

The Researchers Report 2012

Country Profile: Estonia



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1. Key data

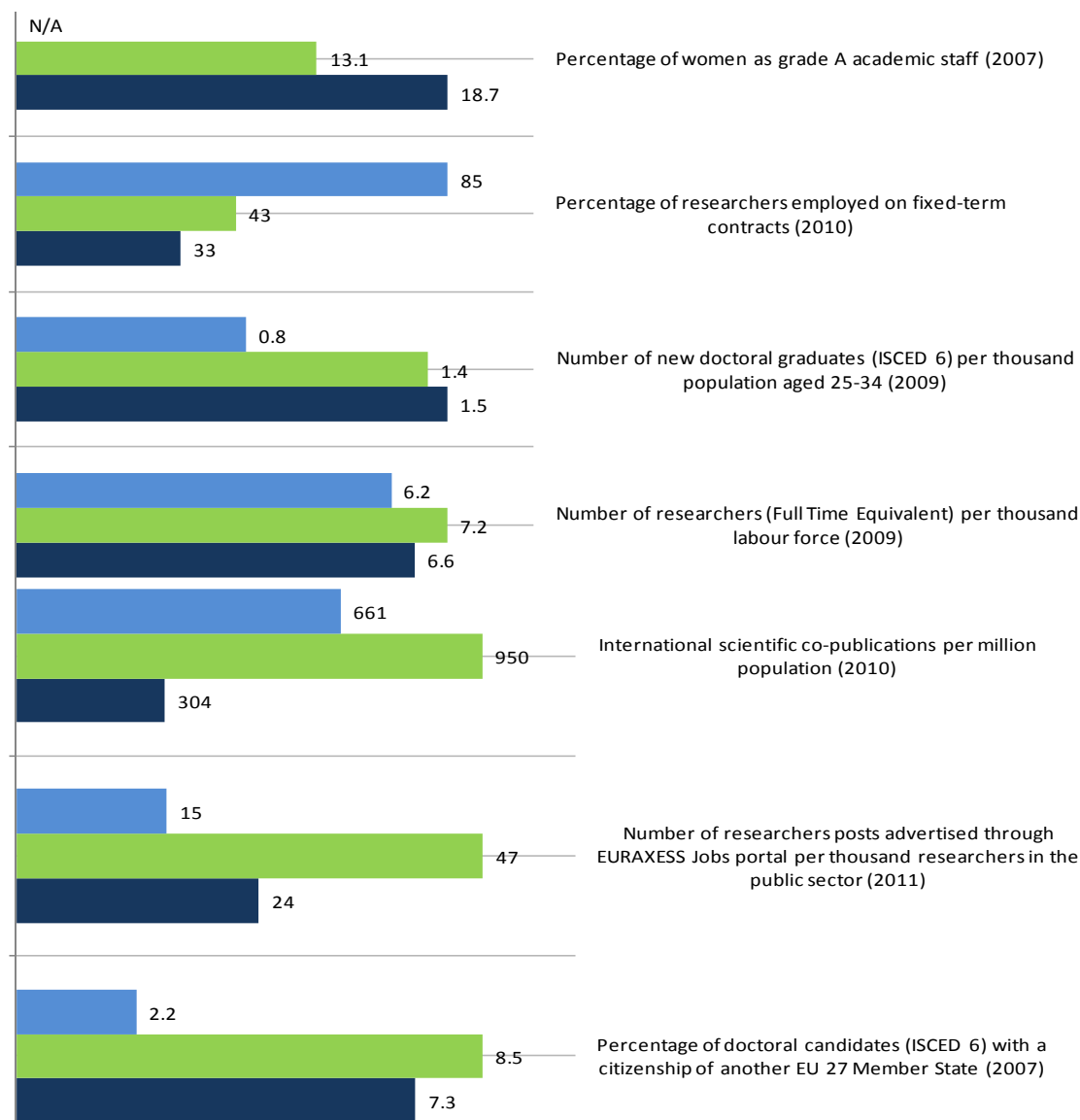
National R&D intensity target

“In the last decade, R&D intensity in Estonia increased from 0.60% of GDP in 2000 to 1.42% in 2009, i.e. an impressive annual average growth rate above 10%. It is to be noted that the latest increase in R&D intensity from 2008 to 2009 is mainly due to a crises-related drop in GDP whereas nominal R&D expenditure increased only slightly. The R&D target for 2020 has been set to 3%. This is ambitious, but realistic in the case business R&D grows significantly. The target is supported e.g. by a political commitment to R&I, relatively sound public finances and temporary support provided by frontloaded (R&I focused) Structural funds and by continuous efforts to create competitive framework conditions for businesses.”¹

