UK Gross Domestic Expenditure on Research and Development, 2011

Coverage: **UK**
Date: **13 March 2013**
Geographical Area: **Region**
Theme: **Business and Energy**
Theme: **Government**

Key figures

- In 2011, the UK's gross domestic expenditure on research and development (GERD), in current price terms, increased by 5% to £27.4 billion compared with 2010. Adjusted for inflation, in constant price terms, R&D expenditure increased by 2% compared with 2010.
- The largest increase in UK R&D expenditure, in current price terms, was in the business sector. Business R&D increased by 8% in current price terms to £17.4 billion compared with 2010 and by 6% when adjusted for inflation.
- Higher education R&D expenditure, in current price terms increased by 2% to £7.1 billion compared with 2010 and by 0.2% when adjusted for inflation.
- Total R&D expenditure in the UK in 2011 represented 1.79% of Gross Domestic Product (GDP), which is a slight increase from 1.77% in 2010.
- International comparisons show that UK R&D expenditure in 2011 was below the EU-27 average of 2.03% of GDP.

Overview

This Statistical Bulletin supercedes the version available between 13 March 2013 and 27 March 2013. There have been minor corrections made to both civil and defence expenditure estimates. All other estimates remain unchanged.

This release provides estimates of R&D performed and funded by the following four sectors of the economy, as defined in the Frascati manual, Business Enterprise (BERD), Higher Education (HERD), Government (GovERD) which includes Research Councils, and Private Non-Profit (PNP)

organisations. All these sectors' R&D data are known collectively as **GERD**, which represents the gross domestic expenditure on R&D in the UK.

GERD uniquely provides information on total R&D expenditure in the UK, and is the preferred measure for use in international comparisons. This release reports on R&D expenditure in the UK irrespective of the residence of the ultimate owner or users of the R&D produced.

Two types of estimates are presented as part of this release, current and constant price terms. Estimates in current price terms present the value of R&D expenditure collected from annual surveys for all sectors except higher education. Estimates for higher education are supplied to ONS by the Higher Education Funding Councils (HEFC). Constant price estimates have been adjusted for inflation between years using a GDP deflator. This allows changes in the volume of R&D expenditures to be examined more consistently over time.

According to the Department for Business, Innovation and Skills (BIS), R&D is defined as "any project to resolve scientific or technological uncertainty aimed at achieving an advance in science or technology".

For the purposes of National Statistics, 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. R&D, in the Frascati Manual, is defined as "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications".

The Frascati Manual was originally written by, and for, the experts in OECD member countries that collect and issue national data on R&D. The definitions provided in this manual are internationally accepted and now serve as a common language for designing and evaluating science and technology policy.

The main purpose of collecting R&D data from all sectors of the economy is to supply data for policy and monitoring purposes on science and technology, of which R&D is an important part.

The National Accounts provide the framework that is used to define and measure the UK's economic performance, such as the size of the UK economy (GDP). Changes to the European System of Accounts (ESA) mean that expenditure on R&D will contribute, from 2014 onwards, to the formation of assets and therefore the value of the UK's net worth. To facilitate this, additional questions were included as part of the government, business and non-profit organisations 2011 data collections. Please see the ONS ESA 2010 page for more information.

The Business Enterprise estimates in this release are the main component of GERD and are derived from the Business Enterprise Research and Development (BERD) survey published on 20 November 2012; UK Business Enterprise Research and Development 2011 Statistical Bulletin. Approximately 5,000 UK businesses were sampled for this survey from a continually updated register of R&D performers. A paper, 'Coverage of the Business Enterprise Research and Development Survey (147 Kb Pdf)', reports on the completeness of these estimates.

As part of this release, business estimates of R&D for 2009 and 2010 have been revised to take account of late returns and misreporting (see background note 5). Government and higher education

estimates have been revised for 2007, 2008, 2009 and 2010 due to misreporting and the late receipt of data.

User engagement

We are constantly aiming to improve this release and its associated commentary. We would welcome any feedback you might have, and would be particularly interested in knowing how you make use of these data to inform your work. Please contact us via email: RandD@ons.gsi.gov.uk or telephone David Matthews on +44 (0)1633 456756.

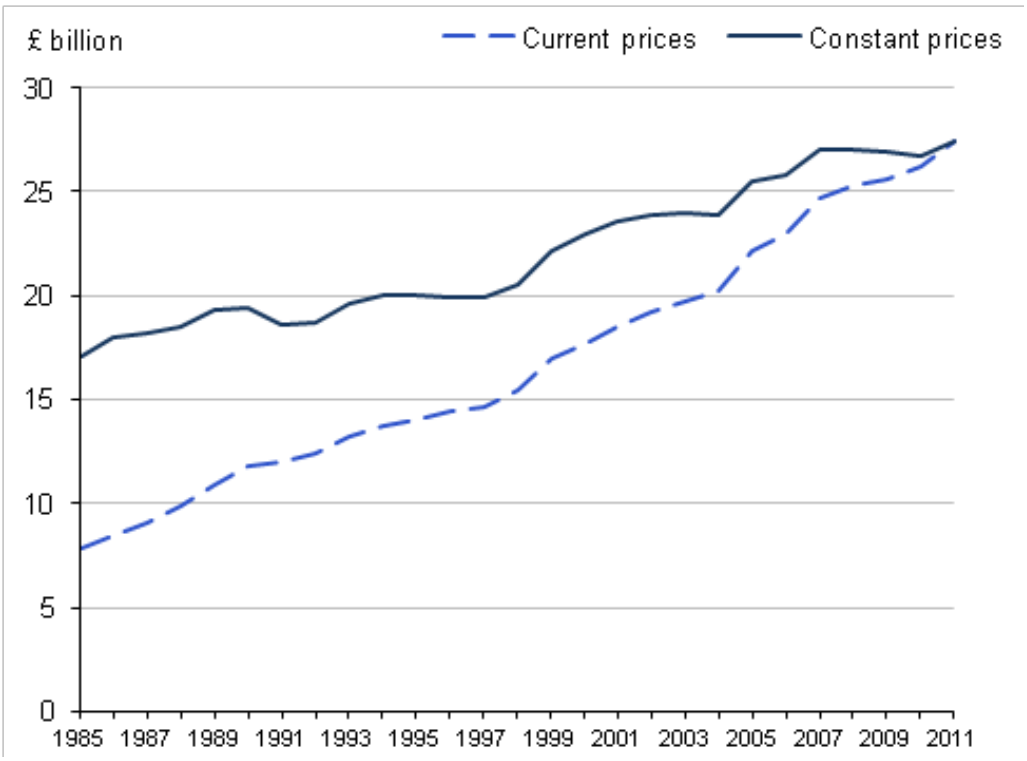
UK gross R&D expenditure, 2011

In 2011, in current prices, £27.4 billion was spent on R&D performed within the UK. This is compared with £17.7 billion in 2000 and £7.8 billion in 1985.

Since 1985, there has been a sizeable increase in R&D expenditure in both current (249%) and constant (60%) price terms. This is despite there being a decrease in R&D expenditure in constant price terms between 2007 and 2010 of 1%.

In constant price terms, the 2011 estimate of £27.4 billion is a 6% increase on the 2006 estimate (£25.8 billion) and a 19% increase on the 2000 estimate (£23.0 billion), of expenditure on R&D performed in the UK.

Figure 1: UK gross domestic expenditure on R&D, 1985 to 2011



Source: Office for National Statistics

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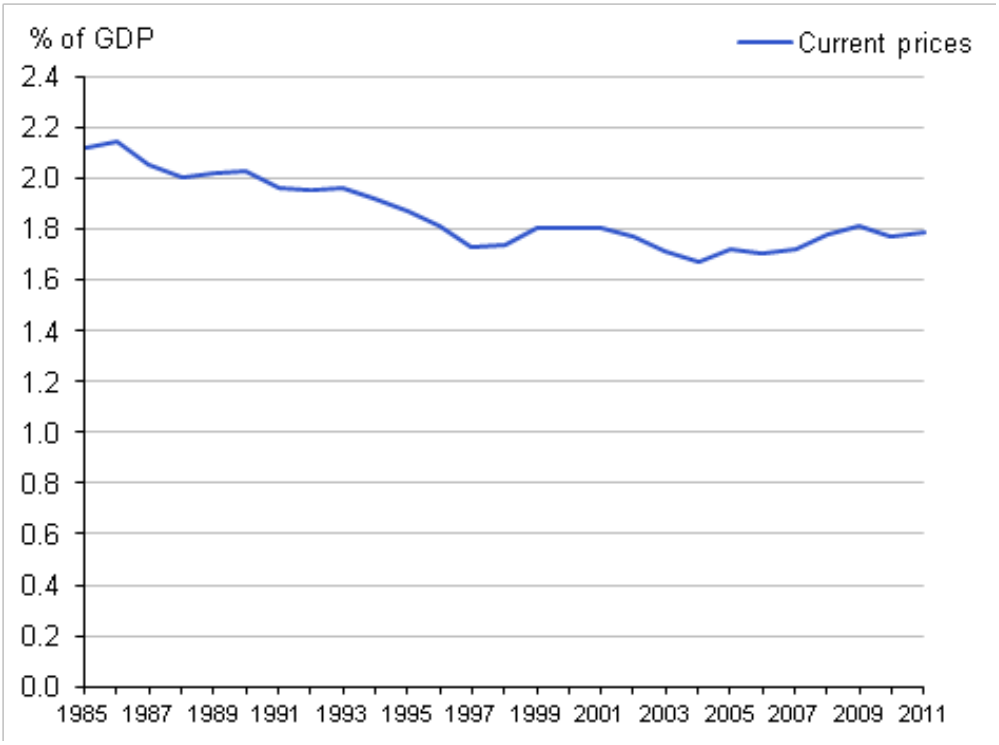
Figure 2 below shows UK gross expenditure on R&D as a percentage of GDP, in current price terms. Total R&D expenditure in 2011 represented 1.79% of GDP. This estimate is in line with recent years and is a slight increase on the 1.77% estimate for 2010. Figure 2 highlights that gross UK R&D expenditure, as a percentage of GDP in current price terms, peaked in 1986 at 2.14%.

