

**Deloitte.**

Researchers' Report 2013

**Country Profile: Croatia**



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## 1. Key data

### National R&D intensity target

“In 2011 Croatia had an R&D intensity of 0.75% and a business R&D intensity of 0.33%. Croatia's R&D intensity decreased from 0.90% in 2008 to 0.75 % in 2011. This was mainly due to an overall slowdown of the national economy during the last four years, which was additionally affected by the global financial and economic crisis. Croatia did not meet its own national target of 1% by 2010. Accordingly, Croatia has opted to first reform the science system before setting new targets. Total R&D expenditure (GERD) which amounted to EUR 330 million in 2011 decreased by 3.2% between 2004 and 2011. Croatia's R&D intensity of 0.75% in 2011 was well below the EU average of 2.03% and has decreased at an average annual rate of 2.7% over the period 2002-2011.

Regarding EU funding, Croatia participates in FP7 as an associated country. It has a good level of participation (an average success rate close to 18%) which has amounted to about EUR 50 million of EU funding for Croatian research entities since the beginning of FP7. Croatia is particularly successful under the scientific themes in which it is also strong at national level i.e.: healthcare, ICT, biotechnology and transport. Participation of SMEs is also good: out of 225 applicants 57 (or more than 25%) were selected for funding. Croatia is a full member of the Eurostar initiative. Croatia is also a member of COST and EUREKA.

As a Candidate Country, and since December 2011, an Accession Country, Croatia is eligible for EU support under the Pre-Accession Instrument (IPA) and has used that instrument in support of research and innovation capacity building such as the creation of the Business Innovation Centre of Croatia (BRICO) which is a dedicated institution for the promotion of research and innovation in SMEs. The latter is a good demonstration that Croatia is concentrating its efforts on innovation and creating links between the public and private sectors. Croatia will become a member State on 1 July 2013 and will then have access to the Structural Funds and notably the European Regional Development Fund (ERDF) and the European Social Fund (ESF) for R&I capacity building purposes. BRICO will be the agency in charge of the competitiveness axis under the Structural Funds”.<sup>1</sup>

### Key indicators measuring the country's research performance

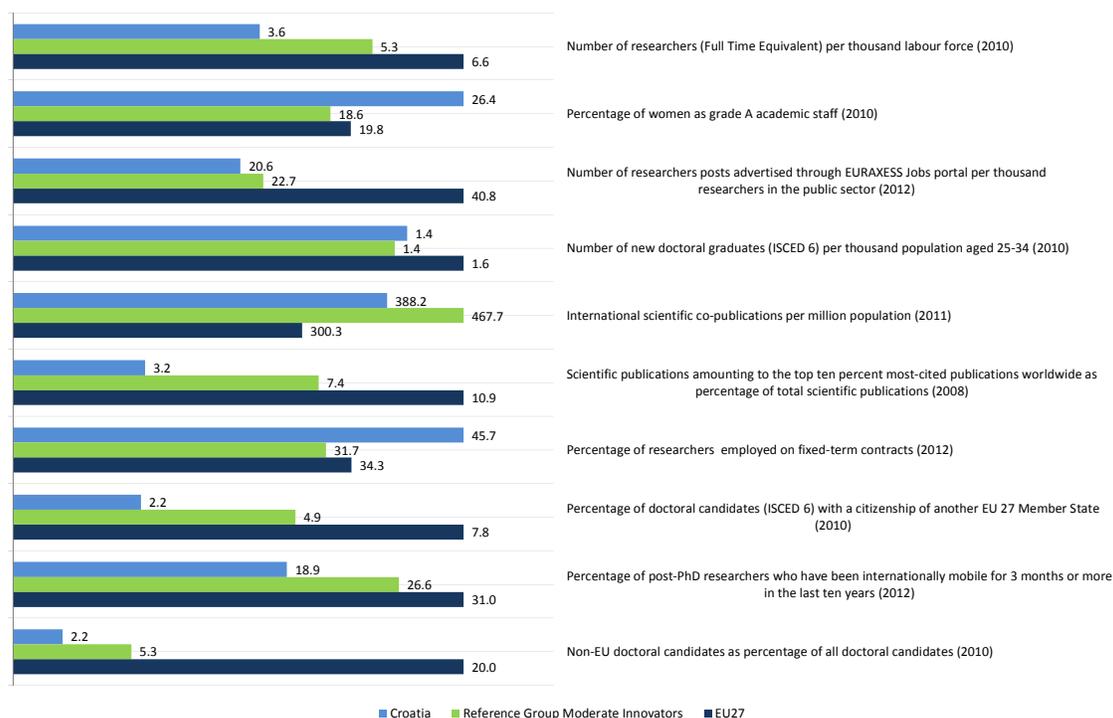
The figure below presents key indicators measuring Croatia's performance on aspects of an open labour market for researchers against a reference group and the EU-27 average <sup>2</sup>.

