Deloitte.

Researchers' Report 2013

Country Profile: Hungary

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1. Key data

National R&D intensity target

"In the 2011 National Reform Programme, the Hungarian government set an R&D intensity target for 2020 of 1.8%. Hungary had an R&D intensity of 1.21% in 2011, up from 1.16% in 2010. An intermediary target of 1.5% by 2015 is set by the Science and Innovation Programme (as a part of the broader New Széchenyi Plan of January 2011). In 2010, 39.9% of total R&D expenditure (close to the EU average) was financed by government and 47.4% was financed by the business enterprise sector.

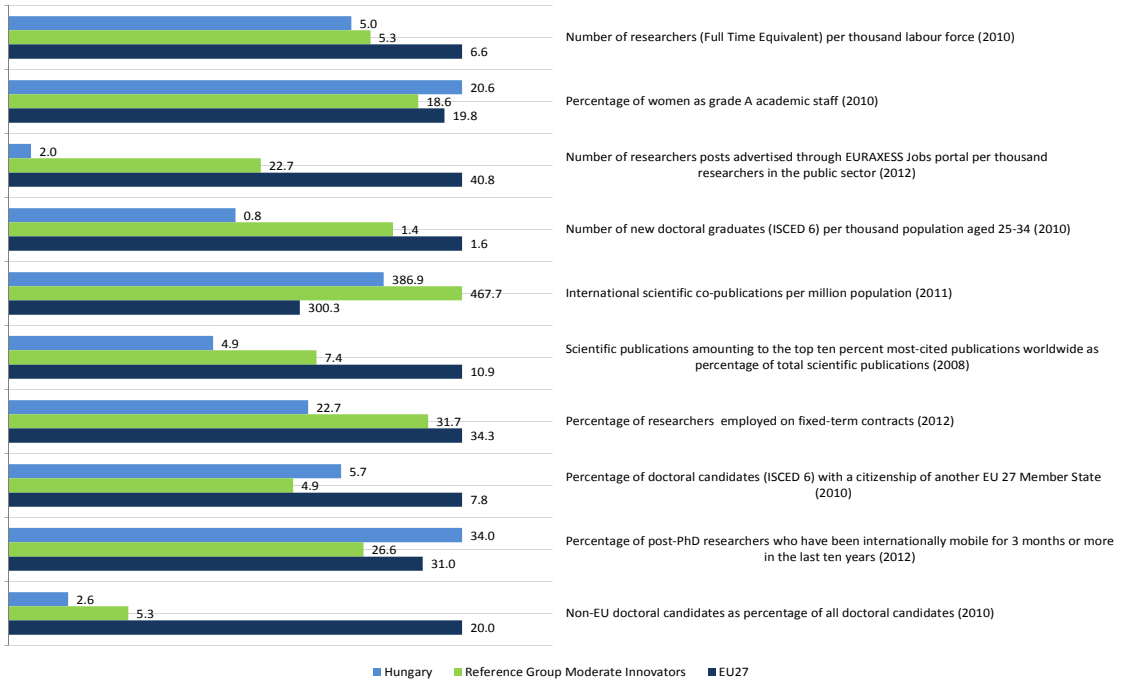
This last figure reflects the increase in business R&D intensity from 0.41% in 2005 to 0.69% in 2010. In Hungary, inward business investment in R&D as a % of total BERD decreased between 2003 and 2007 in contrast to the majority of European countries where internationalisation of R&D increased over the same period. However, the actual amount of inward business investment in R&D increased in nominal terms. Hungary has by far the highest ratio of inward FDI to GDP but only an average inward business investment in R&D intensity. Hungary, Spain and to a lesser extent Italy all suffered declines in intensity of inward investment in R&D over the period 1998-2007 (the latest period for which data are available).

Hungary has had a participant success rate of 20.4% in FP7 close to the EU average of 21.5%, and received more than EUR 114 million for 681 Hungarian participations in FP7 up to mid-2011. Hungary plans to invest EUR 2.16 billion of Structural Funds (2007-2013) in R&D and innovation, in particular in the regional growth poles with emphasis on enhancing R&D capacities"[1].

Key indicators measuring the country's research performance

The figure below presents key indicators measuring Hungary's performance on aspects of an open labour market for researchers against a reference group and the EU-27 average[2].

Figure 1: Key indicators – Hungary



Source: Deloitte
Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, UNESCO OECD Eurostat education survey, Innovation Union Scoreboard 2013, MORE2
Notes: Based on their average innovation performance across 25 indicators, Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Portugal, Slovakia and Spain show a performance below that of the EU-27. These countries are the Moderate innovators[3].

[1] European Commission (2013), "Research and Innovation performance in EU Member States and Associated countries. Innovation Union progress at country level 2013"
[2] The values refer to 2012 or the latest year available

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	Hungary	EU Average/Total
Head Count per 1 000 active labour force (2010)	8.39	10.17
Head Count (2010)	35 700	2 435 487
FTE per 1 000 active labour force (2010)	5.01	6.64
Full time equivalent (FTE) (2010)	21 342	1 589 140

Source: Deloitte
Data: Eurostat

2. National strategies

The Hungarian 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 Hungary's R&D targets, to promote attractive working conditions, and to address gender and dual career aspects.