Key indicators measuring the country's research performance

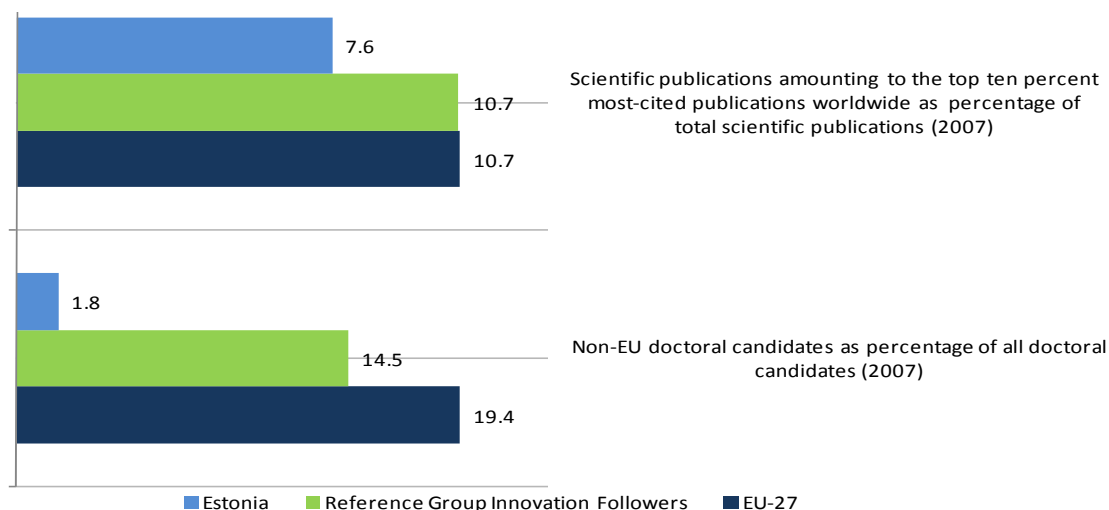
The figure below presents key indicators measuring Estonia's research performance against a reference group and the EU-27 average².

Figure 1: Key indicators – Estonia



¹ European Commission (2011), “Innovation Union Competitiveness Report 2011”.

² The values refer to 2011 or the latest year available.



Source: Deloitte

Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, Science Metrix/Scopus (Elsevier), Innovation Union Scoreboard 2010

Notes: Based on their average innovation performance across 24 indicators, Austria, Belgium, Cyprus, Estonia, France, Ireland, Luxembourg, Netherlands, Slovenia and the UK show a performance close to that of the EU27. These countries are the Innovation followers³.

Stock of researchers

The table below presents the stock of researchers by Head Count (HC) and Full Time Equivalent (FTE) and in relation to the active labour force.

Table 1: Human resources – Stock of researchers

Indicator	Estonia	EU Average
Head Count per 1 000 active labour force (2008)	10.40	9.45
Head Count (2008)	7 226	-
FTE per 1 000 active labour force (2009)	6.23	6.63
Full time equivalent (FTE) (2009)	4 307	-

Source: Deloitte

Data: Eurostat

2. National strategies

The Estonian Government has adopted a package of measures aimed at training enough researchers to meet its R&D targets and at promoting attractive employment conditions in public research institutions. The table below presents key programmes and initiatives intended to implement the strategic objectives to train enough researchers to reach Estonia's R&D targets, to promote attractive working conditions, and to address gender and dual career aspects.

Table 2: National strategies

Measure	Description
Estonian Enterprise Policy 2007-2013	The Estonian Enterprise Policy sets out strategic goals for the development of Estonian enterprises. The entrepreneurship development plan is supplemented by a three-year implementation plan describing activities, implementing bodies, and desired outputs.
Estonia 2020 Competitiveness Strategy (2011)	The Strategy identifies key policy priorities and describes measures to improve Estonia's competitiveness by the years 2015 and 2020 in line with objectives of the Europe 2020 Strategy. Amongst others, the Strategy aims to "improve the quality of the educational system and adapt it to demographic changes" by improving students' key competencies, promoting training, financing education and attracting highly qualified researchers to come and work in Estonia.

³ European Commission (2011), "Innovation Union Scoreboard 2010".

Measure	Description
Higher Education Strategy (2006-2015)	The Estonian Higher Education Strategy aims to strengthen the international dimension of the national higher education system. In addition, it explores possibilities for boosting the competitiveness of Estonia's research institutions in the coming years. The document also explores the use of national and European Structural Funds to develop and implement practices set out in the Strategy.
Operational Programme for Human Resource Development (2007-2015)	The Operational Programme for Human Resource Development promotes progress towards a knowledge-based economy and society by means of a comprehensive support programme in the following priority areas: lifelong learning, R&D development, human resources in higher education, quality of working life, knowledge and skills for innovative enterprise, administrative capacity and activities for technical assistance. It is coordinated by the Ministry of Education and Research while all activities are financed through the European Social Fund.
Strategy for the Internationalisation of Estonian Higher Education" (2006-2015)	In 2007, the Minister of Education and Research (MER) endorsed a Strategy for the Internationalisation of Estonian Higher Education (2006-2015) following an extensive national debate. Internationalising the higher education system is to achieve the following objectives: – improve the international competitiveness of Estonia's higher education system; – make Estonian higher education institutions more visible; and – create a legal and institutional environment in support of internationalisation.
The Estonian Research and Development and Innovation Strategy (RD&I Strategy) – Knowledge-based Estonia (2007-2013)	Knowledge-based Estonia ⁴ proposes sustainable development of Estonian society through research and development and innovation. In addition, it contributes to the achievement of the objectives of the "Sustainable Estonia 21" ⁵ strategy as well as the Lisbon Strategy. It defines the goals, priorities and major policy instruments for research and development and innovation policies. The Strategy's three principal objectives are: 1. Competitive quality and increased intensity of research and development; 2. Innovative enterprises creating new value in the global economy; 3. An innovation-friendly society aimed at a long-term development. The objectives are to be achieved by: - development of human capital; - organising public sector RD&I more efficiently; - increasing enterprises' innovation capacity; - policy-making aimed at long-term development.

