



UK Science & Innovation Network Country Snapshot

Germany

Germany science and innovation landscape

The research relationship between Germany and the UK has traditionally been very close, with the UK and Germany among each other's main partners in terms of co-authored publications, university partnerships and research collaboration. UK researchers interested in partnering with German stakeholders can find current opportunities through organisations such as the [German Research Foundation \(DFG\)](#) or the [Alexander von Humboldt Foundation](#).

Key R&D stakeholders

The German research and innovation landscape is characterised by the federal nature of the German state. At federal level, two ministries share responsibility for research and innovation. The **Federal Ministry for Education and Research (BMBF)**, led by **Minister Bettina Stark-Watzinger** (since 2021), deals with education and research policy (including the European Framework Programmes), and the **Federal Ministry for Economic Affairs and Climate Actions (BMWK)** led by **Minister Robert Habeck** (since 2021) covers innovation and technology policy (incl. research policy on aeronautics, space, transport and energy).

The **German Research Foundation DFG** is the central research funding organisation in Germany. It does not run any research establishments itself, but provides **financial support for research in higher education and public research institutions** using a bottom-up approach. International collaboration is welcomed in all DFG funding programmes.

There are more than 1,000 different publicly financed [research institutions](#) in Germany, and non-university research institutions are a key driver of research and innovation, with each playing a different role, cooperating closely with higher education institutions and often with industry. The **Max Planck Society** focuses on basic research allowing selected scientists to define their own research topics. The **Helmholtz Association** conducts fundamental and applied research in strategic programmes around systems determining human life and the environment, while also running much of Germany's large research infrastructure. The **Fraunhofer Society** concentrates on applied research with two-thirds of its budget coming from third party funding. Knowledge- and application-oriented basic research is the focus of the **Leibniz Association** that also operates scientific infrastructures including libraries and science museums as part of its work on transferring knowledge to society.

Germany's 240 public higher education institutions play a key role in the German knowledge economy. [The 2024 THE World University Ranking](#) featured 8 German universities in its Top 100 and 49 in total, making Germany one of the most represented countries. The **German Universities of Applied Sciences (UAS)** with their focus on applied learning enjoy a global reputation and provide the skilled engineers and scientists for Germany's manufacturing sector and industry-driven research. Beyond fostering domestic R&D excellence, Germany also plays a leading role in international R&D programmes, such as [Horizon2020](#) (and [Horizon Europe](#)) and the [ERC](#). Both in terms of participation and budget share, Germany is leading in Europe.

Key strategies for research and innovation in Germany

The [Future Strategy for Research and Innovation](#) was adopted by the Federal Cabinet on February 8, 2023 in order to enable a strong strategic positioning of the German research and innovation system and to contribute to overcoming social and global challenges. To this end, the Federal Government has agreed on six missions based on the future fields formulated in the coalition agreement. These address topics such as resource-conscious management, climate protection and the preservation of biodiversity, health, digital and technological sovereignty, space and marine research as well as social resilience. Each

German position in 2023
Global Innovation Index:

8th

Position of UK in
Germany's international
collaboration:

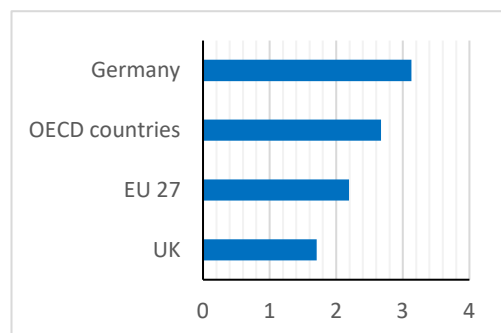
2nd



mission is specified by its own goals. This is the task of the cross-departmental mission teams. The Future Strategy forum advises as an external panel of experts along the six missions.

R&D intensity: Strong business investment coupled with consistent government support

Germany's R&D spending has grown continuously and more than doubled in the past 20 years, with the aim of reaching 3.5% of GDP by 2025. In 2021, national R&D spending amounted to 3.14% (3.16% in 2020) of GDP in Germany, surpassing the 3% EU spending target.



