UK Science & Innovation Network Country Snapshot: Japan

Japan Science and Innovation Landscape

OVERVIEW

Japan is a science and innovation powerhouse. Since 2000, Japan has had the second most Nobel Prize winners. Investment in R&D has exceeded 3% of GDP every year for the past 16 years, well above the OECD average (2.35%) and the UK (1.69%). Over 75% of R&D investment comes from the private sector. Japan’s top ten businesses spend more on R&D than the whole of the UK public and private sector combined. Japanese businesses also invest heavily in the UK, £46.5bn by 2016, and employ an estimated 160,000 UK staff directly, many in highly-skilled engineering roles.

Japan is strong in basic, applied and developmental research. Japan is particularly strong in the fields of robotics, AI, life sciences, advanced materials and energy. Industry-academia collaboration is on the rise with the number of collaborative projects between universities and companies increasing from 15,544 in 2010 to 23,021 in 2015. Japan’s research is supported by a wealth of major science facilities, such as the Super-Kamiokande neutrino observatory, SACLA free-electron laser and (currently under construction) FLAGSHIP 2020 supercomputer. Japan also plays a key role in the international space community, and other global research projects such as the square kilometre array radio telescope.

FACTS

- £115bn gross expenditure on R&D (3.5% of GDP)
- £1.7bn increase in science budget from 2017 to 2018
- 17 natural science Nobel Prize winners since 2000
- Highest number of researchers per capita (70.1 per 100,000)
- 5th in the Nature Index of high-quality scientific articles
- 2.94 FWCI for UK-Japan collaborative research (194% higher than world average)
- 15,154 UK-Japan collaborative papers published over past 5 years
- More than 8,000 researchers travel between UK and Japanese universities each year
- UK exports to Japan of £14.3bn in 2017
- 1,400 Japanese businesses with operations in the UK
- UK ranks 4th among Japan’s international partners for research collaboration

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KEY S&I COLLABORATIONS BETWEEN UK AND JAPAN

- In June 2018, ESRC and AHRC opened a £1.5m research call for UK and Japanese researchers to increase collaboration in these disciplines.
- In June 2018, UKRI and the JSPS opened a £7m research call for research collaborations in the life sciences and environmental sciences.
- In May 2018, Toyota Mobility began a £650k project with the Alan Turing Institute to optimise city planning / urban traffic using AI.
- In May 2018, AMED provided £700k of funding to Japanese infectious disease researchers to work with their UK counterparts.
- In December 2017, the London School of Hygiene & Tropical Medicine and Nagasaki University started a joint PhD programme in Global Health.
- In July 2017, a £2m match fund was launched between EPSRC and the JSPS to develop an advanced materials hub.
- In June 2017, a £900k joint marine sensor technology research call was held by NERC and the Japan Science and Technology Agency.
- In 2016, Japan funded the Royal College of Art to establish a design lab at Tokyo University, combining British design and Japanese technology.
- In 2015, Professor Kajita won the Nobel Physics Prize for neutrino research at the Super-Kamiokande. UK researchers are the second biggest team in this project.
- Since 2013, The UK and Japanese Governments have worked together to promote dementia-friendly communities in 34 countries.
- Since 2013, an annual £1m UK-Japan Civil Nuclear Research Fund has supported joint research in decommissioning and waste management.

PRIORITIES & FURTHER INFORMATION

Our current priorities are industrial technologies & energy, life sciences & health, and digital & quantum technologies.

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