

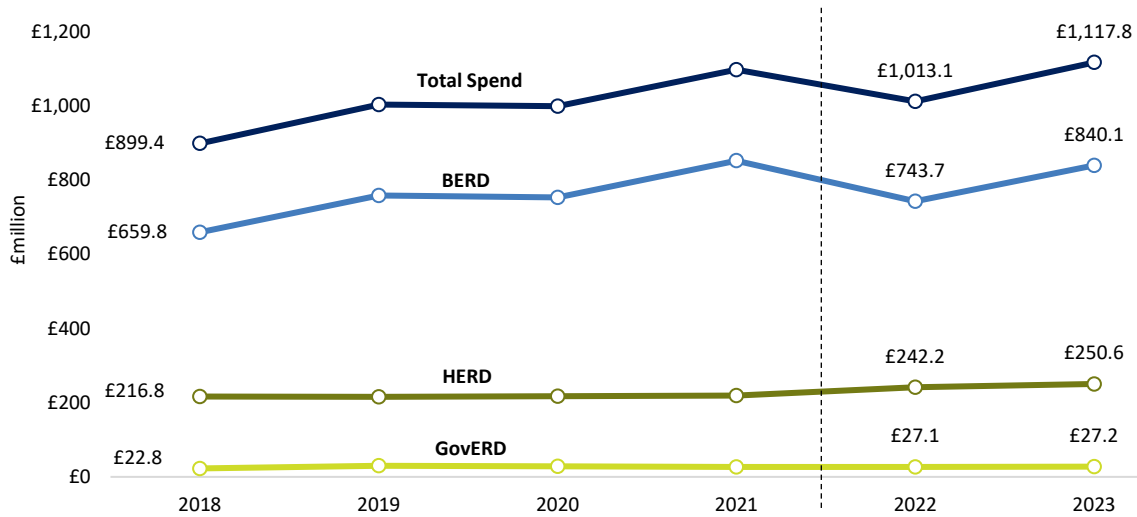
Statistical Bulletin

Research and Development Activity in Northern Ireland

Findings from the 2023 Northern Ireland Research and Development Survey

Total R&D spend in 2023 is estimated at £1,117.8m, representing an annual increase of 10.3%.

Chart 1: Research and Development (R&D) spend in Northern Ireland, 2018-2023 (cash terms, £millions)*



Total R&D Spend 2023

£1,117.8m

Increase in total R&D spend from 2022

£104.6m (10.3%)

Total Business R&D Spend 2023

£840.1m

Key points

- In 2023 some £1,117.8 million (m) was spent on R&D by Businesses (BERD), Higher Education establishments (HERD) and Government departments (GovERD) in Northern Ireland (10.3% more than in 2022). Of this £1,117.8m, 75.2% was spent by Businesses, 22.4% by Higher Education Establishments and 2.4% by Government Departments.
- Since 2022, Business R&D spend has increased by 12.9% in cash terms (5.3% in real terms).
- In 2023, around half of all business expenditure on R&D can be attributed to the Services sector (£433.9m; 51.6%).
- The methodology employed to produce the 2022 and 2023 Business R&D spend estimates has been improved to better represent R&D performance across the Northern Ireland economy. This improvement has produced figures which provide the best current estimate of Business level R&D spend at the Northern Ireland level and has been validated against other available data. Further information on this can be found on pages 12-16.
- Results for periods prior to 2022 are only available at the NI level in this release. Work is underway, and we aim to publish more detailed time series estimates as soon as possible, with users being updated when this has been completed.

As methodological improvements have been implemented for the 2022 and 2023 surveys, users should consider comparisons between pre-2022 BERD data and post-2022 BERD data (as well as future releases) with caution.

All annual changes have been calculated using raw figures prior to rounding. Throughout, totals may not sum due to rounding.

Cash terms - R&D spending without the effects of inflation removed. Real terms - R&D spending with the effects of inflation removed.

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Accredited Official / Official Statistics Designation of Northern Ireland BERD Statistics

The figures included in this bulletin detail the best current estimates of R&D spend at a Northern Ireland level, which have been validated against other available data. However, there is less certainty in the estimates below the total Northern Ireland level.

To maintain the quality of the Northern Ireland R&D statistics, this publication will feature a reduced number of detailed breakdowns compared with pre-2021 R&D releases. The existing [Accredited Official Statistics](#) designation (previously referred to as National Statistics) for the Northern Ireland level R&D figures will remain (Chart 1, Chart 2, Chart 3, Chart 10 and Chart 11 of this publication) as they comply with the standards of trustworthiness, quality and value in the [Code of Practice for Statistics](#). To help convey the developmental nature of the sub-NI components, the Northern Ireland Statistics and Research Agency (NISRA) has asked the Office for Statistics Regulation (OSR) to temporarily pause the Accredited Statistics status of more detailed breakdowns. The OSR confirmed their agreement to this approach in their [letter published on 8th December 2022](#).

In July 2024 OSR published their [Spotlight on Quality Assessment for the Northern Ireland R&D statistics](#). This identified two requirements that NISRA need to fulfil in order to see the official statistics reaccredited. Work is on-going to address these requirements, with further engagement with the OSR planned once completed.

NISRA has worked closely with Office for National Statistics (ONS) colleagues to redesign the BERD methodology to be more reflective of R&D performance across the Northern Ireland economy. This has ensured that there is consistency in approach and coherence with the methodological improvements implemented by the ONS for the UK equivalent figures. Further information on methodological improvements that have occurred over the previous two years can be found at the below links.

