

Statistical bulletin

# Government expenditure on science, engineering and technology, UK: 2016

Science, engineering and technology (SET) annual expenditure by UK government departments, research councils and higher education funding councils. Also includes indicative UK contributions to EU research and development expenditure.

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Release date:  
14 June 2018

Next release:  
13 June 2019

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# 1 . Main points

- The UK government's expenditure on science, engineering and technology (SET) continued to grow in 2016, expanding £0.1 billion to £11.5 billion, an increase of 1.2%.
- The 2016 SET estimate consists of expenditure on research and development (R&D) of £10.3 billion, UK contributions to EU R&D expenditure of £0.9 billion and knowledge transfer of £0.3 billion.
- The UK research councils contributed the most to expenditure on SET in 2016 at £3.4 billion, 30% of the total.
- In constant prices, since 2013, UK government expenditure on SET has remained relatively stable, falling by just £0.1 billion (0.9%) to £11.5 billion in 2016.
- Civil departments' expenditure on SET over the long-term grew by 27%, from £2.6 billion in 2005 in constant prices (adjusted to remove the effects of inflation) to £3.3 billion in 2016.
- Defence expenditure on SET decreased from 2005 by 41% in constant prices to £1.6 billion in 2016.

## 2 . Things you need to know about this release

UK government expenditure on science, engineering and technology (SET) covers estimates of expenditure by government departments, research councils and higher education funding councils (HEFCs). Most estimates are on a net expenditure basis, that is, in-house research and development (R&D) performed, plus purchased or funding provided for R&D, less funding received for R&D. Estimates of expenditure on knowledge transfer and the UK's contribution to the EU's R&D budget are also included.

SET should not be confused with the [Gross domestic expenditure on research and development, UK: 2016](#) statistical bulletin published on 15 March 2018, which only includes expenditure on R&D performed "in-house", that is, by organisations themselves, by all sectors of the economy. This is explained in more detail in the [UK gross domestic expenditure on research and development Quality and Methodology Information](#). R&D and related concepts follow internationally-agreed standards defined by the [Organisation for Economic Cooperation and Development \(OECD\), as published in the Frascati Manual \(2015\)](#).

The main source of estimates for this publication is the annual Government Research and Development survey (GovERD).

The gross domestic product (GDP) measure used is non-seasonally adjusted money GDP between 1955 to 1956 and 2015 to 2016 (1955 to 2016) consistent with [UK Economic Accounts](#) published on 22 November 2017.

Most of the data series started in 2001 and constant price comparisons have been made using the start of the current dataset in 2005.

All figures quoted are in current prices unless otherwise stated.

## 3 . Government spending on science, engineering and technology down as a percentage of GDP

UK government expenditure on science, engineering and technology (SET) was £11.5 billion in 2016. This was up from £11.4 billion in 2015, an increase of 1.2% (£141 million).

In constant prices, since 2013, UK government expenditure on SET has remained relatively stable, falling by just £0.1 billion (0.9%) to £11.5 billion in 2016. While there was growth of £0.3 billion in expenditure by civil and defence departments and in the contribution to the EU research and development (R&D) budget, this was offset by a decline in expenditure by research councils and higher education funding councils over this period, of £0.4 billion.

Total expenditure on SET represented 0.58% of gross domestic product (GDP), a decrease from 0.60% in 2015.

In comparison, government expenditure on performing R&D (in-house) as detailed in the [Gross domestic expenditure on research and development, UK: 2016](#) and Table 15 of the [SET datasets](#) represented 0.11% of GDP, unchanged from 2015.

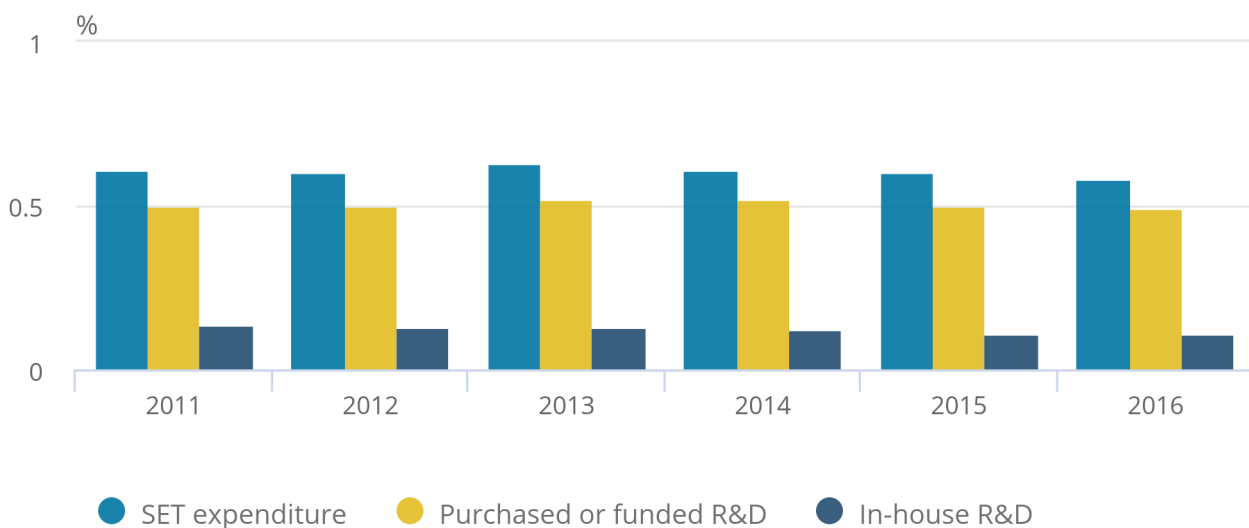
Purchased or funded R&D fell to 0.49% of GDP compared with 0.50% in 2015. Figure 1 shows SET, purchased or funded R&D and in-house R&D as a percentage of GDP from 2011 to 2016.

**Figure 1: UK government expenditure on science, engineering and technology, purchased or funded R&D, and in-house R&D as percentage of gross domestic product**

2011 to 2016

Figure 1: UK government expenditure on science, engineering and technology, purchased or funded R&D, and in-house R&D as percentage of gross domestic product

2011 to 2016



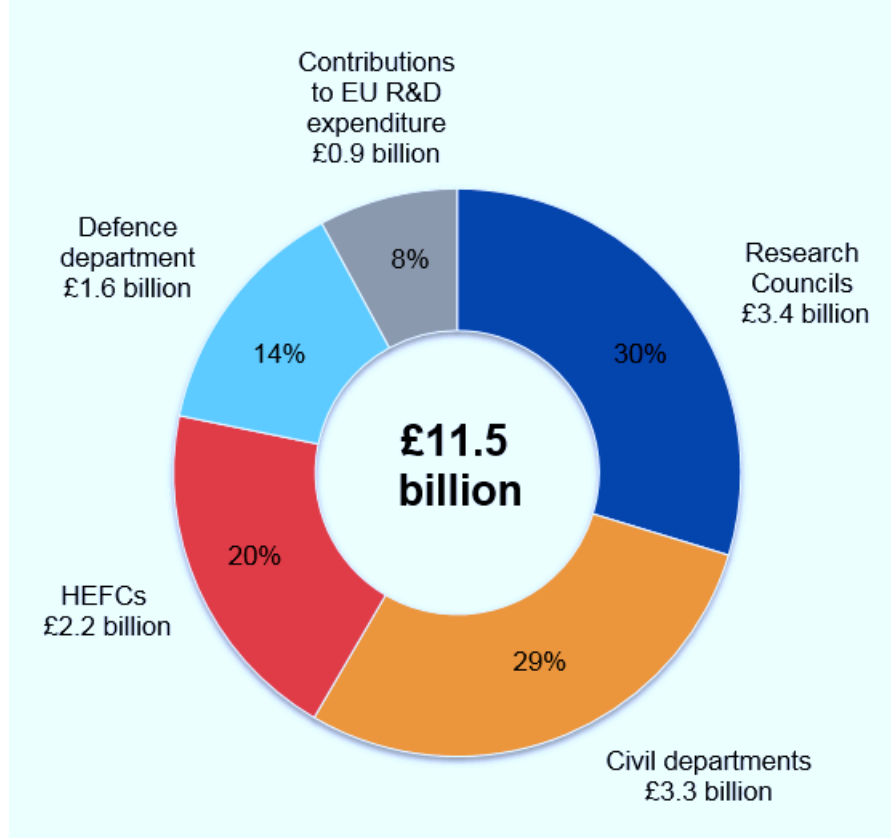
Source: Office for National Statistics

## 4 . Civil departments increase their share of total UK government spending, to almost a third

UK government estimates of science, engineering and technology (SET) are categorised into expenditure by research councils, higher education funding councils (HEFCs) and by civil and defence departments, most of which include elements of knowledge transfer. Estimates of the UK's contribution to the EU's research and development (R&D) expenditure made by HM Treasury are also included.

Figure 2 shows the contribution each sector of government made to the SET estimate in 2016. Almost a third (30%) of UK government expenditure on SET was by research councils, with civil departments and HEFCs contributing 29% and 20% respectively. Defence expenditure and contributions to EU R&D expenditure made up the remaining 14% and 8% respectively.

**Figure 2: Composition of UK government expenditure on science, engineering and technology, 2016**



Source: Office for National Statistics

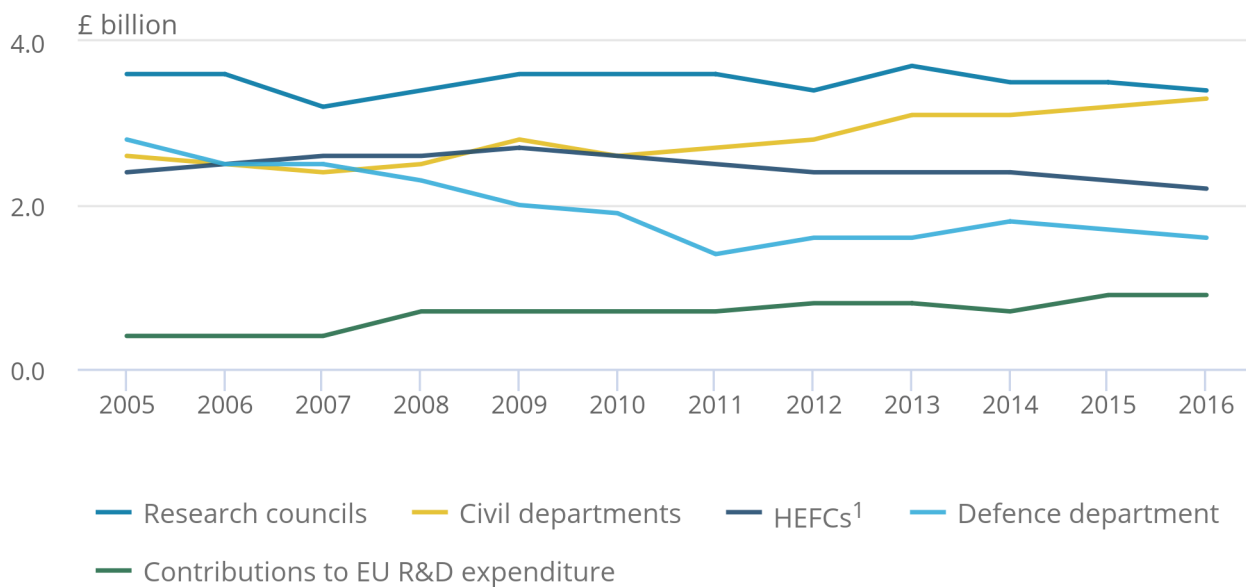
Notes:

1. Percentages sum to 101 due to rounding.
2. HEFCs - Higher Education Funding Councils.

Figure 3 shows changes in SET components between 2005 and 2016 in constant prices. Defence expenditure decreased by £1.1 billion (41%) from £2.8 billion in 2005 to £1.6 billion in 2016. Over the same period there was growth in civil departments' expenditure on SET of £0.7 billion (27%).

**Figure 3: Components of UK government expenditure on science, engineering and technology in constant prices, 2005 to 2016**

Figure 3: Components of UK government expenditure on science, engineering and technology in constant prices, 2005 to 2016



Source: Office for National Statistics

Notes:

1. HEFCs - Higher Education Funding Councils.

## 5. Research councils' expenditure falls for third consecutive year

[UK Research and Innovation \(UKRI\)](#) has been created as a result of the Higher Education and Research Act (HERA). The strategic partnership of the UK's seven Research Councils, [Research Councils UK \(RCUK\)](#) will transition into UKRI in 2018.

Each year, the research councils perform research and development (R&D) covering the full spectrum of academic disciplines, from the medical and biological sciences to astronomy, physics, chemistry, engineering, social sciences, economics, environmental sciences and the arts and humanities.