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<sup>1</sup> European Commission (2013), “Research and Innovation performance in EU Member States and Associated countries. Innovation Union progress at country level 2013”

<sup>2</sup> The values refer to 2012 or the latest year available.

Figure 1: Key indicators – Croatia



Source: Deloitte

Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, UNESCO OECD Eurostat education survey, Innovation Union Scoreboard 2013, MORE2

Notes: Based on the average innovation performance, Croatia belongs to the group of Moderate innovators showing a performance below that of the EU-27<sup>3</sup>.

## 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	Croatia	EU Average/Total
Head Count per 1 000 active labour force (2010)	6.42	10.17
Head Count (2010)	12 527	2 435 487
FTE per 1 000 active labour force (2010)	3.64	6.64
Full time equivalent (FTE) (2010)	7 104	1 589 140

Source: Deloitte

Data: Eurostat

## 2. National strategies

The Government of the Republic of Croatia 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 Croatia’s R&D targets, to promote attractive working conditions, and to address gender and dual career issues.

Table 2: National strategies

Measure	Description
<b>Action Plan for the Mobility of Researchers (2011-2012)</b>	The Action Plan for the Mobility of Researchers for the period 2011-12 was prepared by the Committee for the Mobility of Researchers and accepted and signed by the Minister of Science, Education and Sports in December 2010. This Action Plan will

<sup>3</sup> European Commission (2013), “Innovation Union Scoreboard 2013”

Measure	Description
	<p>ensure the continuance of actions planned and achieved under the Action Plan for the Mobility of Researchers 2009-2010. It is based on the Europe 2020 Flagship initiative. The Action Plan is based on the following structure:</p> <ol style="list-style-type: none"> <li>1. Recruitment of foreigners to scientific and scientific-educational positions;</li> <li>2. Creation of better working conditions for researchers;</li> <li>3. Streamlining the provision of temporary residence permits for the purpose of scientific research;</li> <li>4. Further development of the infrastructure for the mobility of researchers;</li> <li>5. Encouraging inter-sectoral mobility of researchers;</li> <li>6. Development of researcher competencies.</li> </ol>
<b>Guidelines for the development of the Education, Science and Technology Strategy (2012)</b>	<p>The Guidelines for the Development of the Education, Science and Technology Strategy refer to the new strategy to be adopted in 2013. This will replace the Scientific and Technological Policy 2006-2010 of the Republic of Croatia. The new strategy will contain a number of measures to increase the percentage of the highly educated and researchers, promote mobility and cross border cooperation, etc. The Guidelines include a call for “transparent employment procedures, better work conditions and possibilities of continuous development, better identification, acknowledgement and reward for excellence in education and research as key factors to attract and keep high quality academic and research staff”.</p>
<b>Strategic Development Framework 2006-2013</b>	<p>The Strategic Development Framework 2006-2013 (SDF) among others aims to:</p> <ul style="list-style-type: none"> <li>- Encourage research partnerships and strengthen grant systems for high quality early-stage-researchers – with the aim of facilitating mobility, interdisciplinary and inter-institutional cooperation as well as establishing a more flexible research and educational system;</li> <li>- Establish a system of evaluation and reward which is adequately connected to scientific results and which will foster the personal responsibility of the scientist. This kind of system will also stimulate renewal of the research population; and</li> <li>- Provide legal and other conditions for the work of foreign researchers in Croatia, as well as conditions for participation of Croatian scientists in projects of domestic scientific research institutions abroad.</li> </ul>

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 26.4% in Croatia compared with 18.6% among the Innovation Union reference group and an EU average of 19.8%<sup>4</sup>.

