

Statistical bulletin

Investment in intangible assets in the UK: 2023

Estimates of investment, both purchased and own-account production, of intangible assets, and investment in intangible assets by industry. Annual, current price data. These are official statistics in development.

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1 . Main points

- Investment in intangible assets was £244.7 billion in 2023, compared with £230.1 billion in 2022; this is £85.3 billion higher than investment in tangible assets, such as machinery and buildings, in the latest period.
- The largest capitalised intangible asset in 2023 was software (purchased and own-account), totaling £57.2 billion of investment.
- The largest uncapitalised intangible asset in 2023 was organisational capital, accounting for £42.0 billion of investment.
- The professional, scientific, and technical activities industry section was the biggest investor in intangible assets in 2023, with much of this investment (39.2% of the total) in research and development (R&D).
- Information and communication was the most intangible-intensive industry section in 2023; this means it invested the most in intangibles relative to its size, as measured by an industry's gross value added (GVA), with investment equal to 21.6% of GVA.
- Estimates of research and development (R&D), and software and databases incorporate revisions consistent with those in gross fixed capital formation (GFCF) data presented in the UK National Accounts, The Blue Book: 2025.

2 . Total investment in intangible assets in the UK in 2023

Intangible assets include products such as software and databases, research and development (R&D), mineral exploration, and artistic originals, as recorded in the UK National Accounts (capitalised). These are collectively referred to as intellectual property products (IPPs). However, there is an additional set of intangible assets, including branding, financial product innovation, firm-specific training, and design, which are not included in the UK National Accounts. These are referred to as “uncapitalised intangible assets.”

This bulletin discusses both capitalised and uncapitalised intangibles, and all data are shown in current prices. This release also refers to tangible assets that are defined as physical items of value that businesses or individuals own and use to generate economic benefits. These assets can be touched, seen, or utilised in the real world, and include buildings, machinery and equipment.

Investment in intangible assets increased by 6.3% to £244.7 billion in 2023, this represents a 25.0% increase when compared with 2020, when the coronavirus (COVID-19) pandemic affected business in the UK.

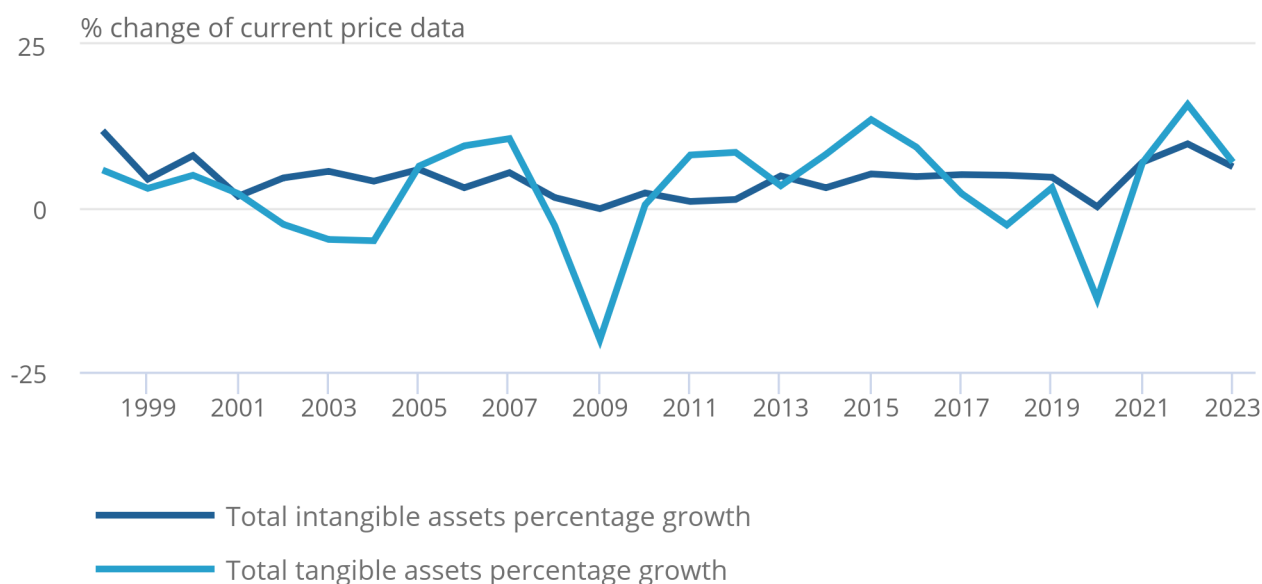
Meanwhile, investment in tangible assets increased by 7.0% to £159.4 billion. This follows a 15.8% increase in 2022, and 6.9% growth in 2021. All following a sharp 13.9% fall in pandemic-affected 2020 (Figure 1).

Figure 1: The annual percentage growth of investment in both intangible assets and tangible assets lessened in 2023 after high growth in 2022

Annual percentage growth of investment in intangible assets compared with the annual percentage growth of investment in tangible assets, UK, 1998 to 2023, current prices

Figure 1: The annual percentage growth of investment in both intangible assets and tangible assets lessened in 2023 after high growth in 2022

Annual percentage growth of investment in intangible assets compared with the annual percentage growth of investment in tangible assets, UK, 1998 to 2023, current prices



Source: Investment in intangible assets in the UK from the Office for National Statistics

Investment in intangible assets grew by £14.6 billion in 2023, a third consecutive year of larger-than-average increases in investment, following a small growth witnessed during 2020, where figures were affected by the pandemic.