Expenditure on science, engineering and technology (SET) by research councils was £3.4 billion in 2016. This was down £5 million (0.2%) since 2015. In constant prices, this was a fall of £82 million (2%) since 2015.

The research council with the highest expenditure on SET (£0.9 billion in 2016) continued to be the Engineering and Physical Sciences Research Council (EPSRC), representing 26% of research councils' SET expenditure.

The majority of EPSRC expenditure was funding of R&D for UK higher education institutes at £0.8 billion. However, it did not perform any R&D itself. While the EPSRC saw a rise of 3% in expenditure on SET, the Medical Research Council's expenditure saw the largest movement, falling by 21% (£168 million) from its high of £0.8 billion in 2015. This represented 19% of all research councils' expenditure on SET.

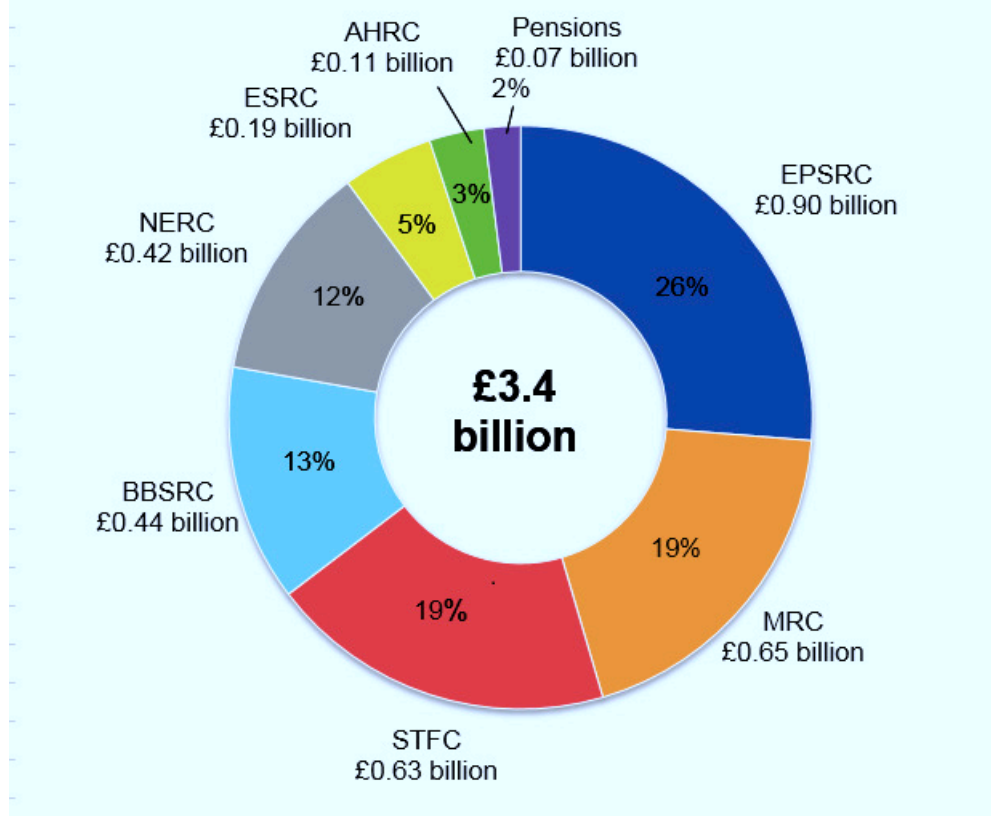
The Science and Technology Funding Council had the highest year-on-year growth of the research councils, with £80 million (15%). Over the long-term, the EPSRC had the highest growth since 2005, in constant prices, of 32% (£218 million).

In the category of health, the NHS saw its second successive year-on-year decrease in constant prices with "Health" as a socio-economic objective, falling from 23% of total net government funding of R&D to 21% over the same period (Table 8 of the [SET datasets](#)).

In 2016, expenditure on SET by the NHS was £1.0 billion and accounted for 31% of total civil departments' expenditure on SET. This proportion was down from 33% in 2015, although the NHS remained at 9% of total UK expenditure on SET.

The research councils' estimated expenditure on SET includes their pension arrangements. These pension contributions are included separately in the datasets associated with this publication and in Figure 4.

**Figure 4: Breakdown of UK Research Councils' expenditure on science, engineering and technology, 2016**



Source: Office for National Statistics

**Notes:**

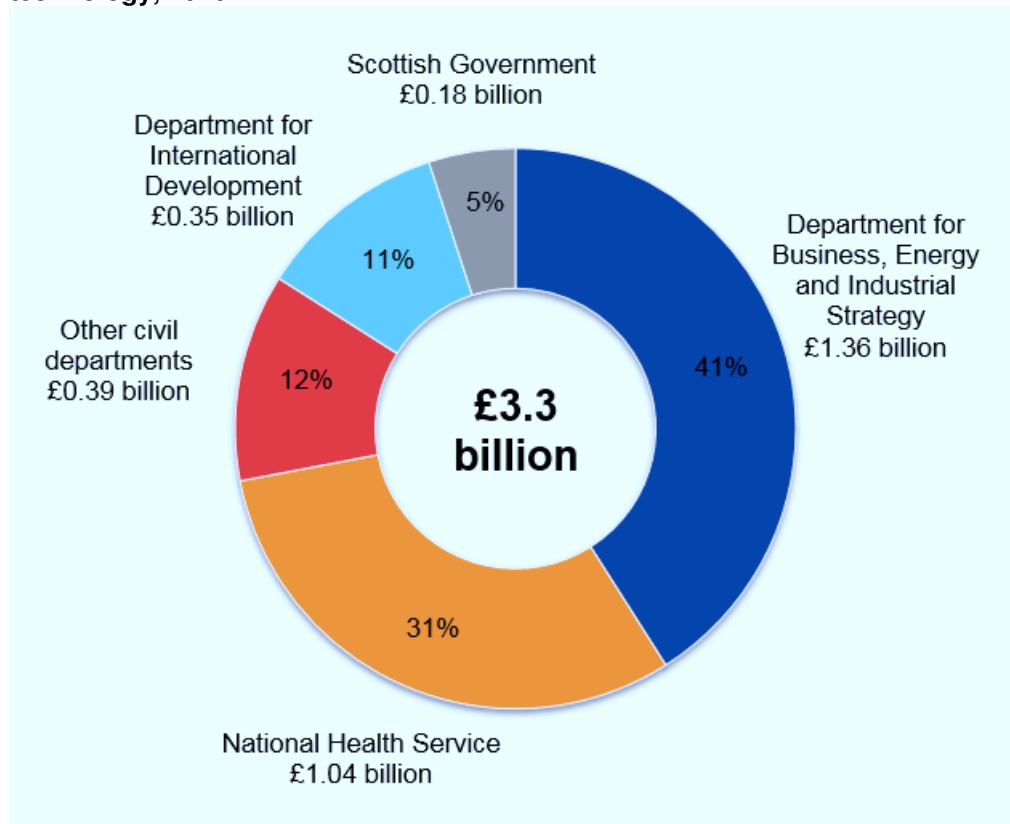
1. EPSRC – Engineering and Physical Sciences Research Council.
2. MRC – Medical Research Council.
3. BBSRC – Biotechnology and Biological Sciences Research Council.
4. STFC – Science and Technology Facilities Council.
5. NERC – Natural Environment Research Council.
6. ESRC – Economic and Social Research Council.
7. AHRC – Arts and Humanities Research Council.
8. Percentages sum to 99 due to rounding.

## 6 . Civil departments' expenditure increases for the sixth successive year

The UK government owns many research institutes and laboratories that carry out research and development (R&D) and are managed by various government departments. It also uses a range of suppliers with facilities to carry out research, both inside and outside the UK.

In 2016, expenditure by civil departments on science, engineering and technology (SET) was £3.3 billion, showing growth of £184 million (6%) since 2015. In constant prices, the growth since 2005 was £708 million (27%). In 2016, four departments contributed £2.9 billion (88%) to the total. The Department for Business, Energy and Industrial Strategy (BEIS) was the largest contributor to this, with expenditure of £1.4 billion, making up 41% of total civil departments' expenditure on SET (Figure 5).

**Figure 5: Breakdown of UK government civil departments' expenditure on science, engineering and technology, 2016**



Source: Office for National Statistics

## 7. Higher education funding councils' expenditure remains a fifth of the UK total despite decrease

Higher education funding councils (HEFCs) promote and fund teaching and research in higher education institutions (HEIs).

All HEIs provide finance statistics to the [Higher Education Statistics Agency \(HESA\)](#). Grant income provided by HEFCs is used as a proxy to estimate government-funded research and development (R&D) expenditure in HEIs. This is explained in more detail in the [UK gross domestic expenditure on research and development Quality and Methodology Information](#).

In 2016, expenditure on science, engineering and technology (SET) by HEFCs was £2.2 billion, a decrease of £10 million (0.5%) since 2015. In constant prices, this was a decrease of £61 million (2.7%) since 2015 and a decrease of £128 million (5.4%) since 2005. This contrasted with the decrease from the peak of £2.7 billion in 2009 (Figure 3).

The Higher Education Funding Council for England (HEFCE) provides the most research funding as it funds the highest number of HEIs. In 2016, expenditure by HEFCE on SET was £1.8 billion. This was 79% of the total HEFCs' expenditure on SET, a similar level to recent years.



## 8 . Long-term downward trend for UK defence R&D expenditure continues

Defence expenditure on science, engineering and technology (SET) was £1.6 billion in 2016, a drop of £12 million (0.8%) since 2015. This was the second consecutive fall since 2014, but still higher than its lowest point in 2011 when expenditure was £1.3 billion. In constant prices, since 2005, defence expenditure has decreased by £1.1 billion (41%) (Figure 3). While defence research fell by 18% over this period to £0.6 billion, defence experimental development fell by 50% to £1.0 billion. However, it continued to account for 16% of government net research and development (R&D) funding by socio-economic classification (see Table 8 of the [SET datasets](#)).

## 9 . UK contribution to EU R&D expenditure more than double that in 2005

In 2016, the UK contributed £0.9 billion to EU research and development (R&D) expenditure. In constant prices, this is more than double the value in 2005 (£0.4 billion). These figures were provided by HM Treasury and are broad estimates. This is because member states' contributions are not made to individual expenditure programmes, but to the EU budget as a whole. They are therefore referred to as "indicative UK contributions to EU R&D expenditure".

## 10 . Links to related statistics

Further statistics on [research and development expenditure in the UK](#) are available.

## 11 . Quality and methodology

The [UK government expenditure on science, engineering and technology Quality and Methodology Information](#) report contains important information on:

- the strengths and limitations of the data and how they compare with related data
- uses and users of the data
- how the output was created
- the quality of the output including the accuracy of the data

## Government expenditure on science, engineering and technology, UK: 2016

Published 14 June 2018

[Notes to be used in conjunction with the datasets below.](#)

Please click on the links below to access the datasets:

- [1](#) UK government net expenditure on science, engineering and technology (SET) by department: current prices, 2005 to 2016
- [2](#) UK government net expenditure on science, engineering and technology (SET) by department: constant prices (2016 prices), 2005 to 2016
- [3](#) UK government net expenditure on R&D by department: current prices, 2005 to 2016
- [4](#) UK government net expenditure on R&D by department: constant prices (2016 prices), 2005 to 2016
- [5](#) UK government expenditure on knowledge transfer by department: current prices, 2005 to 2016
- [6](#) UK government expenditure on knowledge transfer by department: constant prices (2016 prices), 2005 to 2016
- [7](#) Analysis of UK government net expenditure on R&D by primary purpose and department: 2016
- [8](#) UK government net expenditure on R&D by socio-economic objective, percentage share: 2007 to 2016
- [9](#) Aggregate destination of UK government gross expenditure on R&D: current prices, 2005 to 2016
- [10](#) Analysis of UK government net expenditure on R&D by Frascati type of research activity: current prices, 2005 to 2016
- [11](#) Analysis of UK government net expenditure on R&D by Frascati type of research activity: constant prices (2016 prices), 2005 to 2016
- [12](#) Expenditure on R&D performed in UK government by department: current prices, 2008 to 2016
- [13](#) Expenditure on R&D performed in UK government by department: constant prices (2016 prices), 2008 to 2016
- [14](#) Analysis of UK government purchased or funding provided for R&D by funding and receiving organisations: 2016
- [15](#) Analysis of UK government net expenditure on R&D by flow of funds and department: 2016

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Next publication: 13 June 2019

The following symbols and abbreviations are used throughout these reference tables;

- denotes nil, figures unavailable or too small to display.
- † denotes earliest data revision.

There may be discrepancies between totals and the sum of their independently rounded parts.

