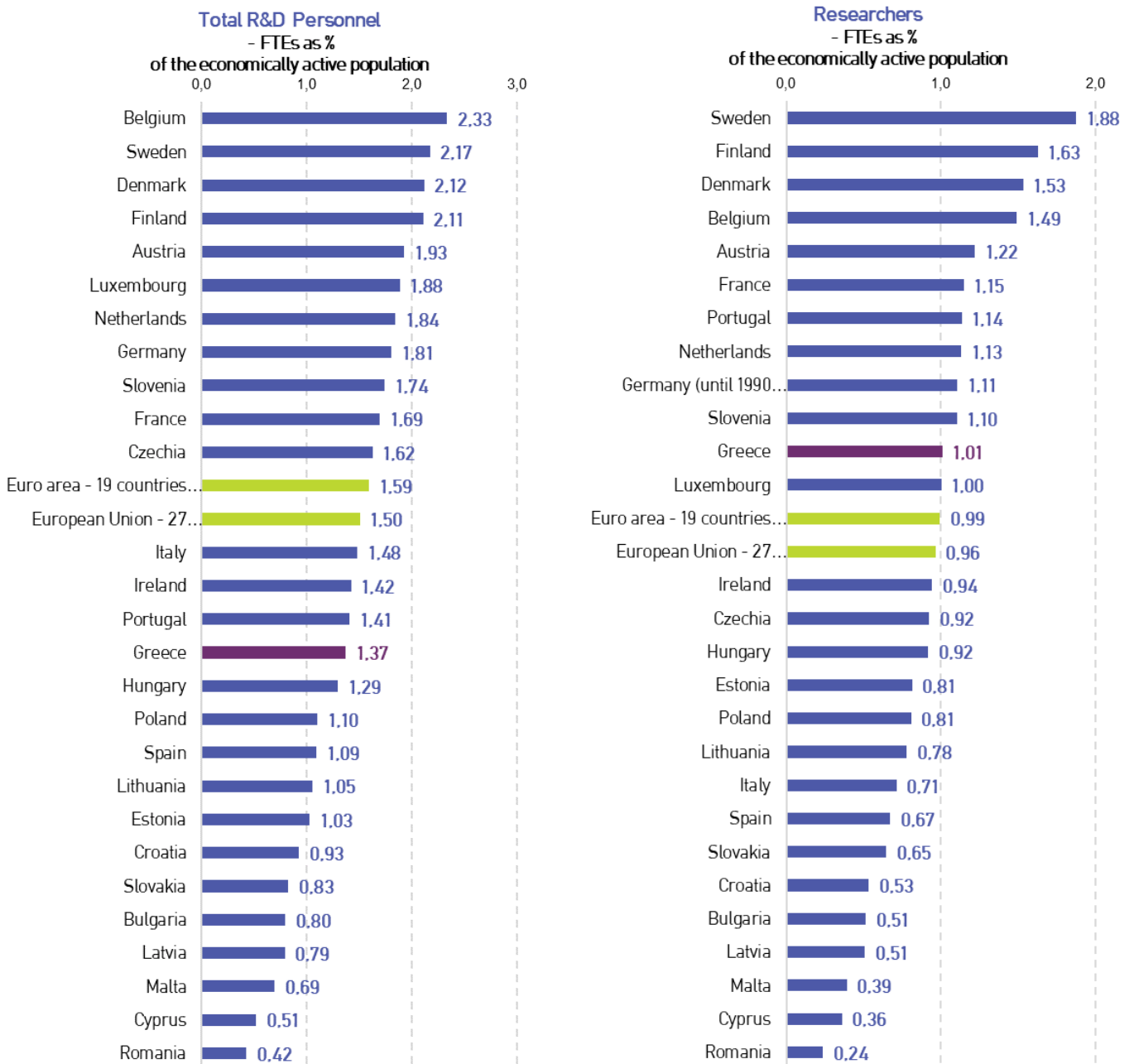
FIGURE 10. R&D personnel and Researchers (in full-time equivalents / FTE) in Greece (final data 2021) and in other EU 27 Member States (preliminary data 2021)



Source: EE27 countries: Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_p\_persocc, extracted 17.07.2023, last update 30.03.2023). Greece: EKT (<https://metrics.ekt.gr/research-development/datatables>, data code Π2

FIGURE 11.