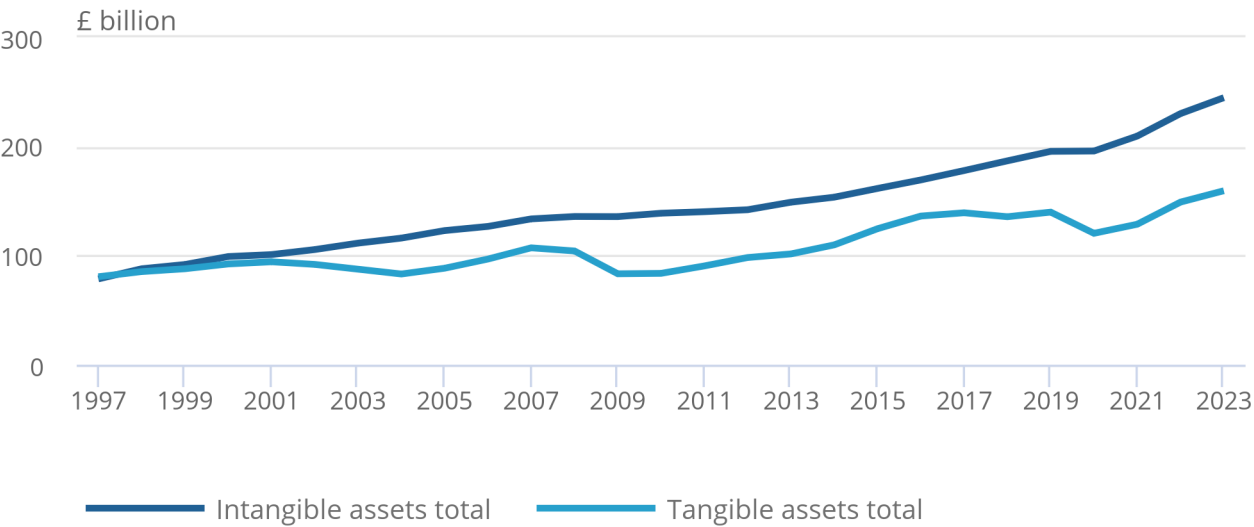
Throughout the period examined in our data, 1997 to 2023, investment in intangible assets is less vulnerable to economic downturn, such as the economic crisis of the late 2000s or the pandemic, compared with investment in tangible assets (Figure 2).

Figure 2: Intangible investment in current prices has remained higher than tangible investment since 1998

Total investment in intangible assets (purchased and own production combined), compared with the total investment in tangible assets, UK, 1997 to 2023, £ billion, current prices

Figure 2: Intangible investment in current prices has remained higher than tangible investment since 1998

Total investment in intangible assets (purchased and own production combined), compared with the total investment in tangible assets, UK, 1997 to 2023, £ billion, current prices



Source: Investment in intangible assets in the UK from the Office for National Statistics

When separating intangible assets, we see relatively unchanged growth in capitalised IPPs and weaker growth in uncapitalised intangible assets in 2023, when compared with the previous year (Figure 3).

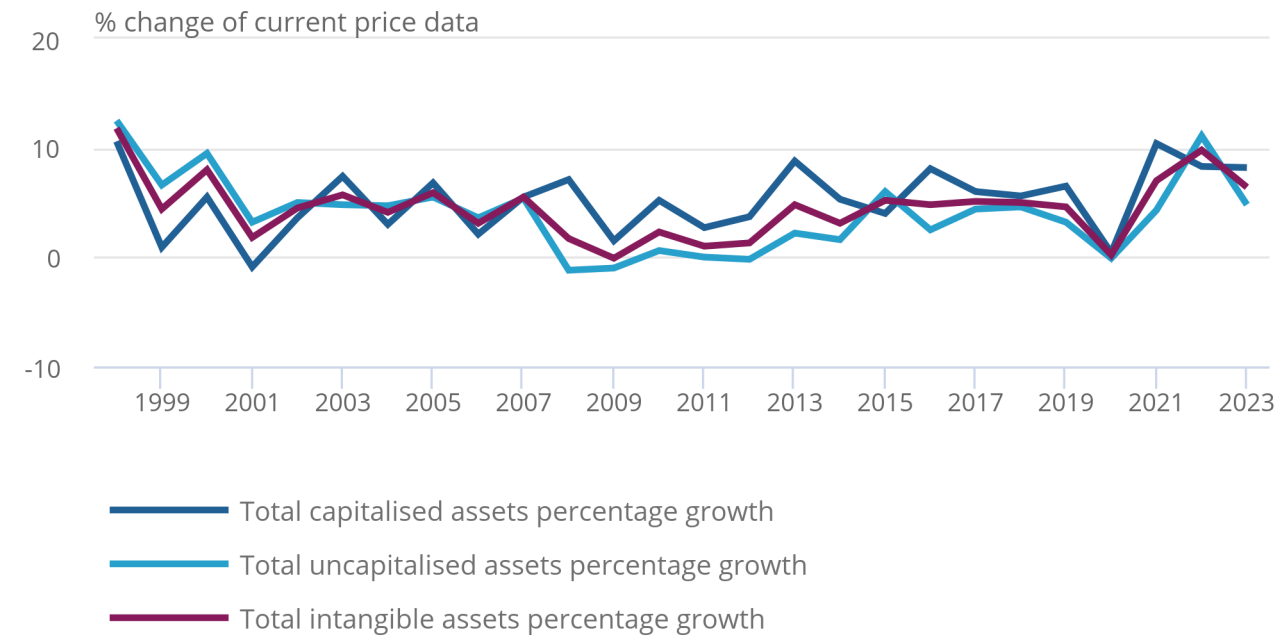
Investment in uncapitalised intangibles increased by 4.8% in 2023, with particular strength in organisational capital and branding. Investment in capitalised intangible assets, included in the UK National Accounts as IPPs, increased by a stronger 8.2%.