[Options for Transformation of Business Enterprise Research and Development Statistics - Office for National Statistics](#)

[Business enterprise research and development, UK - Office for National Statistics \(ons.gov.uk\)](#)

[Gross domestic expenditure on research and development, UK: 2020 - Office for National Statistics \(ons.gov.uk\)](#)

Methodological improvements have been implemented at the Northern Ireland level from 2018 to 2021 and again from 2022 to 2023, meaning that comparisons of detailed estimates before 2018 are not possible.



Introduction

Research and Development Explained

Research and Development is broadly characterised by investigation or experimentation, the intended outcome of which is new knowledge including knowledge of culture and society (with or without a specific practical application), enhanced materials, products, devices, processes or services. R&D covers three types of activity:

- 1. Basic research** – Work undertaken to acquire new knowledge without a specific application in mind;
- 2. Applied research** – Work undertaken to acquire new knowledge with a specific application in mind; and
- 3. Experimental development** – Work using the results from basic and/or applied research for the purpose of creating new or improved products / processes.

Northern Ireland's R&D activity is measured by the amount of money spent performing R&D by an organisation, either in-house or purchased from another source, and must involve elements of the five criteria below:

- 1. Novel** - To be aimed at new findings;
- 2. Creative** – To be based on original, not obvious, concepts and hypotheses;
- 3. Uncertain** – To be uncertain about the final outcome;
- 4. Systematic** – To be planned and budgeted; and
- 5. Transferable/reproducible** – To lead to results that could possibly be reproduced.

Definition of Terms

- **In-house R&D** - This is R&D carried out within the company and was previously referred to as intramural expenditure.
- **Purchased R&D** - This is R&D which has been purchased by a business from another source, for example another business.
- **Cash terms** - R&D spending without the effects of inflation removed.
- **Real terms** - R&D spending with the effects of inflation removed. Real earnings are calculated by adjusting historical R&D spend using the [ONS deflators at market prices, October 2024](#).

Measuring R&D Data

1. Business Expenditure on R&D (BERD)

Business Expenditure on R&D (BERD) constitutes the largest component of total R&D activity and the data to inform this component are collected in the [Northern Ireland Research & Development Survey](#) administered by NISRA's Economic & Labour Market Statistics Branch. The sample and survey results only cover business enterprises as defined in the ["Frascati" Manual](#). This excludes government organisations, higher education establishments and charities.

The definition of R&D adopted for the purposes of the NI inquiry is the same as that used by the ONS for the equivalent GB survey:

"The guiding line to distinguish between research and technological development activity (R&D) from non-research activity is the presence or absence of an appreciable element of novelty or innovation. If the activity departs from routine and breaks new ground it should be included; if it follows an established pattern it should be excluded".

The questionnaire used follows the same structure and includes the same questions as that used by the [ONS](#) to collect R&D data from GB businesses, although there were some modifications to tailor the questions asked for use in NI. The 2023 ONS Report is available [here](#).

The survey covers expenditure in the year ending 31st December 2023, although companies were given the option of supplying data for a business year ending on any date between 6th April 2023 and 5th April 2024.

Variations may occur in NI R&D data from year to year due to the influence of one or two large-scale projects. Spend as it is presented also varies due to a range of factors including company size, ownership of the company and whether it is externally or internally owned, and what sector it falls into.

Results in this bulletin are provisional and may be subject to revision to take account of any additional information received subsequent to publication.

All annual changes and percentages detailed in the text have been calculated using raw figures prior to rounding. Throughout, totals may not sum due to rounding (to 1 decimal place).

It should be noted that the total BERD figure for Northern Ireland in this release is slightly lower than the regional estimate published by [ONS](#), this is due to a small proportion of R&D being performed in Northern Ireland, but by GB businesses. While these businesses are in scope for the GB BERD survey carried out by ONS, they are not part of the Northern Ireland data collection process and are therefore excluded from the results published by NISRA. We have worked closely with ONS to ensure no duplication exists as a result.

1.1 Change to reporting of total BERD expenditure

As with the 2021 and 2022 publications, for the 2023 NI R&D release and all future releases, the total BERD figure (£840.1m) refers to in-house BERD, rather than in-house plus purchased BERD as published in pre-2021 NI R&D releases. This has been done to harmonise the NI BERD figures with [BERD data published by the ONS](#), ensuring coherence and comparability between the two sources. This change has also been applied to previous years' data in this release.

2. Higher Education Expenditure on R&D (HERD)

NISRA carries out an annual survey of R&D expenditure among Higher Education Establishments in Northern Ireland. The figures shown in the HERD chart below provide combined results from the two Northern Ireland universities - Queen's University Belfast (QUB) and the Ulster University (UU). The data collected refers to the academic year i.e. 2022/2023 ending 31/7/2023. The universities have

made data available for this period on the basis of Transparency Review data collected within each respective institution.

3. Government Expenditure on R&D (GovERD)

The ONS collects annual data on total UK government expenditure on science, engineering and technology (SET). SET expenditure by the UK government includes expenditure by Government Departments, Research councils and Higher Education Funding Councils (HEFCs). It also includes expenditure on R&D conducted within Government Departments.

By collecting Government Department R&D data in conjunction with the results from the NISRA BERD and HERD surveys, it has been possible to compile a more complete picture of total expenditure on R&D in NI. The figures described in Charts 2 and 3, expenditure by Businesses, Higher Education establishments and Government departments complement each other; i.e. there is no double counting.

$$\text{Total R\&D Spend} = \text{In-house BERD} + \text{HERD} + \text{GovERD}$$

All annual changes and percentages detailed in the text have been calculated using raw figures prior to rounding. Throughout, totals may not sum due to rounding (to 1 decimal place).

Analysis of R&D spend throughout the report is detailed in cash terms (i.e. R&D spending without the effects of inflation removed) unless otherwise stated.

For further information

Further information on Research and Development statistics can be accessed on the [NISRA website](#).

