ESTONIA

National Flag

Country Outline

- GDP: 19.963 mil. euros / - GDP Per capita: 15.186 euros
- Areas of marked S&T specialisations: ICT, Health technologies, material technologies

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Introduction: Estonia is a small OECD economy and its government's priorities include R&D and innovation. Estonia has one of the highest GERD growth rates in the OECD area. Public research has improved significantly over more than a decade. Today, Estonia has a relatively strong public research system, with a high level of public R&D expenditures and strong performance in terms of international scientific publications. The system is quite well connected to global knowledge and innovation networks. However, industry-science linkages are not very strong. Efforts are being made to strengthen interactions between the scientific and business communities.

Investing in smart specialization high-growth areas to increase the return on public investment in R&D is the guiding principle for targeting priority areas. The new R&D and Innovation (RDI) Strategy (2014-20) prioritizes RDI investments to foster faster growth in the selected fields. These are: ICT, including the use of ICT in industry and other sectors, cyber-security and software development; health technologies and services, including biotechnology, e-health (IT use in the development of medical services and products); and more effective use of resources, including materials science and industry, innovative construction, i.e. "smart houses", health-promoting foods, chemical industry (more effective use of oil shale).

http://researchinestonia.eu/

1. Policies and Strategies in Science, Technology and Innovation

Estonian Research and Development and Innovation Strategy 2014-2020 "Knowledge-based Estonia" https://www.hm.ee/sites/default/files/estonian_rdi_strategy_2014-2020.pdf

OBJECTIVES IN PROMOTING RESEARCH AND DEVELOPMENT AND INNOVATION

The overall aim of the development of RDI is to create favourable conditions for an increase in productivity and in the standard of living, for good-quality education and culture, and for the longevity and development of Estonia.

It is important to achieve a balanced, harmonious and sustainable RDI system, where resources must be utilised for the benefit of society and for the development of new products and services. The main task of the new strategy is to increase the impact of

the research system in Estonia in solving the challenges facing society as well as improving the competitiveness of the economy.

Target level of indicators for 2020:

- investment in research and development: 3% of GDP, incl. private sector RD expenditures: 2% of GDP (2011: 2.41% and 1.52% of GDP, respectively);
- 10th position (minimum) in the EU Innovation Union Scoreboard (2011: 14th position);
- enterprise productivity per person employed: 80% of the EU average (2011: 68%).

Objectives

1. **Research in Estonia is of a high level and diverse.** It is internationally competitive and visible, and covers the main fields of higher education and culture. The network of research institutions operates efficiently. The infrastructure is modern. A new generation of researchers and innovators is ensured. Estonia is an attractive place for research and development, and a researcher career is popular.

Target level of indicators for 2020:

- 11% of all top-level research publications in Estonia are among the top 10% most cited research publications worldwide (2008: 7.5%);
- number of new doctorate graduates in an academic year: 300 (2012: 190);
- number of top-level articles per million population: 1600 (2012: 1191).

2. **Research and development (RD) functions in the interests of the Estonian society and economy.** It proceeds from the needs of society and the economy, and prioritises research applications. Research institutions are motivated to undertake applied research and for productive cooperation with enterprises and government authorities. The state is smart in commissioning applied research and development. The organisation of research carried out for socio-economic objectives is efficient

Target level of indicators for 2020:

- proportion of expenditure on socio-economic applications (except academic studies) from RD appropriations in the state budget: 40% (2011: 30%);
- private sector RD funding of public sector RD forms 7% of total public sector RD expenditures (2011: 3.1%).

3. **RD makes the structure of the economy more knowledge-intensive.** RDI investments selected and managed by the smart specialisation method encourage the

development of growth fields at a faster than expected pace. The share of knowledge-intensive entrepreneurship in the economy and the added value of exports will increase significantly.

Target level of indicators for 2020:

- share of employment in high and medium-high-technology sectors in total employment: 9% (2010: 6%);
- share of high-technology products and services in exports: 15% (2010: 10.4%).

4. Estonia is active and visible in international RDI cooperation. Cross-border cooperation helps solve the tasks facing Estonia and the world as a whole. Estonia participates as a partner in the initiatives of the European Research Area, (incl. in the joint programming of research), European innovation partnerships, and initiatives by the Baltic and Nordic common area, international research infrastructures. Enterprises have access to the world's newest RDI results, and cooperation opportunities and infrastructures are open to them.

Target level of indicators for 2020:

- The success of Estonia is reflected in the volume of contracts, per capita, won through the European Union research and innovation framework programme "Horizon 2020": 100% of the EU average (2011: 87% of the EU average);
- share of internationally coordinated research in the state-financed RD's 3% (2010: 1.31%).