Figure 3: Growth in uncapitalised intangible investment lessened in 2023, compared with high growth in 2022

Annual percentage growth of intangible investment in capitalised and uncapitalised intangible assets, 1998 to 2023

Figure 3: Growth in uncapitalised intangible investment lessened in 2023, compared with high growth in 2022

Annual percentage growth of intangible investment in capitalised and uncapitalised intangible assets, 1998 to 2023



Source: Investment in intangible assets in the UK from the Office for National Statistics

Within capitalised intangible assets, except for artistic originals, all asset types saw annual increases in investment in 2023, including a £7.1 billion increase in own-account software (19.9%). Overall, capitalised investment increased by £8.5 billion.

Despite slower growth in 2023, overall investment in uncapitalised intangibles increased by £6.1 billion. Investment in all uncapitalised intangible assets showed increases in investment in 2023, with the strongest in own-account organisational capital of £2.1 billion (8.4%). Strength in other areas included increased investment in purchased organisational capital of £1.3 billion and purchased branding of £1.1 billion.

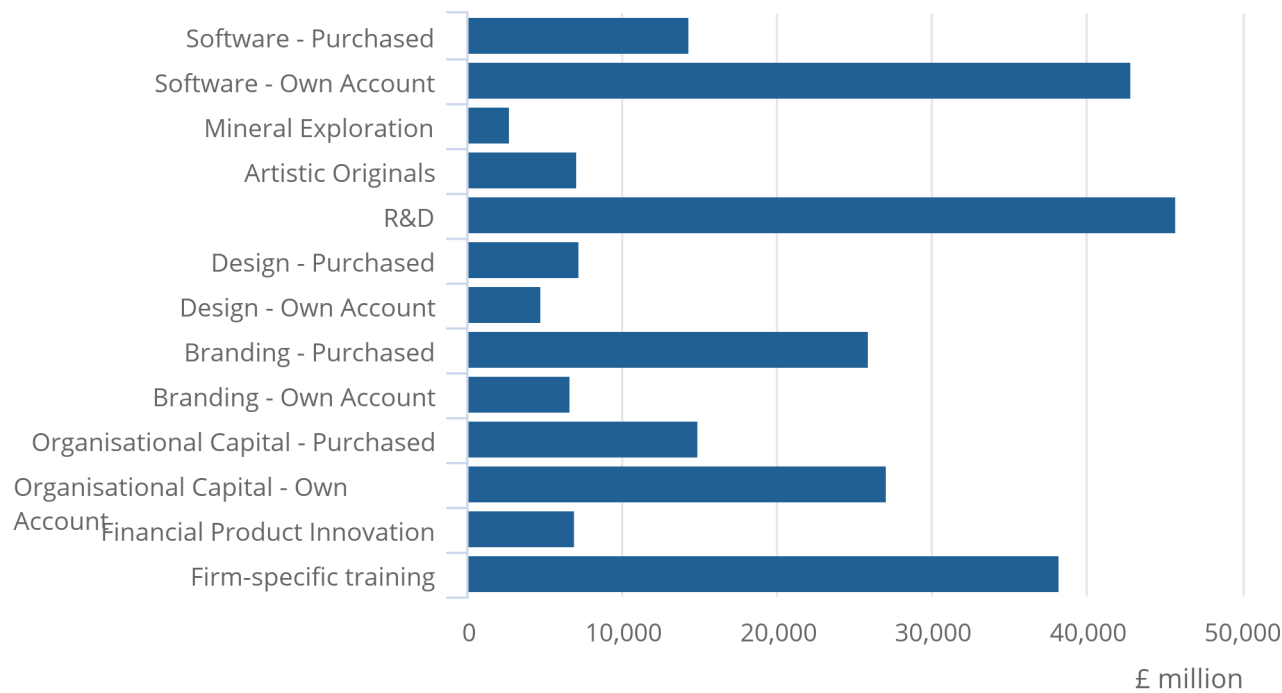
3 . Investment by asset in 2023

Figure 4: Intangible investment was largest in research and development, own account software and training in 2023

Intangible investment by asset, current prices, £ million, UK, 2023

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Intangible investment by asset, current prices, £ million, UK, 2023



Source: Investment in intangible assets in the UK from the Office for National Statistics

Mineral exploration

While it is still the asset contributing the least to the total, investment in mineral exploration saw a 38.5% annual growth, reaching £2.7 billion, which is the highest value of mineral exploration seen across the time series (1997 to 2023). Although mineral exploration has generally followed a cyclical growth cycle, we have now seen five years of consecutive growth, with investment over six times higher than it was in 2018.