Table 2: National strategies

Measure	Description
Investing in the Future – National Research and Development, Innovation Strategy 2020 (draft for public consultation)	Support for research, development and innovation can be considered as a long-term investment in the future. The National Innovation Strategy aims to raise investments in R&D&I in Hungary, and as a result, to mobilise the national economy and strengthen its competitiveness. The strategy aims to raise the R&D expenditure to 1.8 % of GDP by the end of the decade. In addition, it aims to create an environment in which public institutions, companies and innovative enterprises can develop and grow. The strategy focuses on knowledge creation, knowledge transfer and knowledge utilisation. It deals with the whole business sector, including small enterprises, medium-sized firms and large companies. The strategy's key goals are to: – Life 30 research and technological laboratories into the world's elite; – Have 30 new global R&D centres bedded down; – Have 30 domestic medium-sized companies in the Central and Eastern European region; and – Help 300 fast growing small enterprises enter the international market successfully. In addition, the strategy aims to create outstanding knowledge centres, to train and nurture talents, to strengthen research sites (especially in the Hungarian Academy of Sciences and in higher education), to create internationally competitive research infrastructures and to foster modern research management. Specific measures envisaged to achieve these objectives include: – Developing the National Talent Programme; – Strengthening higher education in the field of natural sciences and engineering to meet the demands of the labour market; – Providing training in complementary skills, such as innovation management, project management and IPR, etc.); – Creating a researcher life-path model; and – Promoting intersectoral mobility. All these will contribute to delivering the next generation of excellent researchers, attracting world-class researchers to carry out research in Hungary and encouraging Hungarian researchers living abroad to return.
National Innovation Office (NIO) study: *A Higher Education System suiting the R&D& I objectives of Economic Development* (2011)	In 2011, the National Innovation Office (NIO) prepared proposals for the development of the higher educational system to suit R&D-based economic development. The Report is meant to serve as guidance for future R&D-based (public and private) investments in Hungary within the context of and in line with the headline goals of the Europe 2020 Strategy. The study covers: – Serving the needs of the different economic sectors through the socio-economic input of the educational institutions (e.g. training of professionals/researchers, the

[3] European Commission (2013), "Innovation Union Scoreboard 2013"

Measure	Description
	variety of training offered by the State); – Improving the quality of higher education; – Strengthening the tuition of STEM subjects; – Improving the application of the fundamental principles of modern labour-market competencies and of lifelong learning; and – Increasing the social acceptance of the importance of research and development, and innovation.
National Reform Programme of Hungary, based on the Széll Kálmán Plan (2011)	The National Reform Programme contributes to the achievement of the five common European goals of the Europe 2020 Strategy at national level. The Reform Programme covers the: – Reorganisation of the institutions of science, technology and innovation policy by establishing: • The National Innovation System (NIS), and • The Science and Technology Observatory; – Transformation of: • The National Innovation Office, and • The tertiary education and State-owned research institutes; • The research, development and innovation support system by: ▪ Streamlining the incremental administrative costs of competition ▪ Diversifying the R&D&I support system, which is currently exclusively project-based; – Renewal and implementation of R&D&I strategy through development of a unified R&D&I monitoring and evaluation system, and the harmonisation of relevant professional fields (e.g. tertiary education, priority sectoral policies).
New Hungary Development Plan (NHDP) (2007-2013)	The objectives of this Plan include, among others, strengthening national R&D&I capacities.
Science, Technology and Innovation (STI) Strategy (2007-2013) and Implementation Plan (2007)	The Hungarian Government adopted its mid-term STI Strategy in 2007. The general objective of the STI Strategy is to transform Hungary's economy into a knowledge- and innovation-driven economy in the medium term, and to ensure that Hungarian companies deploy competitive products and services on the international market. The priorities are to: – Promote the culture of exploitation and appreciation of scientific research results; – Set up a quality-, performance- and exploitation-driven, efficient national innovation system; – Develop a creative, innovative and appreciated workforce, complying with the demands of a knowledge-based economy and society; – Create an economic and legal background to stimulate the generation and exploitation of knowledge; and – Promote Hungarian enterprises, products and services which are competitive on the global market.
The New Széchenyi Plan (2011-2013)	The New Széchenyi Plan is the national programme for economic recovery and progress. The dual objectives of the Plan, within the context of seven break-out points[4], are to improve the competitiveness of Hungary and to create one million new jobs over ten years The Plan aims to strengthen international competitiveness[5] of the Hungarian higher education system by increasing the level of R&D expenditure (both public and private) to 1.8% of GDP by 2020 (compared to 2010 levels of under 1%), while setting an intermediate target of 1.5% by 2015. The New Széchenyi Plan is based on open planning and cooperation with private companies.
Science–Innovation Programme (2011)	The Science–Innovation Programme is the chapter of the New Szechenyi Plan dealing with reform of the Hungarian higher education system. It offers an overview of the Hungarian

[4] The seven break-out points of the New Széchenyi Plan:
1. Healing in Hungary – Health industry;
2. Renewal of Hungary – Development of green economy;
3. Home projects – Residential property policy;
4. Network economy – Development of business environment;
5. Knowledge economy - Science – Innovation – Growth;
6. Employment;
7. Transport – Transit Economy.