According to the Ministry of Science, Education and Sports, the percentage of women with PhDs in 2010 was 51%. In Croatia, there is a rising trend in the number of women researchers in different grades. In the same year, the proportion of women at grade B was 43%, at grade C 45% and at grade D was 56%. The total number of women in academic positions was 47%.

According to She Figures 2009 – Statistics and Indicators on Gender Equality in Science, published by the DG Research & Innovation, the percentage of women researchers in Croatia of 44% is one of the highest in the EU-27. The ratio of women in the higher education sector is 43%, in government 49% and in business 34%.

Since 2007, the Croatian UNESCO Committee, the Ministry of Culture and L’Oréal Adria have handed out yearly awards for Women in Science in an effort to raise the awareness of excellent young female scientists and reward them for their contribution. The award also encourages female students to pursue a career in the life sciences.

Gender equality and non-discrimination in research are included in the the Constitution (Articles 14 and 15), the Act on Scientific Activity and Higher Education (Official Gazette (OG) 123/03, 198/03, 105/04, 174/04, 46/07 and 45/09), the Labour Act (OG 149/09, 61/11), the Gender Equality Act (OG 82/08), the Act on Prohibition of Discrimination (OG 85/08) and the National Policy for Gender Equality 2011-2015 (OG 88/11).

<sup>4</sup> See Figure 1 “Key indicators – Croatia”.

## Maternity leave

In the event of maternity leave, the Croatian Science Foundation allows candidates to postpone or pause research covered by the Foundation's fellowships/postdoctoral grants.

## 4. Open, transparent and merit-based recruitment

### Recruitment system

Croatian citizenship is a prescribed prerequisite of the majority of calls for publicly funded research jobs. Under the Act on Scientific Activity and Higher Education (Article 40), an appointment to a research position within public scientific research organisations must be based on a public competition, published in the Official Gazette of the Republic of Croatia, and on the official internet site of the scientific research organisation. Employment in all types of institutions and higher education is based on public call for tenders so that equal access to public services for all citizens is guaranteed.

In scientific organisations, the term of appointment to scientific positions must be five years. The general requirement for scientific appointments must be registered in the 'Register of Scientists', in line with Article 40 of the Act on Scientific Activity and Higher Education. The criteria and procedure for appointment must be published in the Official Gazette and on the website of the institution, and should also be advertised by the Croatian Employment Service. A scientific research organisation may stipulate additional requirements for the appointment.

Candidates appointed to scientific job positions conclude an employment contract for a period of five years with the obligation of re-appointment or promotion every five years. Candidates appointed to scientific or associate grades employed on a temporary project may conclude a temporary employment contract for the full or partial duration of the project.

A researcher may be appointed to a job position of research associate or senior research associate only twice.

### 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	Under the Act on Scientific Activity and Higher Education (art. 40), an appointment to a job position in a public scientific research organisations must be carried out based on a public competition published in the Official Gazette of the Republic of Croatia, and on the official Internet site of the scientific research organisation.
– publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)	No	
– publish job vacancies in English	No	
– systematically establish selection panels	Yes	The Act on Scientific Activity and Higher Education (art. 35) implies the establishment of 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.)	-Yes	Under the Act on Scientific Activity and Higher Education (art. 40), foreign experts' opinions can be taken into consideration in the selection process.
– publish the composition of a selection panel (obliging the recruiting institution)	No	
– publish the selection criteria together with job advert	Yes	Some institutions publish the selection criteria. This depends on their internal rules, The criteria and selection procedure must be published in the Official Gazette and on the website of the institution.
– regulate a minimum time period between vacancy publication and the deadline for applying	Yes	The Collective Agreement for Science and Institutions of Higher Education regulates the time period between vacancy publication and the deadline for applying.

Do institutions in the country currently have policies to ...?	Yes/No	Description
– place the burden of proof on the employer to prove that the recruitment procedure was open and transparent	Yes	Institutions place the burden of proof on the employer for proving that the recruitment procedure was open and transparent.
– offer applicants the right to receive adequate feedback	Yes	The Collective Agreement for Science and Institutions of Higher Education gives the applicants the right to receive adequate feedback.
– offer applicants the right to appeal	Yes	The Collective Agreement for Science and Institutions of Higher Education gives the applicants the right to receive adequate feedback.