Research and development

Research and development (R&D) was the second-largest area for intangible asset investment (£45.8 billion), a position it has held since 2021.

The highest investment in R&D came from the scientific research and development industry (£9.0 billion). The legal and accounting services and activities of head offices industry was the second-highest investing industry at £5.5 billion. This was also the industry with the highest annual rise in the value of investment in R&D, with an increase of £0.9 billion (19.2%).

Computer software and databases

Computer software and databases (purchased and own-account combined) remained the largest area for intangible asset investment (£57.2 billion), a position it has held since 2021.

Across all industries, investment in purchased computer software and databases reached £14.3 billion. The highest investment in this asset was £1.5 billion by the wholesale trade, except of motor vehicles and motorcycles industry, followed by the legal and accounting services and activities of head offices industry, with investment totaling £1.4 billion.

Total investment in own-account computer software and databases grew by £7.1 billion annually to £42.9 billion, reflecting a considerable increase in investment across several industries.

Design

Investment in design (purchased and own-account combined) saw an increase of £0.4 billion (3.1%) in 2023, compared with the previous year.

Investment in purchased design increased by £0.2 billion (2.1%). The construction industry remained the largest investor in this asset (£2.5 billion). It invested more than £1 billion extra in purchased design than the next-highest investing industry, which was mining and support services (£1.1 billion).

Organisational capital

Investment in purchased organisational capital was £14.9 billion, a £1.3 billion (9.7%) increase on 2022. The financial service activities, except insurance and pension funding industry remained the largest investor in this asset (£4.6 billion). It invested over twice as much in purchased organisational capital than the next-highest industry, which was computer programming and information service activities (£2.1 billion).

The financial service activities industry, excluding insurance and pension funding, remained the largest investor in this asset (£4.6 billion).

Branding

Total purchased and own-account branding increased by £1.1 billion (3.6%), to reach a record £32.7 billion, with increased investment seen in several industries.

Purchased branding investment rose by £1.1 billion. Over 19.0% of the 2023 level of investment came from the retail trade industry, with the industry's investment reaching £5.0 billion.

Firm-specific training

Firm-specific training is the third highest individual investment asset at £38.3 billion. Training saw a decline in investment in 2020, which is likely to have been affected by the coronavirus (COVID-19) pandemic. However, as the UK adapted to new ways of delivering training (for example, virtual platforms) firm-specific training reached a level in 2022 not seen since records began, and has continued this growth into 2023.

4 . Investment by industry section

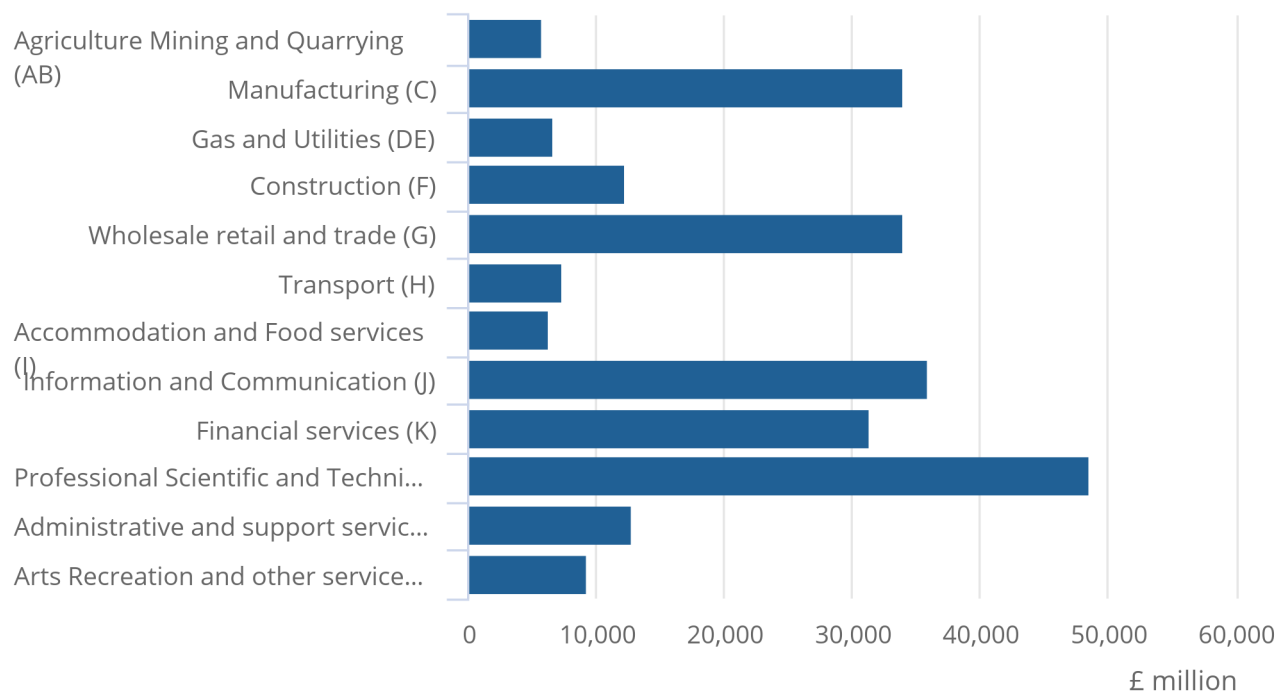
Professional, scientific, and technical activities led investment in intangible assets in 2023, investing £48.6 billion. This was followed by the information and communication industry, at £35.9 billion, and manufacturing at £34.0 billion.