Source: Deloitte

3. Women in the research profession

Measures supporting women researchers in top-level positions

In Estonia, committees, councils and other collegial bodies formed by the State or local government agencies include both sexes.

The Gender Equality Act (2004) promotes policies addressing gender balance and encourages the State, local governments, agencies, educational and research institutions, and private companies to support gender equality. Gender equality is explicitly referred to in the Constitution of the Republic of Estonia (Chapter II Fundamental Rights, Freedoms and Duties, § 12).

Quotas to ensure a representative gender balance

The Estonian Government has not introduced specific gender quotas in support of gender equality either in the public or the private sector. Excellence is the main criterion for researchers to receive funding and to participate in decision-making bodies.

Maternity leave

In Estonia, female researchers are paid by the State during maternity leave. Since 2007, fathers have had the right to receive a "parental benefit" once the child is seventy days' old.

⁴ Full text available at <http://www.akadeemia.ee/repository/File/ALUSDOKUD/Knowledge-based%20Estonia%20II.pdf>

⁵ The Estonian National Strategy on Sustainable Development - Sustainable Estonia 21 (SE21) adopted in 2005 suggests means and solutions for harmonised activity on the part of the various social players in ensuring the sustainability of Estonia over a period of thirty years. (Full text available at: http://www.riigikantselei.ee/failid/Estonia_SDS_2005.pdf)

The “Parental Benefits Act” provides parents with their average salary from the preceding calendar year for the time they temporarily take off work to care for their children. All parents have the right to enjoy parental benefits. Part-time schemes and flexible hours are also promoted.

If a researcher is part of the team of a project and the project ends during the parental leave, it is up to the host institution to find an available research position in which to employ the researcher.

4. Open, transparent and merit-based recruitment

Recruitment system

In Estonia, the recruitment of researchers is considered as open and transparent. However, the current national legislative framework remains an obstacle to the openness and transparency of the recruitment system.

Universities and R&D Institutions are fully autonomous in their recruitment policies. Some universities are obliged to publish all vacancies in English. The Estonian public universities have signed the “Agreement on Good Practice” in support of the internationalisation of Estonia’s Higher Education Institutions. The Agreement encourages the employment of foreign research staff and the enrolment of international students. All universities hosting EURAXESS Services Centres have signed the Agreement.

Open recruitment in institutions

The table below presents information on open recruitment in higher education and public research institutions.

Table 3: Open recruitment in higher education and public research institutions

Do institutions in the country currently have policies to ...?	Yes/No	Description
– publish job vacancies on relevant national online platforms	Yes	The trend is to publish more on online platforms. All professorships have to be openly recruited.
– publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)	Yes	All professorships are openly recruited nationally and internationally. Institutions are encouraged to publish job openings on Europe-wide online platforms if the curricula provide international teaching.
– publish job vacancies in English	Yes	EURAXESS is recommended. The law does not require institutions to publish job vacancies in English.
– systematically establish selection panels	Yes/No	Several universities made progress in setting up new election rules.
– establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)	Yes	No
– publish the composition of a selection panel (obliging the recruiting institution)	No	-
– publish the selection criteria together with job advert	Yes/ No	The selection criteria are published in the employment regulation rules of the universities. Selection takes place according to the same rules. Usually the selection criteria are not published together with the job advert, but the rules are always available and referred to in the advert. However, the job offer contains a description of the vacancies’ requirements.
– regulate a minimum time period between vacancy publication and the deadline for applying	Yes	The university employment regulation rules seek to regulate a minimum time period between vacancy publication and the deadline for applying.
– place the burden of proof on the employer to prove that the recruitment procedure was open and transparent	Yes	The election rules in universities and the Estonian employment legislation are designed to ensure an open and transparent recruitment procedure.
– offer applicants the right to receive adequate feedback	Yes	Institutions offer applicants the right to receive adequate feedback based on the election rules (in most cases upon

Do institutions in the country currently have policies to ...?	Yes/No	Description
– offer applicants the right to appeal	No	request). N/A

Source: Deloitte

EURAXESS Services Network

In 2011, the number of researchers posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 15 in Estonia compared with 47 among the innovation reference group and 24 as the EU average⁶.

Information on entry conditions, transfer of social security and pension contributions, finding accommodation and administrative assistance is available on the EURAXESS Estonia portal (<http://euraxess.ee>) as well as through the EURAXESS Services Network Services Centres. A “Study in Estonia” portal is also available, but is mainly addressed to international students (<http://www.studyinestonia.ee>).