R&D personnel and Researchers (FTEs as % of total employment in Greece (final data 2021) and in other EU27 Member States (preliminary data 2021)



Πηγή: Χώρες ΕΕ27: Eurostat (<http://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>, data code: rd\_p\_perslf], extr

Year extracted 17.07.2023, last update 30.03.2023). Greece: EKT (<https://metrics.ekt.gr/research-development/datatables>, data code Π2



## 7. R&D Personnel by Sector of Performance

R&D personnel include all individuals who directly contribute to the implementation of R&D activities. There are two main categories, researchers and other R&D personnel.

The following table shows the evolution over time of R&D personnel in FTEs between 2011 and 2021, for total R&D personnel and researchers.

TABLE 10.

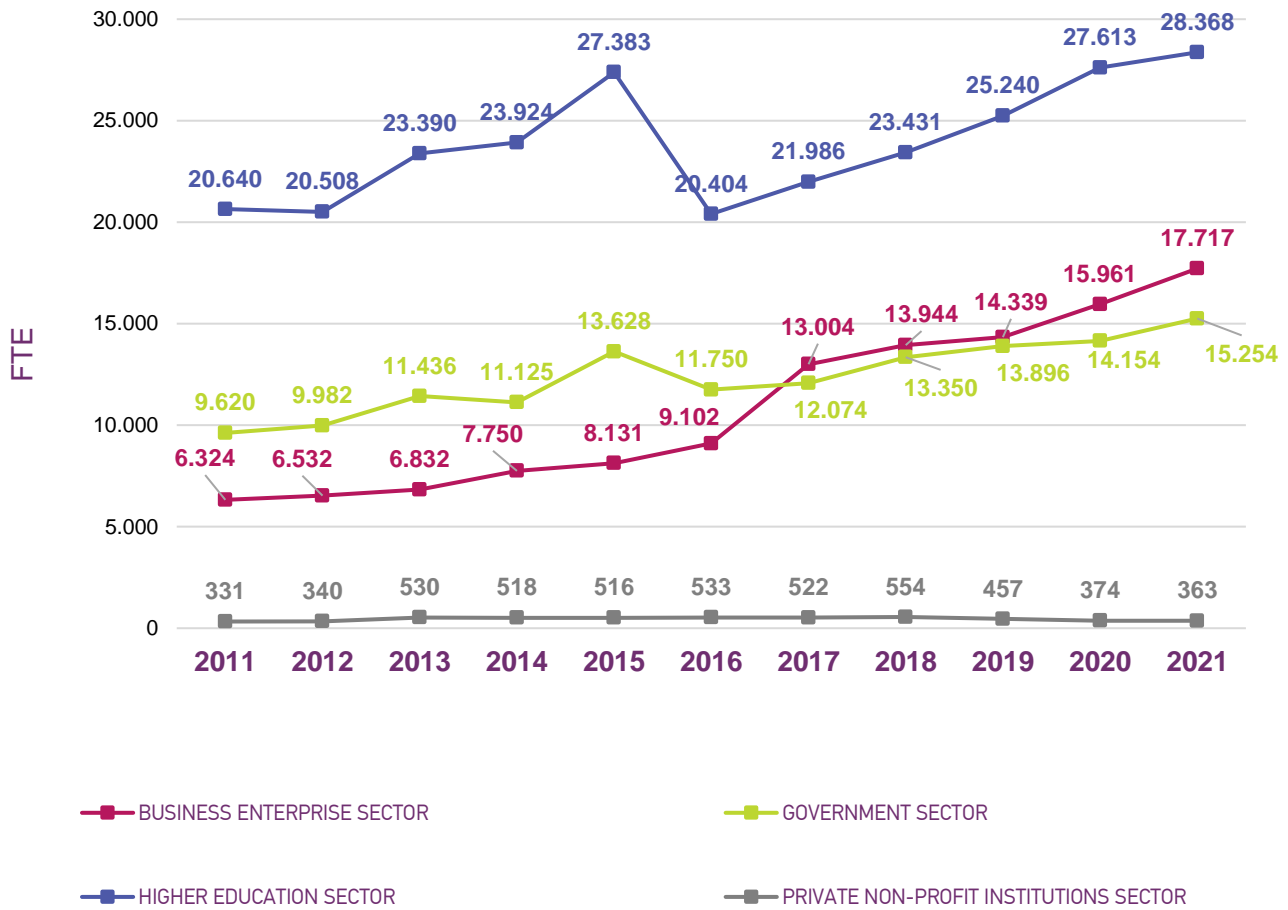
Total R&D personnel by sector of performance (in FTE), 2011 – 2021