Figure 5: Professional, scientific and technical activities, information and communication, and manufacturing were the largest investing industries in intangibles in 2023

Intangible investment by industry section, current prices, £ million, 2023

Figure 5: Professional, scientific and technical activities, information and communication, and manufacturing were the largest investing industries in intangibles in 2023

Intangible investment by industry section, current prices, £ million, 2023



Source: Investment in intangible assets in the UK from the Office for National Statistics

39.2% of intangible assets investment by the professional, scientific, and technical activities sector (the largest investing industry) was in research and development (R&D). The information and communication sector made substantial investments across a range of intangible assets, including artistic originals, software and databases, branding, organisational capital, and R&D, with investment in each of these exceeding £4.0 billion in 2023.

Similarly, investment in the manufacturing and wholesale, retail and trade industries was spread across a number of intangible assets. The manufacturing industries invested heavily in research and development (£14.0 billion). Both invested strongly in firm specific training, branding, and organisational capital in the latest period.

Figure 6: Professional, scientific and technical activities invested mostly in research and development; Information and communication invested mostly in own account software

Intangible investment by industry section and asset, current prices, £ million, UK, 2023

The lowest level of intangible investment was seen in the agriculture, mining and quarrying (£5.8 billion), and accommodation and food services (£6.3 billion) industries. However, these are small industries in the UK both in terms of employee numbers and output. This reflects that intangible investment is not evenly distributed across industry sections. Some industries invest more than others, even after controlling for their relative contribution to the UK economy, as measured by the industry's gross value added (GVA).

Intangible investment as a share of GVA by industry section

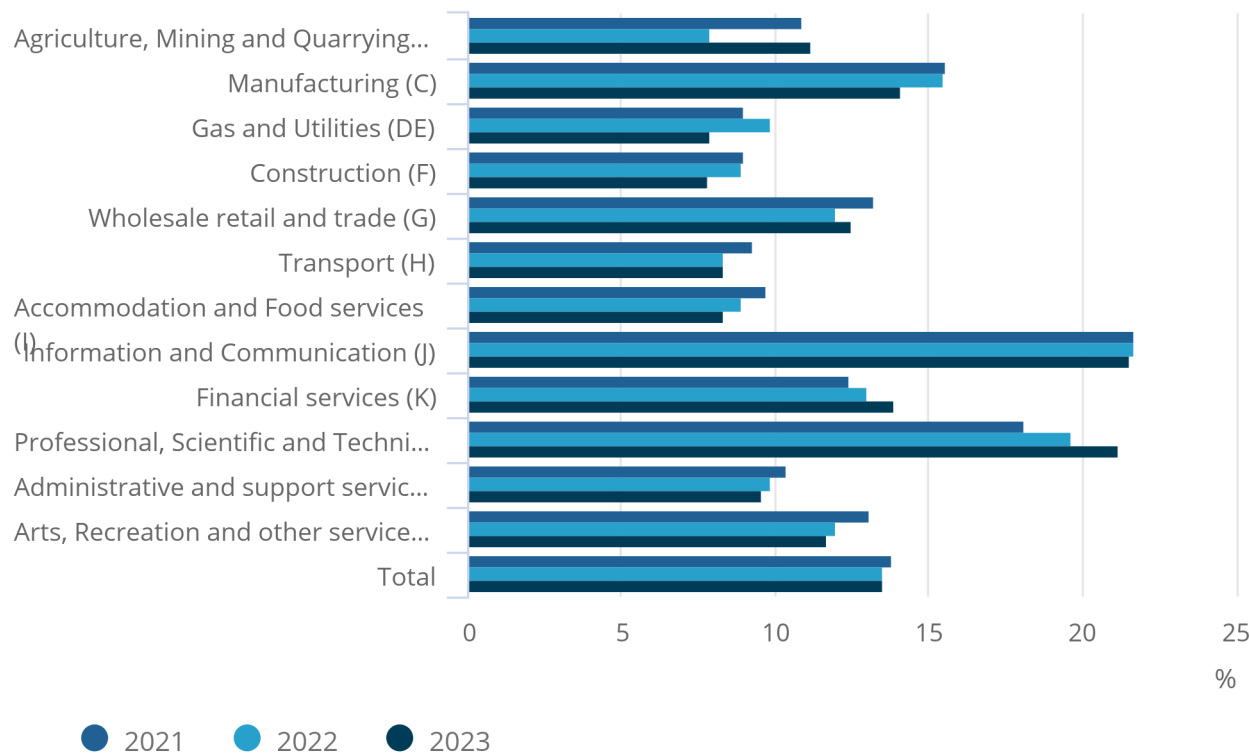
Figure 7 shows intangible investment as a share of GVA by industry section. Note that GVA has been adjusted for the capitalisation of additional intangible assets (“uncapitalised assets”). This means that the production boundary is expanded to include the investment made in branding, organisational capital, design, financial product innovation, and firm-specific training. It shows that the most intangible-intensive industries (those that invest most in intangibles relative to their size) are typically services industries.

