

EURAXESS Links India Newsletter is a quarterly electronic newsletter, edited by EURAXESS Links India, which provides information of specific interest to European and non-European researchers in India who are interested in the European research landscape and conducting research in Europe or with European partners.

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EURAXESS LINKS INDIA

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EURAXESS – Researchers in Motion is an initiative of the European Research Area (ERA) that addresses barriers to the mobility of researchers and seeks to enhance their career development. This pan-European effort is currently supported by 40 countries, of which we will profile one in our monthly EURAXESS Links ASEAN e-newsletter. Here we focus on Sweden.

1 Briefing | EURAXESS country: Sweden - Inventing Tomorrow's World



Simon Paulin/imagebank.sweden.se



Photo: Ola Ericson imagebank.sweden.se

The Nobel Prizes were a bequest from the Swedish scientist, inventor, entrepreneur and pacifist Alfred Nobel, to honour those who “have conferred the greatest benefit on mankind”.

Many of the world's important inventions originate in Sweden, and the rapid pace of innovation shows no sign of slowing down. The Swedish government continues to invest more than ever in research and innovation. Sweden's history of recognising and rewarding achievement in research, excellence and innovation is reflected in its status as the home of the Nobel Prize: Sweden itself has produced twenty-nine Nobel Laureates since establishing the prize in 1895.

Sweden's science infrastructure is world-class and the synergies generated by the close connection between Swedish universities, research institutes and the private sector further leverage the R&D output. Not only is Sweden home to the largest number of multinational companies per capita, but it also serves as a base for tomorrow's emerging industries. The Global Innovation Index 2016 (GII) ranks Sweden as the 2nd most innovative country in world.



Photo: Lars Lundberg / imagebank.sweden.se

The cardiac pacemaker has been implanted in more than 3.5 million people. The first clinical implantation into a human of a fully implantable pacemaker was in 1958 at the Karolinska Institute in Solna, Sweden.

- The historic tradition of inventors, a commitment to gender equality, and a strong belief in the individual are key factors for Sweden maintaining its place as one of the world leaders in research and innovation
- Close collaboration between research institutes and the private and public sectors provides a foundation for global Swedish companies and investing in the companies of tomorrow
- Swedish R&D –expenditure totals about 3.3% of GDP on average, keeping Sweden topped ranked among the OECD countries. Medicine and bioscience, technology, and climate are examples of areas where Sweden has made strategic investments to build up the cutting edge research of today
- Sweden offers over fifty universities and university-colleges

7 Reasons to choose Sweden for your research experience

1. An innovative and competitive economy



2. Sweden has a long and proud history of academic excellence, with outstanding universities dating back to the 15th century
3. Excellent research infrastructure with continuous investments in cutting edge facilities, including Science for Life Laboratory (SciLifeLab) and the MAX IV Laboratory. Furthermore the European Spallation Source (ESS) and European Incoherent Scatter Radar (EISCAT_3D) are under construction.
4. Higher education and research quality is among the best in the world
5. Open and international climate where influences and competences come together, creating new ideas and solutions
6. Swedish society is known for its inclusiveness and egalitarianism
7. Close cooperation between industry and academia facilitates innovation, a home of trendsetters and early adopters, encouraging new ideas and critical thinking

Research-funding in Sweden

Central government is the largest financier of research at higher education institutions. The most important central government financiers outside the direct government contributions for research and postgraduate education to higher education institutions are the research councils, the Swedish Agency for Innovation Systems and other research-funding agencies. Funding for research also comes from research foundations, the EU, municipalities and county councils.

Industry invests more than three times as much as central government in research and development. However, almost all of the R&D investment that comes from industry remains within the business sector.

1.1 Research-funding agencies

There are four major research-funding agencies. The largest is the Swedish Research Council, which in 2015 granted about SEK 5.6 billion for basic research in natural sciences, technology, medicine, the humanities and social sciences.

The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) supports basic and needs-driven research in the fields of environment, land-based industries and spatial planning. In 2015 Formas distributed about SEK 1.11 billion.

The Swedish Research Council for Health, Working Life and Welfare (Forte) supports and initiates basic and needs-driven research in the fields of health and health care, labour, and welfare including the social services and social relations. In 2016 Forte distributed SEK 600 million.

The Swedish Governmental Agency for Innovation Systems (VINNOVA) distributed about SEK 2.6 billion in 2015, primarily to needs-driven research in the fields of technology, transport, communications, health and working life.