Figure 2: UK gross expenditure on R&D as a percentage of GDP, 1985 to 2011



Source: Office for National Statistics

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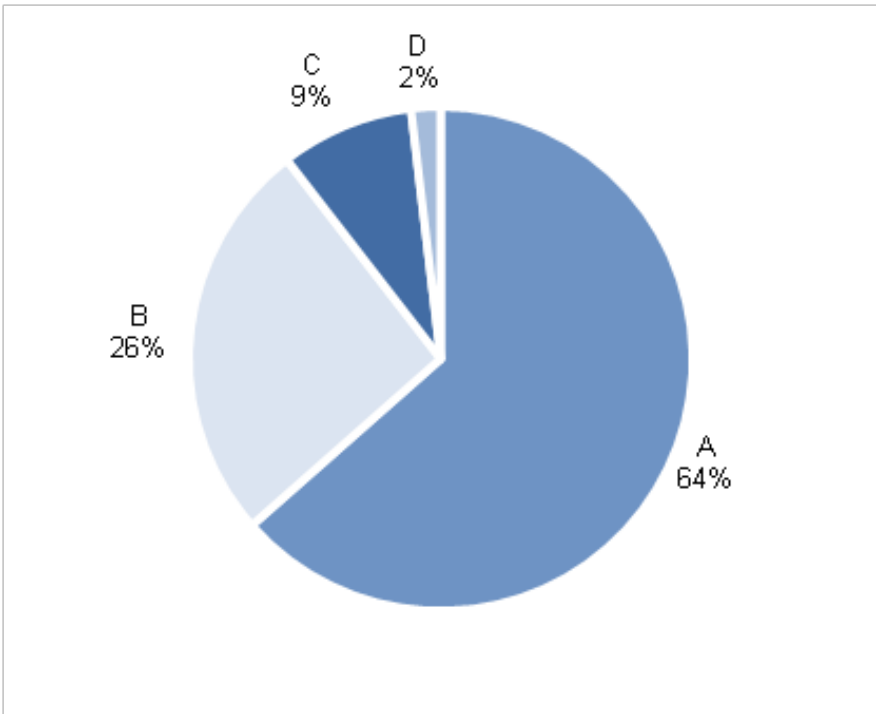
The target set by the UK government in the Science and Innovation Framework 2004 - 2014 was to increase public and private investment in R&D to reach 2.5% of GDP by 2014. The ten-year framework followed on from the earlier (2002) Investing in Innovation strategy and the Excellence and Opportunity white paper published in 2000.

Expenditure by performers of R&D in the UK

As mentioned earlier, UK estimates of R&D cover four sectors of the economy, Business Enterprise (BERD), Higher Education (HERD), Government (GovERD) which includes Research Councils, and Private Non-Profit (PNP) organisations. **Figure 3**, below, shows the contribution each sector has made to the 2011 total GERD estimate.

Figure 3: Composition of UK GERD by performing sector, 2011



Source: Office for National Statistics

Notes:

1. A = Business, B = Higher Education, C = Government and Research Councils, D = Private Non-Profit organisations.

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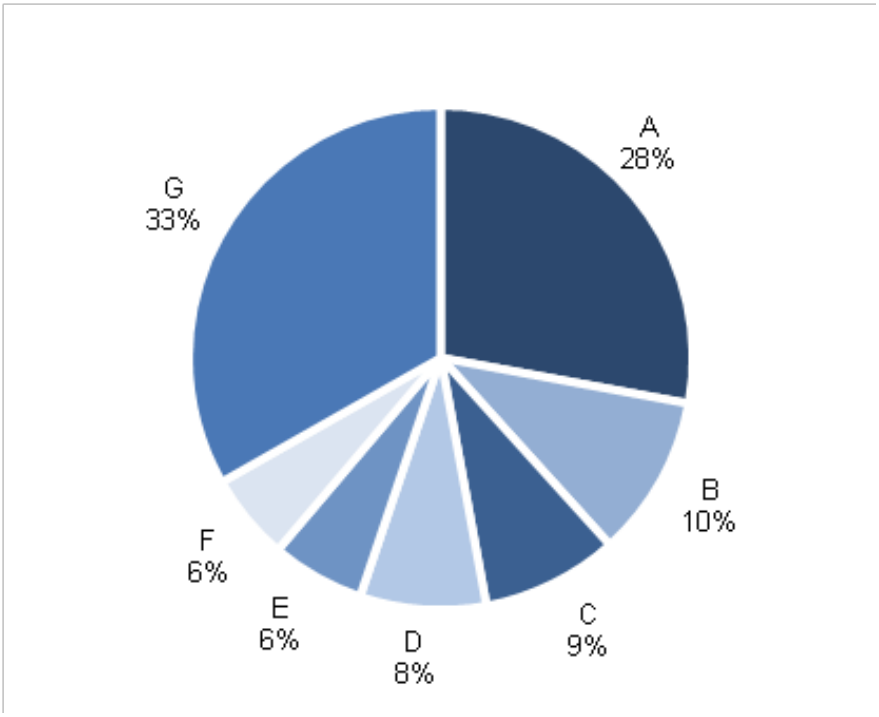
Taking each of these R&D sectors in turn:

Business sector

Business carries out by far the most R&D of any sector in the UK, accounting for £17.4 billion of UK R&D expenditure in 2011. This represented 64% of UK gross expenditure on R&D in 2011. The product groups with the highest R&D expenditure in 2011 were pharmaceuticals (£4.9 billion), computer programming and information service activities (£1.8 billion), motor vehicles and parts (£1.5 billion), aerospace (£1.4 billion) and telecommunications (£1.1 billion) (see **Figure 4** below). Further, and more detailed, information on business R&D expenditure can be found in the UK

Business Enterprise Research and Development, 2011 statistical bulletin published on 20 November 2012.

Figure 4: Product group contributions to overall R&D in the business sector, 2011



Source: Office for National Statistics

Notes:

1. A = Pharmaceuticals, B = Computer programming and information service activities, C = Motor vehicles and parts, D = Aerospace, E = Telecommunications, F = Machinery and equipment, G = All other product groups.

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Higher Education

The higher education sector which includes universities and higher education institutions represented 26% of gross UK R&D expenditure in 2011 at £7.1 billion. This is an increase of 2%, in current price terms, compared with 2010. The funding for this sector is mainly provided by the HEFC and the UK research councils.

Government and Research Councils

The UK government owns many research institutes and laboratories that carry out R&D. These are managed by different government departments, most notably the Department for Business, Innovation and Skills (BIS), the Department for Environment, Food and Rural Affairs (DEFRA) and the Department of Health (DoH).

BIS is the ministerial department responsible for economic growth. The department has a broad range of responsibilities including universities and science, innovation and space. In December 2011, BIS published a policy paper entitled Innovation and research strategy for growth, which set out their commitment to improving the UK knowledge base and maintaining the budget for science and research programmes.

In 2011, the Government sector's in-house R&D expenditure decreased by 7% in constant price terms.

Research Councils UK (RCUK) is the strategic partnership of the UK's seven research councils. Each year the research councils perform research covering the full spectrum of academic disciplines from the medical and biological sciences to astronomy, physics, chemistry and engineering, social sciences, economics, environmental sciences and the arts and humanities.

Research councils' R&D expenditure decreased by 11% in constant prices, from £1.2 billion in 2010 to £1.0 billion in 2011.

In 2011, the government and research councils sector accounted for 9% of total expenditure for R&D performed in the UK.

Private Non-Profit organisations

The not-for-profit sector includes registered charities and trusts who specialise in mainly health and medical research. Some of the largest in the world are based in the UK. This sector includes, for example, a number of cancer charities that carry out extensive research into types of cancer prevention from drug development to clinical trials.

The Wellcome Trust, a global charitable foundation dedicated to improving human and animal health has published a Ten year strategic plan for 2010 – 2020. This plan reflects the long-term view they take (and others in this sector) in supporting research and the complex and global nature of the challenges that are faced.

PNP is the smallest R&D sector in the UK. In 2011, £0.5 billion was spent on performing R&D by these businesses, which represented 2% of total gross UK R&D spend.

It is important to note that the estimates for this sector for 2011 have been collected from a survey of these businesses for the first time since 2005.