Most publicly funded research jobs are published online. Depending on the institution, either all or a selection of the vacancies is also advertised in English on the institution’s website. The EURAXESS Jobs portal is increasingly used in cases where universities are specifically looking for someone from abroad to fill the position.

5. Education and training

Measures to attract and train young people to become researchers

According to the Estonian Research and Development and Innovation Strategy, the Estonian Government puts emphasis on attracting talented school children and guiding them to become researchers. The Government has created new programmes and has improved existing initiatives aimed at improving the image of the R&D profession and thus attracting young people to become researchers. The table below summarises the key measures implemented to achieve this objective.

Table 4: Human Resources – Key programmes and initiatives

Measure	Description
AHHAA Science Centre	The AHHAA Science Centre is one of the oldest and most successful science centres in Eastern Europe. Founded by the University of Tartu, the City of Tartu and the Ministry of Education and Research, its chief purpose is to use interactive tools to introduce science to people. The initiative also serves to strengthen the scientific excellence of participating researchers. Since its foundation in 1997, the AHHAA Science Centre has supported a series of events, exhibitions, science festivals, workshops, and science theatres and has welcomed approximately one million visitors. Since its opening in May 2011, the new AHHAA Science Centre in Tartu has attracted tens of thousands of visitors from Estonia, Latvia and Russia.
Association of Young Scientists (ongoing)	The Association of Young Scientists actively promotes careers in science and technology among secondary school students by involving them in the everyday work of different research groups and prominent scientists. Its activities are supported by the Ministry of Education and Research and are coordinated by the Archimedes Foundation.
Pupils’ Inventor Contest (ongoing)	The Pupils’ Inventor Contest has become one of the most popular and most successful contests in Estonia. Schools organise science conferences and seminars at which students present and discuss their work and meet with scientists. The contest encourages competition among students.
Science communication programme TeaMe (2009-2015)	Financed by the European Social Fund, the TeaMe Programme promotes young peoples’ interest in science and technology (S&T). It targets young Estonians (14- 26 years), general education and secondary school teachers, journalists covering science and technology (S&T) topics, researchers, scientists and engineers. The Programme pursues the following objectives: – encourage young people’s interest in S&T and improve the image of S&T- related professions; – expand the scope of Estonia’s science media; and

⁶ See Figure 1 “Key indicators – Estonia”.

Measure	Description
	– bring science closer to the people and increase its visibility in the media. The TeaMe Programme is coordinated by the Archimedes Foundation while the Estonian Public Broadcasting functions as a partner-organisation exploring opportunities of science media. The total budget is EUR 3.3 million.
Teeme Call (2009-15)	In 2009, the Teeme Programme was launched in support of education in Mathematics, Science and Technology (MST). It provides public funding for science communication events, science camps, technology days, and get-together activities for university students and high school pupils. The total budget is EUR 1 million.
The Gifted and Talented Development Centre and the University of Tartu (GDTC)	The Gifted and Talented Development Centre and the University of Tartu offer pupils interested in science an opportunity to further develop their scientific knowledge and skills. Talented (elementary school and high school) pupils can choose from various enrichment courses offered in the GDTC curriculum. The GDTC has developed teaching courses for teachers and schools supporting individualised learning which prove useful for extracurricular activities.
The Science Bus <i>Suur Vanker</i> ('Big Dipper') (ongoing)	Using the Science Bus <i>Suur Vanker</i> ('Big Dipper', i.e. Ursa Major), physics students from the University of Tartu and from the Estonian Physical Society demonstrate interesting physical experiments to the general public. The bus and its team have so far visited more than one-third of all schools in the country. The chief objective of the Science Bus is to bring physics and science closer to school children and to communicate science by means of shows and experiments. In 2006, the Science bus and its team received the "European Descartes Prize for Science Communication".

Source: Deloitte

Doctoral graduates by gender

The table below shows the number of doctoral graduates in Estonia by gender as a ratio of the total population.

Table 5: Doctoral graduates by gender

Indicator	Estonia	EU average
Doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (total) (2009)	0.8	1.5
Female Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2009)	0.8	1.4
Male Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2009)	0.9	1.6

Source: Eurostat (2011)

Data: Eurostat

Funding of doctoral candidates

The table below summarises different funding opportunities for doctoral candidates.

Table 6: Funding schemes available to doctoral candidates

Funding scheme	Description
Fellowship	There is a state-financed doctoral allowance to cover full doctoral study time (nominal time in Estonia is 4 years). From admission 2012 all doctoral candidates who have passed attestation under the terms and conditions and pursuant to the procedure established by the council of the university or are first-year students in a state-commissioned study places have a right to receive allowances.
Stipend/Grant	In Estonia, it is permitted for doctoral students to receive stipends from research grants and for example from Doctoral Schools. Some enterprises also pay stipends to doctoral students who are enrolled in a subject area linked to the enterprise's business.
Employment contract	Since 2012, the position of an early-stage researcher (<i>nooremteadur</i>) as part of the researcher's career model is also open to doctoral candidates. A Master degree is required for an early-stage researcher position. (Organisation of Research and Development Act). This targets doctoral students with the ultimate aim of enhancing their motivation and boosting candidates' confidence by offering full social security coverage.