Notes:

1. The data in these tables and the associated statistical bulletin relate to financial years.
2. There are 2 types of estimates in this release, current and constant prices. Estimates in current prices present the value of expenditure in cash terms. Constant price (real terms) estimates have been adjusted to remove the effects of inflation using the Gross Domestic Product (GDP) deflator. This allows changes in government expenditure on SET to be examined on a comparable basis over time.
3. UK government expenditure on R&D plus knowledge transfer (commonly known as SET): Tables 1 and 2.
4. Expenditure on R&D (excluding knowledge transfer): Tables 3 and 4.
5. Indicative UK contributions to the EU's R&D expenditure are included in Tables 1 to 4. The EU supports R&D programmes in member states. The UK makes a positive net contribution to the EU budget, and a proportion of this is assumed to be for R&D. However, because no specific information is available on where and how these contributions are spent, they are excluded from the remaining SET tables.
6. Knowledge transfer (including technology transfers) activities are designed to help the conveyance of ideas, research, results and skills between researchers, businesses and wider communities. These actions contribute to the dissemination and application of scientific and technical knowledge, including consultancy services, demonstration projects, and sharing information. For example developing partnerships, establishing forums for knowledge exchange, specialist training, and licensing. Knowledge transfer estimates which are included in the SET totals in Tables 1 and 2 are separately identified in Tables 5 and 6.

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Current prices	£ million											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>												
Engineering and Physical Sciences (EPSRC)	555	643	694	734	756	845	854	920	991	913	874	901
Medical (MRC)	416	471	494	581	634	679	672	600	790	716	817	649
Science and Technology Facilities (STFC) <sup>1</sup>	-	-	552	590	607	563	542	467	511	552	553	633
Biotechnology and Biological Sciences (BBSRC)	322	366	373	393	444	435	488	496	509	531	441	438
Natural Environment (NERC)	373	361	364	396	454	449	417	392	408	385	390 <sup>†</sup>	422
Economic and Social (ESRC)	125	144	151	162	174	182	174	170	194	195	181	187
Arts and Humanities (AHRC) <sup>2</sup>	69	82	88	94	89	92	99	97	100	102	97	106
Pensions <sup>12</sup>	15	17	25	74	38	35	35	40	38	51	59 <sup>†</sup>	68
OST - DTI <sup>3</sup>	578	508	-	-	-	-	-	-	-	-	-	-
Particle Physics and Astronomy (PPARC) <sup>1</sup>	334	329	-	-	-	-	-	-	-	-	-	-
Council for the Central Laboratory (CCLRC) <sup>1</sup>	84	92	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>2,871</b>	<b>3,014</b>	<b>2,742</b>	<b>3,024</b>	<b>3,196</b>	<b>3,280</b>	<b>3,280</b>	<b>3,183</b>	<b>3,543</b>	<b>3,445</b>	<b>3,412<sup>†</sup></b>	<b>3,406</b>
<b>Higher Education Funding Councils (HEFCs):</b>												
England (HEFCE)	1,551	1,642	1,781	1,795	1,939	1,840	1,821	1,736	1,803	1,829	1,798	1,783
Scotland (SFC)	228	283	320	296	289	324	324	339	342	371	321	321
Wales (HEFCW)	84	87	88	91	94	90	82	80	86	86	82	86
Northern Ireland (DELNI)	66	74	63	65	81	75	59	57	65	60	57	58
<b>TOTAL</b>	<b>1,928</b>	<b>2,085</b>	<b>2,252</b>	<b>2,247</b>	<b>2,403</b>	<b>2,328</b>	<b>2,285</b>	<b>2,212</b>	<b>2,297</b>	<b>2,346</b>	<b>2,258</b>	<b>2,248</b>
<b>Civil Departments:</b>												
Business, Energy and Industrial Strategy (BEIS) <sup>1, 3, 7, 13</sup>	-	-	-	-	308	464	696	771	1,021	1,059	1,222 <sup>†</sup>	1,363
National Health Service (NHS)	583	623	661	730	796	847	866	948	984	1,036	1,036	1,040
International Development (DFID)	265	247	151	169	237	220	236	238	272	318	329	349
Scottish Government (SG)	209	214	221	218	219	177	169	177	178	173	173 <sup>†</sup>	176
Environment, Food and Rural Affairs (DEFRA) <sup>3</sup>	288	299	202	198	185	157	161	144	129	101	70	59
Transport (DfT) <sup>3</sup>	61	59	66	64	80	54	35	38	44	52	45	53
Culture, Media and Sport (DCMS)	23	36	44	64	64	53	48	47	88	60	51	49
Energy and Climate Change (DECC) <sup>7</sup>	-	-	-	27	25	36	39	37	44	41	45	42
Health (DH) (excluding NHS)	45	50	51	57	50	36	38	32	36	41	46	40
Home Office (HO)	73	51	43	46	45	48	25	20	23	22	21	33
Education (DfE) <sup>6</sup>	-	-	35	33	31	27	13	14	14	14	14	23
Northern Ireland Departments (NI) <sup>5</sup>	21	22	23	22	22	21	20	22	22	18	15	19
Work and Pensions (DWP)	18	18	17	19	35	29	20	21	20	18	17	18

Current prices												£ million
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ministry of Justice (MoJ) <sup>8</sup>	-	2	11	14	11	8	7	9	7	8	7	17
Other departments <sup>8</sup>	38	42	38	38	34	31	31	26	21	21	11	13
Welsh Government (WG) <sup>4</sup>	33	10	12	11	11	10	10	12	12	16	17	13
Health and Safety Executive (HSE)	22	17	12	12	13	12	10	8	8	8	7	7
Communities and Local Government (DCLG)	27	30	25	28	29	16	7	9	7	7	7	7
Food Standards Agency (FSA)	17	15	14	12	11	6	7	7	8	10	5	3
Education and Skills (DfES) <sup>6</sup>	100	73	-	-	-	-	-	-	-	-	-	-
Business Enterprise and Regulatory Reform (BERR) <sup>3</sup>	-	-	2	2	-	-	-	-	-	-	-	-
Trade and Industry (DTI) <sup>3</sup>	300	265	-	-	-	-	-	-	-	-	-	-
Net Launch Investment <sup>13</sup>	-	-	-	-	162	100	71	62	46	25	-	-
BIS Science <sup>3</sup>	-	-	420	438	83	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>11</sup>	-	-	-	-	6	3	-	-	-	2	-	-
<b>TOTAL</b>	<b>2,123</b>	<b>2,072</b>	<b>2,050</b>	<b>2,201</b>	<b>2,455</b>	<b>2,352</b>	<b>2,510</b>	<b>2,642</b>	<b>2,986</b>	<b>3,048</b>	<b>3,139</b> †	<b>3,323</b>
Ministry of Defence (MoD) <sup>9</sup>												
of which:												
Research	598	632	635	584	575	534	553	565	586	616	604	605
Experimental Development	1,645	1,492	1,505	1,406	1,177	1,159	753	895	931	1,088	1,032	1,018
<b>TOTAL</b>	<b>2,243</b>	<b>2,124</b>	<b>2,139</b>	<b>1,991</b>	<b>1,752</b>	<b>1,693</b>	<b>1,306</b>	<b>1,460</b>	<b>1,516</b>	<b>1,704</b>	<b>1,636</b> †	<b>1,623</b>
<b>DEPARTMENTAL SET TOTAL</b>	<b>9,166</b>	<b>9,295</b>	<b>9,183</b>	<b>9,462</b>	<b>9,805</b>	<b>9,653</b>	<b>9,380</b>	<b>9,498</b>	<b>10,343</b>	<b>10,543</b>	<b>10,445</b> †	<b>10,601</b>
Indicative UK contributions to EU R&D expenditure <sup>10</sup>	365	374	374	593	668	647	661	751	768	688	915	900
<b>GRAND SET TOTAL</b>	<b>9,531</b>	<b>9,669</b>	<b>9,557</b>	<b>10,055</b>	<b>10,474</b>	<b>10,299</b>	<b>10,042</b>	<b>10,249</b>	<b>11,111</b>	<b>11,231</b>	<b>11,360</b> †	<b>11,501</b>
Net Launch Investment <sup>13</sup>	-158	-154	-154	-128	-57	-91	-108	-150	-153	-158	-	-

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

1 In April 2007, CCLRC and PPARC merged to form Science and Technology Facilities Council (STFC). In 2011, STFCs subscription for European Space Agency (ESA) transferred to BIS Space.

2 AHRC was established in April 2005.

3 From July 2007, the Department for Trade and Industry (DTI) and the Office for Science and Technology (OST) were renamed Business Enterprise and Regulatory Reform (BERR) and the Department of Innovation, Universities and Skills (DIUS) respectively. In 2009, DIUS and BERR merged to form Business, Innovation and Skills (BIS). DIUS was renamed as BIS Science and BERR renamed as BIS. A number of departments previously reporting under DIUS transferred to BIS. From 2010, BIS Science reported under BIS. From 2011 includes all UK subscriptions

Current prices

£ million

2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

- to the European Space Agency (ESA), and some budget transfers from DEFRA and DfT. BIS was renamed Business, Energy and Industrial Strategy (BEIS) from July 2016.
- 4 NHS Wales was included from 2010 and Museum Wales included from 2011.
  - 5 In 2011, Department of the Environment was included for the first time. This will be used as a base year going forward. No back data available.
  - 6 From June 2007 DfES was renamed Department for Children, Schools and Families (DCSF). From May 2010 DCSF was replaced with Department for Education (DfE). In 2011, expenditure fell due to a move to drive down spend across all budgets, and reflects Ministerial priorities.
  - 7 DECC was created in October 2008. DECC became part of BEIS from July 2016. Their data is displayed separately for 2016, from 2017 it will be included in the BEIS totals.
  - 8 Prior to 2006, Ministry of Justice figures were included under "Other departments".
  - 9 These data comprise elements from both the operating cost statement and the balance sheet in the Departmental Resource Accounts (DRAc). The funding received by MoD and its trading funds for expenditure on R&D are not necessarily spent on defence related R&D. The fall in 2011 net development expenditure was reported by the MoD's Defence Equipment and Support (DE&S) as a number of project teams moved from the development phase to manufacturing.
  - 10 These indicative contributions are provided by HM Treasury.
  - 11 Department was not surveyed prior to 2009.
  - 12 Research Councils' pension contributions are included separately.
  - 13 Estimates of launch investment loan repayments received by government from business are no longer included following a review of how these payments should be reported. These loan repayments are in relation to loans given out by BIS in previous years and therefore should not be included in current totals of R&D expenditure. The estimates of Net Launch Investment located below the Grand SET Total were prepared using the old methodology to allow for comparison.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

Constant prices (2016)	£ million											
	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>												
Engineering and Physical Sciences (EPSRC)	683	769	809	834	846	929	926	978	1,035	940	894	901
Medical (MRC)	513	563	576	661	710	747	728	637	826	737	836	649
Science and Technology Facilities (STFC) <sup>1</sup>	-	-	644	671	679	619	588	497	534	569	565	633
Biotechnology and Biological Sciences (BBSRC)	397	437	435	447	498	478	529	527	532	546	450	438
Natural Environment (NERC)	460	432	424	449	508	494	452	417	427	396	399	422
Economic and Social (ESRC)	154	172	177	184	195	200	189	181	203	200	185	187
Arts and Humanities (AHRC) <sup>2</sup>	85	98	102	106	100	101	107	103	105	105	99	106
Pensions <sup>12</sup>	19	21	29	84	42	38	38	42	40	53	60	68
OST - DTI <sup>3</sup>	712	607	-	-	-	-	-	-	-	-	-	-
Particle Physics and Astronomy (PPARC) <sup>1</sup>	412	393	-	-	-	-	-	-	-	-	-	-
Council for the Central Laboratory (CCLRC) <sup>1</sup>	104	110	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>3,538</b>	<b>3,601</b>	<b>3,197</b>	<b>3,436</b>	<b>3,579</b>	<b>3,607</b>	<b>3,557</b>	<b>3,381</b>	<b>3,700</b>	<b>3,546</b>	<b>3,489</b>	<b>3,406</b>
<b>Higher Education Funding Councils (HEFCs):</b>												
England (HEFCE)	1,911	1,962	2,076	2,040	2,172	2,024	1,974	1,844	1,883	1,883	1,839	1,783
Scotland (SFC)	281	338	373	336	324	356	351	361	358	382	328	321
Wales (HEFCW)	104	103	103	104	105	99	88	85	90	89	84	86
Northern Ireland (DELNI)	81	88	73	74	91	82	64	60	68	62	59	58
<b>TOTAL</b>	<b>2,376</b>	<b>2,491</b>	<b>2,625</b>	<b>2,554</b>	<b>2,691</b>	<b>2,560</b>	<b>2,478</b>	<b>2,350</b>	<b>2,399</b>	<b>2,415</b>	<b>2,309</b>	<b>2,248</b>
<b>Civil Departments:</b>												
Business, Energy and Industrial Strategy (BEIS) <sup>1, 3, 7, 13</sup>	-	-	-	-	345	510	755	819	1,066	1,091	1,250	1,363
National Health Service (NHS)	718	744	771	829	891	932	939	1,007	1,028	1,066	1,060	1,040
International Development (DFID)	326	295	176	192	266	241	256	252	284	327	337	349
Scottish Government (SG)	258	255	258	248	245	195	184	188	185	178	177	176
Environment, Food and Rural Affairs (DEFRA) <sup>3</sup>	355	358	236	225	208	173	174	153	135	104	72	59
Transport (DfT) <sup>3</sup>	75	70	77	72	89	59	38	41	46	53	46	53
Culture, Media and Sport (DCMS)	28	43	51	73	72	58	52	50	92	62	52	49
Energy and Climate Change (DECC) <sup>7</sup>	-	-	-	30	27	39	42	39	46	43	46	42
Health (DH) (excluding NHS)	56	59	60	65	56	40	42	34	38	42	47	40
Home Office (HO)	90	60	50	52	50	53	27	21	24	22	22	33
Education (DfE) <sup>6</sup>	-	-	41	37	35	30	14	15	15	14	14	23
Northern Ireland Departments (NI) <sup>5</sup>	26	27	27	26	25	23	22	23	23	19	16	19
Work and Pensions (DWP)	22	22	19	21	39	32	22	22	21	19	17	18
Ministry of Justice (MoJ) <sup>8</sup>	-	2	13	15	12	8	8	9	8	8	7	17
Other departments <sup>9</sup>	47	51	44	43	39	34	33	28	22	22	11	13
Welsh Government (WG) <sup>4</sup>	41	12	14	13	13	11	10	13	13	16	17	13
Health and Safety Executive (HSE)	27	20	14	14	14	13	11	8	8	8	7	7