[5] Two dedicated calls (between March-April 2011) under the New Széchenyi Plan (TÁMOP-4.2.1.B-11/2/KMR and TÁMOP-4.1.2.A/1-11/1) were designed to strengthen the competitiveness of the national higher education institutions in the international scientific "market" and develop the training and vocational system, mainly in the natural sciences, engineering and computing

Measure	Description
	national innovation system, highlights its strengths and weaknesses, sets science, technology and innovation policy goals, and identifies thematic priorities. The development of research and innovation, as well as the improvement of doctoral training content and methods, particularly in the fields of mathematics, natural sciences and engineering, are at the forefront of the programme.

Source: Deloitte

3. Women in the research profession

Measures supporting women researchers in top-level positions

In 2010, the percentage of women grade A academic staff was 20.6% in Hungary compared with 18.6% among the Innovation Union reference group and the EU average of 19.8%[6].

In Hungary, more women attend school[7], study in higher education and graduate from the tertiary education than men. Women make up 58% of the total student population in higher education; at university level the figure is 55% for the academic year 2011/12. However, more men than women pursue doctoral studies. For instance, for the academic year 2011/12, women represented 48.6% of the total doctoral student population.

The Hungarian Government has introduced a number of measures to raise the proportion of women in high level positions in research, technology and innovation. The table below provides an overview of key initiatives supporting women in research professions.

Table 3: Women in the research profession - Key programmes and initiatives

Measure	Description
The National Strategy for the Promotion of Gender Equality – Guidelines and Objectives 2010-2021 (2010)	The National Strategy for the promotion of gender equality is the Hungarian Government's long-term development concept. Its objectives include: – Accomplishing equal economic independence of women and men, closing the employment and pay gaps; – Facilitating the reconciliation of professional, private and family life; – Facilitating the reduction of the imbalance between women and men in political and economic decision-making and in the sciences.
Women in Science Committee (2007-2010)	The Hungarian National Office for Research and Technology (NKTH) set up a Women in Science Committee in 2007. This included members from ministries, university experts, experts from the Hungarian Academy of Sciences and other relevant stakeholders. The role of this Committee was to monitor the number of women evaluators in the higher education system and guarantee the presence of acknowledged women experts at a higher level. The Committee also safeguarded the right of women to take maternity leave.

Source: Deloitte

Measures to ensure a representative gender balance

The Hungarian Government does not have quotas to ensure a representative gender balance in any sector. However, under the National Strategy for the Promotion of Gender Equality – Guidelines and Objectives (2010-2021), the proportion of women in leading positions in both the public and private sectors should increase by one third by the end of the period, by making equal opportunities plans more pronounced.

Most Hungarian universities have developed general and non-exhaustive equality plans. Some universities have more developed plans, such as the Budapest University of Technology and Economics. It organises information sessions on engineering and informatics science for high school girls with the aim of increasing the numbers of female students in the departments where males dominate.

Maternity leave

One of the long term objectives of the Hungarian Academy of Sciences (HAS) is to create a platform and work environment where women and men who have children can work without stress and can carry out creative research. In 2009, the HAS started an initiative to improve the work-life balance of researchers by helping women with children. The initiative helps reconcile research and childcare responsibilities by extending the

[6] See Figure 1 "Key indicators – Hungary"
[7] In the school year 2011/12, 52.5 % of all secondary school students were girls

deadline for recent parents to apply for fellowships and grants (two additional years beyond the age limit). This initiative enables parents to stay at home with their children and then continue their career. The institutions directly involved are the 41 research institutes of HAS, and the 79 research groups co-financed by the HAS and the universities.

4. Open, transparent and merit-based recruitment

Recruitment system

In Hungary, publicly funded research jobs are published online on both the institutions' websites and private job sites.

Since 1 January 2008, open recruitment of civil servants has been required by law and institutions are obliged to publish all public research jobs on a central governmental recruitment site[8]. Most vacancies are still advertised internally as well.

Open recruitment in institutions

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

Table 4: 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	Since January 1, 2008, there has been a legal obligation to recruit researchers who are public servants openly and to publish all public research jobs on a central governmental recruitment site (www.kozigallas.gov.hu).
– **publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)**	No	Institutions do not have policies in place to publish job vacancies on relevant Europe-wide online platforms.
– **publish job vacancies in English**	No	Institutions do not have policies in place to publish vacancies in English.
– **systematically establish selection panels**	No	Institutions do not have policies in place to systematically establish selection panels.
– **establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)**	No	Institutions do not have policies in place to establish clear rules for the composition of selection panels.
– **publish the composition of a selection panel (obliging the recruiting institution)**	No	Institutions do not have policies in place to publish the composition of a selection panel.
– **publish the selection criteria together with job advert**	Yes	Institutions publish the selection criteria together with job advert.
– **regulate a minimum time period between vacancy publication and the deadline for applying**	Yes	In most cases, institutions regulate a 30-day 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**	No	Institutions do not have policies in place placing the burden of proof on the employer to prove that the recruitment procedure was open and transparent.
– **offer applicants the right to receive adequate feedback**	Yes	Institutions have policies in place offering applicants the right to receive adequate feedback.
– **offer applicants the right to appeal**	Yes	Institutions have policies in place offering applicants the right to appeal.