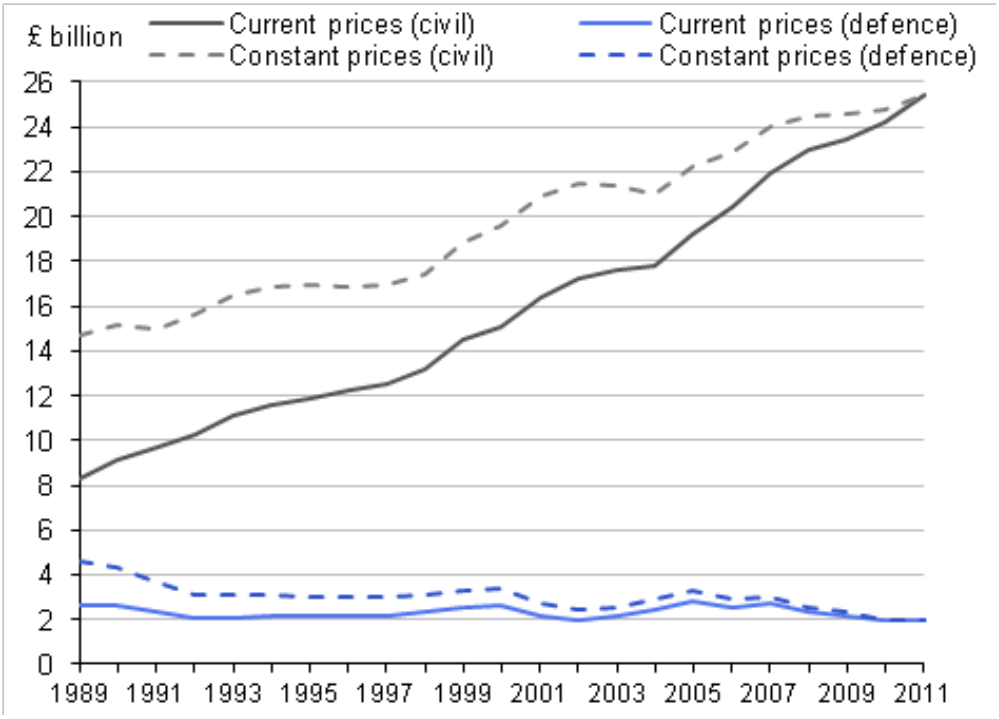
Civil and defence expenditure, by sector carrying out the work

Gross UK R&D expenditure can be divided between the civil and defence sectors. Expenditure in the civil sector in 2011 (£25.3 billion) accounted for 93% of total UK R&D expenditure.

In current price terms, civil R&D expenditure increased by 5% from £24.2 billion in 2010 to £25.3 billion in 2011, and defence R&D increased by 5% from £1.9 billion in 2010 to £2.0 billion in 2011.

In constant price terms, civil R&D expenditure has increased by 73% since 1989 (£14.7 billion) and is now at its highest recorded level. In contrast, defence R&D expenditure has decreased by 56% over this period.

Figure 5: Expenditure on civil and defence R&D performed in the UK, 1989 to 2011



Source: Office for National Statistics

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Civil and defence R&D expenditure can be further split between the performing UK sectors. The business sector is by far the largest R&D performer of both civil and defence R&D at £15.6 billion and £1.8 billion respectively.

Of particular note, whereas business R&D expenditure, in constant prices, in the civil sector has increased by 54% since 1989, business expenditure on R&D in the defence sector has decreased by 39%.

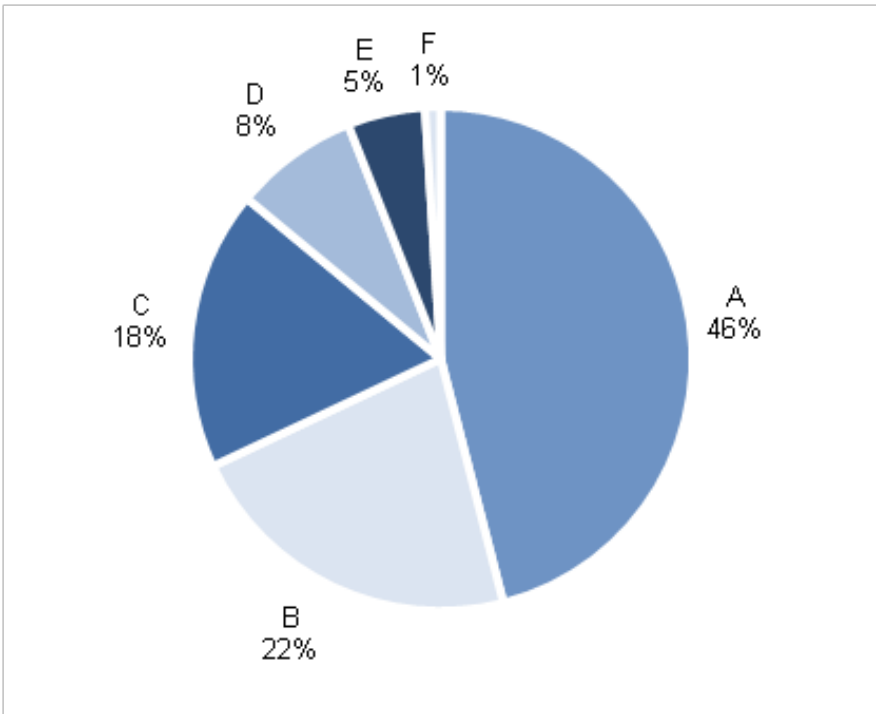
R&D expenditure by funding sector

UK R&D expenditure can also be split by funding sector (see **Figure 6** below). In 2011, the sector providing most of the funding for R&D performed in the UK was the business sector, funding £12.6 billion, 46% of the total UK R&D spend. This is an increase of 7%, in constant price terms, of funding by the business sector from 2010.

Although the government and research councils spend £2.3 billion performing R&D within their UK public institutes, they actually fund £6.1 billion of UK R&D spend, 22% of total funding. This can be better understood through an appreciation of the role of RCUK. On an annual basis, RCUK offers individuals and businesses abroad access to the UK's research facilities and infrastructure.

Investment from abroad is the third largest funding stream for UK R&D at £4.9 billion, representing 18% of total UK R&D spend in 2011.

Figure 6: Composition of UK GERD by funding sector, 2011



Source: Office for National Statistics

Notes:

1. A = Business, B = Government and Research Councils, C = Abroad, D = Higher Education Funding Councils, E = Private Non-Profit organisations, F = Higher Education.

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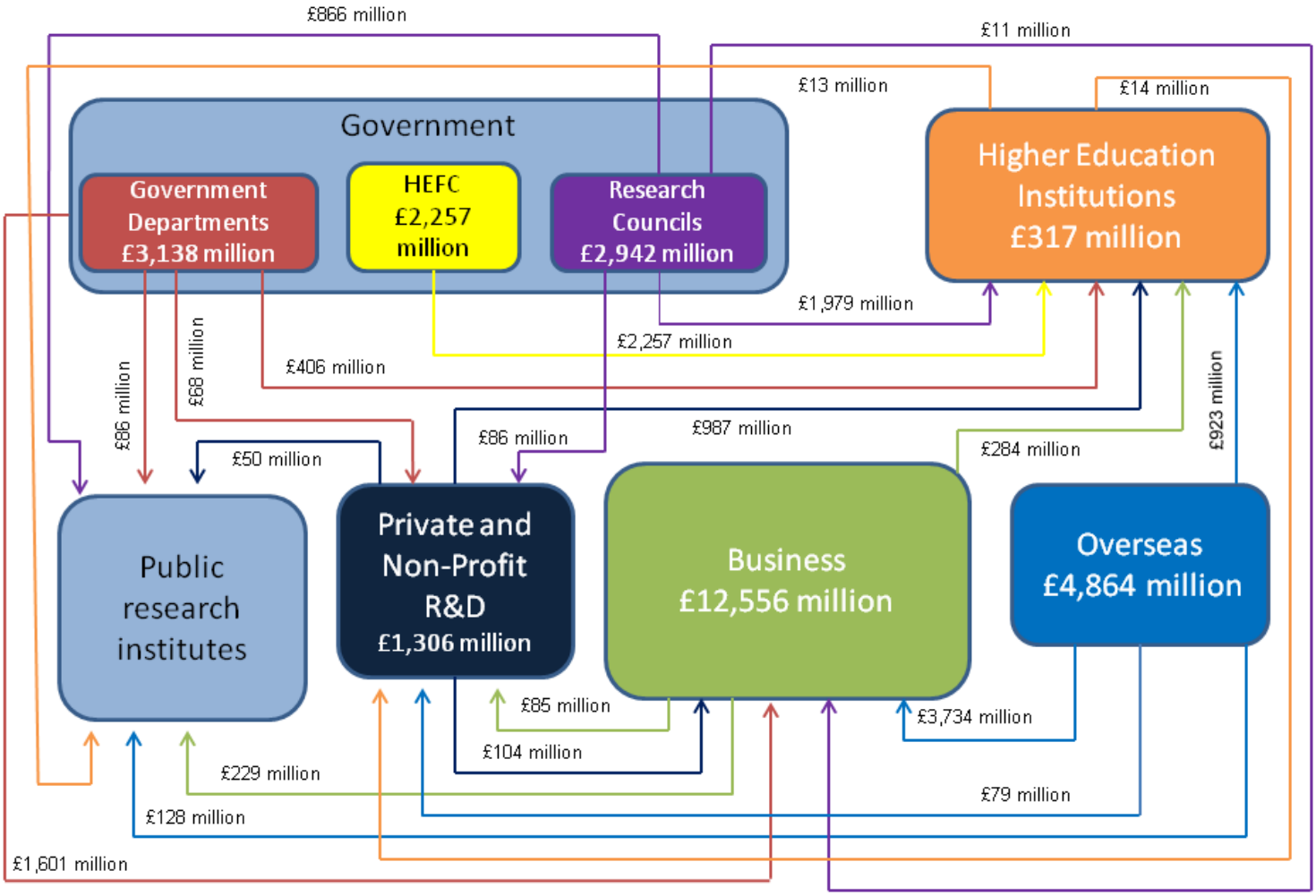
Figure 7, below, is a representation of the flow of R&D funds to the four different R&D sectors using the data from the Excel download below. The values in the boxes are the amount of funding that particular sector provided to the UK in 2011. The arrows indicate the recipient sector, and the values, the amount they received.