Source: Deloitte

Measures to increase the number of students taking science to an advanced level

The number of PhD students (including in science and technology) increased considerably over the last decade. The number of entrants rose from 280 for the academic year 2000-01 to 574 in 2010-11. The total number of doctoral students enrolled in Estonian universities rose from 1 943 to 2 928 over the same period. The number of PhD graduates went from only 62 to 175 in the academic year 2009-10 (most recent figure available).

The proportion of women in the higher education system has increased steadily over the last few years, from 51% in 1993-94 to 60% in 2010-11. Female researchers are relatively well represented in Estonia and in particular, in traditionally “masculine” areas like engineering, manufacturing and construction. Nevertheless, the number of women in higher executive positions in R&D remains modest.

The Estonian Higher Education Strategy and the RD&I Strategy (see chapter 2 “National Strategies”) set a target of 300 PhD graduates per year by 2015. However, the majority of doctoral candidates interrupt their studies or show low work efficiency. Many doctoral students work outside the university as the doctoral allowance is insufficient and social security provisions have so far not been covered by universities.

The new career model for researchers will introduce positive changes in the status of PhD students from 2012. All officially recognised doctoral candidates will receive a doctoral allowance (if their profile is that of a doctoral student). It is also possible to hire doctoral students as an early-stage researchers. They will also receive social security coverage.

The development of science and technology is a national priority for the Estonian government. Following a few years of decline in the late 1990s, the proportion of students in science, technology, engineering and mathematics (STEM) subjects has increased. The absolute number of students rose from 7 284 in 1995-96 to 17 652 in 2010-11. During the academic year 2010-11, STEM students accounted for 26% of the total student population.

In 2008, doctoral students in science and technology made up 0.51% of the student population aged 20-29 (compared with the EU average of 0.3%)⁷.

Measures to increase the quality of doctoral training

The Estonian Government focuses on the enhancement of the quality and efficiency of doctoral studies through the organisation of doctoral schools, mobility opportunities for both incoming and outgoing researchers, and the development of entrepreneurship (by introducing economics courses and modules for students of non-business studies in all three university circles⁸).

The table below summarises the main measures introduced by the Estonian Government in support of doctoral training.

Table 7: Measures to increase the quality of doctoral training

Measure	Description
Doctoral Schools	Doctoral schools were set up in 2005. In 2009, thirteen new Doctoral Schools were selected for the period 2009-15. Their aim is to improve the quality of tutoring doctoral candidates and to increase the efficiency of doctoral studies in Estonia through interdisciplinary, international and national cooperation. Apart from mobility opportunities, winter and summer schools and study programmes, doctoral schools propose transferable and social skills training to promote interdisciplinary research and enhance the cooperation between universities and the private sector. From 2010, students who have interrupted their doctoral studies are welcome to continue and finish their studies – i.e. they are given a second chance. Those resuming doctoral studies may participate in doctoral schools. These help them find supervisors and participate in summer schools, conferences and mobility activities provided by doctoral schools. Two partners at least need to be involved: an Estonian university, an R&D institution, the public sector or companies. Doctoral schools are project-based and are funded by the European Social Fund. The total budget is EUR 16.9 million for 2009-2015.
Mobility programmes	See chapter 8 “Mobility and international attractiveness”.
Primus Programme	The Primus Programme aims at improving the professional competitiveness of higher education institution graduates. It supports the following six activities: 1. Improvement of the teaching and supervising skills of teaching staff;

⁷ Source: Eurostat (2011).

⁸ Bachelor, Master and Doctoral studies.

Measure	Description
	2. Development of high-quality education- based on learning outcomes; 3. Development of the quality of recognition of prior learning and professional experience; 4. Support for strategic management capacity building in higher education institutions; 5. Carrying out surveys and analyses on higher education; and 6. Development of student support services. The Programme is financed by the European Structural Funds. The total budget is EUR 14.6 million for 2008-2014.

Source: Deloitte

Skills agenda for researchers

In Estonia, doctoral study programmes usually include training in transferable skills⁹ to improve researchers' employment skills and competencies (based on the Standard of Higher Education, Regulation No 178 of 18 December 2008). Doctoral schools, curricula development activities, lectures, seminars, practical training classes, laboratory work and individual classes can be developed by each institution with the aim of acquiring knowledge and achieving better learning outcomes for participants.

Many doctoral students are involved in different projects to make science and technology more attractive for young people but also to develop their own communication skills. Extra courses are mostly project-based and are financed by Government.

The Estonian Rectors' Conference endorsed the "Quality Agreement"¹⁰ among Estonian universities (six public universities and one private) encouraging the inclusion of transferable skills' training in doctoral studies curricula.