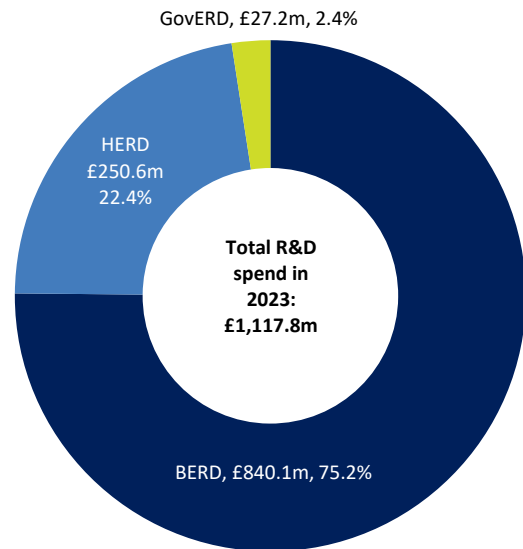
Overall R&D spend in Northern Ireland

Cash Terms – R&D Spending without the effects of inflation removed

In 2023, the total expenditure on R&D in Northern Ireland (NI) in cash terms was £1,117.8 million (m). The majority of this, (75.2%) was carried out by Businesses (BERD), while 22.4% was undertaken by Higher Education Establishments (HERD) and 2.4% by Government Departments (GovERD).

There was an increase of £104.6m in total R&D expenditure between 2022 and 2023. The increase of £96.3m in Business spend across the year accounted for the vast majority of the yearly change. Higher Education and Government spend increased by £8.3m and £8,000 over the year, respectively.

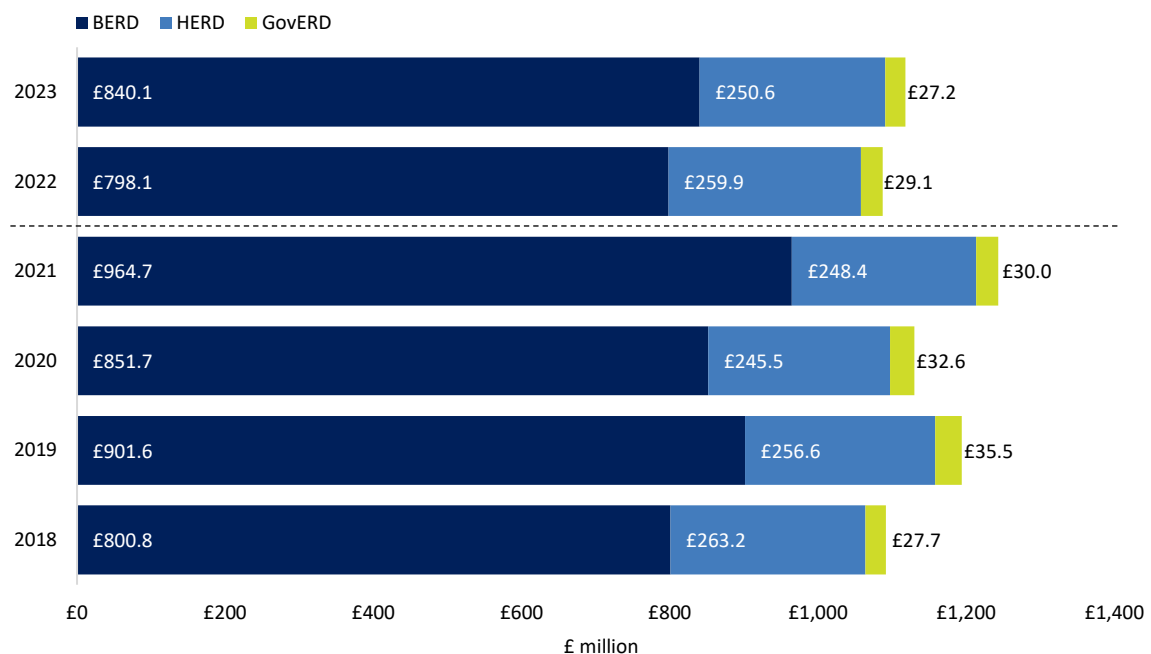
Chart 2: NI R&D spend in cash terms (£millions, % share), 2023



Real Terms – R&D Spending with the effects of inflation removed*

Total expenditure on R&D in Northern Ireland increased by 2.8% in real terms between 2022 and 2023. Business R&D spend increased by 5.3% in real terms over the year. Higher Education and Government spend decreased by 3.6% and 6.8% respectively in real terms across the year.

Chart 3: Northern Ireland R&D spend in real terms, 2018-2023



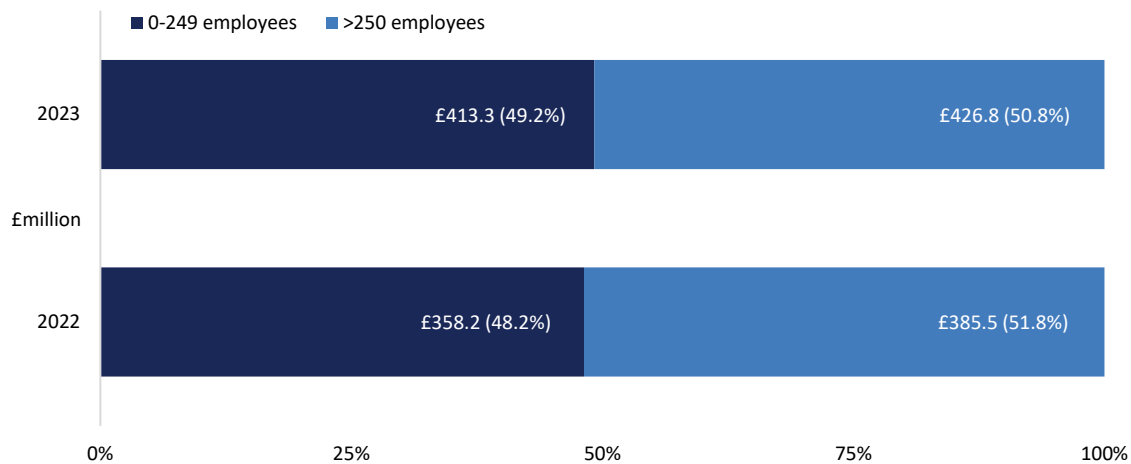
*GDP deflator used to convert cash terms to real terms: 2018 (0.823858), 2019 (0.84142), 2020 (0.885136), 2021 (0.883883), 2022 (0.93191), 2023 (1.0). Source: [ONS deflators at market prices, October 2024](#)