Source: Deloitte

### EURAXESS Services Network

In 2012, the number of researchers posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 20.6 in Croatia compared with 22.7 among the Innovation Union reference group and an EU average of 40.8<sup>5</sup>.

EURAXESS HR contains information on entry conditions, transfer of social security and pension contributions, finding accommodation, administrative assistance, etc. (<http://www.euraxess.hr/>). Information on entry conditions is also available on the web pages of the Ministry of Interior ([http://www.mup.hr/main.aspx?id=1266#Temporary\\_stay](http://www.mup.hr/main.aspx?id=1266#Temporary_stay)) and on the web pages of all Croatian embassies abroad.

As of June 2011, 441 publicly funded research jobs had been published on the EURAXESS portal and 88 research organisations from Croatia had registered for this activity. Advertising a large number of publicly funded research jobs on the central EURAXESS portal is felt to have increased the visibility of Croatian research organisations and has increased their prospects for international cooperation, joint research etc.

## 5. Education and training

### Measures to attract and train people to become researchers

In the 2010/2011 academic year, a total of 1 762 students were enrolled in postgraduate specialist studies. Of these 1 191 (67.6%) were women. The field chosen most often chosen was social sciences (45.5%), followed by biomedicine and health (42.5%), engineering (5.7%), life sciences (1.9%), interdisciplinary fields (1.6%), biotechnical sciences (1.4%), humanities (1.0%) and artistic fields (0.5%)<sup>6</sup>.

### Doctoral graduates by gender

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

Table 4: Doctoral graduates by gender

Indicator	Croatia	EU Average/Total
New doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (2010)	1.4	1.5
Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2010)	1.4	1.4
Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2010)	1.3	1.6

Source: Eurostat

Data: Eurostat

### Funding of doctoral candidates

In the academic year 2010-11, of the total number of doctoral candidates, 92.7% were employed and 7.3% were unemployed. By activities, the largest number of doctoral candidates were employed in education (42.1%), in health and social welfare (18.8%), in professional, scientific and technical activities (17.4%), in public administration and defence, compulsory social security (5.3%), in information and communication, as

<sup>5</sup> See Figure 1 “Key indicators – Croatia”.

<sup>6</sup> Ibid.

well in manufacturing (2.6% in each activity), in arts, entertainment and recreation (1.8%) and in other activities (9.4%)<sup>7</sup>.

### Measures to increase the quality of doctoral training

The University of Zagreb plans to initiate a nationwide project in 2013 to provide all Croatian universities with HR programmes for sustainable skills development. The project is called Modernising Doctoral Education through Implementation of CROQF (Croatian Qualification Framework) and will be coordinated by the University of Zagreb in cooperation with six partners; all Croatian public universities and 3 associated partners (Agency for Mobility and EU Programmes, Croatian Employment Service and Young Scientist Network – MLAZ). The overarching objective of the project is to enhance the implementation of the CROQF in the national doctoral education system as well as to develop and modernise doctoral students' qualifications during their doctoral studies by enhancing their professional and personal competences using CROQF standards.

### Skills agenda for researchers

In December 2010, the Ministry of Science, Education and Sports published an Action plan for Mobility of Researchers 2011-2012 with a chapter dedicated to the development of researcher competences: *“With a view toward building human resource capacities in the science sector in Croatia, increasing inter-sectoral and transnational mobility and maximising the absorption of funds allocated for this type of cooperation, professional development and training programmes must be created with the goal of sharpening researcher competences in the following areas: management, entrepreneurship, research, presentation, communication and administration.”*

The University of Zagreb provides additional skills development for doctoral candidates enrolled at the university on a continuing basis. In 2009, the Doctoral Studies Rulebook of the University established a skills agenda for the development of additional skills as one of core elements of doctoral education and initiated specific programmes for transferable skills development in doctoral education.

The Central Office of Doctoral Studies and Programmes is in charge of providing the necessary tools for the implementation of a skills agenda, and supporting PhD candidates in developing transferable skills. Its aim is to develop communication, management and business skills that will allow PhD candidates to take advantage of their scientific potential during their doctoral training and later in the development of their academic and professional career. In 2012, the University of Zagreb, in association with international experts, organised eight workshops for PhD candidates (15-25 participants per workshop). The workshops were highly interactive and involved a minimum of lecturing with a maximum of group exercises, writing practice and communication within the teams.