6. Working conditions

Measures to improve researchers' funding opportunities

The table below presents the measures to improve funding opportunities for researchers in Estonia:

Table 8: Measure to improve researchers' funding opportunities

Measure	Description
ERMOS Programme (Estonian Research Mobility Scheme) (2007-2013)	The ERMOS Programme aims to develop and diversify Estonian research potential through the mobility of researchers and the development of young researchers' careers. The Programme is implemented by the Estonian Science Foundation. It is financed by the Marie Curie COFUND under the People strand of FP7. The duration of the postdoctoral grant is two or three years. The total budget is 4.6 million.
Centres of Excellence (ongoing)	Centres of Excellence support the development of Estonian research so as to strengthen Estonian competitiveness at European level. Currently, there are 12 Centres of Excellence in Estonia: 1. Frontiers in Biodiversity Research; 2. Centre of Excellence in Genomics; 3. Centre of Excellence for Translational Medicine; 4. Centre of Excellence in Computer Science; 5. Centre of Excellence in Chemical Biology; 6. Centre of Excellence in Cultural Theory; 7. Centre for Integrated Electronic Systems and Biomedical Engineering. 8. Centre of Excellences in Frontiers in Biodiversity Research 9. Centre of Excellence in Environmental Adaptation 10. Mesosystems – Theory and Applications 11. Centre of Excellence High-Technology Materials for Sustainable Development 12. Centre for Nonlinear Studies The Centres are financed by the European Regional Development Fund. During the

⁹ Transferable skills are the skills that can be used chosen by a student, regardless of his/her specific field of study.

¹⁰ Adopted on 11 June 2003; renewed on 8 September 2011. Available at:

http://www.ern.ee/images/dokumendid/kvaliteedilepe/allkirjastatud_head_tavad.pdf (in Estonian).

Measure	Description
	period 2007-13, nearly EUR 49.02 million will be allocated to the Centres of Excellence.
The Mobilitas researcher mobility programme (2008-2015)	The Mobilitas researcher mobility programme helps fund postdoctoral researchers and top-performing researchers to carry out research in Estonia or abroad: - Post-doctoral grants (two to three years duration) are open to incoming post-doctoral researchers and to Estonian post-doctoral researchers going abroad; - Top-performing researchers are financed (for three to five years) to come from abroad to work in an Estonian R&D institution. The prime objective of the programme is to activate an international exchange of researchers and to foster knowledge transfer. The Programme is implemented by the Estonian Science Foundation. The Programme's total budget amounts to EUR 20.3 million, of which up to 85% is granted by the European Social Fund. State funding is no less than 10% and self-financing of the partners (Estonian R&D institutions) is at least 5%.

Source: Deloitte

The table below presents competitive and institutional funding instruments in the national R&D budget of the Estonian Ministry of Education and Research.

Table 9: National R&D budget allocation (2008-2012)¹¹

	2008	2009	2010	2011	2012
Competitive (grants + targeted funding) EUR million	26.3	34.0	32.6	31.1	31.0
Institutional (base-line + infrastructure) EUR million	12.1	15.7	14.8	14.1	14.0

Source: from ERAC Peer-Review of the Estonian Research and Innovation System. Steady Progress Towards Knowledge Society (2012)¹²

Remuneration

Researchers in Estonia still do not have competitive salaries compared to other European countries. In order to tackle this problem, all State budget-financing instruments related to researchers' salaries were increased by 30% in the 2008 budget. However, the 2009 economic downturn has led to salary cut-backs in the research sector.

Researchers' Statute

The Estonian Government does not promote a concrete researcher's 'statute'. Universities are not obliged to hire doctoral students as research fellows. However, doctoral students can work in universities as an early-stage researchers or a lecturer's assistant but they still have student status.

'European Charter for Researchers' & 'Code of Conduct for the Recruitment of Researchers'

In September 2011, the Rectors' Conference, representing all universities in Estonia, signed an "Agreement on Good Practice". Point 10 of the Agreement refers to the implementation of the 'Charter & Code'¹³.

In addition, in 2011, the Rectors' Conference participated in the second cohort of the European Commission Institutional Human Resources Strategy Group. The Estonian Science Foundation will participate in the third cohort in 2012.

Autonomy of institutions

In Estonia, universities and R&D institutions enjoy high levels of autonomy over their personnel policies. Provisions on researchers' salaries and working conditions are covered by the Employment Contracts Act of 2008¹⁴ as well as in the individual regulations of each university or R&D institution.

Career development

Under the Research and Development Organisation Act (1997)¹⁵ and the Universities Act (1995)¹⁶, all regular teaching and research positions in R&D institutions are subject to public competition.

¹¹ Source: the Estonian Ministry of Education and Research.

¹² ERAC Peer-Review of the Estonian Research and Innovation System <http://www.hm.ee/index.php?popup=download&id=11652>

¹³ "Universities recognise the main principles of C&C. Universities will improve and strengthen their human resources in science following the general principles and requirements and values also in their future initiatives to develop a researcher career and an attractive, sustainable and open labour market".

¹⁴ http://www.sm.ee/fileadmin/meedia/Dokumendid/ASO/TLS/TLS_ENG.pdf

The table below provides an overview of teaching and research positions in Estonia.

Table 10: Teaching and research positions

Teaching positions	Research positions
– Teacher	– Early-stage researcher (from 2012) ¹⁷
– Assistant	– Researcher
– Lecturer	– Senior Researcher
– Dotsent (Associate Professor)	– Leading Researcher
– Professor	
– Professor Emeritus	

Source: Deloitte

Currently, professors are granted tenure if they have worked for the same university¹⁸ and more than eleven years of experience as a professor have been evaluated by the University Council.