All figures in the BERD sections below are classified as Official Statistics. Due to the changes in the methodology between 2021 and 2022, we have not made yearly comparisons for any BERD data prior to 2022. A revised pre-2022 BERD back series will be published at a later date.

Business R&D activity in Northern Ireland - Company size

In cash terms, Small and Medium sized Enterprises (SMEs, 0-249 employees) accounted for 49.2% of BERD in 2023. Large firms (250+ employees) accounted for 50.8% of BERD.

Chart 4: Business R&D expenditure by company size (persons on payroll)*, 2022-2023 (cash terms, £millions)

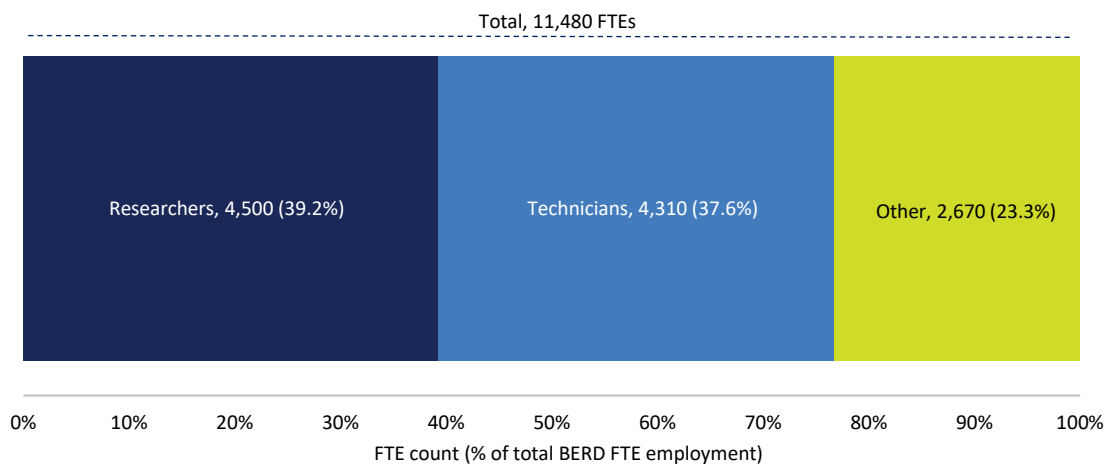


*The European Commission definition of Small Medium Enterprises (SME) used is defined as being enterprises with less than 250 employees and large companies as being enterprises with more than 250 employees.

Business R&D activity in Northern Ireland – Employment

There were 11,480 FTEs working in an R&D role in 2023 (up 14.5% since 2022). Those working in a research role (PhD students, graduates and scientists) accounted for 39.2% of FTEs in 2023, technicians (those who perform scientific and technical tasks under the supervision of researcher) accounted for 37.6% and 23.3% were “other” staff (support, secretarial and clerical staff).

Chart 5: Business R&D FTE employment in NI, 2023



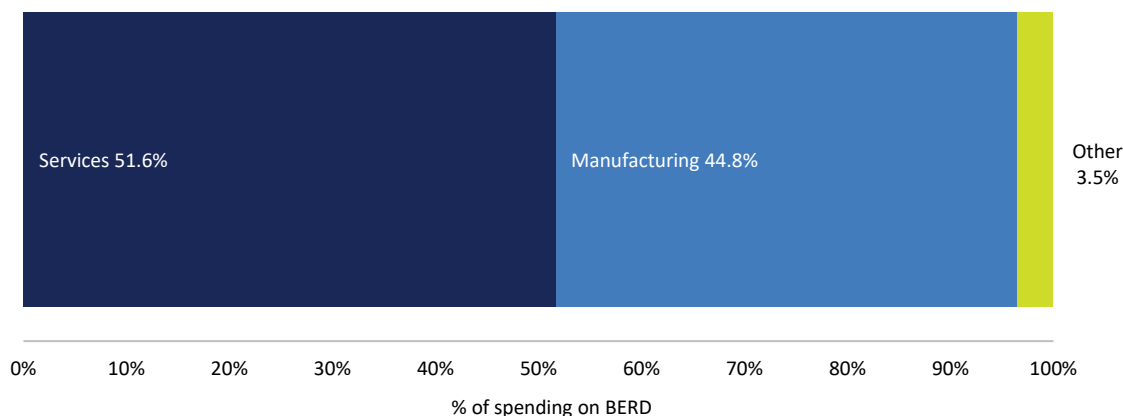
Estimates of employment in R&D are best produced on a full-time equivalent (FTE) basis where businesses convert employee hours working on R&D into FTE figures, providing a better indication of total labour input than a simple headcount. All annual changes have been calculated using raw figures prior to rounding. Throughout, totals may not sum due to rounding.

Business R&D activity in Northern Ireland – Sectoral breakdown

Around half of all business expenditure on R&D can be attributed to the Services sector (£433.9m; 51.6%). The ‘Professional, Scientific, Technical, Administrative and Support Service Activities’ sector was the largest sub-sector in 2023, accounting for £233.6m (27.8%) of BERD spend.