Source: Deloitte

[8] Available at: https://kozigallas.gov.hu/pages/login.aspx?U=https%3a%2f%2fkozigallas.gov.hu%2fpages%2fhome.aspx

EURAXESS Services Network

In 2012, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 2.0 in Hungary compared with 22.7 among the Innovation Union reference group and an EU average of 40.8[9].

The Hungarian EURAXESS Office with its network of regional Contact Points is regarded as the major information source for mobile researchers on practical mobility-related issues. In 2012, two institutions joined the network: the Semmelweis University and the Óbuda University, bringing the total number to 14.

In order to ensure up-to-date and high quality information, the EURAXESS Office is often involved in high-level stakeholder consultations on social security issues. Finally, the Hungarian EURAXESS Office is responsible for both the promotion of the EURAXESS Jobs portal and the implementation of the 'Charter & Code' by higher education institutions.

5. Education and training

Measures to attract and train people to become researchers

The Hungarian Government believes researchers contribute to the competitiveness of the economy and regards them as the driving force of innovation. It has introduced several measures to attract and train young people to become innovative and creative researchers, including lifelong learning activities, improvement of doctoral schools, the establishment of a modern higher education system with a special focus on the fields of natural sciences and engineering, and strengthening the entrepreneurial spirit, the encouragement of industry-academia partnerships, and mobility and training programmes.

In order to raise young people's interest in pursuing a researcher career, the Hungarian Government has put in place the following initiatives:

Table 5: Programmes to attract young people to become researchers

Measure	Description
Hungarian Talent Programme (2008-2028)	The National Talent Programme was established by Parliamentary Resolution 126/2008. (XII. 4) with the aim of supporting and developing talented youth. The Programme can contribute equally to career orientation and its success, to the stimulation and spread of innovation and creativity, to economic growth and to enhanced competitiveness. The main goals of the Programme are: - Identification of talented youth; - Continuous support adapted to the nature and level of talent to maximise the latter; and - Promotion of talent utilisation. The programme aims to cover 20 years and support talents from early childhood until the start of their career. It focuses on four different thematic directions; fostering scientific and innovative talents is one. In 2012, funding was provided to 28 applicants from higher education institutions to organise "Talent camps" for secondary school students and to 41 applicants from HEI's to organise summer schools for university students.
National Excellence Programme (2012-2013)	The National Excellence Programme under the New Széchenyi Plan has two sub-programmes: 1) National Excellence Programme - supporting excellent students, teachers and researchers; and 2) National Excellence Programme – Campus Hungary Programme. The first aims to encourage excellent educational and research activities resulting in significant impacts on the economy of the European Union. This Programme includes several sub-programmes to support the training of excellent Hungarian undergraduates and postgraduates, early-stage and experienced researchers and to attract world-class researchers living abroad to work in Hungary and foster their integration. It aims to focus on scientific disciplines like natural sciences, engineering, mathematics and life sciences to fulfill the Innovation Union commitments to increase the number of young people embarking on a scientific career. In 2012, eight different calls for proposals were published for fellowships for undergraduate students and for researchers at different

[9] See Figure 1 "Key indicators – Hungary"

Measure	Description
	stages of their careers (Ányos Jedlik Fellowship; Zoltán Magyary Fellowhip; Loránd Eötvös Fellowhip; Collegium Talentum Fellowship; János Apáczai Csere Fellowship; Andrássy Europa Fellowship; Hungary-Montenegro Fellowship and Albania-Hungary Fellowship.) Twenty fellowships were funded, mostly for university students (17). It is expected that around 600 fellows will be funded in 2013, about 50 % of them will be BSc/BA/MA/MSc students. The second programme aims to increase the involvement of Hungarian higher education in international mobility programmes. It provides outgoing mobility fellowships to MSc and PhD students to carry out scientific activities abroad.
Research University Programme (2010-2012)	The objective of the Research University Programme funded from the Social Renewal Operational Programme, was to "develop the content and structure of higher education (...) this includes the enhancement of research and development capacities"[10]. The Programme aimed to provide funding to HEI-based research. Universities submitted applications to gain the title of 'research university' and related support for their proposed research activities and R&D infrastructure development plans. In the framework of this programme, selected research universities received support of HUF 3 billion (some EUR 10.2 million). The title 'Research University' has been awarded to five Universities (Eötvös Loránd University, Semmelweis University, Budapest University of Technology and Economics, University of Debrecen and University of Szeged) based on their research capacity, doctorate courses, care for talent, publication activities, support to fundamental and applied R&D&I and revenues.
Support for scientific workshops and schools (2009-2011)	The National Development Plan and the New Hungary Development Plan aimed to support scientific colleges, PhD schools and scientific student groups with the organisation of scientific workshops and schools. Development and skills training of R&D human resources and research infrastructure activities all fell within the scope of its funding opportunities.

Source: Deloitte

Doctoral graduates by gender

The table below shows indicators of doctoral graduates by gender.