Figure 7: The most intangible-intensive industry as a percentage of gross value added was the information and communication industry (SIC 2007 section J) in 2023

Intangible investment as a share of gross value added (GVA) by industry section, current prices, percent, UK, 2021 to 2023

Figure 7: The most intangible-intensive industry as a percentage of gross value added was the information and communication industry (SIC 2007 section J) in 2023

Intangible investment as a share of gross value added (GVA) by industry section, current prices, percent, UK, 2021 to 2023



Source: Investment in intangible assets in the UK from the Office for National Statistics

Notes:

1. Standard Industrial Classification 2007 (SIC 2007) sections are abbreviated as follows: AB = agriculture, mining and quarrying; C = manufacturing; DE = gas and utilities; F = construction, G = wholesale retail and trade; H = transport; I = accommodation and food services; J = information and communication; K = financial services; M = professional, scientific and technical activities; N = administrative and support service activities; RST = arts, recreation and other services.
2. Industry gross value added (GVA) has been adjusted for the capitalisation of all intangible assets.
3. Unadjusted gross value added (GVA) data taken from [GDP output approach – low-level aggregates](#)

Intangible intensity in most industries has been relatively stable since the coronavirus (COVID-19) pandemic in 2020. The most intangible intensive industry section in 2023 was information and communication (Standard Industrial Classification 2007 (SIC 2007), section J), for which intangible investment was equal to 21.6% of GVA in 2023. Section J shows a consistent level of investment, with the average investment as a percentage of adjusted GVA also standing at 21.6% between 1997 and 2023.

Most production industries are less intangible intensive than services industries, relying more heavily on tangible capital. Of these, the manufacturing industry (SIC 2007, Section C) is the most intangible intensive, primarily led by investment in R&D.

Intangible investment per worker by industry section

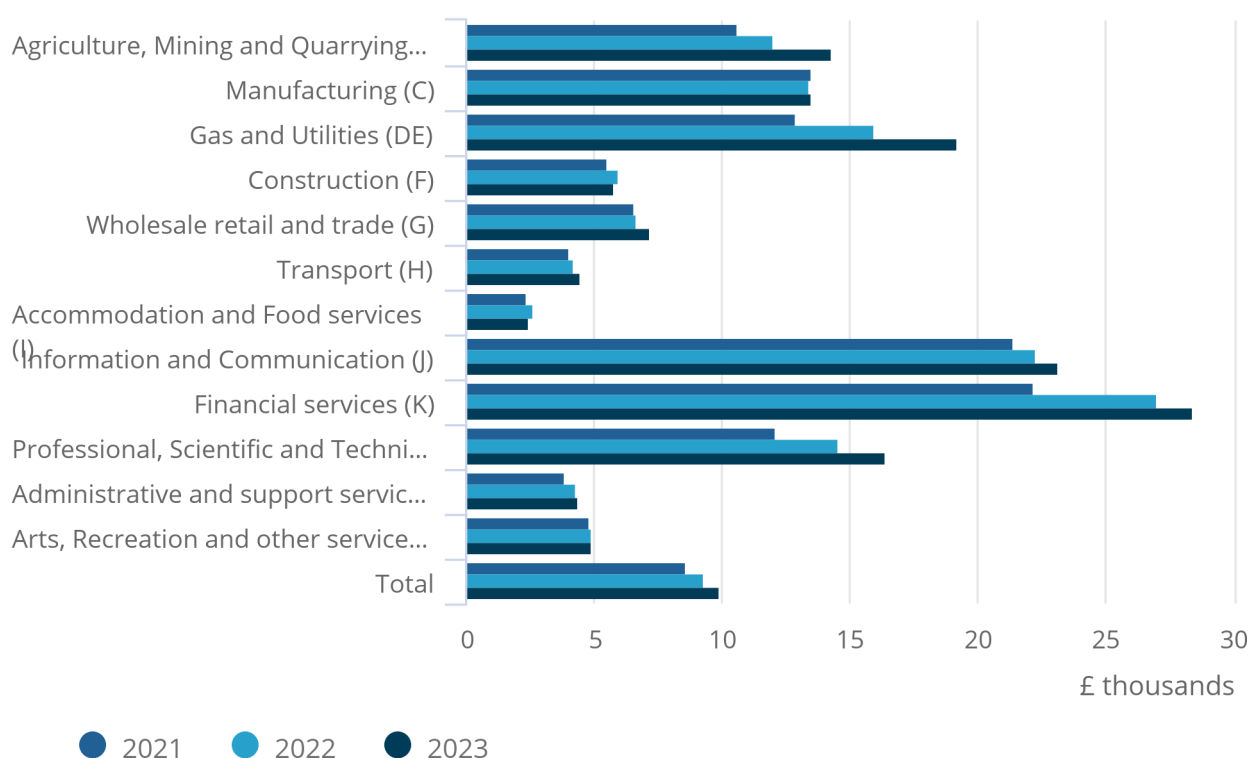
Another way of assessing intangible intensity is to examine intangible investment per worker for each industry (Figure 8). This differs from the measures used in Figure 7, as the industrial breakdown of GVA is not the same as the breakdown of employment across the economy, reflecting different production models.