Constant prices (2016)												£ million
	2005 †	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Communities and Local Government (DCLG)	33	35	30	31	32	17	8	10	8	7	7	7
Food Standards Agency (FSA)	21	18	17	13	12	6	7	8	8	10	5	3
Education and Skills (DfES) <sup>6</sup>	124	87	-	-	-	-	-	-	-	-	-	-
Business Enterprise and Regulatory Reform (BERR) <sup>3</sup>	-	-	2	2	-	-	-	-	-	-	-	-
Trade and Industry (DTI) <sup>3</sup>	369	316	-	-	-	-	-	-	-	-	-	-
Net Launch Investment <sup>13</sup>	-	-	-	-	181	110	77	66	48	26	-	-
BIS Science <sup>3</sup>	-	-	490	497	93	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>11</sup>	-	-	-	-	6	3	-	1	-	2	-	-
<b>TOTAL</b>	<b>2,616</b>	<b>2,476</b>	<b>2,390</b>	<b>2,501</b>	<b>2,750</b>	<b>2,587</b>	<b>2,721</b>	<b>2,807</b>	<b>3,119</b>	<b>3,138</b>	<b>3,210</b>	<b>3,323</b>
Ministry of Defence (MoD) <sup>9</sup>												
of which:												
Research	737	755	740	664	644	588	600	600	612	635	618	605
Experimental Development	2,027	1,782	1,754	1,598	1,318	1,275	816	951	972	1,120	1,055	1,018
<b>TOTAL</b>	<b>2,764</b>	<b>2,538</b>	<b>2,494</b>	<b>2,262</b>	<b>1,962</b>	<b>1,862</b>	<b>1,416</b>	<b>1,551</b>	<b>1,584</b>	<b>1,754</b>	<b>1,673</b>	<b>1,623</b>
<b>DEPARTMENTAL SET TOTAL</b>	<b>11,294</b>	<b>11,105</b>	<b>10,706</b>	<b>10,752</b>	<b>10,982</b>	<b>10,617</b>	<b>10,171</b>	<b>10,089</b>	<b>10,801</b>	<b>10,853</b>	<b>10,681</b>	<b>10,601</b>
Indicative UK contributions to EU R&D expenditure <sup>10</sup>	449	447	436	673	749	711	717	798	802	708	935	900
<b>GRAND SET TOTAL</b>	<b>11,744</b>	<b>11,552</b>	<b>11,142</b>	<b>11,425</b>	<b>11,730</b>	<b>11,328</b>	<b>10,888</b>	<b>10,886</b>	<b>11,604</b>	<b>11,562</b>	<b>11,616</b>	<b>11,501</b>
Net Launch Investment <sup>13</sup>	-195	-184	-179	-146	-64	-100	-117	-160	-160	-163	-	-
2016 = 100										Source: Office for National Statistics		

	2005 †	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP deflator used to convert current prices to constant prices	81.158	83.699	85.777	88.008	89.287	90.918	92.228	94.144	95.752	97.140	97.794	100

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

Please see Table 1 for footnotes.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.



## 3

## UK GOVERNMENT NET EXPENDITURE ON R&amp;D BY DEPARTMENT: 2005 to 2016

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Current prices	£ million											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>												
Engineering and Physical Sciences (EPSRC)	553	643	694	734	754	802	807	793	870	808	770	818
Medical (MRC)	416	471	494	581	634	679	672	600	790	716	817	649
Science and Technology Facilities (STFC) <sup>1</sup>	-	-	548	583	599	556	535	456	502	541	541	621
Biotechnology and Biological Sciences (BBSRC)	320	364	369	383	432	421	472	478	489	513	421	422
Natural Environment (NERC)	363	351	350	381	435	442	407	378	393	369	375 <sup>†</sup>	402
Economic and Social (ESRC)	116	133	147	158	170	177	168	161	187	186	171	176
Arts and Humanities (AHRC) <sup>2</sup>	58	70	86	91	87	89	95	90	92	96	91	101
Pensions <sup>12</sup>	15	17	24	72	37	34	34	37	36	48	55 <sup>†</sup>	65
OST / DTI <sup>3</sup>	503	413	-	-	-	-	-	-	-	-	-	-
Particle Physics and Astronomy (PPARC) <sup>1</sup>	334	329	-	-	-	-	-	-	-	-	-	-
Council for the Central Laboratory (CCLRC) <sup>1</sup>	84	92	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>2,763</b>	<b>2,883</b>	<b>2,714</b>	<b>2,984</b>	<b>3,148</b>	<b>3,201</b>	<b>3,189</b>	<b>2,993</b>	<b>3,359</b>	<b>3,277</b>	<b>3,242<sup>†</sup></b>	<b>3,254</b>
<b>Higher Education Funding Councils (HEFCs):</b>												
England (HEFCE)	1,551	1,642	1,781	1,795	1,939	1,840	1,821	1,736	1,803	1,829	1,798	1,783
Scotland (SFC)	228	283	302	276	281	299	296	312	312	320	285	285
Wales (HEFCW)	84	87	88	91	94	90	82	80	86	86	82	86
Northern Ireland (DELNI)	66	74	63	65	81	75	59	57	65	55	52	53
<b>TOTAL</b>	<b>1,928</b>	<b>2,085</b>	<b>2,234</b>	<b>2,227</b>	<b>2,395</b>	<b>2,303</b>	<b>2,257</b>	<b>2,185</b>	<b>2,266</b>	<b>2,290</b>	<b>2,218</b>	<b>2,207</b>
<b>Civil Departments:</b>												
Business, Energy and Industrial Strategy (BEIS) <sup>1, 3, 7, 13</sup>	-	-	-	-	266	410	646	729	981	1,023	1,179 <sup>†</sup>	1,330
National Health Service (NHS)	583	623	661	730	796	847	866	948	984	1,036	1,036	1,040
International Development (DFID)	265	247	134	149	225	209	226	229	262	309	314	328
Scottish Government (SG)	137	132	137	141	154	167	158	163	164	164	164 <sup>†</sup>	165
Environment, Food and Rural Affairs (DEFRA) <sup>3</sup>	201	194	190	187	181	153	157	141	128	100	70	58
Transport (DfT) <sup>3</sup>	51	57	62	60	68	53	34	38	43	51	44	53
Culture, Media and Sport (DCMS)	23	36	39	47	46	47	42	45	79	53	46	45
Energy and Climate Change (DECC) <sup>7</sup>	-	-	-	27	25	35	39	37	44	41	44	42
Health (excluding NHS)	45	50	51	57	50	35	38	32	36	40	44	38
Home Office (HO)	73	50	42	44	43	42	24	19	22	20	20	32
Education (DfE) <sup>5</sup>	-	-	35	33	31	27	13	14	14	14	14	23
Work and Pensions (DWP)	18	18	17	19	35	28	20	21	20	18	17	18
Northern Ireland Departments (NI) <sup>5</sup>	21	22	22	22	21	20	19	21	21	18	15	18
Ministry of Justice (MoJ) <sup>8</sup>	-	2	10	12	9	7	7	8	7	8	7	17

Current prices	£ million											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Welsh Government (WG) <sup>4</sup>	33	10	12	10	10	9	8	11	11	15	16	12
Other Departments <sup>8</sup>	25	30	36	37	33	29	30	26	20	20	10	12
Communities and Local Government (DCLG)	27	30	25	27	28	16	7	9	7	7	7	7
Health and Safety Executive (HSE)	19	14	12	12	13	12	10	8	8	8	7	6
Food Standards Agency (FSA)	17	15	14	11	11	5	6	7	7	9	5	3
Education and Skills (DfES) <sup>6</sup>	100	73	-	-	-	-	-	-	-	-	-	-
Business Enterprise and Regulatory Reform (BERR) <sup>3</sup>	-	-	1	1	-	-	-	-	-	-	-	-
Trade and Industry (DTI) <sup>3</sup>	243	204	-	-	-	-	-	-	-	-	-	-
Net Launch Investment <sup>13</sup>	-	-	-	-	162	100	71	62	46	25	-	-
BIS Science <sup>3</sup>	-	-	393	408	83	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>11</sup>	-	-	-	-	6	3	-	-	-	2	-	-
<b>TOTAL</b>	<b>1,880</b>	<b>1,807</b>	<b>1,892</b>	<b>2,033</b>	<b>2,295</b>	<b>2,255</b>	<b>2,423</b>	<b>2,565</b>	<b>2,906</b>	<b>2,981</b>	<b>3,060</b> †	<b>3,246</b>
Ministry of Defence (MoD) <sup>9</sup>												
of which:												
Research	598	632	635	584	575	534	553	565	586	616	604	605
Experimental Development	1,645	1,492	1,505	1,406	1,177	1,159	753	895	931	1,088	1,032	1,018
<b>TOTAL</b>	<b>2,243</b>	<b>2,124</b>	<b>2,139</b>	<b>1,991</b>	<b>1,752</b>	<b>1,693</b>	<b>1,306</b>	<b>1,460</b>	<b>1,516</b>	<b>1,704</b>	<b>1,636</b> †	<b>1,623</b>
<b>DEPARTMENTAL R&amp;D TOTAL</b>	<b>8,814</b>	<b>8,899</b>	<b>8,979</b>	<b>9,235</b>	<b>9,590</b>	<b>9,452</b>	<b>9,174</b>	<b>9,202</b>	<b>10,048</b>	<b>10,253</b>	<b>10,155</b> †	<b>10,330</b>
Indicative UK contributions to EU R&D expenditure <sup>10</sup>	365	374	374	593	668	647	661	751	768	688	915	900
<b>GRAND R&amp;D TOTAL</b>	<b>9,179</b>	<b>9,273</b>	<b>9,353</b>	<b>9,827</b>	<b>10,258</b>	<b>10,098</b>	<b>9,836</b>	<b>9,953</b>	<b>10,816</b>	<b>10,941</b>	<b>11,070</b> †	<b>11,230</b>
Net Launch Investment <sup>13</sup>	-158	-154	-154	-128	-57	-91	-108	-150	-153	-158	-	-

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

Please see Table 1 for footnotes.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