Table 6: Doctoral graduates by gender

Indicator	Hungary	EU Average
New doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (2010)	0.8	1.5
Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2010)	0.8	1.4
Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2010)	0.9	1.6

Source: Deloitte
Data: Eurostat

Funding of doctoral candidates

In 2012, 1 270 doctoral students received State-funded fellowships. Of these, 430 are studying social sciences (including humanities, theology) and 870 life sciences (including agricultural science, engineering, medical sciences, natural sciences and the arts).

Measures to increase the quality of doctoral training

Hungarian universities develop and promote their own post-doctoral programmes financed by the State. When an education institution plans to introduce a new PhD curriculum, it needs the approval of the Hungarian Accreditation Committee. In 2012, there were 174 accredited doctoral schools in 27 universities in Hungary.

The increase in the quality of doctoral training is ensured by several programmes under the new Hungary Development Plan (2007-2011) and the New Széchenyi Plan (2011-2013). These include the Research University Programme and the Hungarian Talent Programme). In addition, the Act on Higher Education (2005) further supports the strategic ambition of increasing the quality of doctoral training in Hungarian institutions.

[10] Available at: http://ec.europa.eu/esf/main.jsp?catId=384&langId=en

On 1 January 2012, a new Act on Higher Education came into force. The new Act on Higher Education (Act CCIV of 2011, in force since 1 January 2012) further supports the strategic ambition of increasing the quality of doctoral training in Hungarian institutions.

Skills agenda for researchers

In the new draft national strategy, "Investing in the Future – National Research and Development, Innovation Strategy 2020", there are initiatives related to the improvement of researchers' employment skills and competencies. These are:

- Strengthening higher education in the field of natural sciences and engineering to meet the demands of the labour market;
- Providing training in complementary skills such as innovation management, project management and IPR, etc.);
- Creating a researcher life-path model;
- Promoting intersectoral mobility;
- Strengthening the entrepreneurial spirit in education; and
- Developing joint training programmes with companies.

The Government Regulation on National Excellence in Higher Education (24/2013. (II.5)) encompasses the following measures to enhance the skills and competencies of researchers, to train them to adapt to the needs and demands of the changing labour market, and to ensure the next generation of adequate, well-trained R&D human resources:

- Creating higher education entities of national excellence, such as distinguished higher education institutions, research universities, research faculties and colleges of applied science;
- Awarding fellowships to excellent students, researchers and teachers; and
- Establishing institutions to foster talents.

6. Working conditions

Measures to improve researchers' funding opportunities

The table below summarises the measures taken by the Hungarian Government to improve researcher funding opportunities.

Table 7: Funding opportunities for researchers

Measure	Description
OTKA - The Hungarian Scientific Research Fund (1986)	The Hungarian Scientific Research Fund (OTKA) has been the major funding agency for basic science and scholarship since 1986. OTKA administers calls for proposals with a bottom-up approach to research proposals, postdoctoral research proposals, and proposals for international cooperation. Without any thematic restrictions, its annual calls put special emphasis on the careers of talented young researchers and on the reintegration of Hungarian researchers returning from postdoctoral training or research projects carried out abroad. In addition, OTKA administers calls for proposals for the establishment of scientific schools directed by internationally acknowledged scientists and for the development of libraries to provide research universities with the opportunity to purchase databases and full-text journals available on electronic media and various networks. In 2011, 1 651 researchers' agreements were handled. The total budget was some EUR 19.4 million. In 2012, a total number of 1 278 researchers' agreement were managed, with a total budget of around EUR 25.5 million. The total number of new agreements signed in 2012 was 255, with a total budget of EUR 6 million.
The Balassi Institute – the Hungarian Scholarship Board Office (Magyar Ösztöndíj Bizottság)	The Hungarian Scholarship Board (HSB) Office provides university and research scholarships for an academic year and summer school scholarships: – Scholarships for doctoral studies and partial doctoral studies; – Scholarships for postdoctoral studies; – Scholarships for postgraduate studies/research; – Scholarships for semester/partial studies (undergraduate and graduate level); and – Scholarships for summer courses.
The Hungarian Academy of Sciences Momentum Programme	In 2009, the Hungarian Academy of Sciences announced the "Momentum Programme" to support outstanding young researchers. The objective of the