Year	BES Sector	GOV Sector	HES Sector	PNP Sector	Total
2011	6,324	9,620	20,640	331	36,913
2012	6,532	9,982	20,508	340	37,361
2013	6,832	11,436	23,390	530	42,188
2014	7,750	11,125	23,924	518	43,316
2015	8,131	13,628	27,383	516	49,658
2016	9,102	11,750	20,404	533	41,790
2017	13,004	12,074	21,986	522	47,585
2018	13,944	13,350	23,431	554	51,279
2019	14,339	13,896	25,240	457	53,932
2020	15,961	14,154	27,613	374	58,103
2021	17,717	15,254	28,368	363	61,702

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

FIGURE 12.

Total R&D personnel (FTE) by R&D sector of performance, 2011 – 2021



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

TABLE 11.

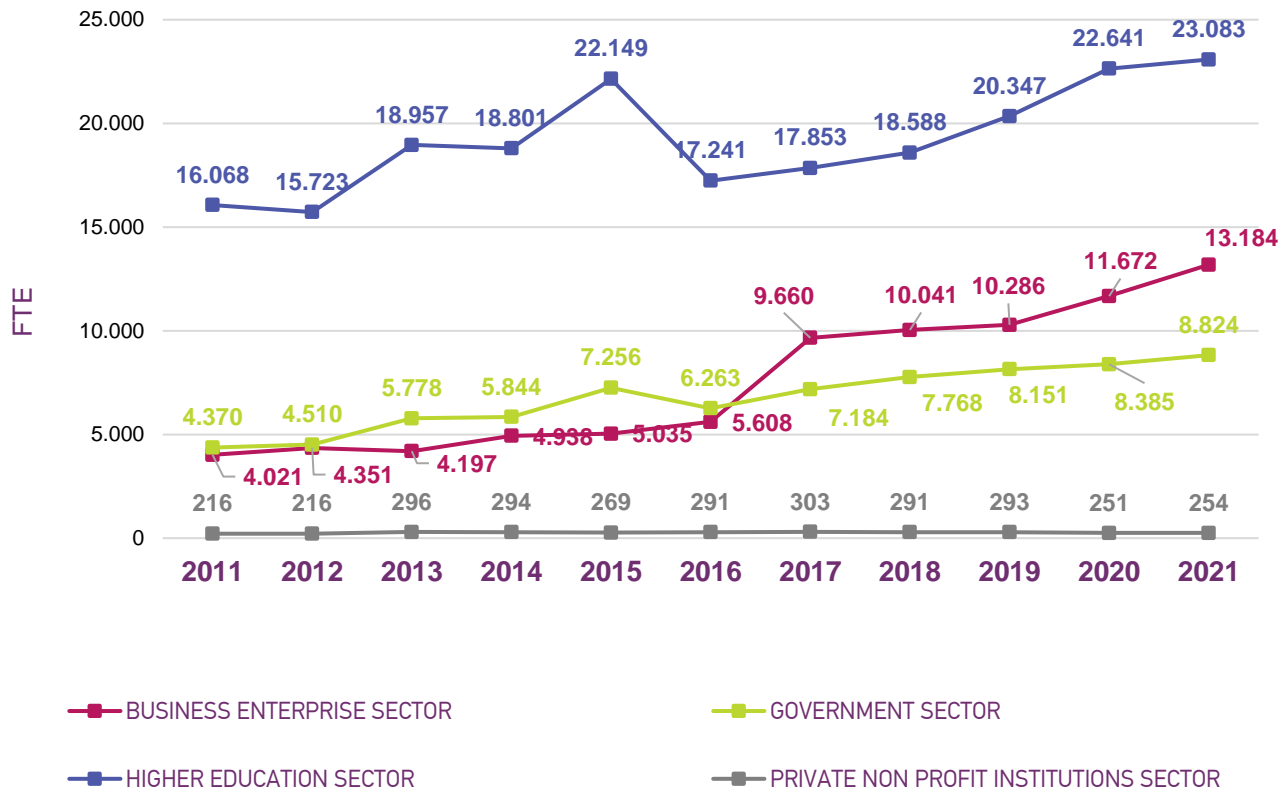
Researchers by R&D sector of performance (in FTE), 2011 – 2021