## 4

## UK GOVERNMENT NET EXPENDITURE ON R&amp;D BY DEPARTMENT: 2005 to 2016

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Constant prices (2016)	£ million											
	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>												
Engineering and Physical Sciences (EPSRC)	681	768	809	834	845	882	875	842	909	832	788	818
Medical (MRC)	513	563	576	661	710	747	728	637	826	737	836	649
Science and Technology Facilities (STFC) <sup>1</sup>	-	-	639	663	671	611	580	484	524	557	553	621
Biotechnology and Biological Sciences (BBSRC)	395	435	430	436	484	464	511	507	511	528	431	422
Natural Environment (NERC)	448	419	408	432	487	486	442	402	411	380	383	402
Economic and Social (ESRC)	143	159	172	180	190	195	182	172	195	191	175	176
Arts and Humanities (AHRC) <sup>2</sup>	71	84	100	103	97	98	103	96	96	99	93	101
Pensions <sup>12</sup>	18	20	28	82	41	38	37	39	37	49	56	65
OST / DTI <sup>3</sup>	620	494	-	-	-	-	-	-	-	-	-	-
Particle Physics and Astronomy (PPARC) <sup>1</sup>	412	393	-	-	-	-	-	-	-	-	-	-
Council for the Central Laboratory (CCLRC) <sup>1</sup>	104	110	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>3,404</b>	<b>3,445</b>	<b>3,164</b>	<b>3,391</b>	<b>3,526</b>	<b>3,520</b>	<b>3,458</b>	<b>3,179</b>	<b>3,508</b>	<b>3,374</b>	<b>3,315</b>	<b>3,254</b>
<b>Higher Education Funding Councils (HEFCs):</b>												
England (HEFCE)	1,911	1,962	2,076	2,040	2,172	2,024	1,974	1,844	1,883	1,883	1,839	1,783
Scotland (SFC)	281	338	352	313	315	329	321	331	326	330	292	285
Wales (HEFCW)	104	103	103	104	105	99	88	85	90	89	84	86
Northern Ireland (DELNI)	81	88	73	74	91	82	64	60	68	57	53	53
<b>TOTAL</b>	<b>2,376</b>	<b>2,491</b>	<b>2,604</b>	<b>2,530</b>	<b>2,682</b>	<b>2,533</b>	<b>2,448</b>	<b>2,320</b>	<b>2,367</b>	<b>2,358</b>	<b>2,268</b>	<b>2,207</b>
<b>Civil Departments:</b>												
Business, Energy and Industrial Strategy (BEIS) <sup>1, 3, 7, 13</sup>	-	-	-	-	298	451	701	774	1,024	1,053	1,206	1,330
National Health Service (NHS)	718	744	770	829	891	932	939	1,007	1,028	1,066	1,060	1,040
International Development (DFID)	326	295	156	170	253	229	245	243	274	318	321	328
Scottish Government (SG)	169	158	160	160	173	183	172	173	172	169	168	165
Environment, Food and Rural Affairs (DEFRA) <sup>3</sup>	247	232	221	212	203	169	170	150	134	103	72	58
Transport (DfT) <sup>3</sup>	62	68	72	68	76	58	37	40	45	53	45	53
Culture, Media and Sport (DCMS)	28	43	45	53	52	51	45	48	83	54	47	45
Energy and Climate Change (DECC) <sup>7</sup>	-	-	-	30	27	39	42	39	46	42	45	42
Health (DH) (excluding NHS)	56	59	59	65	55	39	41	34	37	41	45	38
Home Office (HO)	90	60	49	50	49	47	26	20	23	21	20	32
Education (DfE) <sup>5</sup>	-	-	41	37	34	30	14	15	15	14	14	23
Work and Pensions (DWP)	22	22	19	21	39	31	22	22	21	19	17	18
Northern Ireland Departments (NI) <sup>5</sup>	25	26	26	25	24	22	21	22	22	18	15	18
Ministry of Justice (MoJ) <sup>8</sup>	-	2	12	14	10	7	7	9	7	8	7	17
Welsh Government (WG) <sup>4</sup>	41	12	14	12	12	10	9	12	12	15	17	12
Other Departments <sup>8</sup>	31	35	42	42	37	32	32	27	21	21	11	12
Communities and Local Government (DCLG)	33	35	29	31	32	17	8	10	8	7	7	7
Health and Safety Executive (HSE)	23	17	14	14	14	13	11	8	8	8	7	6

Constant prices (2016)												£ million
	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Food Standards Agency (FSA)	21	18	17	13	12	6	7	7	7	10	5	3
Education and Skills (DfES) <sup>6</sup>	124	87	-	-	-	-	-	-	-	-	-	-
Business Enterprise and Regulatory Reform (BERR) <sup>3</sup>	-	-	1	1	-	-	-	-	-	-	-	-
Trade and Industry (DTI) <sup>3</sup>	299	243	-	-	-	-	-	-	-	-	-	-
Net Launch Investment <sup>13</sup>	-	-	-	-	181	110	77	66	48	26	-	-
BIS Science <sup>3</sup>	-	-	458	464	93	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>11</sup>	-	-	-	-	6	3	-	1	-	2	-	-
<b>TOTAL</b>	<b>2,316</b>	<b>2,158</b>	<b>2,206</b>	<b>2,310</b>	<b>2,571</b>	<b>2,480</b>	<b>2,627</b>	<b>2,725</b>	<b>3,035</b>	<b>3,069</b>	<b>3,129</b>	<b>3,246</b>
Ministry of Defence (MoD) <sup>9</sup>												
of which:												
Research	737	755	740	664	644	588	600	600	612	635	618	605
Experimental Development	2,027	1,782	1,754	1,598	1,318	1,275	816	951	972	1,120	1,055	1,018
<b>TOTAL</b>	<b>2,764</b>	<b>2,538</b>	<b>2,494</b>	<b>2,262</b>	<b>1,962</b>	<b>1,862</b>	<b>1,416</b>	<b>1,551</b>	<b>1,584</b>	<b>1,754</b>	<b>1,673</b>	<b>1,623</b>
<b>DEPARTMENTAL R&amp;D TOTAL</b>	<b>10,861</b>	<b>10,632</b>	<b>10,467</b>	<b>10,493</b>	<b>10,741</b>	<b>10,396</b>	<b>9,947</b>	<b>9,775</b>	<b>10,494</b>	<b>10,555</b>	<b>10,384</b>	<b>10,330</b>
Indicative UK contributions to EU R&D expenditure <sup>10</sup>	449	447	436	673	749	711	717	798	802	708	935	900
<b>GRAND R&amp;D TOTAL</b>	<b>11,310</b>	<b>11,079</b>	<b>10,903</b>	<b>11,166</b>	<b>11,489</b>	<b>11,107</b>	<b>10,665</b>	<b>10,572</b>	<b>11,296</b>	<b>11,263</b>	<b>11,320</b>	<b>11,230</b>
Net Launch Investment <sup>13</sup>	-195	-184	-179	-146	-64	-100	-117	-160	-160	-163	-	-

2016 = 100

Source: Office for National Statistics

	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP deflator used to convert current prices to constant prices	81.158	83.699	85.777	88.008	89.287	90.918	92.228	94.144	95.752	97.140	97.794	100

- denotes nil, figures unavailable or too small to display.

<sup>†</sup> denotes earliest data revision.

Please see Table 1 for footnotes.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

## 5

## UK GOVERNMENT EXPENDITURE ON KNOWLEDGE TRANSFER BY DEPARTMENT: 2005 to 2016

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Current prices	£ million											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>												
Engineering and Physical Sciences (EPSRC)	2	1	1	-	1	43	47	128	121	105	104	84
Natural Environment (NERC)	10	11	14	15	19	7	9	14	15	15	16	20
Biotechnology and Biological Sciences (BBSRC)	1	2	4	10	13	13	16	18	20	17	19	17
Science and Technology Facilities (STFC) <sup>1</sup>	-	-	4	7	7	8	7	12	9	12	12	12
Economic and Social (ESRC)	9	10	4	4	4	5	6	9	8	9	9	11
Arts and Humanities (AHRC) <sup>2</sup>	11	11	2	3	3	3	4	7	8	6	6	5
Pensions <sup>11</sup>	-	-	-	1	1	-	1	3	3	3	4 <sup>†</sup>	4
OST - DTI <sup>3</sup>	75	95	-	-	-	-	-	-	-	-	-	-
Medical (MRC)	-	-	-	-	-	-	-	-	-	-	-	-
Particle Physics and Astronomy (PPARC) <sup>1</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Council for the Central Laboratory (CCLRC) <sup>1</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>108</b>	<b>130</b>	<b>29</b>	<b>40</b>	<b>47</b>	<b>79</b>	<b>91</b>	<b>191</b>	<b>184</b>	<b>167</b>	<b>170</b>	<b>153</b>
<b>Higher Education Funding Councils (HEFCs):</b>												
Scotland (SFC)	-	-	18	21	8	25	28	28	31	51	35	35
Northern Ireland (DELNI)	-	-	-	-	-	-	-	-	-	5	5	5
England (HEFCE)	-	-	-	-	-	-	-	-	-	-	-	-
Wales (HEFCW)	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>18</b>	<b>21</b>	<b>8</b>	<b>25</b>	<b>28</b>	<b>28</b>	<b>31</b>	<b>56</b>	<b>41</b>	<b>41</b>
<b>Civil Departments:</b>												
Business, Energy and Industrial Strategy (BEIS) <sup>1, 3, 7</sup>	-	-	-	-	42	54	50	42	40	36	43	34
International Development (DFID)	-	-	18	19	12	11	10	9	10	9	15	21
Scottish Government (SG)	72	81	84	77	65	11	11	14	13	8	9	11
Culture, Media and Sport (DCMS)	-	-	5	18	18	6	6	2	9	7	5	5
Health (DH) (excluding NHS)	-	-	1	1	1	-	-	1	-	-	2	3
Other Departments <sup>5</sup>	13	13	1	1	1	1	1	1	1	1	1	1
Home Office (HO)	-	-	1	2	1	5	1	1	1	1	1	1
Northern Ireland Departments (NI) <sup>5</sup>	-	-	1	1	1	1	1	1	1	1	1	1
Health and Safety Executive (HSE)	3	3	-	-	-	-	-	-	-	-	-	1
Welsh Government (WG) <sup>4</sup>	-	-	-	1	1	1	1	1	1	1	-	1
Environment, Food and Rural Affairs (DEFRA) <sup>3</sup>	88	105	12	11	4	4	3	3	1	1	-	-
Food Standards Agency (FSA)	-	-	-	-	-	-	-	-	1	-	-	-
Energy and Climate Change (DECC) <sup>7</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Transport (DtT) <sup>3</sup>	10	2	5	4	12	1	1	1	1	1	1	-

Current prices													£ million
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Education and Skills (DfES) <sup>6</sup>	-	-	-	-	-	-	-	-	-	-	-	-	
Education (DfE) <sup>6</sup>	-	-	-	-	-	-	-	-	-	-	-	-	
Communities and Local Government (DCLG)	-	-	-	-	-	-	-	-	-	-	-	-	
National Health Service (NHS)	-	-	-	-	-	-	-	-	-	-	-	-	
Work and Pensions (DWP)	-	-	-	-	-	-	-	-	-	-	-	-	
Business Enterprise and Regulatory Reform (BERR) <sup>3</sup>	-	-	1	1	-	-	-	-	-	-	-	-	
Trade and Industry (DTI) <sup>3</sup>	57	61	-	-	-	-	-	-	-	-	-	-	
Net Launch Investment	-	-	-	-	-	-	-	-	-	-	-	-	
Ministry of Justice (MoJ) <sup>8</sup>	-	-	1	1	2	1	-	-	-	-	-	-	
BIS Science <sup>3</sup>	-	-	27	30	-	-	-	-	-	-	-	-	
Foreign and Commonwealth Office (FCO) <sup>10</sup>	-	-	-	-	-	-	-	-	-	-	-	-	
<b>TOTAL</b>	<b>243</b>	<b>266</b>	<b>158</b>	<b>167</b>	<b>160</b>	<b>97</b>	<b>87</b>	<b>77</b>	<b>80</b>	<b>67</b>	<b>80</b>	<b>78</b>	
Ministry of Defence (MoD) <sup>9</sup>	-	-	-	-	-	-	-	-	-	-	-	-	
<b>GRAND TOTAL</b>	<b>352</b>	<b>396</b>	<b>205</b>	<b>228</b>	<b>215</b>	<b>201</b>	<b>206</b>	<b>296</b>	<b>295</b>	<b>290</b>	<b>290</b> †	<b>271</b>	

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

1 In April 2007, CCLRC and PPARC merged to form Science and Technology Facilities Council (STFC). In 2011, STFCs subscription for European Space Agency (ESA) transferred to BIS Space.

2 AHRC was established in April 2005.

3 From July 2007, the Department for Trade and Industry (DTI) and the Office for Science and Technology (OST) were renamed Business Enterprise and Regulatory Reform (BERR) and the Department of Innovation, Universities and Skills (DIUS) respectively. In 2009, DIUS and BERR merged to form Business, Innovation and Skills (BIS). DIUS was renamed as BIS Science and BERR renamed as BIS. A number of departments previously reporting under DIUS transferred to BIS. From 2010, BIS Science reported under BIS. From 2011 includes all UK subscriptions to the European Space Agency (ESA), and some budget transfers from DEFRA and DfT. BIS was renamed Business, Energy and Industrial Strategy (BEIS) from July 2016.

4 NHS Wales was included from 2010 and Museum Wales included from 2011.

5 In 2011, Department of the Environment was included for the first time. This will be used as a base year going forward. No back data available.

6 From June 2007 DfES was renamed Department for Children, Schools and Families (DCSF). From May 2010 DCSF was replaced with Department for Education (DfE). In 2011, expenditure fell due to a move to drive down spend across all budgets, and reflects Ministerial priorities.