Shift from core to project-based funding

In Estonia, funding has shifted from core to project-based funding.

Social security benefits (sickness, unemployment, old-age)

In Estonia, all researchers are considered as employees and are entitled to full social security coverage, including health insurance and sickness benefits. The Estonian Health Insurance Fund pays the benefit to the insured person based on the certificate of incapacity for work. Benefits for temporary incapacity for work include sickness benefits, care allowance, maternity benefits and adoption allowance.

Doctoral candidates have access to health insurance, but are not eligible for sickness benefits. Only doctoral candidates covered by an employment contract enjoy full social security coverage. From 2012 state encourages and support universities to hire doctoral students as an early-stage researchers.

Under the Universities Act, students (including doctoral candidates) have the right to take a sabbatical of up to one year once at each academic level. In addition, students are granted the right to take additional academic leave (of up to two years) for health reasons. Students can interrupt their academic career (by up to one year) to serve in the Defence Forces and can take parental leave at any time up to the child's third birthday.

7. Collaboration between academia and industry

In 2009, the share of private sector expenditure in Estonian general expenditure was 45%. In 2009, the share of state and non-profit sector in R&D funding was 49.5% and business sector funding was 39.2%. As the investment environment has deteriorated due to the economic crisis, it is increasingly important for the public sector to support and facilitate R&D investments of enterprises.

According to the Community Innovation Survey (CIS) 2006-08, cooperation between universities, public R&D institutions and the business sector in Estonia remains low. Academic research has no practical applicability in the Estonian business market. Moreover, the current structure of the Estonian economy discourages private-public partnerships. In addition, universities are the holders of any collaborative R&D grants. Consequently, entrepreneurs do not always perceive themselves as "owners" of the process. This leads to a certain "science-push" bias.

Nevertheless, the research climate seems to be undergoing radical changes. Researchers are increasingly considered as "experts/consultants" by large companies (rather than SMEs) which turn to universities as cooperation partners in the innovation processes.

¹⁵ <http://www.enop.ee/tpi/digiope/Estonian%20Organisation%20of%20R&D%20Act%20204.pdf>

¹⁶ <http://www.legaltext.ee/en/andmebaas/tekst.asp?loc=text&dok=X60039K4&keel=en&pg=1&ptyyp=RT&tyyp=X&query=Universities+Act>

¹⁷ Including doctoral candidates; a Masters' degree is required.

¹⁸ In total, 11 years in the same position

The Estonian Government is in the process of increasing the acquisition of knowledge with application value in universities and R&D institutions, and simultaneously increasing the private sector's demand for R&D.

The following table summarises programmes designed to develop (more) partnerships between industry and academia, and to foster doctoral training in cooperation with industry.

Table 11: Collaboration between academia and industry

Measure	Description
Ajujaht Business plan competition (ongoing)	Ajujaht (Brainhunt) is a start-up competition for young entrepreneurs creating innovative businesses. The competition aims at promoting an entrepreneurial mindset and creating incentives for the Estonian businesses. The competition is open for teams of 1-7 members of which 50% must have Estonian residency and aged 17-35. The development programme concludes with the submission of business plans. The jury evaluates both business plans and presentation. The best plans take a cut in the prize fund of 95 000 EUR and the possibility to enter a 1-year support programme for executing their business plan. The competition has its own TV show. During the 2010-11 competition, five representatives of successful teams had the opportunity to participate in an international seminar at the MIT Global Startup Workshop. The competition is carried out under the Enterprise Estonia awareness programme co-funded by the European Social fund. The total budget is between EUR 500 000 and 850 000.
DoRa Doctoral Studies and Internationalisation Programme, Activity 3 Training doctoral students in cooperation with businesses (2008-2015)	Activity 3 of the "DoRa" Programme - Training doctoral students in cooperation with businesses – actively assists innovative companies by funding the creation of doctoral student places. In order to be admitted to the programme as a partner, businesses must be engaged in a development activity with solid application prospects. In addition, companies must show willingness to conclude an employment contract with the doctoral student while paying at least the legal minimum wage. Partner universities must find a suitable partner and are responsible for the quality and progress of the studies. Eligible expenditures include the student's tuition fees, a monthly stipend and the remuneration of the student's co-supervisor at the company. Supported places are funded on the same terms as those applying to doctoral studies under the Estonian funding scheme for government-funded provision of higher education. The programme fosters development in the priority areas specified in Estonia's national RD&I strategy (i.e. information and communication technology, materials technology, environmental technology, biotechnology, power engineering and health). Eligible partners are Estonian universities offering accredited PhD programmes in the priority areas. The programme is funded by European Structural Fund. The total budget is EUR 33.5 million.
Innovation Voucher Grant (2007-2013)	Innovation Voucher Grants aim to boost the competitiveness of Estonian SMEs through knowledge and technology transfer, expanding cooperation with R&D institutions and increasing the capability to protect intellectual property rights (IRPs). Grants up to EUR 4 000 are provided to entrepreneurs for the procurement of innovation services. The total budget is EUR 2.9 million.
Joint activities of Ministry of Economics and Communication, and Ministry of Education and Research (2009-2013)	The activities planned between the two Ministries include: - supporting the development of entrepreneurship; - introducing economics courses and modules for students of non-business studies, followed by updating curricula in higher education institutions (prioritising science and engineering); - increasing funding for the above-mentioned courses; - providing opportunities for teaching personnel to refresh their competencies; - Launching mobility schemes to facilitate two-way movement between academia and enterprises; - developing a joint Technology Management programme at Tallinn University of Technology and the University of Tartu to support students while testing their business ideas.
Product Development Grant	Product Development Grants are available to entrepreneurs and universities in support of the development of products and services with high added-value. Grants are provided for the preparation of product development or applied research.