In addition to the agencies mentioned above, several other agencies fund research in various areas. In these cases it is common that a lesser amount of the agency's appropriation goes to research funding.

1.2 Research foundations

A number of foundations that fund research were established in the mid-1990s using capital from the former wage earner investment funds. These foundations are the Swedish Foundation for Strategic Research (SSF), the Foundation for Strategic Environmental Research (MISTRA), the Knowledge Foundation (KK), the Foundation for Baltic and East European Studies, and the Swedish Foundation for International Cooperation in Research and Higher Education (STINT).

Support from public research foundations is an important addition to central government investments in research. It is estimated that these foundations will have invested almost SEK 1.3 billion in research in 2015.

The Bank of Sweden Tercentenary Foundation (RJ) is yet another foundation which was created with public funding and which supports research in Humanities and Social Sciences.

1.3 Private research funders

Many private financiers also give significant amounts to research. These include the Knut and Alice Wallenberg Foundation, which in 2015 distributed SEK 1.7 billion. Over the last five years, almost SEK 4 billion has been awarded to scientific research and education at higher education institutions and academies. In addition, the Swedish Cancer Society distributed SEK 385 million in 2016 for research in its field.

1.4 Income received by higher education institutions for research and development

The revenue received by higher education institutions for research and development totalled SEK 36.6 billion in 2015. This is an increase of around SEK 1.6 billion, or 4.5 per cent, in fixed prices compared with Statistics Sweden's analysis of the revenues of 2013. Both direct government appropriations and higher education institution revenues from external financiers have increased. Public funding accounted for over 80 per cent of these revenues.

Just under half of the total funds come from direct appropriations for research and postgraduate studies at higher education institutions. Remaining funds come from external financiers, both public and private, usually through competitive calls for proposals come from external financiers, both public and private.

For more information and enquiries

EURAXESS Sweden: www.euraxess.se/

The Swedish Research Council: www.vr.se/inenglish

Vinnova: www.vinnova.se/en



Formas: www.formas.se/en

Forte: www.forte.se/en

The Swedish National Space Board: www.snsb.se/en/

The Swedish Energy Agency: www.energimyndigheten.se/en/

The Swedish Foundation for Strategic Research: www.stratresearch.se/en/

The Swedish Research Institutes: www.ri.se/en

Sweden.se - The official gateway to Sweden: www.sweden.se

The official gateway to study in Sweden: www.studyinsweden.se/

The Swedish Agency for Growth Policy Analysis: www.tillvaxtanalys.se/in-english.html

The Swedish Space Corporation: www.ssc.se

Official website of the Nobel Foundation: www.nobelprize.org

1.5 Research and Innovation Cooperation with India

The nodal agencies for research and innovation collaboration under the MoU on Science & Technology between Sweden and India are VINNOVA and the Department of Science and Technology (DST). In addition, several other funding agencies from the two countries have engaged in joint calls for proposal.

VINNOVA and DST have had two calls for joint research projects in the field of embedded systems in 2010 and 2015.

VINNOVA and the Department of Electronics and Information Technology (DeitY) had a call for joint research projects in e-Health in 2008 and in this program two 3-year projects were selected for funding between 2009 and 2012. The Swedish Research Council signed an agreement with DST in January 2013 for a joint research programme. The programme covered all disciplines within medicine, natural sciences, and engineering sciences. A second call was made in the areas of “e-Science for life science” and “Antimicrobial resistance in a one Health perspective”. Out of 35 applications 12 were selected for funding from 2017.

The Swedish Polar Research Secretariat and Earth System Science Organisation (Government of India) signed a Letter of Intent for mutual collaboration in polar and ocean research in 2015.

Under the Renewable Energy MoU the Swedish Energy Agency has funded researchers to work on micro grids, where the geographical focus is on the Andaman Islands. The aim is to replace diesel generators by environmental friendly solar power distributed in micro grids. The work is done in collaboration with the Ministry of New and Renewable Energy (Government of India).

VINNOVA has also had three calls with the **Department of Biotechnology (DBT)**. The calls have focused on different aspects of **health and life sciences**. Currently their **third call is open until 16 January 2017**.

Under the **MoU on Healthcare and Public Health Forte** signed an agreement with Indian Council of Medical Research, **ICMR**, in June 2015 for a joint research programme **in the field of ageing and health**. Topics of interest include demographic change and the impact of migration on physical and mental health and well-being of the elderly, forms and systems of care for the elderly, the use of ICT assistive technology and nutrition. **The joint call is open until 12 January 2017**.