7 DECC was created in October 2008. DECC became part of BEIS from July 2016. Their data is displayed separately for 2016, from 2017 it will be included in the BEIS totals.

8 Prior to 2006, Ministry of Justice figures were included under "Other departments".

9 These data comprise elements from both the operating cost statement and the balance sheet in the Departmental Resource Accounts (DRAc). The funding received by MoD and its trading funds for expenditure on R&D are not necessarily spent on defence related R&D. The fall in 2011 net development expenditure was reported by the MoD's Defence Equipment and Support (DE&S) as a number of project teams moved from the development phase to manufacturing.

10 Department was not surveyed prior to 2009.

11 Research Councils' pension contributions are included separately.

Current prices

£ million

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2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
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**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

## 6

## UK GOVERNMENT EXPENDITURE ON KNOWLEDGE TRANSFER BY DEPARTMENT: 2005 to 2016

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Constant prices (2016)	£ million											
	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>												
Engineering and Physical Sciences (EPSRC)	3	1	1	-	1	47	51	136	127	108	106	84
Natural Environment (NERC)	12	13	16	17	21	8	10	15	16	16	16	20
Biotechnology and Biological Sciences (BBSRC)	2	3	5	11	14	15	18	20	21	18	20	17
Science and Technology Facilities (STFC) <sup>1</sup>	-	-	5	8	8	8	8	13	10	12	12	12
Economic and Social (ESRC)	11	12	5	4	5	5	7	9	8	9	10	11
Arts and Humanities (AHRC) <sup>2</sup>	14	14	2	3	3	3	4	7	9	6	6	5
Pensions <sup>11</sup>	-	-	-	1	1	1	1	3	3	3	4	4
OST - DTI <sup>3</sup>	93	113	-	-	-	-	-	-	-	-	-	-
Medical (MRC)	-	-	-	-	-	-	-	-	-	-	-	-
Particle Physics and Astronomy (PPARC) <sup>1</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Council for the Central Laboratory (CCLRC) <sup>1</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>134</b>	<b>156</b>	<b>33</b>	<b>45</b>	<b>53</b>	<b>87</b>	<b>99</b>	<b>203</b>	<b>192</b>	<b>172</b>	<b>173</b>	<b>153</b>
<b>Higher Education Funding Councils (HEFCs):</b>												
Scotland (SFC)	-	-	21	23	9	27	30	30	32	52	36	35
Northern Ireland (DELNI)	-	-	-	-	-	-	-	-	-	5	5	5
England (HEFCE)	-	-	-	-	-	-	-	-	-	-	-	-
Wales (HEFCW)	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>21</b>	<b>23</b>	<b>9</b>	<b>27</b>	<b>30</b>	<b>30</b>	<b>32</b>	<b>58</b>	<b>41</b>	<b>41</b>
<b>Civil Departments:</b>												
Business, Energy and Industrial Strategy (BEIS) <sup>1, 3, 7</sup>	-	-	-	-	47	60	54	45	42	37	44	34
International Development (DFID)	-	-	20	22	13	12	11	9	10	9	15	21
Scottish Government (SG)	89	97	98	88	72	12	12	15	14	9	9	11
Culture, Media and Sport (DCMS)	-	-	6	20	20	7	7	3	10	7	5	5
Health (DH) (excluding NHS)	-	-	1	1	1	1	1	1	-	-	2	3
Other Departments <sup>5</sup>	16	15	2	1	1	1	1	1	1	1	1	1
Home Office (HO)	-	-	1	2	1	6	1	1	1	1	1	1
Northern Ireland Departments (NI) <sup>5</sup>	-	-	1	1	1	1	1	1	1	1	1	1
Health and Safety Executive (HSE)	4	4	-	-	-	-	-	-	-	-	-	1
Welsh Government (WG) <sup>4</sup>	-	-	-	1	1	1	1	1	1	1	-	1
Environment, Food and Rural Affairs (DEFRA) <sup>3</sup>	108	126	15	13	4	4	4	4	1	1	-	-
Food Standards Agency (FSA)	-	-	-	1	-	-	1	-	1	-	-	-
Energy and Climate Change (DECC) <sup>7</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Transport (DtT) <sup>3</sup>	12	2	5	4	13	1	1	1	1	1	1	-



Constant prices (2016)	£ million											
	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Education and Skills (DfES) <sup>6</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Education (DfE) <sup>6</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Communities and Local Government (DCLG)	-	-	1	1	-	-	-	-	-	-	-	-
National Health Service (NHS)	-	-	-	-	-	-	-	-	-	-	-	-
Work and Pensions (DWP)	-	-	-	-	-	-	-	-	-	-	-	-
Business Enterprise and Regulatory Reform (BERR) <sup>3</sup>	-	-	1	1	-	-	-	-	-	-	-	-
Trade and Industry (DTI) <sup>3</sup>	70	73	-	-	-	-	-	-	-	-	-	-
Net Launch Investment	-	-	-	-	-	-	-	-	-	-	-	-
Ministry of Justice (MoJ) <sup>8</sup>	-	-	1	1	2	1	-	-	-	-	-	-
BIS Science <sup>3</sup>	-	-	32	34	-	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>10</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>300</b>	<b>317</b>	<b>184</b>	<b>190</b>	<b>179</b>	<b>107</b>	<b>94</b>	<b>82</b>	<b>84</b>	<b>69</b>	<b>82</b>	<b>78</b>
Ministry of Defence (MoD) <sup>9</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>GRAND TOTAL</b>	<b>433</b>	<b>473</b>	<b>238</b>	<b>259</b>	<b>241</b>	<b>221</b>	<b>223</b>	<b>314</b>	<b>308</b>	<b>299</b>	<b>296</b>	<b>271</b>

2016 = 100

Source: Office for National Statistics

	2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP deflator used to convert current prices to constant prices	81.158	83.699	85.777	88.008	89.287	90.918	92.228	94.144	95.752	97.140	97.794	100

- denotes nil, figures unavailable or too small to display.

<sup>†</sup> denotes earliest data revision.

Please see Table 5 for footnotes.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

£ million

	General Research	Government Services	Policy Research	Technology Research	Total R&D
<b>Research Councils:</b>					
Engineering and Physical Sciences (EPSRC)	248	-	-	570	818
Medical (MRC)	448	86	21	94	649
Science and Technology Facilities (STFC)	533	-	-	88	621
Biotechnology and Biological Sciences (BBSRC)	393	-	-	29	422
Natural Environment (NERC)	289	8	75	30	402
Economic and Social (ESRC)	83	-	94	-	176
Arts and Humanities (AHRC)	101	-	-	-	101
<b>TOTAL<sup>1</sup></b>	<b>2,095</b>	<b>94</b>	<b>190</b>	<b>810</b>	<b>3,189</b>
<b>Higher Education Funding Councils (HEFCs):</b>					
England (HEFCE)	1,783	-	-	-	1,783
Scotland (SFC)	285	-	-	-	285
Wales (HEFCW)	86	-	-	-	86
Northern Ireland (DELNI)	53	-	-	-	53
<b>TOTAL</b>	<b>2,207</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,207</b>
<b>Civil Departments:</b>					
Business, Energy and Industrial Strategy (BEIS) <sup>2, 3, 4</sup>	190	-	1	1,139	1,330
National Health Service (NHS)	1,040	-	-	-	1,040
International Development (DFID)	-	-	197	131	328
Scottish Government (SG)	69	4	54	39	165
Environment, Food and Rural Affairs (DEFRA)	13	13	32	1	58
Transport (DfT)	-	1	13	38	53
Culture, Media and Sport (DCMS)	23	2	20	-	45
Energy and Climate Change (DECC) <sup>4</sup>	23	1	7	11	42
Health (excluding NHS)	-	8	29	-	38
Home Office (HO)	-	9	17	6	32
Education (DfE)	-	-	23	-	23
Work and Pensions (DWP)	-	-	18	-	18
Northern Ireland Departments (NI)	12	2	4	-	18
Ministry of Justice (MoJ)	-	17	-	-	17
WG (formerly WO and WAG)	1	3	7	1	12
Other Departments	-	3	6	3	12
Communities and Local Government (DCLG)	-	-	7	-	7
Health and Safety Executive (HSE)	-	-	6	-	6
Food Standards Agency (FSA)	-	-	3	-	3
Foreign and Commonwealth Office (FCO)	-	-	-	-	-
<b>TOTAL</b>	<b>1,372</b>	<b>62</b>	<b>443</b>	<b>1,369</b>	<b>3,246</b>
Ministry of Defence (MoD)	-	1,623	-	-	1,623
<b>GRAND TOTAL<sup>1</sup></b>	<b>5,674</b>	<b>1,779</b>	<b>633</b>	<b>2,179</b>	<b>10,266</b>

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

1 For the purpose of this analysis Research Councils expenditure for Pensions have been excluded as they cannot be attributed to type of research.

2 Please note for the purpose of this analysis Launch Investment is not shown separately.

3 Estimates of launch investment loan repayments received by government from business are no longer included following a review of how these payments should be reported. These loan repayments are in relation to loans given out in previous years and therefore should not be included in current totals of R&amp;D expenditure.

4 Business, Innovation and Skills (BIS) was renamed Business, Energy and Industrial Strategy (BEIS) from July 2016. DECC became part of BEIS from July 2016. Their data is displayed separately for 2016, from 2017 it will be included in the BEIS totals.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

## 8 UK GOVERNMENT EXPENDITURE ON R&D BY SOCIO-ECONOMIC OBJECTIVE, PERCENTAGE SHARE: 2007 TO 2016

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Current prices											£ million
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
<b>TOTAL</b>	<b>8,979</b>	<b>9,235</b>	<b>9,590</b>	<b>9,452</b>	<b>9,174</b>	<b>9,202</b>	<b>10,048</b>	<b>10,253</b>	<b>10,155</b> †	<b>10,330</b>	
<b>Per cent</b>											
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
General advancement of knowledge: R&D financed from General University Funds	25	24	25	24	25	24	23	22	22	21	
Health	16	18	19	20	21	21	22	22	23	21	
Defence	24	22	18	18	14	16	15	17	16	16	
General advancement of knowledge: R&D financed from other sources	17	18	16	18	13	13	13	12	12	11	
Industrial production and technology	2	2	4	3	4	3	4	4	4	5	
Transport, telecommunication, other infrastructure	1	1	1	1	3	3	3	4	4	4	
Exploration and exploitation of the earth	3	3	3	3	3	3	3	4	4	4	
Exploration and exploitation of space	2	2	2	2	3	3	4	3	3	4	
Agriculture	3	3	4	3	4	4	4	3	4	4	
Energy	1	1	1	1	2	2	2	2	3	3	
Political and social systems, structures and processes	1	2	2	2	1	3	3	3	3	3	
Environment	2	3	3	3	3	3	3	2	2	2	
Culture, recreation, religion and mass media	2	2	2	2	2	1	1	1	1	1	
Education	1	1	1	1	-	-	-	-	-	-	