Measure	Description
	Momentum Program is a dynamic renewal of the research teams of the Academy and participating universities by attracting outstanding young researchers back to Hungary. The impact and success of this application model is highly acclaimed and recognised even by the international scientific community. Initiated by HAS President József Pálinkás, the programme aims to halt the emigration of young researchers, provides a new supply of talented researchers, extends career possibilities, and increases the competitiveness of the HAS research institutes and participating universities. By July 1, 2012, 37 new research teams had received financial support, for a total of HUF 1.2 billion (some EUR 4.09 million) from the Academy to conduct their projects in various fields of science.
The TRANSMOB-HU Programme - Hungarian support programme for improving the transnational mobility of researchers (2009-2012)	The Mobility Call co-financed by the FP7 Marie Curie funding line was designed to promote the scientific careers of experienced researchers with PhD degrees or at least four years of full-time employment as researchers. The call supported researcher mobility and the exploitation of experience acquired in non-European countries by supporting researchers returning to Hungary.
The 5th pillar of the New Széchenyi Plan on the Knowledge Economy - Science – Innovation – Growth[11] (ongoing)	The funding opportunities (grants) under the 5th pillar of the New Széchenyi Plan are as follows: 1. *EU_BONUS_12 Ösztönzés az Európai Uniós keretprogramokban való magyar részvétel támogatására* (BONUS HU Programme) and EU_KP_12: to encourage Hungarian participation in FP7. Available Total budget available in 2012: HUF 200 million (some EUR 683 182). Number of beneficiaries in 2012: 23. Available budget/grant: a) Project Preparation phase: max. HUF 3 million (some EUR 10 248) per grant for an FP7 project partner and HUF 6 million (some EUR 20 496) for an FP7 coordinator; and b) Negotiation phase: HUF 2 million (some EUR 6 832) for an FP7 partner and HUF 4 million (some EUR 13 664) for an FP7 coordinator. 2. EUREKA_HU_12: to support participation in the EUREKA programme. Total budget available in 2012: HUF 1 billion (some EUR 3.4 million); 3. EUROSTARS_HU_07 - EUROSTARS programme: Total budget available in 2012: EUR 0.5 million. No projects were funded in 2012. 4. ERNYO-12 - Supporting R&D&I umbrella projects: to create new products and scientific achievements and contribute to the creation of new R&D work places. Total budget available: HUF 6 million (some EUR 21 million). Budget/grant available: HUF 40 million-2 billion HUF (some EUR 136 632 - 6.8 million). Number of beneficiaries: 9
The Richter Gedeon Centennial Foundation[12] (ongoing)	This post-doctoral grant programme has been running for eleven years – it was established in 2001. There are three options: - Grant for PhD students who have spent three years as publicly funded students in doctoral schools but did not complete their study. The duration is 3-12 months and it can be prolonged up to 12 months; Ph.D students can be also supported during their three-year doctoral studies related to medical research. (This call is open to researchers from abroad but the documents must be submitted in Hungarian); - A programme for institutions in order to support their publication activities; and. - Support for one to two cerebrospinal research projects. In 2012, the budget was approximately HUF 24 million (some EUR 81 979). Sixty-eight researchers received a grant.

Source: Deloitte

Remuneration

In Hungary, researchers' remuneration levels depend on the specific post-doctoral programmes they are enrolled in, including grants to spend some time as researchers in another country. The remuneration of researchers employed at higher educational institutions is based on a normative system. The funding comes from the central budget based on headcount, as laid down by a legal act. Researchers' salaries and career opportunities are regulated by Act XXIII (1992) on the Legal Status of Public Servants.

[11] Available at: http://www.nfu.hu/content/8100

[12] Available at: http://mta.hu/representatives_of_doctors/

For further information, see the new country profile on remuneration of researchers from the MORE2 study (forthcoming, on the EURAXESS website).

Researchers' Statute

The researcher's statute is defined by:

- Act XXII (1992) on the Labour Code, establishing all rights and obligations of every person (citizen or foreign) working in Hungary;
- Act XXIII (1992) on the Legal Status of Public Servants, establishing researchers' salaries and career options at higher-education and other State institutions;
- Act CXXXIV (2004) on Research and Development and Technological Innovation, establishing the fundamental regulations for financing research and development and technological innovation activities in Hungary.

Hungarian laws and acts regulating employment conditions aim to reduce the bureaucratic obstacles for both national and non-Hungarian employees, and especially researchers coming from developing countries.

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

The Hungarian Government actively promotes the implementation of the 'Charter & Code' principles. Twelve Hungarian institutions have signed the 'Charter & Code'. Promotion of the 'Charter & Code' as well as the R&D human resources strategy is an ongoing process, which involves both the Hungarian authorities and the Hungarian EURAXESS Office.

Autonomy of institutions

The state operates the higher education system and managing institutions provide oversight of operational conditions. Hungarian higher educational institutions enjoy full autonomy over which profiles of academic staff to employ and have the legal right to develop their own curricula and have them approved by their own institution's senate. The basic educational activity of the higher education system consists of: bachelor (BA, BSc), master (MSc), doctoral training, postgraduate training and higher-level vocational training. This is enshrined in Act CCIV on Higher Education (2011).

The Hungarian Academy of Sciences is also a self-governing establishment. Differentiation of researchers' salaries at universities and research institutions must comply with Act XXIII (1992) on the Legal Status of Public Servants.

Career development

Hungarian higher educational institutions include career development provisions for post doctoral students with the aim of supporting and encouraging them throughout their profession. For example, the Budapest University of Technology and Economics and the University of Miskolc (Northern Hungary) offer post-doctoral programmes with detailed career prospects. The Hungarian Academy of Sciences keeps a record of all of its 'Representatives of Doctors'[13] and remains in close contact with them.

Shift from core to project-based funding

The Act on Higher Education (amending Act CXXXIX) regulates the project-based research funding system and its impacts on researchers' working conditions. The act was adopted in December 2011.

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

In Hungary, researchers working under employment contracts are entitled to full social security benefits. PhD students, when receiving state fellowships, are not eligible for old-age benefits; they have to sign a specific contract with the Central Administration of National Pension Insurance individually, in case they wish to be covered for this period.