Year	BES Sector	GOV Sector	HES Sector	PNP Sector	Total
2011	4,021	4,370	16,068	216	<b>24,674</b>
2012	4,351	4,510	15,723	216	<b>24,800</b>
2013	4,197	5,778	18,957	296	<b>29,228</b>
2014	4,938	5,844	18,801	294	<b>29,877</b>
2015	5,035	7,256	22,149	269	<b>34,708</b>
2016	5,608	6,263	17,241	291	<b>29,403</b>
2017	9,660	7,184	17,853	303	<b>35,000</b>
2018	10,041	7,768	18,588	291	<b>36,688</b>
2019	10,286	8,151	20,347	293	<b>39,077</b>
2020	11,672	8,385	22,641	251	<b>42,949</b>
2021	13,184	8,824	23,083	254	<b>45,345</b>

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

FIGURE 13.

Researchers (in full-time equivalents) by R&D sector of performance 2011 – 2021



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

## 8. Methodological Notes

<p><b>Brief data description</b></p>	<p>Official R&amp;D (Research and Development) Statistics produce indicators on the personnel involved in R&amp;D activities, as well as on the (intramural) R&amp;D Expenditures in all Sectors of economic activities: Business Enterprise Sector (BES). Government Sector (GOV). Higher Education Sector (HES). Private non-Profit Sector (PNP) and for the country as a whole.</p> <p>The most known indicator is the “R&amp;D Intensity” which represents R&amp;D expenditure as a percentage of GDP.</p> <p>The European Research &amp; Development (R&amp;D) statistics and the related statistics on expenditure and personnel in R&amp;D activities are produced in Greece by the National Documentation Centre (EKT), the competent national authority of the Hellenic Statistical System, in cooperation with the Hellenic Statistical Authority. The data are submitted to Eurostat by EKT.</p> <p>This publication presents the final figures for R&amp;D expenditure and Personnel in Greece in 2021.</p> <p>In 2023, EKT launched a new series of modern, interactive presentations titled <b>EKT+Statistics Compass</b> which explain the European and national Statistics in a simple and intuitive way. The presentation on R&amp;D statistics is available at <a href="#">ΠΥΞΙΔΑ E&amp;A</a></p>
<p><b>Significance of indicators</b></p>	<ul style="list-style-type: none"><li>○ R&amp;D expenditures are included in a country’s GDP as, according to the revised European System of Accounts ESA 2010, it is recorded as fixed capital expenditure.</li><li>○ The R&amp;D intensity indicator (R&amp;D expenditure as a percentage (%) of GDP) and the indicator ‘Percentage (%) of R&amp;D personnel in the employed population (workforce)’ are included in the monitoring indicators of Pillar 9 - Industry, Innovation and Infrastructure of the UN Sustainable Development Goals.</li><li>○ The R&amp;D intensity indicator is included in the auxiliary indicators of the Macroeconomic Imbalance Procedure (MIP) Scoreboard, which is used by the European Commission for early warning to monitor the macroeconomic imbalances of the EU Member States.</li></ul>