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

Current prices		£ million											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>GROSS EXPENDITURE<sup>1</sup></b>		<b>9,903</b>	<b>10,042</b>	<b>10,189</b>	<b>10,519</b>	<b>10,960</b>	<b>10,887</b>	<b>10,545</b>	<b>10,633</b>	<b>11,555</b>	<b>11,796</b>	<b>11,658</b> †	<b>11,876</b>
of which:													
	Higher Education Institutions	3,868	4,146	4,136	4,366	4,661	4,608	4,631	4,472	4,764	4,870	4,866	4,797
	Within government departments <sup>2</sup>	2,998	3,044	3,057	3,197	3,365	3,406	3,307	3,275	3,428	3,299	3,174	3,258
	Private Industry/Public corporations	2,225	2,124	2,080	1,783	1,727	1,935	1,535	1,841	2,081	2,299	2,183	2,386
	Overseas	609	531	705	946	916	676	720	688	750	825	903	833
	Others	203	197	211	228	290	262	353	357	532	503	532	601
	Less funding received <sup>3</sup>	1,089	1,143	1,210	1,285	1,370	1,436	1,371	1,431	1,507	1,543	1,503	1,546
	<b>TOTAL NET EXPENDITURE</b>	<b>8,814</b>	<b>8,899</b>	<b>8,979</b>	<b>9,235</b>	<b>9,590</b>	<b>9,451</b>	<b>9,174</b>	<b>9,202</b>	<b>10,048</b>	<b>10,253</b>	<b>10,155</b> †	<b>10,330</b>
<b>GROSS CIVIL EXPENDITURE<sup>1</sup></b>													
of which:													
		<b>7,585</b>	<b>7,830</b>	<b>7,968</b>	<b>8,446</b>	<b>9,121</b>	<b>9,106</b>	<b>9,197</b>	<b>9,129</b>	<b>9,995</b>	<b>10,047</b>	<b>9,976</b> †	<b>10,208</b>
	Higher Education Institutions	3,863	4,132	4,131	4,361	4,657	4,604	4,628	4,472	4,763	4,868	4,865	4,795
	Within government departments <sup>2</sup>	2,627	2,683	2,778	2,927	3,073	3,179	3,144	3,122	3,258	3,132	3,006	3,099
	Private Industry/Public corporations	416	372	428	430	609	576	493	595	772	835	898	941
	Overseas	476	446	429	500	493	485	580	584	669	709	676	772
	Others	203	197	203	228	290	261	353	357	532	503	532	601
	Less funding received <sup>3</sup>	1,015	1,055	1,129	1,202	1,283	1,348	1,329	1,387	1,463	1,498	1,456	1,501
	<b>CIVIL NET EXPENDITURE</b>	<b>6,571</b>	<b>6,775</b>	<b>6,840</b>	<b>7,244</b>	<b>7,838</b>	<b>7,758</b>	<b>7,869</b>	<b>7,742</b>	<b>8,532</b>	<b>8,549</b>	<b>8,519</b> †	<b>8,707</b>
<b>GROSS DEFENCE EXPENDITURE<sup>1</sup></b>													
of which:													
		<b>2,318</b>	<b>2,212</b>	<b>2,220</b>	<b>2,074</b>	<b>1,839</b>	<b>1,782</b>	<b>1,348</b>	<b>1,504</b>	<b>1,560</b>	<b>1,749</b>	<b>1,682</b> †	<b>1,668</b>
	Higher Education Institutions	5	13	5	5	5	4	3	-	1	2	1	2
	Within government departments <sup>2</sup>	371	361	279	269	293	227	163	154	169	167	168	159
	Private Industry/Public corporations	1,809	1,752	1,652	1,353	1,118	1,359	1,042	1,246	1,309	1,464	1,286	1,446
	Overseas	132	85	276	446	423	191	140	104	81	116	227	62
	Others	-	-	8	1	-	1	-	-	-	-	-	-
	Less funding received <sup>3</sup>	75	88	81	83	87	89	42	44	44	45	46	45
	<b>DEFENCE NET EXPENDITURE</b>	<b>2,243</b>	<b>2,124</b>	<b>2,139</b>	<b>1,991</b>	<b>1,752</b>	<b>1,693</b>	<b>1,306</b>	<b>1,460</b>	<b>1,516</b>	<b>1,704</b>	<b>1,636</b> †	<b>1,623</b>

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

1 Gross expenditure is the amount of R&amp;D expenditure within and outside government departments. Civil includes Research Council Institutes, NHS Trusts and Local Authorities.

2 Includes Research Council Institutes, NHS Trusts and Local Authorities.

3 Funding received for R&amp;D from outside the reporting department.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

Current prices		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		£ million											
<b>RESEARCH COUNCILS R&amp;D<sup>1</sup></b>													
Basic	- pure	1,019	953	739	817	808	790	746	718	755	776	754 <sup>†</sup>	827
	- oriented	853	980	1,010	1,114	1,206	1,218	1,209	1,167	1,304	1,232	1,155 <sup>†</sup>	1,130
Applied	- strategic	686	755	733	754	838	896	890	767	906	870	919	868
	- specific	166	157	167	186	206	213	255	255	302	293	300	297
Experimental Development		24	21	40	41	53	50	54	49	57	59	59	67
<b>TOTAL NET EXPENDITURE</b>		<b>2,748</b>	<b>2,866</b>	<b>2,689</b>	<b>2,912</b>	<b>3,111</b>	<b>3,166</b>	<b>3,155</b>	<b>2,956</b>	<b>3,323</b>	<b>3,229</b>	<b>3,187<sup>†</sup></b>	<b>3,189</b>
<b>CIVIL R&amp;D<sup>2</sup></b>													
Basic	- pure	43	46	105	100	123	122	109	116	120	110	111	125
	- oriented	46	39	82	216	138	101	129	90	99	98	107	199
Applied	- strategic	890	831	670	620	669	697	681	768	813	838	816	777
	- specific	775	795	948	1,024	1,303	992	1,176	1,177	1,289	1,333	1,301	1,326
Experimental Development		126	95	87	73	61	344	328	413	585	602	725 <sup>†</sup>	818
<b>CIVIL NET EXPENDITURE</b>		<b>1,880</b>	<b>1,807</b>	<b>1,892</b>	<b>2,033</b>	<b>2,295</b>	<b>2,255</b>	<b>2,423</b>	<b>2,565</b>	<b>2,906</b>	<b>2,981</b>	<b>3,060<sup>†</sup></b>	<b>3,246</b>
<b>DEFENCE R&amp;D</b>													
Basic	- pure	-	-	-	-	-	-	-	-	-	-	-	-
	- oriented	-	-	-	-	-	-	-	-	-	-	-	-
Applied	- strategic	30	35	21	13	29	21	17	59	89	100	120	142
	- specific	568	598	614	571	546	513	536	506	497	516	484	463
Experimental Development		1,645	1,492	1,505	1,406	1,177	1,159	753	895	931	1,088	1,032 <sup>†</sup>	1,018
<b>DEFENCE NET EXPENDITURE</b>		<b>2,243</b>	<b>2,124</b>	<b>2,139</b>	<b>1,991</b>	<b>1,752</b>	<b>1,693</b>	<b>1,306</b>	<b>1,460</b>	<b>1,516</b>	<b>1,704</b>	<b>1,636<sup>†</sup></b>	<b>1,623</b>

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

<sup>†</sup> denotes earliest data revision.

1 For the purpose of this analysis Research Councils expenditure for Pensions have been excluded.

2 For the purpose of this analysis Higher Education Funding Councils are excluded.

3 [R&D and related concepts follow internationally agreed standards as published in the Frascati Manual.](#)**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

Constant prices (2016)													£ million
		2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>RESEARCH COUNCILS R&amp;D<sup>1</sup></b>													
Basic	- pure	1,256	1,139	862	928	905	869	809	762	789	799	771	827
	- oriented	1,050	1,170	1,178	1,265	1,351	1,340	1,311	1,240	1,362	1,268	1,181	1,130
Applied	- strategic	845	902	855	857	939	985	965	814	946	895	940	868
	- specific	204	188	194	212	231	234	277	270	315	302	307	297
Experimental Development		30	25	46	46	59	55	59	52	60	60	60	67
<b>TOTAL NET EXPENDITURE</b>		<b>3,386</b>	<b>3,425</b>	<b>3,135</b>	<b>3,308</b>	<b>3,485</b>	<b>3,483</b>	<b>3,421</b>	<b>3,139</b>	<b>3,471</b>	<b>3,324</b>	<b>3,259</b>	<b>3,189</b>
<b>CIVIL R&amp;D<sup>2</sup></b>													
Basic	- pure	54	56	122	114	138	134	118	124	125	113	113	125
	- oriented	56	47	95	246	155	111	140	96	103	101	109	199
Applied	- strategic	1,096	993	782	704	749	766	739	816	850	863	834	777
	- specific	954	950	1,105	1,163	1,460	1,091	1,275	1,251	1,346	1,372	1,331	1,326
Experimental Development		155	113	102	83	69	378	355	439	611	620	741	818
<b>CIVIL NET EXPENDITURE</b>		<b>2,316</b>	<b>2,158</b>	<b>2,206</b>	<b>2,310</b>	<b>2,571</b>	<b>2,480</b>	<b>2,627</b>	<b>2,725</b>	<b>3,035</b>	<b>3,069</b>	<b>3,129</b>	<b>3,246</b>
<b>DEFENCE R&amp;D</b>													
Basic	- pure	-	-	-	-	-	-	-	-	-	-	-	-
	- oriented	-	-	-	-	-	-	-	-	-	-	-	-
Applied	- strategic	37	41	24	15	32	23	18	63	93	103	123	142
	- specific	700	714	716	649	612	564	581	538	519	531	495	463
Experimental Development		2,027	1,782	1,754	1,598	1,318	1,275	816	951	972	1,120	1,055	1,018
<b>DEFENCE NET EXPENDITURE</b>		<b>2,764</b>	<b>2,538</b>	<b>2,494</b>	<b>2,262</b>	<b>1,962</b>	<b>1,862</b>	<b>1,416</b>	<b>1,551</b>	<b>1,584</b>	<b>1,754</b>	<b>1,673</b>	<b>1,623</b>
2016 = 100										Source: Office for National Statistics			
		2005 <sup>†</sup>	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP deflator used to convert current prices to constant prices		81.158	83.699	85.777	88.008	89.287	90.918	92.228	94.144	95.752	97.140	97.794	100

- denotes nil, figures unavailable or too small to display.

<sup>†</sup> denotes earliest data revision.

Please see Table 10 for footnotes.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

Current prices	2008	2009	2010	2011	2012	2013	2014	2015	2016
	£ million								
<b>Research Councils:</b>									
Science and Technology Facilities (STFC)	304	275	228	304	254	297	314	305	343
Natural Environment (NERC)	214	261	283	285	263	262	261	280	317
Medical (MRC)	320	340	394	348	278	246	232	172	159
Pensions <sup>4</sup>	23	11	10	10	8	8	11	14 †	17
Biotechnology and Biological Sciences (BBSRC) <sup>1</sup>	173	202	219	87	-	-	-	-	-
Economic and Social (ESRC)	8	7	6	-	-	-	-	-	-
Engineering and Physical Sciences (EPSRC)	-	-	-	-	-	-	-	-	-
Arts and Humanities (AHRC)	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>1,041</b>	<b>1,097</b>	<b>1,141</b>	<b>1,035</b>	<b>804</b>	<b>814</b>	<b>819</b>	<b>771 †</b>	<b>837</b>
<b>Civil Departments:</b>									
Business, Energy and Industrial Strategy (BEIS) <sup>2, 5, 6, 7, 8</sup>	-	83	85	112	123	134	92	85	84
Culture, Media and Sport (DCMS)	37	39	39	38	54	93	68	63	64
Scottish Government (SG)	55	57	55	51	58	57	57	57	57
Environment, Food and Rural Affairs (DEFRA)	107	109	91	91	86	93	80	42	43
Health (excluding NHS)	35	24	30	26	28	36	30	32	27
Home Office (HO)	16	16	18	13	9	12	15	16	26
Other Departments	39	40	39	47	41	32	32	11	17
Ministry of Justice (MoJ)	7	4	4	5	6	5	6	5	16
International Development (DFID)	4	5	6	6	7	8	8	7	8
Northern Ireland Departments (NI)	9	8	7	8	8	8	7	5	7
Education (DfE)	4	4	3	2	3	3	3	3	7
Work and Pensions (DWP)	5	15	6	5	5	5	6	6	6
Health and Safety Executive (HSE)	8	8	8	9	7	7	7	6	6
Welsh Government (WG)	3	2	2	2	2	3	2	2	3
Transport (DfT)	4	3	3	2	3	3	3	2	2
Communities and Local Government (DCLG)	3	3	3	1	1	1	1	1	1
Energy and Climate Change (DECC) <sup>8</sup>	-	-	1	1	1	2	2	2	1
Food Standards Agency (FSA)	-	-	-	-	-	-	-	-	-
Enterprise and Regulatory Reform (BERR) <sup>2</sup>	83	-	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>2</sup>	-	2	1	-	-	-	-	-	-
BIS Science <sup>5</sup>	-	-	-	-	-	-	-	-	-
National Health Service (NHS)	-	-	-	-	-	-	-	-	-
NHS Trusts and Local Authorities	667	697	746	745	797	838	816	810	803
<b>TOTAL</b>	<b>1,087</b>	<b>1,119</b>	<b>1,146</b>	<b>1,164</b>	<b>1,241</b>	<b>1,339</b>	<b>1,233</b>	<b>1,156</b>	<b>1,178</b>
Ministry of Defence (MoD)	262	288	226	158	150	164	158	164 †	156
<b>GRAND TOTAL</b>	<b>2,390</b>	<b>2,504</b>	<b>2,513</b>	<b>2,356</b>	<b>2,195</b>	<b>2,316</b>	<b>2,210</b>	<b>2,091 †</b>	<b>2,171</b>

Source: Office for National Statistics

Please note, no R&amp;D data appears on this table for HEFCs as they are R&amp;D funders and not performers.

- denotes nil, figures unavailable or too small to display.

† denotes earliest data revision.

1 From 2011, the research institutes that BBSRC funded, were reclassified from general government to either the higher education or non profit organisation sectors.

2 In 2009, BERR was renamed Business, Innovation and Skills (BIS). BIS was renamed Business, Energy and Industrial Strategy (BEIS) from July 2016.

3 Department was not surveyed prior to 2009.

4 Research Councils' pension contributions are included separately.

5 From 2010, BIS Science reported under BIS.

6 Please note for the purpose of this analysis Launch Investment is not shown separately.

7 Estimates of launch investment loan repayments received by government from business are no longer included following a review of how these payments should be reported. These loan repayments are in relation to loans given out in previous years and therefore should not be included in current totals of R&amp;D expenditure.