In addition, the University of Zagreb is committed to raising awareness of the importance of the implementation of programmes for transferable skills development during doctoral education and to stressing the role of institutions in creating these programmes. To achieve this, a number of events were organised during 2012 (mainly in the form of conferences), targeting all those included in the process of doctoral education, be they vice-deans for science, doctoral study directors, supervisors or research team managers.

In 2013, depending on the resources available, the University of Zagreb is planning to continue organising workshops for additional skills, and will launch the Modernising Doctoral Education through Implementation of CROQF project (see above).

The University of Rijeka in 2012 organised 37 different lectures and workshops for almost 1 500 participants with the goal of enhancing researchers' knowledge in development of entrepreneurial skills, preparation and management of projects funded by the EU and intellectual property rights. In 2013, the University of Rijeka is planning to continue organising scientific colloquia and workshops about intellectual property rights, knowledge and technology mapping, and preparation and management of EU-funded proposals.

The Science and Technology Park at the University of Rijeka is very active in organising workshops dedicated to transferable skills. These workshops are open to both SME's and researchers from the University of Rijeka.

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<sup>7</sup> Croatian Bureau of Statistics, “Students Enrolled on Postgraduate Specialist Studies, 2010/2011 Academic Year”, available at: [http://www.dzs.hr/default\\_e.htm](http://www.dzs.hr/default_e.htm)

During 2012, the Science and Technology Park organised 18 workshops with 500 participants on topics such as project management, technology transfer, e-marketing etc.

The University of Split has a Technology Transfer Office (TTO) which aims to increase the commercialisation of University intellectual property and strengthen links between universities and industry. Among other activities, the Office provides support to researchers in all phases of the implementation of technology projects (the idea, invention, process, intellectual property protection, the establishment of enterprises and the commercialisation of intellectual property). In February 2012, TTO organised an Intellectual Property Month with three workshops: a) Introduction to Intellectual Property, b) Patent Protection of the Invention and c) Patent Databases as a source of information.

## 6. Working conditions

### Measures to improve researchers' funding opportunities

The following table summarises programmes designed to improve researchers' funding opportunities.

Table 5: Funding opportunities for researchers

Measures	Description
<b>Grant Scheme – Science and Innovation Investment Fund (SIIF) - Technical Assistance Phase II (2012-2014)</b>	The Directorate for Science of the Ministry of Science, Education, and Sports and the Human Dynamics Consortium for Technical Assistance (TA) launched a 2 <sup>nd</sup> Call under the “Science and Innovation Investment Fund” (SIIF) grant scheme with an allocated total amount of EUR 6.7 million. The dual objective of the call is to create value from research results and intellectual property rights (IPR) as well as build the technology transfer and commercialisation capacities of higher education institutions (HEIs) and public research organisations (PROs).
<b>Croatian Science Foundation</b>	
<b>Collaborative Research Programmes (ongoing)</b>	Collaborative Research Programmes are research programmes carried out by universities, faculties and public institutes that involve a number of content-related research projects – a minimum of three research groups of which at least two come from different legal entities. A Collaborative Research Programme must be approved by the Senate of the University, the Academic Council of the Faculty or the Scientific Council of the Public Institute or another scientific institution registered in the Republic of Croatia, and comply with the priorities of the applicant's home institution. The project leader must be an internationally recognised, qualified and productive researcher. The ultimate goal of the programme is to encourage the development and strengthen the cooperation of research groups to be able to create internationally competitive programmes and provide the conditions for development of Centres of Excellence.
<b>Development of Croatian Professional Terminology (ongoing)</b>	The Croatian Science Foundation (CSF) has decided to support projects for the development of Croatian professional terminology in the fields of the EU <i>acquis</i> , computer science, economy, finance, promotion and other scientific fields. The purpose is to foster close collaboration between linguists and experts in those particular fields as well as to establish cooperation among experts in different fields to unify the same terms in different professions. The CSF seeks to support systematic research into the terminology of particular professions and the proposal of the best terms and definitions to be added to the national coordinator's database – e-Struna. A successful project will receive up to HRK 100 000 (some EUR 13 184).
<b>Research Projects Call</b>	The primary aim of the Research Projects Call is to create new and enhance existing knowledge, supporting research groups that are working on internationally competitive issues, and whose leaders have been recognised for their scientific achievements. It is the main support instrument for international cooperation but also serves to promote and develop the strategic priorities of the Republic of Croatia. The ultimate goal of the call is to create a critical mass of research groups that will be competitive at an international level.

