



UK Science & Innovation Network Summary:

Japan

1. Science and Innovation Landscape in Japan (£1= ¥192)

Japan Science and Innovation Fact

According to the Results of the Survey of Research and Development which was published by the Statistics Bureau of Japan in December 2023, Japan's total expenditure on R&D in FY2022 rose to a record high ¥20.70 trillion (£108bn), a 4.9% increase on the previous fiscal year's R&D spend. Expenditure on R&D as a percentage of GDP was 3.65%, a 0.09% increase on the previous year (2.91% for the UK in 2021). A large portion (73.1%) of Japan's R&D expenditure comes from the private sector. Business enterprises invested ¥15.13 trillion (£78.8bn) in R&D expenditure in FY2022, a 6.4% increase on the previous year. Universities accounted for 18.6%, investing ¥3.84 trillion (£20bn) with a 1.5% increase on the previous year.

Japan is 5th in the 2023 Nature Index (the UK ranked 4th) and 13th in the 2023 Global Innovation Index (the UK is 4th), with Tokyo-Yokohama being ranked as the top S&T cluster globally in 2023. Since 2000, Japan has received the second most Nobel Prizes in the natural sciences.

Japan Science and Innovation System

Ministry of Education, Culture, Sports, Science and Technology ([MEXT](#)) is the primary research funder and S&T policy coordinator in Japan. The Cabinet Office of Japan leads on multilateral science cooperation such as G7, as well as coordinates cross-ministerial flagship R&D projects such as [the Moonshot R&D Programme](#) and [the SIP Programme](#). Ministry of Economy, Trade and Industry ([METI](#)) covers industrial science and innovation cooperation. Science advice to government is delivered through individual science advisors as well as via the Council for Science, Technology and Innovation ([CSTI](#)) and the Science Council of Japan ([SCJ](#)). The Cabinet, MOFA, MEXT and METI each have a Science and Technology Advisor to the Minister.



The [6th Science, Technology and Innovation Basic Plan](#) is Japan's central, strategic science plan agreed by Japan's Cabinet Office, and sets out Japan's priorities for the years 2021-25. The key three pillars of the policy are: social structural reform premised on the use of digital technologies, strengthening research capability, and development of human resources (strengthening of the "ability to explore ideas" and "a continuous learning mindset").

The following four funding agencies are responsible for allocating the majority of Japan's competitive public R&D funds: Japan Society for the Promotion of Science (JSPS), Japan Science and Technology Agency (JST), Japan Agency for Medical Research and Development (AMED) and New Energy and Industrial Technology Development Organisation (NEDO).

[JSPS](#) has the largest budget and provides competitive, bottom-up funding through grants-in-aid for scientific research. It also offers both inbound and outbound fellowships to encourage international collaboration. [JST](#) provides top-down funding aimed at implementing national science and innovation policies. [NEDO](#) is affiliated with METI and promotes R&D and commercialisation of industrial technologies. [AMED](#) funds integrated R&D in medicine from basic research to clinical trials.

Public sector research in Japan is conducted in dedicated research institutions and higher education institutes. As of 2023, there are 86 national universities, 102 public universities and 622 private universities in Japan. Japan also has 27 national research institutions. Each institution is under the jurisdiction of a ministry and is expected to serve as a base for open innovation supporting national and societal needs. The World Premier International Research Centre Initiative ([WPI](#)) aims to establish globally competitive centres of excellence that will attract top researchers from around the world. Hosted by universities and national research institutes, there are currently 17 centres. The working language at WPI Centres is English and around 40% of researchers are from overseas.

2. UK partnership with Japan on ST&I

The UK is Japan's 4th biggest collaborator on scientific research. Japan is the UK's 14th biggest collaborator on scientific research. The quality of UK-Japan research is 4½ times the world average (measured by field-weighted citation impact), higher than with the USA, Germany or China for both countries. In certain fields such as medicine, the quality of UK-Japan research is over 6½ times the world average.



Funding opportunities for the UK and Japanese researchers are listed [HERE](#).

Below is a list of joint calls and partnerships that are recently launched between Japan and the UK:

2024

Engineering Biology (MRC - AMED and BBSRC - JST)

2023

- Clinical Research (NIHR - AMED and MRC - AMED)
- UK-Japan Arctic Research Bursary Scheme (BAS and NERC)
- Semiconductor Partnership (DSIT - METI)
- Implementing Arrangement on Industrial Science, Innovation and Technology (DSIT - METI)
- Nuclear Decommissioning Phase 10 (EPSRC - MEXT)

2022

- UK-Japan Digital Partnership (DCMS and GDS – Digital Agency, METI and MIC)
- Neuroscience (MRC - AMED)
- Nuclear Decommissioning Phase 9 (EPSRC - MEXT)

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