Figure 8: The financial services, and information and communication industries continued to exceed £20,000 investment in intangible assets per worker in 2023

Intangible investment for each worker by industry section, current prices, thousands, UK, 2021 to 2023

Figure 8: The financial services, and information and communication industries continued to exceed £20,000 investment in intangible assets per worker in 2023

Intangible investment for each worker by industry section, current prices, thousands, UK, 2021 to 2023



Source: Investment in intangible assets in the UK from the Office for National Statistics

Notes:

- Standard Industrial Classification 2007 (SIC 2007) sections are abbreviated as follows: AB = agriculture, mining and quarrying; C = manufacturing; DE = gas and utilities; F = construction, G = wholesale retail and trade; H = transport; I = accommodation and food services; J = information and communication; K = financial services; M = professional, scientific and technical activities; N = administrative and support service activities; RST = arts, recreation and other services.
- Employment data from our [Output per job, UK dataset](#).

The total market sector invested a record £9,900 per worker in 2023, up from £9,300 per worker in 2022. This measure has been broadly increasing since the global financial crisis of the late 2000s.

Unlike the measure based on GVA in Figure 7, the distinction between the production and services industries is less clear when compared with employment. Among the service industries, the financial services (SIC 2007, Section K) and information and communication industries (SIC 2007, Section J) both exceed £20,000 investment in intangible assets per worker in 2023, at £28,400 and £23,200, respectively.

The accommodation and food services (SIC 2007, Section I) and administrative and support service activities (SIC 2007, Section N) industries were the lowest investors per worker, with both investing less than £2,500 and £4,500 per worker in intangible assets in 2023, respectively. This reinforces that the distinction between the production and services industries is less obvious within this measure.

Within the production industries, there is a large increase in investment in intangible assets per worker in agriculture, mining and quarrying (SIC 2007, Section AB), from 2019 onwards. In 2018, investment in intangible assets per worker stood at £5,700. In 2023, this same measure stood at £14,300 because of large increases in investment in mineral exploration, and in design and firm-specific training, while employment in the section remained steady.

5 . Data on investment in intangible assets

[Investment in intangible assets in the UK](#)

Dataset | Released 2 December 2025

Estimates of investment, both purchased and own-account production, in intangible assets, annual data. These are official statistics in development.

6 . Glossary

A detailed glossary of the working definitions of the assets in this publication can be found in our [Investment in intangible assets in the UK: Quality and methodology information](#).

More economic definitions can be found in our interactive glossary.

7 . Data sources and quality

Notes on measurement

Estimates include a degree of suppression, so there may be a small difference between the totals presented across the tables of our accompanying dataset.

The definition of the market sector in this article includes sections A to K, M to N and R to T in the Standard Industrial Classification 2007 (SIC 2007). It excludes real estate (L), public administration and defence (O), education (P), and health and social work (Q).

This definition is different to the standard Office for National Statistics (ONS) definition of “market sector”, which states that any unit selling at an economically significant price is operating in the market. Not all units in section P and Q are non-market, and there are non-market parts of other industries.

Estimates of research and development (R&D) are consistent with gross fixed capital formation (GFCF) data presented in the [UK National Accounts, The Blue Book: 2025](#). As such, they incorporate end-to-end redeveloped Business Enterprise Research and Development (BERD) survey data for 2022 and 2023 for the first time, and a revised back series for periods before 2022.

Own-account software and databases estimates include the take-on of Annual Survey of Hours and Earnings (ASHE) data for 2022 and 2023 for the first time.

Further details on capitalised assets updates can be found in our [Business investment in the UK revisions in Blue Book: 2025 article](#), published on the 31 October 2025.

Estimates for own-account branding, design, organisational capital, and financial production innovation (FPI) for 2023 have been produced using our [ASHE 2025 data](#). Users should be aware of the [improvements made to ASHE data for 2023 and 2024](#) when analysing all own-account intangible assets.

The occupations used to produce investment in intangible assets are as defined by the [Standard Occupational Classification \(SOC\) 2020](#). SOC is a common classification of occupational information for the UK. SOC 2020 was initially used for revised 2022 ASHE estimates and provisional 2023 ASHE estimates.