Source: Deloitte

### Remuneration

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

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

The implementation of the 'Charter & Code' principles is publicly promoted and supported by the Ministry of Science, Education and Sports. The promotion of the 'Charter & Code' principles is also foreseen in the Action Plan for Mobility of Researchers and the Action Plan to Encourage Investment into Science and Research.

To date, all public research institutions (including higher education institutions), the Croatian Academy of Sciences and Arts, the Croatian Science Foundation and three research organisations from the private sector have endorsed the 'Charter & Code' and they are working on improving their HR strategy for researchers in accordance with those principles.

The Ministry, together with the Agency for Mobility and EU Programmes, offers support and information about the implementation process.

Twelve public research organisations have completed the HRS4R process and received the acknowledgment of the European Commission.

## Autonomy of institutions

The Constitution of the Republic of Croatia, international agreements and the Act on Scientific Activity and Higher Education (2003) provide higher education institutions with academic freedom for all members of the academic community, self-governance and autonomy.

The following table summarises the academic freedoms, academic self-government and university autonomy in the Republic of Croatia.

**Table 6: Academic freedoms, academic self-government and university autonomy**

Academic freedoms	Academic self-government	University autonomy
<ul style="list-style-type: none"><li>– Freedom of scientific and artistic research and creativity;</li><li>– Teaching;</li><li>– Mutual cooperation;</li><li>– Freedom of association.</li></ul>	<ul style="list-style-type: none"><li>– Regulation of study and students' admission;</li><li>– Selection of leadership and teachers;</li><li>– Management of resources at the disposal of higher education institutions;</li></ul>	<ul style="list-style-type: none"><li>– Organisation of internal structure;</li><li>– Determination of educational, scientific, artistic and professional programmes;</li><li>– Financial autonomy in accordance with the Act;</li><li>– Decision-making on the approval of projects and international collaboration;</li><li>– Other forms of autonomy, in accordance with the Act.</li></ul>
Academic freedoms, academic self-government and university autonomy also include the responsibility of the academic community towards the social community within which institutions operate.		

Source: Deloitte

## Career development

The table below presents the different scientific titles and corresponding scientific-educational titles in the Republic of Croatia.

**Table 7: Scientific titles and corresponding scientific-educational titles**

Scientific titles	Corresponding scientific-educational titles
<ul style="list-style-type: none"><li>– Scientific associate</li><li>– Senior scientific associate</li><li>– Scientific adviser</li></ul>	<ul style="list-style-type: none"><li>– Assistant professor</li><li>– Associate professor</li><li>– Full professor</li></ul>

Source: Deloitte

Procedures for appointment to scientific titles and scientific-educational titles must be carried out according to the Act on Scientific Activity and Higher Education (2003).

Researchers' career paths in Croatian research organisation are quite rigid and do not encourage mobility.

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

Doctoral and postdoctoral grants from the Croatian Science Foundation only cover the short-term stay of researchers (3-12 months) in foreign academic institutions while employed at their home institutions. Therefore, sickness benefits depend entirely on each institution's individual policies and not on the Foundation's fellowships and grants schemes.

Grants from the Croatian Science Foundation do not carry any old-age benefits (pensions) for researchers, regardless of their employment status.

## 7. Collaboration between academia and industry

A number of Croatian strategic documents recognise the importance of industry/academia cooperation in line with the objectives of the 'Europe 2020' strategy. These documents include the Economic Recovery Programme (2010), the Pre-Accession Economic Programme (2010 and 2012) and the 'Action Plan for the Mobility of Researchers 2011-2012.