INDICATORS USED

Indicator	***Target level of the indicator***				
General aim	***2010***	***2011***	***2013***	***2020***	***EU level***
Level of investments in research and development, % of GDP[1; 2]	1.62%	2.41 %[1]	1,74%	3%	EU2011: 2.03%
incl. level of private sector RD investments, % of GDP[1;2]	0.81%	1.52%[1]	0,83%	2%	EU2011: 1.26%
Productivity of enterprises per employee compared to EU27 average, %[1;2]		68%	70%	80%	EU2011: 100%
Position in the Innovation Union Scoreboard[3]			13	10	
Objective I: Research in Estonia is of a high level and diverse					
Number of PhDs awarded in an academic year[6]	175	250	233	300	
Share of high-level articles in Estonia among the 10% of the most-quoted	7.5% (2008)		8,5% (2009)	11%	EU2008: 10.9%

research articles in the world [3;7]					
Number of high-level articles per million residents[1;8]	1,125	1,174	1,537	1,600	EU2012: 1,310
Objective II: Research and development functions in the interests of the Estonian society and economy					
Share of public sector research and development costs financed by the private sector[1; 2]	3.9%	3.1%	3,8%	7%	EU2010: 7.01%
Share of expenses aimed at socio-economic applications[1; 2] *(except academic studies) from the RD appropriations planned in the state budget*		~ 30%		40%	EU2008-2010: 43.1-44.6%
Objective III: RD makes the structure of the economy more knowledge-intensive					
Share of high-technology products and services in exports, %[1;2]	10.4%	14.9%	15,0%	15%	EU2011: 15.4%
Share of employment of high- and medium-high-technology sectors in total employment, %[1;2]	6.0%	6.9%	7,0%	9%	EU2011: 8.3%
Objective IV: Estonia is active and visible in international RDI cooperation					
The success of Estonia in EU research and development framework programme Horizon 2020: volume of contracts won per resident, % of EU average, where EU average = 100[1; 9]			87%	100%	EU2013: 100%
Share of internationally coordinated research in state-financed RD[1]	1.31%		0,78%	3%	EU2010: 3.8%

Source: [1] Eurostat; [2] Statistics Estonia; [3] Innovation Union Scoreboard; [4] Overviews of implementation of the "Europe 2020" strategy; [5] OECD; [6] Estonian Education Information System EHIS; [7] Scopus/Science Metrics; [8] Thompson Reuters Web of Science; [9] Horizon 2020 database.

2. National Programmes and Initiatives

* List of National Programmes open to the world

Programme Title	Contents
Estonian national scholarship programme for international students, researchers and academic staff www.studyinestonia.ee	Mobility grants are divided into short-term (1-9 days) and long-term (10 days – 10 calendar months) mobility grants. Funding agency Archimedes Foundation

3. Joint Activities with China in 2015

Joint Committee meeting Target participants - representatives of implementing ministries, universities and academies of sciences

* List of Programmes of Activities with China in 2015

Programme Title	Contents
Activity A	▪ Activity (Programme) Outline: Date/Venue/etc. ▪ Major topic or agenda ▪ Target Participants ▪ Relevant Information:

4. Others

* Key Research Organisations and Companies

Organisation Name	Detailed information
University of Tartu www.ut.ee/en	▪ Organisation type: Public university ▪ Major Research Area: University of Tartu is a classical university covering most research areas, including Medicine and Biotech, Information and Communication Technologies, Material Science, Behavioural Sciences, Humanities etc. ▪ Major Activities with China: Cooperation agreements with several Chinese Universities (mostly student and staff exchange) ▪ Future Plans: scientific cooperation, student exchange, technology transfer – knowledge exchange and business opportunities. ▪ Contact Information: Erik Puura, Vice-Rector of Development (erik.puura@ut.ee) ▪ Others:
Tallinn University of Technology http://ttu.ee/en/	▪ Organisation type: Public university ▪ Major Research Area: Engineering sciences, natural and exact sciences, social sciences and economics ▪ Major Activities with China: TUT has 11 partner universities in China. We are active in student and staff exchange. China is also one of the priority countries in terms of recruitment of foreign students to TUT international degree programmes. In 2014/2015 there were 49 Chinese degree students studying, being the 8th biggest community of foreign students in TUT. ▪ Future Plans: China will be one of the priority contries for TUT, in different aspects of acadmic cooperation and related activities. ▪ Contact Information: Mariann Lugus, Head of IRO, mariann.lugus@ttu.ee ▪ Others:

** The organisations/companies should be present in China or having active cooperation programmes with China.*