Over two-fifths of all business expenditure on R&D can be attributed to the Manufacturing sector (£376.4m; 44.8%). One-quarter (£92.5m; 24.6%) of R&D spending in the Manufacturing sector was accounted for by companies involved in ‘computer, electronic and optical products’.

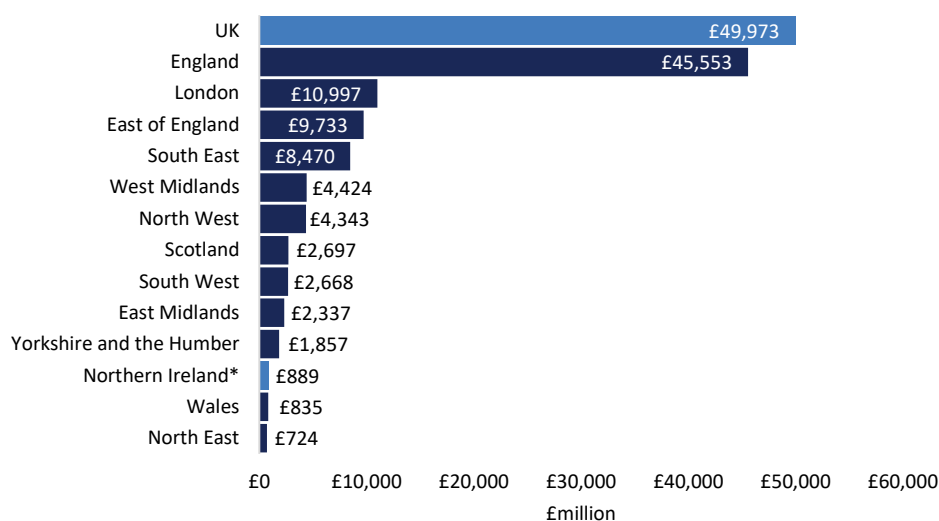
Chart 6: Sector percentage share of BERD Spend, 2023



Business R&D activity in Northern Ireland – UK regional comparisons

BERD spend across the UK as a whole totalled £49,973m in 2023. The vast majority of this spend (91.2%) occurred in England (£45,553m). Around one-quarter of the spend in England occurred within London (£10,997m). Companies in Northern Ireland spent £889m on R&D in 2023*, this equates to 1.8% of the total UK BERD figure.

Chart 7: BERD spend of UK businesses by country or region, 2023 (£millions)

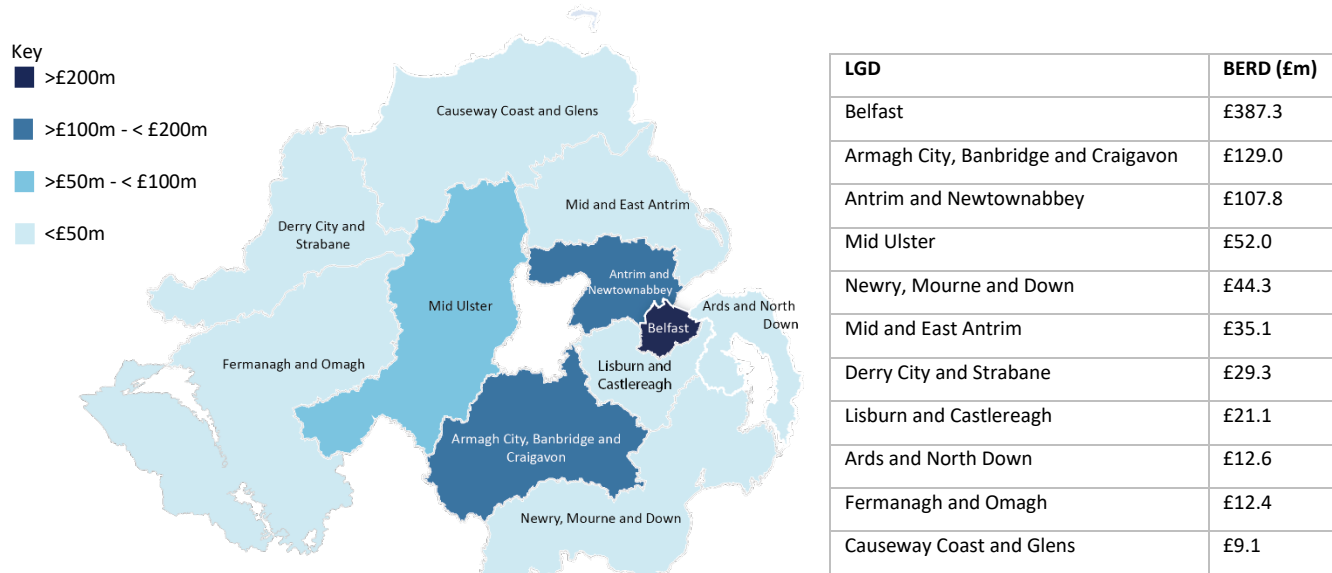


*It should be noted that the regional estimate for Northern Ireland published by ONS in Chart 7 above is slightly higher than the figure published by NISRA and referenced throughout the rest of this publication. This is due to a small proportion of R&D being performed in Northern Ireland, but by GB businesses (£37 million in 2022; £49 million in 2023). While these businesses are in scope for the [GB BERD survey carried out by ONS](#), they are not part of the Northern Ireland data collection process and are therefore excluded from the results published by NISRA. We have worked closely with ONS to ensure no duplication exists as a result.