7. Collaboration between academia and industry

In Hungary, there are R&D-intensive companies which have established close, long-lasting cooperation with universities and playing an active role in undergraduate and PhD training.

The following table summarises key programmes designed to boost collaboration between academia and industry, and to foster doctoral training in cooperation with industry.

Table 8: Collaboration between academia and industry

Measure	Description
Dunaújváros College and Hankook Tire Hungary Ltd (ongoing)	Hankook Tire Hungary Ltd. and Dunaújváros College launched their joint Rubber Technology Engineer programme in Hungary in February, 2009. In response to industry demand for technically trained personnel, this training provides engineers with theoretical and practical knowledge of tyre manufacturing. The training includes development, management, planning and diverse manufacturing technologies. While the theoretical part of the education takes place on the campus of the university, the practical training is always conducted directly in Hankook's state-of-the-art European factory. Highly qualified Hankook engineers set up the training programme and schedules as well as being engaged as coaches in the practical seminars.
ERICSSON – BME, ELTE (ongoing)	Ericsson Telecommunications Hungary (ETH) has developed close collaboration with several departments at two major universities in Hungary: ELTE (Eotvos Lorand University) and BME (Budapest University of Technology and Economics). Students and their supervisors can work on industrially motivated problems mainly within MSc and PhD programmes. Ericsson also offers internships, where PhD students are contracted for a period of time, and they can work closely together with Ericsson researchers, mostly on Ericsson-internal or EU projects. These university cooperation schemes started about 20 years ago, and almost 80 PhDs have been completed since they started. Ericsson also actively takes part in education by giving lectures and providing help in working out the details of various subjects. Recently the collaboration has been significantly extended in the fields of software, hardware and microwave networks.
Kecskemét College, Mercedes-Benz Manufacturing Hungary Ltd. and Knorr-Bremse Ltd (ongoing)	In 2011, a Memorandum of Understanding was signed among Kecskemét College (Faculty of Mechanical Engineering and Automatation), Mercedes-Benz Hungary Ltd. and Knorr-Bremse Ltd. to establish dual vocational training at Kecskemét College and thus ensuring highly-qualified workforce in the field of mechanical engineering. During the practice-oriented training, students participate in "ordinary courses" at the College, but they are also trained at the partner companies: students are introduced how theory works in practice. The first students in this new training programme commenced their studies in September 2012. Besides, Mercedes-Benz is breaking new ground by offering high-grade dual vocational training based on the German model, which is being delivered in conjunction with Kecskemét City Council and the Chamber of Industry and Commerce of the county of Bács-Kiskun. The first 34 trainees started their courses in 2011 and a further 36 trainees started in September 2012.
R&D Labour Force Programme (2008-2010)	The R&D Labour Force Programme aims to support R&D projects in order to foster the development of the R&D sector's workforce by creating new workplaces at SMEs, research institutions or non-profit research institutions, and employing highly qualified researchers, who have lost their jobs because of the world economic crisis.
Robert Bosch Department of Mechatronics – University of Miskolc[14] (ongoing)	The University of Miskolc and the Hungarian Bosch companies founded the Robert Bosch Department of Mechatronics in 2005. The target of the cooperation is to support practically oriented education and research activities in the engineering sciences, placing special emphasis on the wide range applications of mechatronics.
Széchenyi István University and the Audi – Audi Hungaria Department for Internal Combustion Engines[15] (ongoing)	The Department was founded in 2007 with the aim of training highly qualified engineers in the field of internal combustion engines. Its main field of activity is engine mechanics and the tribology of internal combustion engines. The main focal points of this special higher education are its focus on practice, the development of capabilities beyond the profession and bilingualism. During their studies, the students regularly take part in Audi Hungaria research and development projects.

Source: Deloitte

8. Mobility and international attractiveness

In 2010, the percentage of doctoral candidates (ISCED 6) with citizenship of another EU-27 Member State was 5.7% in Hungary compared with 4.9% among the Innovation Union reference group and an EU average of

[14] Available at: http://www.bosch.uni-miskolc.hu/index.php

[15] Available at: http://www.auditanszek.hu//index.php?nyid=hu

7.8%[16]. In the same year, the percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 2.6% in Hungary compared with 5.3% among the Innovation Union reference group and an EU average of 20.0%[17].

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 to Hungary.