- The R&D Intensity indicator is one of the nine headline indicators which are used to monitor the progress of the Europe 2020 strategy towards the goal of European Union R&D expenditures reaching 3% of GDP. This target is maintained with a new time horizon of 2030.

#### Institutional coverage

The R&D statistics are being collected and analysed by Sector of R&D Performance, that is the sector in which R&D activities are being conducted. The Institutions performing R&D activities and constituting the statistical units from which data are collected, are therefore classified into the following four R&D sectors of performance:

- **Business enterprise sector (BES)**, which includes all enterprises, organisations and institutions whose primary activity is the production of goods or services (except for higher education). In addition, this sector includes public enterprises as well as non-profit institutions mainly serving the enterprises. All sectors of economic activities (NACE Rev.2) and are being covered.
- **Higher Education Sector (HES)**, which includes all Universities and Technological Educational Institutes (TEI), the School of Pedagogical and Technological Education, University Research Institutes (EPI), University Hospitals, as well as other HE schools/academies (e.g. Higher Ecclesiastical Schools, Military Academies). After the implementation of the new Frascati Manual (2015) the Private Institutes of Vocational Training (IEK) accredited by the Ministry of Education and Religious Affairs are not included in Higher Education Sector (HES). These institutions are included in BES or PNP according to their legal form.
- **Government Sector – (GOV)**, which includes all departments, offices and other bodies administered or/and financed by Ministries, such as the Public Research Centres that are supervised by the General Secretariat for Research and Innovation (GSRI), other Public Research Institutions supervised by different Ministries.
- **Private Non-Profit Sector – (PNP)**, which includes non-commercial, private non-profit institutions serving the general public, such as professional and scientific

	<p>associations, humanitarian organizations, non-commercial unions, consumers associations etc.</p>
<p>Concepts and definitions of main variables</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, 2015).</p> <p><b>Research &amp; Development – (R&amp;D)</b></p> <p>According to the Frascati Manual, R&amp;D comprises creative and systematic work in order to increase the stock of knowledge, including knowledge of humankind, culture and society, and to devise new applications of existing knowledge.</p> <p>The R&amp;D concept 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 and producing additional knowledge, which is directed to producing new, products and procedures and installing new processes, or to improving existing products and processes.</p> <p>R&amp;D covers both formal R&amp;D activities conducted in research institutions and informal or occasional R&amp;D in other research institutions.</p> <p><b>Intramural R&amp;D expenditure</b></p> <p>R&amp;D Expenditure data refer to intramural expenditure. Intramural expenditure is defined as the total expenditure for R&amp;D activities performed within entities (statistical units), regardless of the source of funds.</p> <p>Both current (i.e. labour cost and other current cost such as operating costs – rent, consumables etc.) and capital expenditure (i.e. expenditure on equipment, land and buildings) are included.</p>

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 activities performed with assignment to contractors or other institutions and are carried outside externally are not included in R&D indicators.

### R&D personnel

The R&D personnel includes all those individuals who are directly involved in R&D activities, scientists and engineers (researchers), highly trained technical personnel and other support personnel which directly supports the implementation of R&D activities (eg. Workers, administrative and/or secretarial support, technicians etc.) R&D personnel also includes those involved in planning and managing tasks of other researchers.