8 DECC was created in October 2008. DECC became part of BEIS from July 2016. Their data is displayed separately for 2016, from 2017 it will be included in the BEIS totals.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

Constant prices (2016)	£ million								
	2008 <sup>†</sup>	2009	2010	2011	2012	2013	2014	2015	2016
<b>Research Councils:</b>									
Science and Technology Facilities (STFC)	345	308	251	330	270	310	324	312	343
Natural Environment (NERC)	243	293	312	309	280	274	269	286	317
Medical (MRC)	364	381	434	378	295	257	239	176	159
Pensions <sup>4</sup>	26	13	12	11	9	9	12	14	17
Biotechnology and Biological Sciences (BBSRC) <sup>1</sup>	196	226	240	95	-	-	-	-	-
Economic and Social (ESRC)	9	8	7	-	-	-	-	-	-
Engineering and Physical Sciences (EPSRC)	-	-	-	-	-	-	-	-	-
Arts and Humanities (AHRC)	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>1,183</b>	<b>1,229</b>	<b>1,255</b>	<b>1,122</b>	<b>854</b>	<b>850</b>	<b>843</b>	<b>788</b>	<b>837</b>
<b>Civil Departments:</b>									
Business, Energy and Industrial Strategy (BEIS) <sup>2, 5, 6, 7, 8</sup>	-	93	93	122	130	140	95	87	84
Culture, Media and Sport (DCMS)	42	43	43	41	58	98	70	64	64
Scottish Government (SG)	63	64	60	56	62	60	59	58	57
Environment, Food and Rural Affairs (DEFRA)	122	122	101	99	92	98	82	43	43
Health (excluding NHS)	40	27	33	28	30	37	31	32	27
Home Office (HO)	18	17	20	14	10	13	15	17	26
Other Departments	44	45	43	50	44	34	33	11	17
Ministry of Justice (MoJ)	8	4	4	5	6	5	7	5	16
International Development (DFID)	4	5	6	6	8	8	8	8	8
Northern Ireland Departments (NI)	10	9	8	8	8	9	7	5	7
Education (DfE)	5	4	3	2	3	3	3	3	7
Work and Pensions (DWP)	6	17	7	6	5	5	7	6	6
Health and Safety Executive (HSE)	9	9	9	9	7	7	7	6	6
Welsh Government (WG)	3	3	2	3	2	3	2	2	3
Transport (DfT)	4	4	3	2	3	3	3	2	2
Communities and Local Government (DCLG)	4	4	4	1	1	1	1	1	1
Energy and Climate Change (DECC) <sup>8</sup>	-	-	1	1	2	2	2	2	1
Food Standards Agency (FSA)	-	-	-	-	-	-	-	-	-
Enterprise and Regulatory Reform (BERR) <sup>2</sup>	94	-	-	-	-	-	-	-	-
Foreign and Commonwealth Office (FCO) <sup>3</sup>	-	2	1	-	-	-	-	-	-
BIS Science <sup>5</sup>	-	-	-	-	-	-	-	-	-
National Health Service (NHS)	-	-	-	-	-	-	-	-	-
NHS Trusts and Local Authorities	758	781	821	808	847	875	840	829	803
<b>TOTAL</b>	<b>1,235</b>	<b>1,253</b>	<b>1,261</b>	<b>1,262</b>	<b>1,318</b>	<b>1,398</b>	<b>1,270</b>	<b>1,182</b>	<b>1,178</b>
Ministry of Defence (MoD)	297	322	248	171	159	171	162	168	156
<b>GRAND TOTAL</b>	<b>2,716</b>	<b>2,804</b>	<b>2,764</b>	<b>2,555</b>	<b>2,331</b>	<b>2,419</b>	<b>2,275</b>	<b>2,138</b>	<b>2,171</b>
2016 = 100	Source: Office for National Statistics								
	2008 <sup>†</sup>	2009	2010	2011	2012	2013	2014	2015	2016
GDP deflator used to convert current prices to constant prices	88.008	89.287	90.918	92.228	94.144	95.752	97.140	97.794	100

Please note, no R&D data appears on this table for HEFCs as they are R&D funders and not performers.

- denotes nil, figures unavailable or too small to display.

<sup>†</sup> denotes earliest data revision.

Please see Table 12 for footnotes.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.



£ million

	Organisations receiving funds for R&D								Total
	UK Research Councils	Elsewhere within Own Organisation	Elsewhere within UK Central Government	UK NHS Trusts and Local Authorities	UK Higher Education	UK Business	UK Other	Abroad	
<b>Department providing the funds for R&amp;D</b>									
<b>Research Councils:</b>									
Engineering and Physical Sciences (EPSRC)	15	-	17	-	794	-	17	1	843
Medical (MRC)	7	-	13	-	477	-	69	30	596
Biotechnology and Biological Sciences (BBSRC)	-	-	-	-	255	-	174	18	448
Science and Technology Facilities (STFC)	1	-	-	-	123	-	-	226	351
Economic and Social (ESRC)	13	-	-	-	185	-	1	6	205
Natural Environment (NERC)	11	-	1	1	134	4	18	3	172
Arts and Humanities (AHRC)	3	-	-	-	100	-	-	-	103
<b>TOTAL<sup>1</sup></b>	<b>50</b>	<b>-</b>	<b>31</b>	<b>1</b>	<b>2,068</b>	<b>5</b>	<b>279</b>	<b>285</b>	<b>2,717</b>
<b>Higher Education Funding Councils (HEFCs):</b>									
England (HEFCE)	-	-	-	-	1,783	-	-	-	1,783
Scotland (SFC)	-	-	-	-	285	-	-	-	285
Wales (HEFCW)	-	-	-	-	86	-	-	-	86
Northern Ireland (DELNI)	-	-	-	-	53	-	-	-	53
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,207</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,207</b>
<b>Civil Departments:</b>									
Business, Energy and Industrial Strategy (BEIS) <sup>2,3</sup>	77	4	4	2	111	686	217	305	1,407
National Health Service (NHS)	11	-	1	751	233	71	12	-	1,077
International Development (DFID)	40	-	-	-	26	24	59	170	320
Scottish Government (SG)	2	1	1	40	32	32	1	-	110
WG (formerly WO and WAG)	-	9	7	1	32	4	-	-	53
Transport (DfT)	-	1	5	-	1	34	9	-	50
Energy and Climate Change (DECC) <sup>3</sup>	1	1	-	-	3	36	5	-	46
Environment, Food and Rural Affairs (DEFRA)	7	1	-	-	6	9	5	3	31
Health (DH) (excluding NHS)	-	-	2	-	24	-	1	-	28
Northern Ireland Departments (NI)	-	-	4	7	6	1	-	-	19
Education (DfE)	-	-	2	-	2	11	-	1	17
Culture, Media and Sport (DCMS)	-	-	-	1	2	10	1	-	14
Work and Pensions (DWP)	1	-	9	-	-	3	-	-	13
Home Office (HO)	-	-	2	-	2	7	-	-	12
Communities and Local Government (DCLG)	-	-	1	-	-	2	4	-	7
Other Departments	-	-	-	-	-	5	-	-	6
Food Standards Agency (FSA)	-	-	-	-	1	1	-	-	3
Health and Safety Executive (HSE)	-	-	-	-	-	-	-	-	1
Ministry of Justice (MoJ)	-	-	-	-	-	-	1	-	1
Foreign and Commonwealth Office (FCO)	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>141</b>	<b>18</b>	<b>40</b>	<b>802</b>	<b>481</b>	<b>936</b>	<b>317</b>	<b>480</b>	<b>3,215</b>
Ministry of Defence (MoD)	1	-	2	-	2	1,446	-	62	1,512
<b>DEPARTMENTAL TOTAL<sup>1</sup></b>	<b>192</b>	<b>18</b>	<b>72</b>	<b>803</b>	<b>4,758</b>	<b>2,386</b>	<b>595</b>	<b>827</b>	<b>9,651</b>
Indicative UK contributions to EU R&D expenditure <sup>4</sup>	-	-	-	-	-	-	-	900	900
<b>GRAND TOTAL</b>	<b>192</b>	<b>18</b>	<b>72</b>	<b>803</b>	<b>4,758</b>	<b>2,386</b>	<b>595</b>	<b>1,727</b>	<b>10,551</b>

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.

1 For the purpose of this analysis Research Councils expenditure for Pensions have been excluded as they cannot be attributed to type of research.

2 Please note for the purpose of this analysis Launch Investment is not shown separately.

3 Business, Innovation and Skills (BIS) was renamed Business, Energy and Industrial Strategy (BEIS) from July 2016. DECC became part of BEIS from July 2016. Their data is displayed separately for 2016, from 2017 it will be included in the BEIS totals.

4 These indicative contributions are provided by HM Treasury.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.

	£ million			
	In-House Expenditure on R&D	Purchased or Funding provided for R&D	Funding Received for R&D <sup>1, 6</sup>	Net Expenditure on R&D <sup>2, 6</sup>
<b>Research Councils:</b>				
Engineering and Physical Sciences (EPSRC)	-	843	25	818
Medical (MRC)	159	596	106	649
Science and Technology Facilities (STFC)	343	351	73	621
Biotechnology and Biological Sciences (BBSRC)	-	448	26	422
Natural Environment (NERC)	317	172	87	402
Economic and Social (ESRC)	-	205	28	176
Arts and Humanities (AHRC)	-	103	3	101
Pensions	17	53	6	65
<b>TOTAL</b>	<b>837</b>	<b>2,771</b>	<b>354</b>	<b>3,254</b>
<b>Higher Education Funding Councils (HEFCs):</b>				
England (HEFCE)	-	1,783	-	1,783
Scotland (SFC)	-	285	-	285
Wales (HEFCW)	-	86	-	86
Northern Ireland (DELNI)	-	53	-	53
<b>TOTAL</b>	<b>-</b>	<b>2,207</b>	<b>-</b>	<b>2,207</b>
<b>Civil Departments:</b>				
Business, Energy and Industrial Strategy (BEIS) <sup>3, 5, 6</sup>	84	1,407	161	1,330
National Health Service (NHS)	-	1,077	37	1,040
International Development (DFID)	8	320	-	328
Scottish Government (SG)	57	110	2	165
Environment, Food and Rural Affairs (DEFRA)	43	31	16	58
Transport (DfT)	2	50	-	53
Culture, Media and Sport (DCMS)	64	14	34	45
Energy and Climate Change (DECC) <sup>5</sup>	1	46	5	42
Health (DH) (excluding NHS)	27	28	18	38
Home Office (HO)	26	12	6	32
Education (DfE)	7	17	-	23
Work and Pensions (DWP)	6	13	1	18
Northern Ireland Departments (NI)	7	19	7	18
Ministry of Justice (MoJ)	16	1	-	17
WG (formerly WO and WAG)	3	53	44	12
Other Departments	17	6	11	12
Communities and Local Government (DCLG)	1	7	1	7
Health and Safety Executive (HSE)	6	1	-	6
Food Standards Agency (FSA)	-	3	-	3
Foreign and Commonwealth Office (FCO)	-	-	-	-
NHS Trusts and Local Authorities <sup>4</sup>	803	-	803	-
<b>TOTAL</b>	<b>1,178</b>	<b>3,215</b>	<b>1,147</b>	<b>3,246</b>
Ministry of Defence (MoD)	156	1,512	45	1,623
<b>DEPARTMENTAL TOTAL</b>	<b>2,171</b>	<b>9,705</b>	<b>1,546</b>	<b>10,330</b>
Indicative UK contributions to EU R&D expenditure <sup>7</sup>	-	900	-	900
<b>GRAND TOTAL</b>	<b>2,171</b>	<b>10,605</b>	<b>1,546</b>	<b>11,230</b>

- denotes nil, figures unavailable or too small to display.

1 Funding received for R&D excluding grant in aid (also referred to as own funds).

2 Net expenditure is calculated as in-house R&D plus purchased R&D or funding provided for R&D less funding received for R&D.

3 Please note for the purpose of this analysis Launch Investment is not shown separately.

4 Departmental estimates of funding provided to NHS Trusts/Local Authorities' are used as a proxy for NHS Trusts/Local Authorities' performed (in-house) R&D expenditure.

5 Estimates of launch investment loan repayments received by government from business are no longer included following a review of how these payments should be reported. These loan repayments are in relation to loans given out in previous years and therefore should not be included in current totals of R&D expenditure.

6 Business, Innovation and Skills (BIS) was renamed Business, Energy and Industrial Strategy (BEIS) from July 2016. DECC became part of BEIS from July 2016. Their data is displayed separately for 2016, from 2017 it will be included in the BEIS totals.

7 These indicative contributions are provided by HM Treasury.

**Please Note:**

Differences may occur between totals and the sum of their independently rounded components.