Table 9: Measures to attract and retain 'leading' national, EU and third country researchers

Measure	Description
Charles Simonyi Scholarship (ongoing)	The objective is to support Hungarian researchers with outstanding scientific achievements. Three researchers were awarded scholarships in 2012.
Leó Szilárd Fellowship (ongoing)	The aim of this scholarship is to fund renowned Hungarian scientists and thus acknowledge their scientific work and retain them. Three researchers were awarded scholarships in 2012.
The TRANSMOB-HU - Hungarian support programme for improving the transnational mobility of researchers (2009-2012)	The TRANSMOB-HU programme, co-funded by FP7, targets non-residents, aiming to attract them to Hungary to do their research. In 2008, the two main funding bodies for applied and basic research in Hungary, the National Office for Research and Technology (NKTH) and the Hungarian Scientific Research Fund (OTKA) Office developed this programme to support researchers' career development through international mobility. It is designed to promote the scientific careers of experienced researchers with PhD degree or at least four years of full-time research experience. The programme includes supporting the mobility and international training of researchers of any nationalities, as well as supporting Hungarian researchers returning to Hungary. The call is open to every field of science; the main evaluation aspect is scientific excellence. The long-term contribution of the funded project to the career development of the researcher (the impact of the grant) is also taken seriously into account. (Total budget: EUR 11.1 million.) The programme covers the following three areas: – Outgoing mobility scheme: the scheme is open to experienced Hungarian researchers, who would like to expand their specialised knowledge through the execution of research projects at outstanding international research sites. It supports up to two years of basic or applied research. Part of the funded period may be spent reintegrated in the Hungarian host institute; – Incoming mobility scheme: the scheme is open to experienced researchers, who are not Hungarian and would like to expand their specialised knowledge through the execution of research projects at outstanding Hungarian research sites. Funding is available for up to two years basic or applied research; – Reintegration scheme: the scheme is open to experienced researchers, who aim to form research units in Hungary, who are nationals of an EU Member State or an associated country and who lived for at least 36 months in a third country prior to the submission of the proposal. Two to three years of basic or applied research can be funded. This helps the researchers establish the basis for long-term research work at the host institute. During the period 2009-2011, three calls for proposals were published, and as a result, 55 researchers benefited from the scheme. No calls for proposals were published in 2012.
Zoltán Magyary Fellowship Programme (under National Excellence Programme (2012-2013))	As a sub-programme of the National Excellence Programme, the Zoltán Magyary Fellowship Programme aims at attracting renowned scientists from EU or third countries, as well as Hungarian researchers living abroad, to carry out research activities at Hungarian higher-education institutions. In 2012, the total number of beneficiaries was 33.

Source: Deloitte

Inward mobility (funding)

Hungary is regarded as open to researchers coming from abroad without legal or financial obstacles to researchers' mobility. However, settling down in Hungary might be difficult because of differences in bureaucracy compared to other EU countries. The Hungarian Government is focusing on providing more and better information to mobile researchers through the EURAXESS Office and its network of regional Contact Points.

[16] See Figure 1 "Key indicators – Hungary"
[17] Ibid

A long-term visa or residence permit may be issued for the purpose of carrying out scientific research to third-country nationals in one of the following ways:

- The host research organisation signs an agreement with the non-national researchers for the purposes of carrying out a research project; or
- The research organisation provides a written commitment to reimburse the costs of expulsion in cases where the researcher remains on the territory of the Republic of Hungary past the period authorised – and if the researcher does not have the financial resources necessary for repatriation.

The table below summarises key measures aimed at supporting researchers' inward mobility.

Table 10: Measures supporting researchers' inward mobility

Measure	Description
Momentum *(Lendület)* Young Investigator Programme (2009-ongoing)	The Momentum Programme of the Hungarian Academy of Sciences supports the re-integration of Hungarian researchers working abroad by providing personal allowances for two to three years for projects carried out in Hungary in the field of their speciality. The Programme invites researchers to take part in scientific/development programmes in Hungary. In 2012, approximately HUF 1.25 billion (some EUR 4.3 million) were granted to 37 Hungarian researchers under this programme. The Lendület Young Investigator Programme supports young researchers from various fields of science in establishing independent laboratories in Hungary.
The TRANSMOB-HU Programme - Hungarian support programme for improving the transnational mobility of researchers (2009-2012)	The Mobility Programme, co-financed by the EU 7th Framework Programme (Marie Curie actions), was designed to promote the scientific careers of experienced researchers with a PhD degree or at least four years of full-time research experience. The programme included support for the mobility and international training of researchers of any nationality, as well as for Hungarian researchers returning to Hungary. The call was open to every field of science; the main evaluation criterion was scientific excellence. The long-term contribution of the funded project to the career development of the researcher (the impact of the grant) was also regarded as key. (Total budget: EUR 11.1 million.)

Source: Deloitte questionnaire

Outbound mobility

The TRANSMOB-HU - Hungarian support programme for improving the transnational mobility of researchers aimed to support researchers' outbound mobility in the period of 2009-2011 (for details, see chapter 8 "Mobility and international attractiveness"). In 2012, there were no calls supporting outbound mobility.

Promotion of 'dual careers'

The Hungarian Government does not actively promote measures supporting researchers' dual careers.

Portability of national grants

Publicly funded grants or fellowships are not portable to other EU countries.

Access to cross-border grants

National grants are basically not open to students or researchers from other countries. However, several fellowships under the National Excellence Programme are partly targeted at excellent foreign researchers to attract them to Hungary. These are the Zoltán Magyary Fellowship, the Montenegro-Hungary Undergraduate Fellowship and the Montenegro-Hungary Young Researcher Fellowship – for Montenegrin nationals, and the Albania-Hungary Undergraduate Fellowship and Albania-Hungary Young Researcher Fellowship – for Albanian nationals.

Further sub-programmes under the National Excellence Programme are planned in 2013 to attract world-class researchers from abroad.