As a particular feature of the German system, domestic industry plays an important role, with private sector R&D accounting for roughly two thirds of overall R&D spending. According to the [2021 EU R&D Investment Scoreboard](#), 12 of the top twenty most active European R&D companies were located in Germany (incl. Volkswagen, Daimler, BMW, Robert Bosch). Traditionally, most of Germany's private R&D is carried out by the automotive industry, followed by the pharmaceutical and biotechnology sector. Although large companies contribute most to domestic spending in R&D (2022: 82bn Euro, +8% from 2021), German SMEs spent about 9% of investments made by the private sector.

Public funding for higher education, research and innovation

Education in Germany is a devolved policy area and responsibility sits within the Länder (German states) who provide the core funding of universities, while the federal level finances specific research programmes and co-funds (together with the states) non-university research organisations. Since a 2014 amendment of the Basic Law (Article 91b), the Federal Government has been able to provide long term and direct funding to universities, facilitating cooperation for cases of supraregional importance. Previously federal funding for universities was only possible through temporary programmes, but the Federal Government and the Länder are now able to support collaboration between universities and non-university institutions much more easily and efficiently.

The [Pact for Research and Innovation](#), aiming at improving the competitiveness of German research, was prolonged for a fourth time in 2019. It extends the Government's commitment (initially agreed in 2011) to increase funding for non-university research organisations by a minimum of 3% annually between 2021 and 2030, long-term planning security. In line with the Pact, in 2022 the new government committed to clear strengthening of universities with an annual budget increase of 3% (co-financed by the states). In total, more than €7.5bn was invested in institutional research funding in 2022.

The Excellence Initiative was introduced in 2005/06 to boost excellent research at Germany's universities and improve their reputation internationally. A reformed and open-ended [Excellence Strategy](#) replaced the Excellence Initiative in 2017/18. In September 2018, the Excellence Commission awarded 11 Universities with the title "University of Excellence" (in total 148 million EUR annually) and approved 57 Clusters of Excellence based at 34 universities. The interdisciplinary research projects will be funded for 7 years with up to ten million EUR annually as of 2019, with 75% borne by the Federal Government and 25% by the relevant home state.

On innovation, each of the Länder has its own regional development agency and specific incentives for tech transfer and start-ups. In recent years, Germany has put a lot of emphasis on forming clusters on federal and state level, uniting universities, industry and non-university research institutes. In order to accelerate innovation and transfer from basic research to application, the BMBF will launch the **German Agency for Transfer and Innovation (DATI)** in 2022-2023. DATI aims to promote social and technological innovations, particularly at universities of applied sciences and small and medium-sized universities, in cooperation with SMEs and social and public organisations. Plans to improve the legal and financial framework conditions for the **Federal Agency for Disruptive Innovation (SPRIN-D)**, founded in 2019) to act and invest more freely are underway (97m€ in 2022).

Science and Innovation Network (SIN) Germany

The SIN Germany team is based in Berlin and Duesseldorf/Munich. We support UK science and innovation policy objectives through exchange with German counterparts from academia, research, government and industry and by reporting on the German science and innovation landscape. In particular, we support fostering S&I bilateral collaboration in areas of mutual interest. We promote UK science excellence across Germany and inform about latest developments impacting S&I such as the UK's Innovation Strategy as well as aspects of the future UK-EU relationship. Our priority areas are: (a) UK-German bilateral S&I dialogue, (b) Climate and Energy (incl. hydrogen, batteries, fusion, net zero, health & climate), (c) Critical & Emerging

www.gov.uk/government/world/organisations/uk-science-and-innovation-network



Technologies (incl. AI, quantum, [semi-conductors, telecoms, space]), (d) research culture (incl. Research Security). Our work includes stakeholder visits to the UK and Germany, and events including workshops, symposia and lectures.

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