

Article

# Research and development in the UK: flow of funds explained

Details the complexity of the flow of funds for research and development within the sectors of the UK economy.

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# 1 . Introduction

This article contains new analysis designed to explain how research and development (R&D) work in the UK is funded. It complements the [Gross domestic expenditure on research and development \(GERD\) statistical bulletin](#). The GERD bulletin focuses on R&D performed by the four sectors of the economy and how this is funded. The four sectors are:

- business
- government (including research councils and higher education funding councils)
- higher education
- private non-profit organisations

The organisations that perform R&D are often different from those that provide the funding for the R&D work to take place. R&D can therefore be measured either from the perspective of organisations carrying out the work, or from the perspective of organisations who provide the funding for the work. These two approaches give different results because the value of funds a sector provides is different to the value a sector spends on performing R&D itself. For example, the government sector provides four times more funding for R&D than it spends on performing it. The main focus of our existing R&D analysis is on the values of R&D performed in the UK by organisations within the four sectors of the economy, as shown in the GERD statistical bulletin.

The pattern of how the different sectors of the economy provide funding for R&D is complex because of the way that the sectors not only provide funds for organisations in their own sector, but also funds for R&D in other sectors. This results in several flows of money for R&D within and between the different sectors of the economy, as well as from overseas, and this article explores these funding flows in the following sections.

Note that the analysis in this article portrays flows of funds for R&D in 2017, and does not make comparisons over time.

## 2 . Analysis of UK R&D funding

In 2017, £34.8 billion was spent on performing research and development (R&D) in the UK.

In Figure 1, the flows from left to right show the value of funds that organisations within each of the sectors of the UK economy provided to other sectors and to organisations within their own sector, to highlight the complex nature of how R&D performed in the UK is funded. Funding from overseas is also shown to complete the picture. Values of each sector on the right of the chart are the amounts that each sector spends on performing R&D which comprises funds from all other sectors.

The total government sector is subdivided into two elements: government departments and research councils; and higher education funding councils (HEFCs). In the government sector, HEFCs only provide funds to higher education institutions (HEIs) for them to perform R&D, they do not perform R&D themselves. This contrasts with government departments and research councils, who receive funds from other sectors as well as partly fund themselves to perform R&D, yet also provide substantial funds to other sectors.

HEIs are regarded as an R&D performing sector. However as this analysis is focusing on funding, and the data shown relate to the flow of funds provided between sectors, then in this context HEFCs are regarded as part of the government funding sector. This is because the money they allocate to HEIs is government money.

## Figure 1: Flows of research and development funding in the UK, 2017

### Notes:

1. Higher education funding councils (HEFCs) are part of government, but only provide funds to higher education institutions to perform R&D, they do not perform R&D themselves.

## 3 . Sources of funds for UK R&D performing sector

### Business

The business sector provided £18.7 billion of funding for research and development (R&D) performed in the UK in 2017, accounting for 54% of total R&D performed during this period. The business sector itself conducted R&D worth £23.7 billion, the largest amount of R&D performed by any sector. This was also the largest self-funding sector in the UK, with £18.3 billion (98%) of its total funding relating to businesses funding themselves as well as others within the sector. The residual was distributed between government, private non-profit organisations and higher education institutions.

### Higher education

This is the only sector not to be self-funding, receiving all its income from other UK sectors and overseas. This sector received £5.1 billion from government, £1.5 billion from overseas, £1.3 billion from private non-profit organisations and £0.4 billion from business.

Collectively, 62% of funding for R&D performed by higher education institutions (HEIs) can be attributed to government (including research councils and Higher Education Funding Councils (HEFCs)). Research councils were responsible for the largest share (£2.2 billion) of this funding in 2017.

In contrast, HEIs themselves provided £241 million to other sectors, £210 million of which went to business. While in 2017 this was the smallest amount of funding for UK R&D of all sectors, this sector was responsible for the second-largest amount of R&D performed in the UK, at £8.2 billion.

### Government

At £9 billion, government was responsible for the second-largest sum of funding for R&D in the UK. The government sector consists of government departments, research councils and HEFCs; accounting for £3.7 billion, £3.1 billion and £2.2 billion respectively.

In 2017, the higher education sector received the largest amount of government funding at £5.1 billion (56%). The business sector received nearly 20% (£1.8 billion) of government funding. The value of R&D conducted by the government was £2.2 billion, which accounted for 6% of total R&D performed in the UK and was the third-largest performing sector. However, government funding of R&D was four times the value of R&D performed by the sector itself. Proportionately, it was the second-largest self-funding sector, investing 86.6% of its own funds into R&D.

## Overseas

Overseas funding of R&D totalled £5 billion, which made it the third-largest provider of funding for R&D in the UK. The business sector received £3.3 billion, making it the largest beneficiary receiving 66% of funding from overseas.

It additionally contributed £1.5 billion to UK higher education in 2017, making it the second-largest contributor of funding for R&D performed within the higher education sector (18%). Overall, funding from overseas was responsible for 14% of R&D performed in the UK during this period.

## Private non-profit organisations

Of the £1.8 billion funding provided by the private non-profit (PNP) sector for R&D performed in the UK, the majority (72%), £1.3 billion, was provided to the higher education sector. The sector itself, which is comprised mainly of charitable organisations and trusts specialising predominantly in health and medical research, was the smallest performer of R&D in the UK at £0.8 billion.

## 4 . Links to related statistics

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

Annual estimates of research and development performed and funded by business, government, higher education and private non-profit organisations in the UK are available in the [Gross domestic expenditure on research and development statistical bulletin](#).