Business R&D activity in Northern Ireland – Local Government District Split

Almost half (46.1%, £387.3m) of total BERD was attributed to companies in the Belfast Local Government District (LGD) in 2023. At £129.0m, companies in Armagh, Banbridge & Craigavon LGD accounted for 15.4% of total BERD in 2023. Antrim and Newtownabbey LGD also accounted for 12.8% of BERD (£107.8m) in 2023.

Chart 8 / Table 1: BERD spend by NI Local Government Districts, 2023

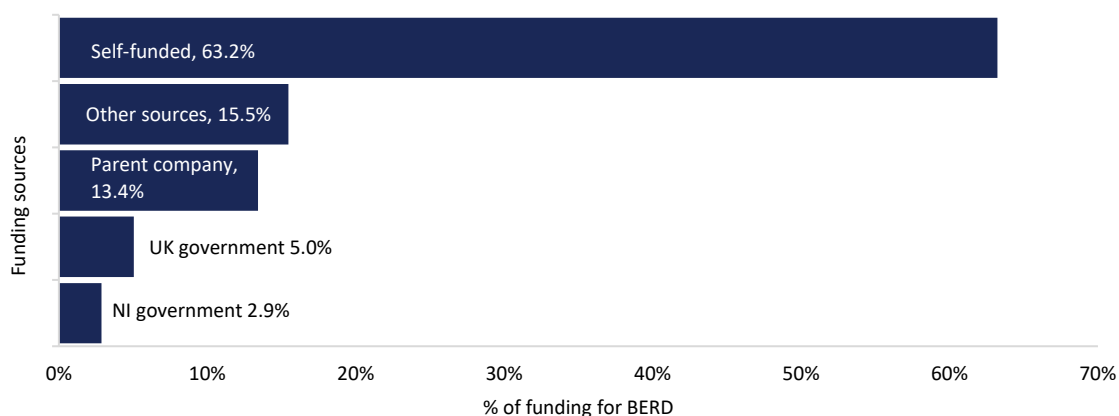


Business R&D activity in Northern Ireland - Funding

The funding of business R&D expenditure comes from a number of sources: the companies' own funds, a parent company, NI Government departments including Invest NI, other UK Government bodies, and overseas funding (e.g. EU), higher education establishments and other organisations.

The majority of funding for BERD in 2023 was self-funded by the companies carrying out the R&D work (£531.2m, 63.2%), while 13.4% (£112.6m) came from a parent company. NI and UK government sources each contributed 2.9% (£24.0m) and 5.0% (£42.4m) respectively to BERD funding. Other sources accounted for the remaining 15.5% (£129.8m) of BERD funding.

Chart 9: Percentage share of funding sources for in-house expenditure, 2023



Higher Education Expenditure on R&D (HERD)

Users should note that the statistics in this section have not been impacted by the redevelopment work undertaken for the BERD data and as such are classified as Accredited Official Statistics.

HERD expenditure, in cash terms, increased over the year by 3.4% (£8.3m) to £250.6m in 2023. Block grants remained the largest source of funding for HERD work, accounting for 43.7% (£109.6m) of total HERD funding.

Chart 10: R&D Expenditure among Higher Education Establishments in NI, 2018-2023 (cash terms, £millions)



Government Expenditure on R&D (GovERD)

Users should note that the statistics in this section have not been impacted by the redevelopment work undertaken for the BERD data and as such are classified as Accredited Official Statistics.

The UK Office for National Statistics (ONS) collects data on R&D expenditure within government establishments. Combining these data with BERD and HERD data provides a more complete picture of R&D expenditure in Northern Ireland.

There was an increase, in cash terms, of £8,000* (0.03%) in GovERD spend in Northern Ireland over the year to £27.2m in 2023.

Chart 11: R&D Expenditure among Government Departments in NI, 2018-2023 (cash terms, £millions)



*Annual changes detailed in the GovERD section above have been calculated using raw figures prior to rounding.

Methodology

Recent developments with BERD Survey Design

Although our best available estimates at the time, it has been established that the previous (pre-2022) sampling methodology employed for the Business Enterprise Research and Development (BERD) survey was not optimal, namely that there was under-coverage of smaller businesses.

Previously, the BERD survey sample was developed using a stratified sample design. The stratification variable was the known level of R&D performance of the businesses. This information was gained from:

- Previous NISRA R&D surveys;
- Extra information from various sources such as the Office for National Statistics (ONS) and Invest NI;
- SIC 72 (Scientific research and development) companies (drawn from the NISRA Business Register and Employment Survey); and
- A filter question on the NISRA Annual Business Inquiry (which asks businesses whether or not they completed R&D during the year).

The pre-2022 NI BERD sample lists may have been missing some R&D performers because of the design of the other relevant NISRA surveys. In other words, all IDBR businesses that were not sampled on these surveys had no potential to be added to the BERD sample list, so needed to be estimated for.

As with previous years, the annual Business Enterprise Research and Development (BERD) Survey remains the main source of information for this report. This survey collects annual data on the nature and scale of R&D spend among NI businesses.

The BERD survey sample was redesigned to be more reflective of R&D performed across the Northern Ireland economy. It was developed using a stratified sample design, where approximately **1,500 Northern Irish businesses were selected as part of the 2022 and 2023 samples.**

Rather than relying on other NISRA business surveys to build and maintain the BERD sample, the **new methodology draws business directly from the Inter-Departmental Business Register (IDBR) based on stratification by size band and industry, alongside census elements.**

To maximise survey precision, the Neyman allocation approach to sampling is utilised. Neyman allocation is a sample allocation method that may be used with stratified samples. The purpose of the method is to maximize survey precision, given a fixed sample size. The survey universe is stratified by industry and employee size band, **all businesses with over 250 employees or within certain industries are fully enumerated** i.e. a census of all these large businesses. In addition, some companies of special interest to government agencies (for example Invest NI clients) are added to the sample. This information is then grossed up to the reporting unit population, to ensure that results are representative of the sampled population.