R&D personnel is classified into the following two employment categories:

**Researchers:** Scientists whose professional activities are oriented towards the conception/creation of new knowledge, who perform R&D activities and develop or improve already acquired concepts, techniques, methods, software or operations. PhD students 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. technicians, developers, programmers, bibliographers, statisticians, interviewers etc.), as well as personnel performing various tasks directly related to R&D activities and are necessary for their completion (e.g. legal services, workers, secretaries or other administrators).

### Full Time Equivalent – (FTE)

Full time equivalent (FTE) is the unit that measures the amount of employees involved in R&D activities in a comparable way and is calculated using the total time that each individual devotes to R&D activities. FTE is equal to the ratio of working time spent on R&D during a year to the annual working time corresponding to full time employment. Thus, a person employed for R&D work on an annual and full-time basis, corresponds to 1 FTE, while FTE for a part-time R&D employer is calculated as the percentage of the time that they spend on R&D over their total working time.

More concepts and definitions are available in EKT's online 'Glossary' (<https://metrics.ekt.gr/lexicon>).

### Legal framework

R&D Statistics are based on the Commission Implementing Regulation (EU) 2020/1197 of 30 July 2020 (from reference year



2012 onwards) and the Commission Regulation 995/2012 (applying to statistics for the years 2012 to 2029).

The National Documentation Centre ([www.ekt.gr](http://www.ekt.gr)) is a Scientific Infrastructure (Decision No. 7303/B2-577 Official Gazette B' 3482/2017) and a National Authority of the Hellenic statistical system (Decision No. 7304/B2-576 Official Gazette B' 3482/2017), responsible for the production of the official statistics on Research, Development and Innovation. R&D data are being collected and analyzed by the National Documentation Centre since April 2012, while the first reference year was 2011.

Statistics presented in this publication were produced collaboratively with the Hellenic Statistical Authority (Memorandum of Cooperation 26.05.2022).

#### Data collection

The data are collected through an extensive survey including all known or potential R&D performers. in the BE, HE, GOV and PNP sectors. For the needs of the survey. EKT has developed an informed registry of all known greek entities that perform R&D activities in every sector of performance (BES, HES, GOV and PNP. Data are collected through census survey in the HES, GOV and PNP sectors and through a combination of census and sampling in the business enterprise sector with the use of online questionnaires. The R&D registry is being updated regularly.

In conjunction with collecting data through questionnaires, the following administrative data were also used as provided by official entities:

- Higher Education Sector: General University Funds (GUF) and data on university personnel, provided by the Greek Ministry of Education and Religious Affairs
- Government Sector: Government funding through Ordinary Budget and data on permanent personnel, provided by the Ministry of Culture and Sports / Directorate of Financial Management & Directorate of e-Governance.
- Data on funding and staff of public hospitals - Ministry of Health / Directorate of Finance & Directorate of e-Governance (online platform ESY.net).

If necessary, data validation and editing is being performed in collaboration with respondents. Data consistency checks are also conducted between the data collected and data from the following databases provided by the responsible administrative sources:

- Monitoring Information System (M.I.S.)
- ecorda database - European Commission

- 
- Official GBARD data (GBARD indicator) that have been collected and compiled by EKT and made available through Eurostat dissemination database

Data processing and data analysis have been conducted using standard methodological techniques and Eurostat guidelines on the aligned production of R&D statistics across Member States.

Further information on methodology and statistics is available at:

[https://metrics.ekt.gr/sites/metrics-ekt/files/pages-pdf/EKT\\_SIMS\\_RDstatistics\\_el.pdf](https://metrics.ekt.gr/sites/metrics-ekt/files/pages-pdf/EKT_SIMS_RDstatistics_el.pdf)

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ΕΠΙΧΕΙΡΗΜΑΤΙΚΟΤΗΤΑ  
ΚΑΙΝΟΤΟΜΙΑ



Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

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