Figure 7: Flows of R&D funds in the UK, 2011



Source: Office for National Statistics

Notes:

1. Totals do not sum for all sectors, as sectors can fund themselves. For full information please see reference table 1 from the data section of this publication.
2. HEFC - Higher Education Funding Councils.

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Civil and defence R&D expenditure by funding sector

The majority of funding for civil R&D performed in the UK is provided by the business sector at £12.0 billion, 47% of total civil funding.

Of the £4.9 billion funding from overseas, 96% is for civil sector R&D at £4.7 billion.

As stated earlier, defence R&D expenditure in the UK accounts for 7% of total R&D spend (£2.0 billion). The funding for this comes from the UK government, business sector and abroad. The UK government's funding of defence R&D in 2011 was £1.3 billion, 64% of the total defence funding. This includes government awarded contracts to UK businesses to develop aircraft, naval ships, submarines and their systems and equipment. The business sector provided £0.5 billion (26%) and abroad, £0.2 billion (9%) of total defence R&D funding in 2011.

Regional breakdown of UK R&D expenditure

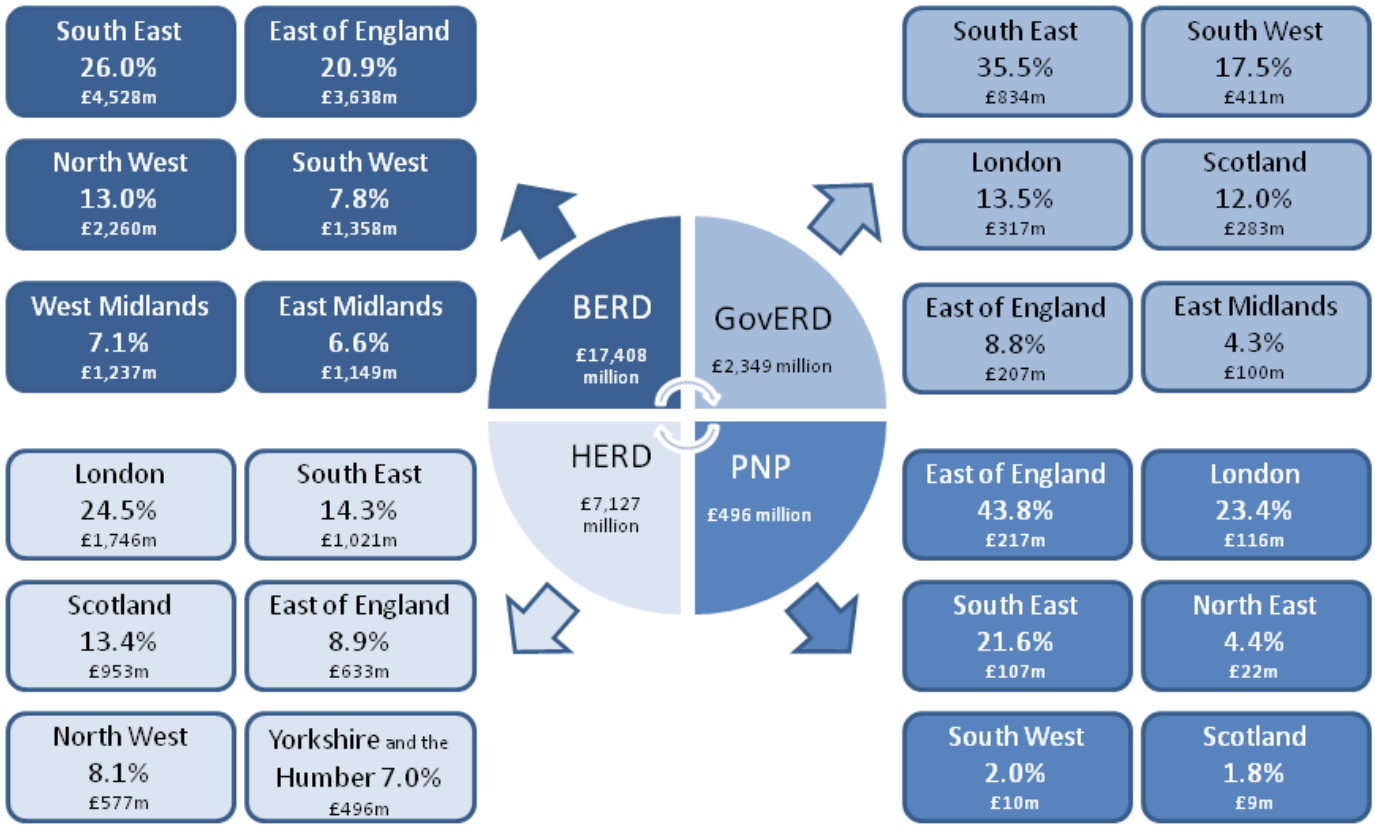
It is possible, using R&D expenditure data from all UK sectors, to analyse R&D expenditure by region. In this context, region refers to the location where the R&D is performed, not the location of the funder.

The South East and East of England continue to dominate where R&D is performed in the UK. These two regions accounted for almost 41% of total UK R&D expenditure in 2011 at £11.2 billion.

The majority of UK R&D expenditure was carried out in England, at £24.4 billion in 2011. All of the UK countries, England, Wales, Scotland and Northern Ireland showed an increase in R&D expenditure in current prices in 2011, compared with 2010. With growth of 5%, 8%, 3% and 4% respectively. These increases relate to comparisons of the business, government and higher education sectors only, as the non-profit regional estimates are not available prior to 2011. Regional data is available for 2001 to 2011 in the data for this release section (338 Kb Excel sheet).

Figure 8 shows each sector's R&D expenditure. It displays the top six regions where their R&D is performed and the value spent in that region. A table of all the regions contribution to each sector is available in the Excel download below the chart.

Figure 8: UK R&D expenditure by sector and the six highest performing regions within each sector, 2011



Source: Office for National Statistics

Notes:

1. BERD - Business Enterprise Research and Development. GovERD - Government Expenditure on Research and Development. HERD - Higher Education Research and Development. PNP - Private Non-Profit.

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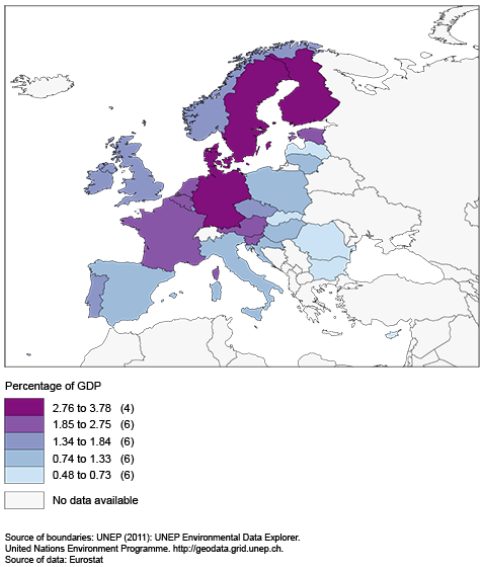
International comparisons

Europe 2020 targets for economic growth include 3% of the EU's GDP (both private and publicly funded) to be invested in R&D/innovation by 2020. This means that these estimates are essential in monitoring progress towards this target.

The ratio of GERD to GDP, one of five key Europe 2020 strategy indicators, increased marginally in the EU-27 up to 2002, reaching a high of 1.88%, before declining modestly through to 2005 (1.83%), and climbing again to 2.01% by 2009. There was a small decline in 2010 when the ratio fell to 2.00%. This decrease, despite the higher absolute level of R&D expenditure, was due to the partial recovery from the financial and economic crisis, as GDP increased at a slightly faster pace than GERD in 2010.

The 2011 data for all EU-27 and OECD countries has not yet been finalised. As such, **Figure 9**, below, relates to the latest available 2011 data as a means of placing the UK estimates into an international context with regards to GERD to GDP expenditure ratio.