Data validation is carried out on the returned forms ensuring internal consistency within the form, checking data fell within expected limits or by contacting the company for clarification where appropriate. For non-returns data is imputed using a methodology that takes account of previous returned data and the performance of other similar businesses.

Comparisons of Northern Ireland BERD Data across years

As methodological improvements have been implemented from the 2022 survey, users should consider comparisons between pre-2022 BERD data and 2022 BERD data (as well as future releases) with caution. This is in addition to the changes made for 2018-2021 BERD data – therefore users should also consider comparisons between pre-2018 BERD data and 2018-2021 BERD data with caution (see the [2021 Northern Ireland Research and Development publication](#) for more information on the changes previously made for 2018-2021 data).

Results for periods prior to 2022 are only available at the NI level in this release. Work is underway, and we aim to publish more detailed time series estimates as soon as possible. Users will be updated when this has been completed.

For the 2023 NI R&D release and future releases, the total BERD figure (£840.1m) refers to in-house BERD, rather than in-house plus purchased BERD as published in previous Northern Ireland Research and Development releases. This has been done to harmonise the NI BERD figures with BERD data published by the ONS, ensuring coherence and comparability between the two sources. This change has also been applied to previous years' data in this release.

NISRA's Northern Ireland BERD figure in comparison to ONS's Northern Ireland BERD figure

It should be noted that the total BERD figure for Northern Ireland in this release is slightly lower than the regional estimate published by [ONS](#), this is due to a small proportion of R&D being performed in Northern Ireland, but by GB businesses (£37 million in 2022; £49 million in 2023). While these businesses are in scope for the GB BERD survey carried out by ONS, they are not part of the Northern Ireland data collection process and are therefore excluded from the results published by NISRA. We have worked closely with ONS to ensure no duplication exists as a result.

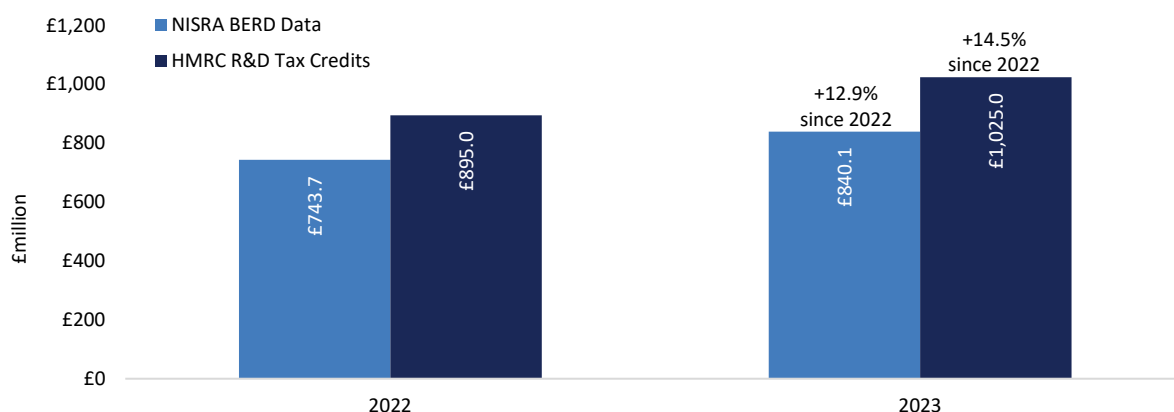
NISRA's NI BERD Data in Comparison to HMRC R&D Tax Credit Data

Another source of data on R&D expenditure is HMRC's annual publication of R&D Tax Credits, both sources are compiled differently and for different purposes but both capture data in line with internationally recognised guidelines outlined in the Frascati Manual. NISRA's BERD estimate is taken from an annual survey of R&D performers (see the 'Recent developments with BERD Survey Design' section above for more information). HMRC's R&D statistics are based on administrative data where businesses have applied for and received R&D tax credits. The two sources are similar but not exactly the same and there will always be some element of difference between them, there are known reasons for this, and these are outlined in more detail in [ONS's article from September 2022](#).

ONS's analysis of the two data sources found that there has been a significant increase in the number and value of claims under [HMRC's small and medium-sized enterprise scheme](#) and the current NISRA R&D methodology employed for the 2022 and 2023 data is structured in a way that should be more reflective of R&D performed across the Northern Ireland economy.

Chart 12 below shows that the change in R&D spend across the year is very similar across both R&D data sources (NISRA BERD data = +12.9% across the year; HMRC R&D Tax Credits data = +14.5% across the year).

Chart 12: Difference in NISRA BERD data and HMRC R&D Tax Credits data (£millions), 2022-2023 (NISRA) and 2021/2022-2022/2023 (HMRC)*



*NISRA BERD data refers to calendar year; HMRC R&D Tax Credits data refers to financial year.

Source = [Corporate tax: Research and Development Tax Credits](#)

Accredited Official Statistics and Official Statistics Designation of NI BERD statistics

To maintain the quality of the Northern Ireland R&D statistics, this publication features a reduced number of detailed breakdowns compared with previous releases. While the existing Accredited Official Statistics designation for the Northern Ireland level R&D figures will remain, to help convey the developmental nature of the sub-NI components, the Northern Ireland Statistics and Research Agency (NISRA) has asked the Office for Statistics Regulation (OSR) to temporarily pause the Accredited Official Statistics status of more detailed breakdowns. OSR confirmed their agreement to this approach in their [letter published on 8th December 2022](#).

All data tables used to inform this release are available in Excel and ODS format [here](#).

