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 over 40 countries, of which we will profile one in each of our quarterly EURAXESS Japan newsletters. In this edition, we will zoom in on Estonia.

EURAXESS Members in Focus: Estonia

Did you know that Skype was programmed in Estonia in 2003? Or that Estonia has used legally binding digital signatures since the year 2000? These facts illustrate the innovative attitude of the small North European country called Estonia perfectly. Estonia has an attractive environment for research, top-level infrastructure, a collaborative research community and excellent research achievements.

Research and Development in Estonia

Estonian researchers are good partners in international collaboration projects and the number of international co-publications is rising. Research in Estonia is becoming more international as the number of foreign researchers from 2005 to 2014 has increased **sevenfold** [1]. The impact of papers authored by Estonian researchers is growing rapidly; average citations per paper exceed the Thomson Reuters' Essential Science Indicators (ESI) mean citation rate by 5% [2].

There are 20 R&D institutions in Estonia, including 6 public universities where most research is performed. The leading scientific institution in Estonia is the University of Tartu.

The ratio of total R&D expenditure to GDP in 2015 was 1.5%, with nearly half of R&D expenditure in 2015 coming from the state budget [3].

Research Excellence in Estonia

Biological sciences are at the forefront of Estonian research – 2/3 of the top researchers (among 1% most cited in their field worldwide) who are affiliated with an Estonian research institution are **biologists** and **ecologists** [2]. Each Estonian paper published in environment/ecology and plant and animal science receives about 40% more citations than papers in these fields in general. Additionally, clinical medicine, molecular biology and genetics, physics, pharmacology and toxicology, and psychiatry/psychology are also above global average [2].

There are 9 **Research Centres of Excellence in Estonia,** composed of **internationally highly regarded research groups.** Featured topics are: terrestrial ecosystems in the context of global change from molecular to biome-level responses, genomics and translational medicine, information and communication technologies (ICT), molecular cell engineering, space studies.

[1] http://www.stat.ee/science-technology-innovation [2] http://blog.ut.ee/how-successful-is-estonian-science/ [3] http://www.stat.ee/news-release-2016-132

Estonia is a small North European country and it has been a member of the European Union since 2004.

Promotional page about Estonia: www.estonia.ee.

University of Tartu

Promotional page about Research in Estonia

Umbrella organisation uniting researchers, scholars and intellectuals: Estonian Academy of Sciences

Estonia will be holding the EU Council presidency in the second half of 2017. In the STI field, Estonia will advocate for an improved Digital Europe and for the concept of free flow of data (in addition to 4 classical EU freedoms), in order to create a favourable environment for new innovative services.

Estonia EU presidency calendar:

https://www.eesistumine.ee/en/presidency/presidency-

How Skype started in Estonia, read The Story of Skype

e-Estonia – The Digital Society

Enterprise Estonia supporting and advising businesses

The main funding body is the Estonian Research Council.

Information and support for incoming researchers on EURAXESS Estonia

Authors:
+ Hanna Raig, EURAXESS Estonia
+ Centre for Asian Research in Estonia
+ Argo Kangro, Counsellor, Embassy of Estonia (Tokyo)

Estonian R&D Strategy

The Estonian R&D strategy document **Knowledge-based Estonia 2014–2020** outlines four objectives: 1) Research in Estonia is of high level and diverse 2) RD functions in the interest of Estonian society and economy 3) RD makes the structure of economy more knowledge-intensive 4) Estonia is active and visible in international RDI cooperation. The strategy foresees that by 2020 investments in R&D **will reach 3% of GDP**.

Entrepreneurship and Innovation

Innovation and the start-up ecosystem in Estonia are growing rapidly. Notable recent success stories backed by R&D in the IT field include Skype, TransferWise, Lingvist, Starship Technolgies and Guardtime.

Estonia is standing out as a **digital society**. We have developed highly innovative and practical solutions for digital **public services** including online tax-declarations, digital signatures, online voting, and most recently the e-residency for anyone in the world (you can become an e-resident of Estonia in order to register your business in Estonia). This digital ID grants individuals with full rights to do business in Estonia and in most European Union countries. More than 17,000 individuals from 130 countries registered for e-residency, and the number keeps growing fast. This enables Estonia to foster entrepreneurship and innovation.

Competence Centres (8) are designed to improve the competitiveness of enterprises through strategic cooperation between Estonian science, industry and the public sectors. Main topics are health and food technologies and ICT services.

Enterprise Estonia promotes business and provides financial assistance, counselling, cooperation opportunities and training for entrepreneurs, research institutions and the public and non-profit sectors.

Funding and Recruitment Opportunities

Research in Estonia is primarily financed on the basis of **quality competition**. Financing comes from the state budget, foreign funds (mostly EU H2020 and other means) and companies. The Estonian Research Council is the principal funding body of R&D in Estonia, consolidating different grants and types of funding and giving research more visibility within society. There are also several **mobility grants**. Click here for the funding calls.

As most research is performed in the public universities, most research jobs are also available in public universities. PhD students are regarded as students and receive a monthly scholarship.

Important Information for Incoming Researchers

EURAXESS Estonia provides information and support to international researchers for free. We provide information about **entry conditions**, visas and **residence permits**, Estonia in general, the Estonian research landscape, **job & funding offers**, events for researchers and much more!

Research collaboration with Japan

Japanese citizens can stay in Estonia visa free for 90 days but for working and long-term stays they require a hosting agreement and a residence permit. See all Estonian embassies and representations around the world.

Although there is no bilateral Agreement on Cooperation in Science and Technology on governmental level, there are many existing agreements (MoUs) between Estonian research agencies and universities. All of the major Estonian universities also have ongoing projects with Japanese partner universities. According to MEXT there were 137 researchers exchanges taking place from Japan to Estonia in FY 2014; however only 15 from Estonia to Japan. The Estonian Research Council (http://www.etag.ee/) has a MoU with Japan Society for the Promotion of Science (JSPS) for postdoctoral fellowships since 2002.

Natural sciences based cooperation between **Tallinn University** and several Japanese universities (Kyoto University, Forestry and Forest Products Research Institute; National Institute of Advanced Industrial Science and Technology; Chiba University etc) has increased during the last 5 years. Most of these studies are connected with research on **forest carbon dynamics** and **forest stand development**. In addition, studies about **wetland dynamics** and **vegetation modelling** are ongoing. Many joint seminars have been held and several papers have been published together with the Japanese colleagues. Collaboration is also going on with Tokyo University of Marine Science and Technology and Sophia University. Topics are bioanalytical chemistry, structure and technology of gelling galactans.

Some examples of S&T cooperation projects:

- *Scrub Nurse Robot for endoscopic and laparoscopic surgery was developed in cooperation between Tallinn University of Technology (TUT), Estonia and Tokyo Denki University, Japan. Adaptive control and planning of the robot is developed by the group of Prof. J. Vain at TUT. The robot is unique in its capabilities to adapt to the behaviour of a human surgeon. TUT participates also in other research projects on oil shale, biomedicine, material sciences and information technology.*
- *Tallinn University conducts research in cooperation with the Asian institutions on the topics of Asian Modernity and Geopolitics.*
- *The University of Tartu has a long-term cooperation with Japanese corporations. An agreement has recently been signed with the Institute of Physical and Chemical Research of Japan for the project on relationship between curvature and electronic surface resistance of ionic polymer metal composites with anisotropic surface.*

The Estonian government hopes to finalise the negotiations on an S&T Agreement in the near future and hence lay more solid bases for cooperation with Japan.