Figure 9: Map of EU countries GERD to GDP ratio, 2011



Source: Eurostat

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(226.3 Kb)

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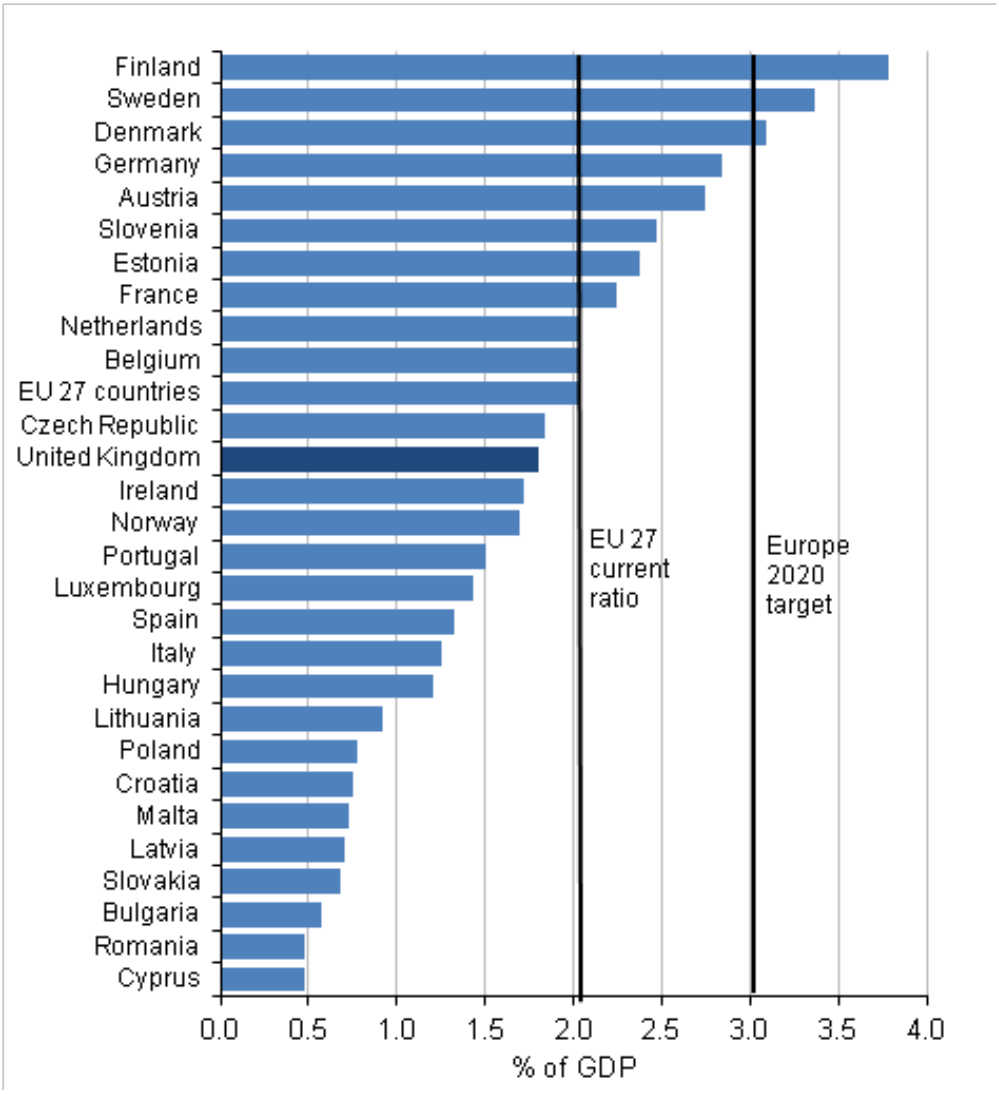
Figure 10 below shows the individual EU-27 countries GERD to GDP ratio, as well as the average for the EU-27 compared with the Europe 2020 target of 3%. These data are early estimates and are indicative only, as not all EU countries are represented. The UK, whose GERD expenditure represents 1.79% of GDP, has the twelfth highest ratio and is below the EU average of 2.03%.

Figure 10: EU countries GERD to GDP ratio as a percentage, 2011



Source: Eurostat

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The latest OECD GERD estimates indicate that the modest recovery initiated in 2010 continued into 2011. For 2011, a complete picture is not yet available for the entire OECD area. OECD's own preliminary estimates indicate a growth rate for GERD of 1.8% between 2010 and 2011. These preliminary estimates also indicate a sustained growth in research in higher education, a slowdown in government R&D and a gradual recovery in R&D performed in the business sector.

When comparing total business R&D intensity across countries, it is important to take into account differences in individual countries industrial structures. The OECD have produced a Science, Technology and industry Scoreboard to help facilitate these comparisons.

In March 2012, as part of a publication 'The UK R&D Landscape', it was reported that "the business enterprise component of R&D expenditure in the UK is low by international standards, even after adjusting for structural difference between countries. It is also concentrated in the hands of a few very large firms and the small number of industrial sectors in which they are based. The official statistics reveal that the largest 10 business R&D spenders accounted for 34% of all UK R&D in 2009 and the largest 50 spenders accounted for 56%" (Hughes and Mina 2012, pp.i).

Background notes

1. **Key issues specific to this bulletin**

   This is the latest in a series of annual releases about gross expenditure on R&D in the UK by businesses, government departments, research councils, higher education institutions and non–profit organisations, published by the Office for National Statistics (ONS). The results in this release are in respect of 2011. ONS began publishing annual data on R&D expenditure in 1993. The source of the information comes from the Business Enterprise Research and Development (BERD) survey, the Government Research and Development survey (GovERD – which includes Research Councils), and the Private Non-Profit Research and Development survey (PNP).

   ONS run all the above surveys. Higher Education R&D data (HERD) are collected from a census of higher education institutions and provided to ONS by the Higher Education Funding Councils (HEFC).

   All these sectors' (Business, Government, Higher Education and Private Non-Profit) R&D data are known collectively as GERD, which represents the gross domestic expenditure on R&D in the UK.

   A quality report (137 Kb Pdf) for the GERD output is available on the ONS website.

2. **National Statistics**

   The UK Statistics Authority has reviewed this publication in its report: "Assessment of compliance with the Codeof Practice for Official Statistics: Statistics on Research and Development" which was published on 28 June 2012. This review recommended that the UK Gross Domestic Expenditure on Research and Development estimates be designated as National Statistics, subject to ONS carrying out certain requirements. ONS is working hard to meet the requirements set out in this assessment report.

3. **Timeliness and punctuality**

   An internal investigation has been carried out to identify if it is feasible to publish these R&D statistics earlier than they are at present. Unfortunately, this investigation concluded that it is not possible for ONS to bring forward the publication of these estimates in the short-term.

   The main reason for this is that the higher education estimates are collected and provided by HEFC in relation to academic years. They are not able to provide ONS with these estimates until

the middle of February each year. Affording time to quality assure and check these data, the earliest that these estimates can be published is March of that year.

As part of this investigation ONS sought the views of some of the known users of this publication. They unanimously stated that they are content with the current publication timetable.

4. **Completeness of coverage**

GERD - is the measure most commonly used for international comparisons of R&D by key stakeholders. It covers all R&D performed in the UK, irrespective of who pays for it, including funding from abroad. However, it excludes R&D performed abroad even if it is funded from the UK. The components of GERD relate to R&D performed in all sectors of the economy:

- **BERD** is conducted annually by ONS, and as the name suggests, covers the business sector of the economy (which, as outlined, covers 64% of total UK R&D expenditure). As part of the 2011 survey, approximately 5,000 questionnaires were sent to businesses known to perform R&D; this included around 400 of the largest R&D spenders, which accounted for approximately 80% of the 2011 total R&D expenditure figure. Smaller R&D performers, and others believed to be performing R&D, were selected using various sampling fractions. Industry product group and business employment size were used as the stratification variables. Completed questionnaires were returned by 4,733 businesses representing a response rate of 92%. The estimates from this survey were published on the ONS website on 20 November 2012 in the UK Business Enterprise Research and Development Statistical Bulletin, 2011. As part of the assessment of 'Statistics on Research and Development' by the United Kingdom Statistics Authority (UKSA), a requirement was placed on ONS to review the methodology for producing business R&D statistics to identify potential gaps in coverage and meet the coverage requirements of European System of Accounts (2010). To meet this requirement and to assist users in their understanding of this complex issue an Information Note entitled 'Coverage of the Business Enterprise Research & Development Survey (147 Kb Pdf)', was published on 20 November 2012 to address this issue.

- **GovERD** is conducted annually as a census survey. Approximately 140 government departments and research councils are sent a questionnaire. Government departments are asked to include their in-house R&D as part of their estimates – this includes estimates for R&D performed by local authorities and NHS trusts.
- **HERD** is provided by the Higher Education Funding Councils for England, Scotland, Wales and the Department for Education in Northern Ireland. Data are also obtained from them on the external research funding from abroad, non-profit organisations and businesses. The timeliness of these data is the main reason for the delay in the publication of GERD. Data are provided to ONS during February of a given year.

  It is important to note that R&D funding provided to the higher education sector from government departments, research councils and HEFCs are collected as part of the GovERD survey.
- **PNP**. A new survey of the PNP sector was introduced in 2011, with approximately 200 non-profit businesses receiving the questionnaire. The estimates from this survey have been used in the compilation of this publication for the first time since the 2003 reference year. Previously, estimates had been based on a number of sources. Identifying exactly

who carries out R&D in this sector in the UK is a challenging task. A letter was despatched in 2010 to 344 businesses who were classified as non – profit bodies, across all industry classifications and UK regions, asking if they undertake R&D activities. The response rate was 50%, with 14% of all businesses surveyed responding positively, confirming that they perform R&D. Deeper analysis of these responses indicated that only a few industries were identified as performing R&D in this sector. Activities included library and archive activities, botanical and zoological gardens and nature reserve activities, engineering and design activities and technical testing and analysis. In 2011, 690 organisations in these industries were sent a letter to further identify R&D performers. The response rate was 60% with 18% indicating positively. All these identified R&D performers together with known performers from earlier surveys, were sent a questionnaire to collect their estimates for 2011.

5. Revisions

Revisions have been made to the Business Enterprise estimates for 2009 and 2010 and the Government, Research Councils and Higher Education estimates for 2007, 2008, 2009 and 2010. This is due to a combination of late returns and misreporting.

One indication of the reliability of the key indicators in this release can be obtained by monitoring the size of revisions. The table below records the size and pattern of revisions that have occurred over the last five years. Please note that these indicators only report summary measures for revisions, (the revised data may itself be subject to sampling or other sources of error).