The following NI R&D data tables have maintained their Accredited Official Statistics status:

- Table 1: In-house BERD, HERD and GovERD Spend by Year in Cash Terms, 2018-2023
- Table 2: In-house BERD, HERD and GovERD Spend by Year in Real Terms*, 2018-2023
- Table 13: HERD spend* by year, 2013-2023
- Table 14: HERD spend breakdowns, 2022-2023
- Table 15: GovERD spend by year, 2013-2023

The following NI BERD data tables have been temporarily assigned Official Statistics status:

- Table 3: In-house BERD spend among Small Medium Enterprises (SMEs) and large companies (persons on payroll)*, 2022-2023
- Table 4: In-house BERD spend by Manufacturing, Services and Other subsections*, 2022-2023
- Table 5: Share of Manufacturing expenditure by SIC 2007 subsections, 2022-2023
- Table 6: R&D Full-Time Equivalent (FTE) employment*, 2022-2023 (rounded to the nearest 10)
- Table 7: R&D employee headcount, 2022-2023 (rounded to the nearest 10)
- Table 8: In-house expenditure of UK businesses by country or region, ONS Table, 2022-2023
- Table 9: In-house Expenditure by NI Local Government Districts (LGDs), 2022-2023
- Table 10: Proportion of in-house BERD funding by source, 2022-2023
- Table 11: In-house expenditure by ownership of company, 2022-2023
- Table 12: Number of R&D performing companies, 2022-2023

Other NI R&D statistics available in Excel and ODS format:

- Table 16: Size of revisions to previously published data, 2022

Impact of methodological improvements to BERD on overall R&D spend data

The R&D statistics presented in this bulletin measure total expenditure on R&D performed in Northern Ireland by all sectors (BERD, HERD and GovERD) of the economy. As the BERD sector is the largest sector by value of expenditure, the improvement to methods implemented for the 2022 and 2023 BERD data in this release affects overall R&D spend results. However, the impact is minimal as the improvement to methods have not drastically changed the total level of Business Expenditure on R&D in comparison to the uplift approach used for 2018-2021 data (see the [2021 Northern Ireland Research and Development Bulletin](#) for more information on this uplift approach). Despite the limited impact, caution should be taken when comparing current BERD data (2022 and 2023) to earlier years (pre-2022).

Impact of methodological improvements on GDP

The estimated percentage of gross domestic product (GDP) that was spent on R&D performed by businesses in Northern Ireland, which is usually published in the BERD results, is not available in this release as the ONS have not yet incorporated the improvements to the measurement of R&D among UK businesses into the calculations of GDP.

The ONS continue to work towards introducing these improvements into the national accounts, but the earliest opportunity to do so will be in 2025. In the interim the ONS are working to understand the impact that the R&D improvements will have on national accounts and GDP. Updates on this are intended to be released by ONS in due course.

In light of the above, while R&D is a small component of NI GDP, we are currently unable to quantify the impact of these changes on GDP. We will implement our improved R&D estimates at the earliest opportunity into the economic accounts.

BERD Survey Response Rate

For the 2023 survey, 1,502 forms were sent out to businesses believed to be performing R&D. Completed forms were returned by 975 businesses representing a response rate of 65%. Due to non-response, values were imputed for 527 companies.

Table 2: Comparison of response rates and spend coverage for 2022 and 2023 survey periods

	2022	2023
Percentage of sample that returned a form	62%	65%
Spend coverage by receipted businesses	79%	87%

Efforts were made to improve the quantity and quality of survey returns. Namely, larger R&D contributors received more contact than usual to encourage a response and the survey response window was extended. As a result, 87% of total R&D spend in 2023 is covered by actual returns from businesses.

Estimates

Overall, estimates make up 13% of total BERD spend for 2023 (compared with 21% in 2022). Most of the imputations are calculated using one of three methods:

1. For companies which were on the R&D survey the previous year – The median percentage change in total R&D spend across the year among responders within a given SIC code is used to estimate spend for those businesses in the same SIC code that failed to reply to the survey.
2. For companies which were not on the R&D survey the previous year – The median employment to R&D spend ratio among responders within a given SIC code was calculated and then used to estimate spend for those businesses in the same SIC code using employment information collected from other surveys within NISRA’s Economic and Labour Market Statistics Branch.
3. Non-responding companies which reported zero R&D spend the previous year are imputed to have zero spend for the current year.

Estimates for Invest NI companies were based on the value of offers made to promote R&D investment and the contribution of Invest NI’s assistance to total planned R&D expenditure. Estimates for Invest NI companies make up less than 1% of the total non-responding company spend in 2023. The remaining >99% are non-Invest NI estimates.

Revisions

These results are provisional and are subject to revision should additional information become available during the course of the next survey cycle i.e. a late response received after the last survey response window closed. Business estimates of R&D performance for 2022 have been revised to take account of late returns and improved methodology.

Table 3: Size of revisions to previously published 2022 data (£millions)

2022			
R&D Spend Category	Previous value	Revised value	Difference
In-house BERD Spend	£850.7	£743.7	–£107.0
HERD Spend	£242.2	£242.2	£0.0
GovERD Spend	£27.1	£27.1	£0.0
Total R&D Spend	£1,120.0	£1,013.0	–£107.0

Quality Reporting

The quality report for the R&D survey and analysis can be found [here](#).

Next Publication

Analysis of the 2024 results will be published in December 2025, and will be available [here](#).

Contact Information

If you require further information about the figures contained in this publication or the accompanying tables, please contact the Research and Development team in the Economic and Labour Market Statistics Branch using the details below:

Telephone: (028) 9052 9475

Email: rdhelpline@finance-ni.gov.uk, Aaron.Maguire@nisra.gov.uk, Stephen.Paulin@nisra.gov.uk

Web: [Northern Ireland Research and Development Statistics](#)

Twitter (X): '@NISRA'