Measure	Description
SPINNO Programme (2007-2013)	The SPINNO Programme was launched by the Ministry for Economic Affairs and Communications in order to promote cooperation between research and development institutions and enterprises. It also supports knowledge- and technology transfer in Estonian research institutions. The programme is co-financed by the European Union Structural Funds through Enterprise Estonia ¹⁹ . The total budget is EUR 7.7 million.
Technology Competence Centre Grants (2007-2013)	Technology Competence Centre grants aim to increase Estonia's international competitiveness by strengthening cooperation between entrepreneurs and research establishments in line with the Knowledge-Based Estonia Strategy. Grants are co-financed by the European Regional Development Fund. (Total budget: EUR 62.9 million.)

Source: Deloitte

8. Mobility and international attractiveness

In 2007, the percentage of doctoral candidates (ISCED 6) with a citizenship of another EU27 Member State was 2.2% in Estonia compared with 8.5% among the innovation reference group and 7.3% as the EU average²⁰. In the same year, the percentage of non-EU doctoral candidates as percentage of all doctoral candidates was 1.8% in Estonia compared with 14.5% among the innovation union reference group and 19.4% as the EU average²¹.

Measures aimed at attracting and retaining 'leading' national, EU and third country researchers

The table below summarises key measures aimed at attracting and retaining leading national, EU and third-country researchers.

Table 12: Measures to attract and retain leading researchers

Measure	Description
ERMOS programme	See chapter 6 "Working conditions".
Mobilitas programme	See chapter 6 "Working conditions".
The DoRa Doctoral Studies and Internationalisation Programme (2008-15)	See chapter 7 "Collaboration between academia and industry".

Source: Deloitte

Inward mobility (funding)

In Estonia, the main obstacles to researcher mobility have been identified as:

- Remuneration
- Difficulties to obtain Estonian visa / residence permit from countries where Estonia does not have a representation

The Estonian Government offers university students, researchers or lecturers a variety of scholarships for studying and carrying out research in Estonian public universities and institutions (the DoRa Programme, the Mobilitas Researcher Mobility Programme, the ERMOS programme).

Most Estonian institutions have concluded agreements with foreign higher education institutions and promote scholarships for international degree programmes. Researchers are also able to opt for other international scholarships (e.g. Compatriots' scholarships²², Erasmus, Erasmus Mundus, international companies' grants, etc).

Outbound mobility

The table below summarises key measures encouraging researchers to spend some time in another country.

¹⁹ Enterprise Estonia (EAS), which was established in 2000, promotes business and regional development in Estonia. EAS is one of the largest institutions within the national support system for entrepreneurship, providing financial assistance, advisory, cooperation opportunities and training for entrepreneurs, research establishments, public and third sector.

²⁰ See Figure 1 "Key indicators – Estonia".

²¹ Ibid.

²² Compatriots' scholarships support the studies of young expatriate Estonians in Estonia's public universities, national institutions of applied higher education and vocational education centres.

Table 13: Measures supporting researchers' outbound mobility

Measure	Description
DoRa Doctoral Studies and Internationalisation Programme (2008-15)	The Programme is targeted at Master and doctoral students and academic staff who are already working or studying at Estonian higher education institutions or are planning to do so. For more information, see also the section on "Collaboration between academia and industry" in this country profile. Partnerships between businesses and academia.
Kristjan Jaagu stipendiumid (ongoing)	The programme targets Master's and doctoral students to support them in making research trips at foreign universities.
Researcher mobility programme Mobilitas (2008-15)	See chapter 6 "Working conditions".

Source: Deloitte

Portability of national grants

The Estonian Science Foundation has adhered to the EUROHORCs Money Follows Researcher Letter of Intent and has agreed to finance research carried out in foreign institutes after it has been initiated in an Estonian R&D institution. Grant holders can apply to transfer their research grants only if the institution of the host country has also signed up to the Letter of Intent.

Access to cross-border grants

The Estonian Research Council (from March 2012) awards institutional and personal research funding. Grant competitions are open to all permanent residents of the Republic of Estonia and citizens of a foreign country. Grants should be applied through an Estonian Institution.

Measures encouraging inter-sectoral mobility

Activity 3 of the DoRa Doctoral Studies and Internationalisation Programme – Training doctoral students in cooperation with businesses – covering the period 2008-2015 encourages researchers to move from the public to the business sector and vice-versa (see chapter 7 "Collaboration between academia and industry").