Revisions between first publication and estimates three years later

£ million

	Value in latest period	Average revision	Average revision without regard to sign
Gross expenditure on R&D performed in the UK	27,380	-253	390

Table source: Office for National Statistics

Download table

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(30.5 Kb)

A spreadsheet is available providing the revisions of estimates (34 Kb Excel sheet) from 2004 and the calculations behind the averages in the above table. The revision table covers estimates of the UK's gross domestic expenditure on R&D first published from March 2006 (for 2004) to March 2010 (for 2008). A statistical test has been applied to the average revision to find out if there is bias in the estimates. No statistically significant bias was identified.

6. **Sampling variability**

The estimates from the BERD survey are based on a stratified sample drawn from the population of businesses known to actually perform R&D or are likely to be R&D performers. As with any sample survey, the BERD survey is subject to two types of possible error:

- Sampling errors: due to only a sample of the population being surveyed. These estimates can be quantified and were published as part of the BERD publication.
- Non-sampling errors. These include factors such as population coverage, misreporting and non-response bias. These errors are generally hard to quantify, because of the difficulty in identifying the population of actual/likely R&D performers and because of the problems ensuring that businesses adhere to Frascati R&D definitions. An Information Note (147 Kb Pdf) has been published which provides an overview of the survey design and looks at the methods and sources used to update the sampling frame.

7. **Discontinuities in data**

The BERD, GovERD and PNP questionnaires were redesigned after the 2010 survey better to reflect user needs, including new National Accounts and European Union requirements. These followed large revisions to both the BERD and GovERD surveys for the 2007 data collections. The 2007 changes were made to address concerns about data quality and difficulty in completion.

A new methodology has been introduced for compiling the R&D expenditure for the PNP sector as a performer in 2011. A new survey was introduced and the estimates from this census survey have been used in the compilation of this publication for the first time since the 2003 reference year.

While all these changes are viewed as being an improvement, they may have an impact on the comparability of the data over time. Unfortunately, it is not possible to measure this impact.

8. **General information**

These points should be noted when examining the data tables:

- There may be discrepancies between totals and the sum of their independently rounded totals.
- In addition to being analysed by sector of performance, GERD may be analysed by sector of funding. The R&D performed by any one sector of the economy can be funded by any of the other sectors, or by the performing sector itself.
- For the purposes of estimation, the recommended practice of the OECD is to use information from those performing R&D, where this is available. These estimates are considered more reliable than those from surveys of R&D funders.

9. **Regional data**

This is the first time that estimates for GERD regional data has been published as part of this publication. This is because previously, regional data for the non-profit sector were unavailable. Regional estimates are produced for the four sectors as follows:

- Business – the businesses receiving the long questionnaire (the 400 largest R&D spenders) account for approximately 80% of total R&D expenditure. Each business is asked to provide the workplace postcodes for all the sites at which the business performed R&D, and to allocate the total expenditure figures of the business to the sites on a percentage basis. Regional data for the remaining 20% of total expenditure all have a value estimated by grossing up using county region codes from the business register of R&D performers. Aggregation is undertaken at broad product group and county level.
- Higher Education – these estimates are provided by HEFC and are based on the geographic region of all their Higher Education Institutions (HEIs).
- Government – the annual survey of the government sector collects regional full time equivalent (FTE) employment data. Ratio estimation is then applied to the corresponding in-house expenditure data to provide estimates per FTE per region. These are then aggregated to provide regional expenditure values for this sector.
- Private non-profit – each organisation is asked to provide the workplace postcodes for all the sites at which the organisation performed R&D, and to allocate the total expenditure figures of the organisations to the sites on a percentage basis. As this survey is a census, any non responder's expenditure estimates are allocated regionally using the county region codes from the business register.

10. **Users and uses of data**

GERD is the UK's most reliable estimate of national research and development spending that draws together information on research and development spending in the public and private sectors for both civil and defence applications.

Changes introduced as part of the amendments to the System of National Accounts (SNA) in 2008 and European System of Accounts (ESA) in 2010 specify that R&D, from 2014 onwards, should be considered as an ancillary activity and expenditure on R&D should constitute investment in R&D assets, which as a consequence needs to be capitalised in the UK National Accounts. In short, R&D expenditure will now contribute to the compilation of the value of the UK's net worth and be included as part of Gross Domestic Product (GDP) estimates. Please see the ONS ESA 2010 page for more information.

There are numerous users within and outside government who use these data to produce various analyses and to inform policy decisions. These include:

- European Union's Statistical Office (Eurostat) - the UK provides statistics measuring R&D activity in accordance with the European Commission Regulation No. 995/2012 of the European Parliament and the council. The estimates in this statistical bulletin are used to provide information that is consistent with other EU member states and to enable benchmarking to be achieved. Europe 2020 targets for economic growth include 3% of the

EUs' GDP (both private and publicly funded) to be invested in R&D/innovation by 2020. This means that these estimates are essential in monitoring progress towards this target;

- OECD – uses GERD data for constructing internationally comparable databases and producing regular statistical publications such as the 'Main Science and Technology Indicators' (MSTI) and 'The Annual Business Enterprise Research and Development' statistics (ANBERD). The data are also used for analytical studies, which underpin economic analyses and policy reviews;
- The European Commission's Research and Innovation Directorate has recently published the Innovation Union Competitiveness report, 2011. One of the key findings is that the EU is slowly moving towards its target of 3% of GDP but there is a widening gap between the EU and its world competitors notably due to weaker business R&D investment;
- The Department for Business, Innovation and Skills (BIS) use GERD data to assess policy impact and inform debate. R&D data underpins their assessments of UK innovation performance as well as international work in the field. BIS used to produce an R&D Scoreboard, until 2010. The R&D Scoreboard was the leading source of information and analysis on the world's top R&D active companies, both in the UK and globally. The Scoreboard listed the 1,000 UK and 1,000 Global companies investing most in R&D, enabling companies to benchmark their own investments against sector leaders. The Scoreboard was based on data abstracted from companies annual reports and accounts. The last Scoreboard to be published includes commentary and analysis prepared by the Economist Intelligence Unit for the year 2010. View the latest R&D Scoreboard;
- The Department for Business, Innovation and Skills (BIS) also includes UK government expenditure on R&D by government department and research councils, in its annual publication of Science, Engineering and Technology (SET) Statistics. This is a collaborative publication with ONS input;
- The Welsh Government (WG) and the Scottish Government (SG) use GERD data as a key indicator for measuring the performance of their respective economies within the UK, as well as to monitor and develop R&D policies which seek to increase R&D investment. Regional GERD information is also published in the Scottish GERD tables;
- The Research and Development Society is a UK-based organisation formed to promote the better understanding of R&D in all its forms. Its members include representatives from industry, government departments and agencies, universities and consultants. It holds regular afternoon and evening meetings, usually at the Royal Society in London. The Research and Development Society make use of GERD data, as a key source of information, for understanding how much is being invested in R&D in the UK on an annual basis and to inform wider debates about R&D.

Requests for GERD data are made from a variety of sources including academics, government departments, and economic consultants. This means that the data are used in various publications.

For example:

- Dr Ian Viney Head of Strategic Evaluation at the Medical Research Council (MRC) , produced analysis in the UK Health Research Analysis 2009/10 published in November 2012, which included funding flows in the UK of health related R&D expenditure.

- Defence Analytical Services and Advice Agency (DASA) provides professional analytical, economic and statistical services and advice to the Ministry of Defence (MOD), and defence-related statistics to Parliament, other Government Departments and the public. The MOD intramural expenditure on R&D is included in Chapter 1 – Finance, Table 1.7.

A list of those roles and departments who received pre-release access (23.4 Kb Pdf) to the UK Gross Domestic Expenditure on Research and Development, 2011 is available on ONS website.

Do you make use of our annual estimates of UK Gross Domestic Expenditure on Research and Development? If yes, we would like to hear from you (RandD@ons.gsi.gov.uk) and understand how you make use of these statistics. This will enable us, in the future, to better meet your needs as a user.

11. **Coherence and international comparisons**

The UKSA reviewed this publication in their report “Assessment of Compliance with the Code of Practice for Official Statistics: Statistics on Research and Development” published on 28 June 2012. One of the requirements identified as part of this assessment was to publish improved information on the coherence of R&D statistics with other official statistics. This Information Note (807.8 Kb Pdf) has been produced to address this issue.

12. **ONS business statistics**

There is a Business and Trade Statistics community on the StatsUserNet website. StatsUserNet is the Royal Statistical Society’s new interactive site for users of official statistics. The community objectives are to promote dialogue and share information between users and producers of official business and trade statistics about the structure, content and performance of businesses within the UK. Anyone can join the discussions by registering via either of the links above.

13. **Social Media**

Follow ONS on Twitter and receive up to date information about our statistics.

Like ONS on Facebook to receive our updates in your newsfeed and to post comments on our page.

Watch our videos on YouTube

14. **Special events**

ONS has recently published commentary, analysis and policy on 'Special Events' which may affect statistical outputs. For full details go to the special events page on the ONS website.

15. **Release policy**

All data in this release can be downloaded free of charge from the ONS website. Here are the instructions to obtain a full time series of data from the statistical bulletin or release pages:

- Select 'Data in this release',
- Select 'View datasets associated with this release',
- Select the latest release,
- Select 'Select series from this dataset',
- Select the reference table of interest,
- Select 'View series',
- Select the series of interest (Hint: for a custom download you can use SHIFT to select a range of series or CTRL to select multiple individual series),
- Select 'View selection',
- Select 'Download'

16. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

    These National Statistics are produced to high professional standards and released according to the arrangements approved by the UK Statistics Authority.