In this bulletin, we have introduced improvements to the relationship between SOC schemes. This has led to changes in the list of occupations used in our sum of cost estimates of own-account intangible investment in branding, design, and organisational capital for the period 1997 to 2020. This improvement has seen an expansion of the occupation codes we include under the SOC00 and SOC10 schemes to align them with the corresponding codes we use from the SOC20 classification. It has led to small revisions in our estimates for the period 1997 to 2020, when compared with our previous asset totals.

Estimates of purchased organisational capital have been revised following the take-on of new Management Consultancies Association (MCA) data on purchases of management consultancy, bringing our methods in line with those used for estimates before 2011. These methods replace extrapolations based on supply and use and annual business survey data.

In our estimates of intangible investment per worker by industry, [Output per job estimates](#) of employment are used in preference to headline Labour Force Survey (LFS) data, as they already cover estimates of employees, the self-employed, HM Forces staff and those employed on government funded trainee schemes.

Quality

The estimates in this bulletin and dataset are based on developmental data and methods and are therefore subject to considerable revisions.

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in our [Investment in intangible assets in the UK: Quality and methodology information \(QMI\)](#).

In addition, we will continue to collaborate with the international community, sharing insight and experience in contributing to revisions of the System of National Accounts (SNA) and other guidance, including the expansion of the definition of capitalised and uncapitalised intangible assets.

Official statistics in development

These statistics are labelled as “official statistics in development.” Until September 2023, these were called “experimental statistics”. Read more about the change in the [guide to official statistics in development](#).

We are developing how we collect and produce the data to improve the quality of these statistics. Once the developments are complete, we will review the statistics with the Statistics Head of Profession. We will decide whether the statistics are of sufficient quality and value to be published as official statistics, or whether further development is needed. Production may be stopped if they are not of sufficient quality or value. Users will be informed of the outcome and any changes.

User feedback is crucial in informing our work. Please send any questions or comments on the development of these statistics to nfa-development@ons.gov.uk.

Strengths and limitations

Strengths

This release accounts for revisions to several sources used in our estimation of both purchased and own-account tangible and intangible investment. As such, estimates presented include updated methodological and survey collection data from each source.

ONS source revisions included in our current estimates include:

- Business investment (revisions 1997 to 2022)
- Annual Business Survey (revisions for 2022 only)
- Annual Purchases Survey (revisions 2021 to 2022)

Department for Education source revisions included in our current estimates include:

- Employee Skills Survey (revisions for 2022 only)

Limitations

In this bulletin, we were not able to produce new constant-price estimates for intangible investment because of ongoing improvement in deflator methodology for intangible assets.

The timeliness of the estimates presented in this bulletin and in our accompanying dataset is controlled by the availability of our existing data sources. For example, our purchased and own-account intangible investment statistics use estimates presented in our [input-output supply and use tables](#), with the most recent data year being 2023. As part of our future workplan, we will investigate the incorporation of consistent, timely estimates and statistical modelling to extend the data available in future releases. We welcome user views on whether timelier estimates would deepen our understanding of the UK's intangible investment. Please send any thoughts to nfa-development@ons.gov.uk.

Pending a review of own-account intangible investment historic methods and data, estimates before 2011 in this bulletin continue to be produced by benchmarking previously published estimates to newly estimated 2011 data. This means that growth rates in most own-account data presented will match those for data published in previous bulletins.

8 . Future developments

Estimates of investment in intangible assets are under regular review as part of both the UK's and international partners' work to improve the methodology underpinning these data, as well as expanding the definitions used.

Domestically, work continues to develop methods for "data" as an investment asset. Estimates of this activity will be published in a future release of this bulletin and in supporting methodological articles.

We have undertaken developmental work to produce whole-economy estimates of intangible assets, as well as the market sector estimates discussed in this bulletin and accompanying dataset. We welcome user views on whether whole-economy estimates would help deepen our understanding of the UK's intangible investment.

As discussed in [Section 7: Data sources and quality](#), we will investigate the introduction of timelier source estimates and statistical modelling to extend the data available in future publications.

Finally, work is ongoing to improve our deflator methodology so that we can produce new constant-price estimates for intangible investment in a future bulletin.

Please send any views on the direction of future work on intangible assets to nfa-development@ons.gov.uk.

9 . Related links

[Investment in intangible assets in the UK QMI](#)

Methodology | Released 8 October 2024

Quality and methodology information (QMI) for investment in intangible assets in the UK. Includes strengths and limitations, methods, and data uses and users.

[Investment in intangible assets in the UK: 2022](#)

Bulletin | Released 25 November 2024

Estimates of investment, both purchased and own-account production, in intangible assets, and investment in intangible assets by industry. These are official statistics in development.

[UK inclusive wealth and income accounts: 2005 to 2022](#)

Bulletin | Released 13 November 2024

Estimates and analysis of economic progress, including a broader range of economic activities and assets than gross domestic product (GDP), like unpaid household services, ecosystem services, and more.

10 . Cite this statistical bulletin

Office for National Statistics (ONS), released 2 December 2025, ONS website, statistical bulletin, [Investment in intangible assets in the UK: 2023](#)