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This document is also available on our website at www.ons.gov.uk.

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UK Gross Expenditure on Research and Development, 2011

27th March 2013 - Correction

Please note, as of 27th March 2013, there have been minor corrections made to the estimates for civil and defence expenditure on tables 1,3 and 5.

Please click on the links below to access the datasets:

Table 1 R&D performed in the UK in each sector according to source of funding, 2011

Table 2 Expenditure on Research and Development in the UK by sector of performance: 2000 to 2011

Table 3 Expenditure on Civil and Defence R&D performed in the UK by sector of performance: 2000 to 2011

Table 4 Expenditure on Research and Development in the UK by sector of funding: 2000 to 2011

Table 5 Expenditure on Civil and Defence R&D performed in the UK by sector of funding: 2000 to 2011

Table 6 Estimated regional breakdown of expenditure on intramural R&D in the Business, Government, Higher Education and Private Non-Profit Sectors, 2011

Revisions R1 Expenditure on Research and Development in the UK: Revisions to series previously published

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Please note, as of 27th March 2013, there have been minor corrections made to the estimates for civil and defence expenditure.

1 R&D PERFORMED IN THE UK IN EACH SECTOR ACCORDING TO SOURCE OF FUNDING, 2011

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CURRENT PRICES

£ million

	Sector carrying out the work						
	Government	Research Councils	Higher Education	Business Enterprise	Private Non-Profit	**Total**	Abroad
Sector providing the funds							
Government	977	86	406	1,601	68	3,138	531
Research Councils	47	819	1,979	11	86	2,942	188
Higher Education Funding Council	-	-	2,257	-	-	2,257	-
Higher Education	2	11	290	-	14	317	-
Business Enterprise	203	26	284	11,957	85	12,556	2,003
Private Non-Profit	3	47	987	104	165	1,306	-
Abroad	77	51	923	3,734	79	4,864	-
TOTAL	1,308	1,040	7,127	17,408	496	27,380	-
of which:							
Civil	1,151	1,040	7,091	15,562	494	25,338	-
Defence	158	-	35	1,847	2	2,042	-

Source: Office for National Statistics

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

2 EXPENDITURE ON RESEARCH AND DEVELOPMENT IN THE UK BY SECTOR OF PERFORMANCE: 2000 TO 2011

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£ million

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector carrying out the work													
Current prices													
TOTAL	**GLBA**	17,736	18,547	19,243	19,727	20,242	22,106	22,993	24,696 †	25,345	25,632	26,179	27,380
Government[1]	**GLBK**	1,593	1,160	1,053	1,243	1,240	1,238	1,252	1,320	1,348	1,406	1,371	1,308
Research Councils	**DMRS**	647	674	713	825	930	1,051	1,061	1,034	1,041	1,097	1,141	1,040
Business Enterprise[1]	**GLBL**	11,510	12,239	12,484	12,505	12,662	13,734	14,144	15,676	15,814	15,532 †	16,053	17,408
Higher Education	**GLBM**	3,691	4,149	4,618	4,785	5,004	5,580	6,022	6,119 †	6,545	6,931	6,962	7,127
Private Non-Profit	**GLBN**	296	325	374	369	406	502	513	546 †	595	666	652	496
As % of GDP		1.80 †	1.80	1.77	1.71	1.67	1.72	1.70	1.72	1.78	1.81	1.77	1.79

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector carrying out the work													
Constant prices (2011 prices)													
TOTAL		22,985 †	23,586	23,874	23,946	23,867	25,482	25,811	27,049	27,022	26,923	26,738	27,380
Government[1]		2,064 †	1,475	1,306	1,509	1,462	1,427	1,405	1,446	1,437	1,477	1,400	1,308
Research Councils		838 †	857	885	1,001	1,097	1,212	1,191	1,133	1,110	1,152	1,165	1,040
Business Enterprise[1]		14,916 †	15,564	15,489	15,180	14,929	15,832	15,878	17,169	16,861	16,314	16,396	17,408
Higher Education		4,783 †	5,276	5,729	5,808	5,900	6,432	6,760	6,702	6,978	7,280	7,111	7,127
Private Non-Profit		384 †	413	464	448	479	579	576	598	634	700	666	496

Source: Office for National Statistics

1 On 1 July 2001, the Government research agency, the Defence Evaluation and Research Agency (DERA) was disestablished and two new organisations were created. Around a quarter of DERA remained within Ministry of Defence (MOD) as a Government agency whilst the remaining three quarters became a Private limited company (PLC). As a PLC its R&D activities are now classified and included within the Business sector.

† crosses denote earliest data revision.

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Please note, as of 27th March 2013, there have been minor corrections made to the 2011 estimates for civil and defence expenditure.

3 EXPENDITURE ON CIVIL AND DEFENCE R&D PERFORMED IN THE UK BY SECTOR OF PERFORMANCE: 2000 TO 2011

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£ million

		Civil													Defence											
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector carrying out the work																											
Current prices																											
TOTAL	**GLBB**	15,106	16,424	17,272	17,603	17,802	19,255	20,416	21,963 †	22,945	23,424	24,243	25,338	**GLBC**	2,630	2,123	1,971	2,124	2,440	2,851	2,577	2,732	2,399	2,208 †	1,936	2,042
Government	**GLBO**	699	746	771	869	889	882	895	1,042 †	1,087	1,119	1,145	1,151	**GLBS**	894	414	283	374	351	357	357	279	262	288	226 †	158
Research Councils	**DMSC**	643	669	708	819	923	1,046	1,057	1,034 †	1,041	1,097	1,141	1,040	**DMSM**	4	5	6	6	7	4	4	-	-	-	-	-
Business Enterprise	**GLBP**	9,838	10,580	10,839	10,800	10,623	11,288	11,975	13,269 †	13,718	13,648	14,382	15,562	**GLBT**	1,671	1,659	1,645	1,706	2,039	2,446	2,169	2,407	2,097	1,884 †	1,671	1,847
Higher Education	**GLBQ**	3,630	4,104	4,581	4,746	4,960	5,538	5,976	6,080 †	6,505	6,894	6,925	7,091	**GLBU**	61	45	37	38	44	43	46	39	40	36	38	35
Private Non-Profit	**GLBR**	296	325	374	369	406	502	513	539 †	595	666	651	494	**GLBV**	-	-	-	-	-	-	-	8	1	-	1	2
As % of GDP		1.53 †	1.60	1.59	1.52	1.47	1.50	1.51	1.53	1.61	1.65	1.64	1.66		0.27 †	0.21	0.18	0.18	0.2	0.22	0.19	0.19	0.17	0.16	0.13	0.13

		Civil													Defence											
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector carrying out the work																											
Constant prices (2011 prices)																											
TOTAL		19,577 †	20,886	21,429	21,368	20,990	22,196	22,918	24,055	24,463	24,604	24,760	25,338		3,408 †	2,700	2,445	2,578	2,877	3,286	2,893	2,992	2,558	2,319	1,977	2,042
Government		906 †	949	957	1,055	1,048	1,017	1,005	1,141	1,159	1,175	1,169	1,151		1,159 †	526	351	454	414	412	401	306	279	303	231	158
Research Councils		833 †	851	878	994	1,088	1,206	1,187	1,133	1,110	1,152	1,165	1,040		5 †	6	7	7	8	5	4	-	-	-	-	-
Business Enterprise		12,750 †	13,455	13,448	13,110	12,525	13,012	13,443	14,533	14,626	14,335	14,689	15,562		2,166 †	2,110	2,041	2,071	2,404	2,820	2,435	2,636	2,236	1,979	1,707	1,847
Higher Education		4,704 †	5,219	5,684	5,761	5,848	6,384	6,708	6,659	6,935	7,241	7,073	7,091		79 †	57	46	46	52	50	52	43	43	38	39	35
Private Non-Profit		384 †	413	464	448	479	579	576	590	634	700	665	494		- †	-	-	-	-	-	-	9	1	-	1	2

Source: Office for National Statistics

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

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4 EXPENDITURE ON RESEARCH AND DEVELOPMENT IN THE UK BY SECTOR OF FUNDING: 2000 TO 2011

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£ million

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector funding R&D in the UK													
Current prices													
TOTAL	**GLBA**	17,736	18,547	19,243	19,727	20,242	22,106	22,993	24,696 †	25,345	25,632	26,179	27,380
Government	**GLCA**	2,779	2,299	2,215	2,650	2,778	2,584	2,531	2,581 †	2,703	2,939	3,037	3,138
Research Councils	**DMSR**	1,317	1,512	1,713	1,947	2,084	2,574	2,709	2,543	2,765	2,908	2,958 †	2,942
Higher Education Funding Councils	**DMSS**	1,276	1,474	1,626	1,665	1,804	1,928	2,085	2,234	2,227	2,395	2,303	2,257
Business Enterprise	**GLCB**	8,559	8,499	8,384	8,287	8,914	9,580	10,377	11,519	11,511	11,362 †	11,457	12,556
Higher Education	**GLCC**	160	184	208	218	229	266	288	284 †	303	314	315	317
Abroad	**GLCE**	2,830	3,691	4,135	4,029	3,472	4,152	3,927	4,382	4,589	4,436 †	4,841	4,864
Private Non-Profit	**GLCD**	815	889	962	931	961	1,022	1,076	1,153	1,247	1,279	1,267 †	1,306

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector funding R&D in the UK													
Constant prices (2011 prices)													
TOTAL		22,985 †	23,586	23,874	23,946	23,867	25,482	25,811	27,049	27,022	26,923	26,738	27,380
Government		3,601 †	2,924	2,748	3,217	3,275	2,979	2,841	2,827	2,882	3,087	3,102	3,138
Research Councils		1,707 †	1,923	2,125	2,363	2,457	2,967	3,041	2,785	2,948	3,054	3,021	2,942
Higher Education Funding Councils		1,654 †	1,874	2,017	2,021	2,127	2,222	2,341	2,447	2,374	2,516	2,352	2,257
Business Enterprise		11,092 †	10,808	10,402	10,059	10,510	11,043	11,649	12,616	12,273	11,934	11,701	12,556
Higher Education		207 †	234	258	265	270	307	323	311	323	330	322	317
Abroad		3,668 †	4,694	5,130	4,891	4,094	4,786	4,408	4,799	4,893	4,659	4,944	4,864
Private Non-Profit		1,056 †	1,131	1,194	1,130	1,133	1,178	1,208	1,263	1,330	1,343	1,294	1,306

Source: Office for National Statistics

† crosses denote earliest data revision.

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Please note, as of 27th March 2013, there have been minor corrections made to the 2011 estimates for civil and defence expenditure.

5 EXPENDITURE ON CIVIL AND DEFENCE R&D PERFORMED IN THE UK BY SECTOR OF FUNDING: 2000 TO 2011

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£ million

		Civil													Defence											
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector funding R&D in the UK																											
Current prices																											
TOTAL	**GLBB**	15,106	16,424	17,272	17,603	17,802	19,255	20,416	21,963 †	22,945	23,424	24,243	25,338	**GLBC**	2,630	2,123	1,971	2,124	2,440	2,851	2,577	2,732	2,399	2,208 †	1,936	2,042
Government	**GLCF**	1,099	1,090	1,258	1,507	1,301	1,299	1,281	1,421 †	1,577	1,690	1,814	1,821	**GLCK**	1,680	1,208	956	1,143	1,477	1,285	1,250	1,160	1,126	1,249 †	1,222	1,317
Research Councils	**DMSX**	1,317	1,512	1,713	1,947	2,084	2,574	2,709	2,543	2,765	2,908	2,958 †	2,942	**GLCM**	-	-	-	-	-	-	-	-	-	-	-	-
Higher Education Funding Councils	**DMSY**	1,276	1,474	1,626	1,665	1,804	1,928	2,085	2,234	2,227	2,395	2,303	2,257	**DMSZ**	-	-	-	-	-	-	-	-	-	-	-	-
Business Enterprise	**GLCG**	8,084	8,033	7,926	7,879	8,476	8,963	9,646	10,603	10,775	10,659 †	10,957	12,033	**GLCL**	475	467	458	407	439	616	730	916	737	703	500 †	522
Higher Education	**GLCH**	160	184	208	218	229	266	288	284 †	303	314	315	317	**GLCM**	-	-	-	-	-	-	-	-	-	-	-	-
Abroad	**GLCJ**	2,355	3,244	3,578	3,456	2,948	3,203	3,331	3,726	4,054	4,180 †	4,628	4,688	**GLCO**	475	447	556	574	524	949	597	657	536	256 †	213	176
Private Non-Profit	**GLCI**	815	889	962	931	961	1,022	1,076	1,153	1,247	1,279	1,267 †	1,280	**GLCN**	-	-	-	-	-	-	-	-	-	-	-	26

		Civil													Defence											
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sector funding R&D in the UK																											
Constant prices (2011 prices)																											
TOTAL		19,577 †	20,886	21,429	21,368	20,990	22,196	22,918	24,055	24,463	24,604	24,760	25,338		3,408 †	2,700	2,445	2,578	2,877	3,286	2,893	2,992	2,558	2,319	1,977	2,042
Government		1,424 †	1,386	1,561	1,829	1,534	1,497	1,438	1,556	1,681	1,775	1,853	1,821		2,177 †	1,536	1,186	1,387	1,741	1,481	1,403	1,271	1,201	1,312	1,248	1,317
Research Councils		1,707 †	1,923	2,125	2,363	2,457	2,967	3,041	2,785	2,948	3,054	3,021	2,942		-	-	-	-	-	-	-	-	-	-	-	-
Higher Education Funding Councils		1,654 †	1,874	2,017	2,021	2,127	2,222	2,341	2,447	2,374	2,516	2,352	2,257		-	-	-	-	-	-	-	-	-	-	-	-
Business Enterprise		10,477 †	10,216	9,834	9,564	9,994	10,332	10,828	11,613	11,488	11,196	11,191	12,033		616 †	594	568	494	518	710	819	1,003	786	738	511	522
Higher Education		207 †	234	258	265	270	307	323	311	323	330	322	317		-	-	-	-	-	-	-	-	-	-	-	-
Abroad		3,052 †	4,125	4,439	4,195	3,476	3,692	3,739	4,081	4,322	4,391	4,727	4,688		616 †	568	690	697	618	1,094	670	720	571	269	218	176
Private Non-Profit		1,056 †	1,131	1,194	1,130	1,133	1,178	1,208	1,263	1,330	1,343	1,294	1,280		-	-	-	-	-	-	-	-	-	-	-	26

Source: Office for National Statistics

- denotes nil, figures unavailable or too small to display.
† crosses denote earliest data revision.
Please note funding from international organisations are included in the Abroad category.

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6 ESTIMATED REGIONAL BREAKDOWN OF EXPENDITURE ON INTRAMURAL R&D IN THE BUSINESS, GOVERNMENT, HIGHER EDUCATION AND PRIVATE NON-PROFIT SECTORS, 2011[1]

CURRENT PRICES

£ million

	R&D performed within business (BERD)	R&D performed within Government Establishments (GovERD)	R&D performed within Higher Education Institutions (HERD)	R&D performed within Private Non-Profit Organisations (PNP)	Total
United Kingdom	**17,408**	**2,349**	**7,127**	**496**	**27,380**
North East	259	-	232	22	513
North West	2,260	83	577	4	2,924
Yorkshire and the Humber	543	57	496	1	1,097
East Midlands	1,149	100	341	4	1,594
West Midlands	1,237	1	359	4	1,601
East of England	3,638	207	633	217	4,695
London	1,142	317	1,746	116	3,321
South East	4,528	834	1,021	107	6,490
South West	1,358	411	357	10	2,136
England	**16,113**	**2,010**	**5,762**	**485**	**24,370**
Wales	255	32	267	2	556
Scotland	689	283	953	9	1,934
Northern Ireland	352	21	147	-	520

Source: Office for National Statistics

1 Figures include estimates for those areas of Central Government not available from the Government Survey or from local authorities.

- denotes nil, figures unavailable or too small to display.
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R1 EXPENDITURE ON RESEARCH AND DEVELOPMENT IN T

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REVISIONS TO SERIES PREVIOUSLY PUBLISHED

CURRENT PRICES

£ million

		2007	2008	2009	2010
TOTAL	**GLBA**	-389	-240	-248	-183
Sector carrying out the work					
Government	**GLBK**	-	-	-	-
Research Councils	**DMRS**	-	-	-	-
Business Enterprise	**GLBL**	-	-	35	-14
Higher Education	**GLBM**	-388	-240	-281	-168
Private Non-Profit	**GLBN**	-1	-1	-1	-1
Sector funding R&D in the UK					
Government	**GLCA**	-365	-226	-334	-225
Research Councils	**DMSR**	-	-	-	14
Higher Education Funding Councils	**DMSS**	-	-	-	-
Business Enterprise	**GLCB**	-	-	71	-155
Higher Education	**GLCC**	-23	-14	-17	-11
Abroad	**GLCE**	-	-	33	195
Private Non-Profit	**GLCD**	-	-	-	-2

		2007	2008	2009	2010
CIVIL	**GLBB**	-389	-241	-242	-182
Sector carrying out the work					
Government	**GLBO**	-	-	-	-1
Research Councils	**DMSC**	-	-	-	-
Business Enterprise	**GLBP**	-	-	40	-12
Higher Education	**GLBQ**	-388	-240	-282	-167
Private Non-Profit	**GLBR**	-	-	-1	-1
Sector funding R&D in the UK					
Government	**GLCF**	-366	-226	-331	-216
Research Councils	**DMSX**	-	-	-	14
Higher Education Funding Councils	**DMSY**	-	-	-	-
Business Enterprise	**GLCG**	-	-	70	-163
Higher Education	**GLCH**	-23	-14	-17	-10
Abroad	**GLCJ**	-	-	35	195
Private Non-Profit	**GLCI**	-	-	-	-2

		2007	2008	2009	2010
DEFENCE	**GLBC**	-	**-**	-5	-1
Sector carrying out the work					
Government	**GLBS**	-	-	-	1
Research Councils	**DMSM**	-	-	-	-
Business Enterprise	**GLBT**	-	-	-5	-2
Higher Education	**GLBU**	-	-	-	-
Private Non-Profit	**GLBV**	-	-	-	-
Sector funding R&D in the UK					
Government	**GLCK**	-	-	-3	-10
Research Councils	**GLCM**	-	-	-	-
Higher Education Funding Councils	**DMSZ**	-	-	-	-
Business Enterprise	**GLCL**	-	-	-	8
Higher Education	**GLCM**	-	-	-	-
Abroad	**GLCO**	-	-	-2	-
Private Non-Profit	**GLCN**	-	-	-	-

Source: Office for National Statistics

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

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