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

Table 8: Collaboration between academia and industry

Publicly funded programmes	Description
<b>Business Innovation Agency of the Republic of Croatia (BICRO) (ongoing)</b>	The Business Innovation Agency of the Republic of Croatia was founded by the Croatian Government to implement technology development and innovation support programmes. It is a central institution in the national innovation system for supporting innovation and technology advancement. Its programmes are: <ul style="list-style-type: none"><li>– RAZUM – provides initial funding for newly established knowledge-based companies as well as funding research and development of new products or services in existing companies;</li><li>– TEHCRO - supports commercialisation of research outputs and the transfer of knowledge from universities and scientific institutions to business and also supports development of Technology Business Centres, Technology Incubators and Research and Development Centres;</li><li>– VENCRO - ventures capital funds for fast growing small and medium companies based on innovation and advanced technologies;</li><li>– IRCRO - supports cooperation between industry and technology institutions, facilitates maximum usage of infrastructure in scientific research centres and supports industrial companies in substantially increasing their R&amp;D activities;</li><li>– EUREKA - supports innovative SMEs in their international collaborative market-oriented R&amp;D projects and is open to all areas of technology.</li></ul>
<b>Croatian Science Foundation, Partnership in Research Programme</b>	The Croatian Science Foundation funds the Partnership in Research Programme. The programme aims to improve cooperation between research institutions, industry and entrepreneurship and thus increase extra budgetary investments in research. The annual budget per project is approximately HRK 500 000 (some EUR 65 908) (for projects lasting up to three years) including material expenses, equipment, salaries, travel costs and cooperation. Partner institution participation and co-financing of 50% of the total project funds is mandatory.
<b>Unity through Knowledge Fund (UKF) (ongoing)</b>	The objective of the Unity through Knowledge Fund is to unite scientific and professional potential in Croatia and the diaspora in development of the knowledge-based society. Through the annual approval of around a dozen 'Young Researchers and Professionals' projects and the '3C Research in Industry and Academia Grants', UKF encourages the competitiveness of national research at an international level, fosters research that creates new values in the Croatian economy and funds projects that help the development of research infrastructure in Croatia.

Source: Deloitte

Inter-sectoral mobility is gaining in importance and is included in the Economic Recovery Programme, the Pre-Accession Economic Programme and the Action Plan for Mobility of Researchers.

## 8. Mobility and international attractiveness

In 2010, the percentage of doctoral candidates (ISCED 6) who were citizens of another EU-27 Member State was 2.2% in Croatia compared to 4.9% among the Innovation Union reference group and an EU average of 7.8%<sup>8</sup>. In the same year, non-EU doctoral candidates were 2.2% of all doctoral candidates in Croatia compared with 5.3% among the Innovation Union reference group and an EU average of 20.0%.

In the academic year 2010-11, by place of usual residence, 97.8% of students were residents of the Republic of Croatia and 2.2% were residents of other countries. By citizenship, of the total number of students, 98.0% were citizens of the Republic of Croatia and 2.0% of foreign countries<sup>9</sup>.

### 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 9: Measures to attract and retain leading researchers

Measure	Objectives
<b>Return of Croatian scientists to the country project (ongoing since 2004)</b>	The Ministry of Science, Education and Sports has had a project aimed at attracting prominent Croatian scientists currently working abroad, and assisting them in achieving the conditions for realisation of scientific research careers in Croatia.
<i>Unity through Knowledge Fund</i>	
<b>Homeward Grant (ongoing)</b>	The objective of the Homeward Grant is to attract Croatian scientists and experts from abroad to return home in order to enhance Croatia's competitiveness. Eligible candidates are all outstanding experienced researchers and experts of Croatian nationality or origin, who have built their career abroad and still live abroad, but have been offered a position at an organisation in Croatia or have returned to Croatia and taken a position at an organisation in Croatia within past two years.
<i>Croatian Science Foundation</i>	
<b>EMBO Installation Grant (EMBO IGs) (2009-ongoing)</b>	The objective of the programme is to help leading life scientists set up their labs in Croatia and rapidly establish a reputation in the European scientific community. The programme targets Croatian and foreign life science researchers who have spent two consecutive years outside Croatia and Croatian institutions and universities. The successful applicant receives EUR 50 000 annually for three to five years.
<b>Fellowships for Doctoral Students (ongoing)</b>	The main goal of the programme is to increase research standards, to raise the quality of doctoral studies and to promote the international mobility of young researchers during their doctoral studies. Within the priorities determined by the Strategic Plan, the Croatian Science Foundation co-finances doctoral education of assistants, research novices and expert associates employed by Croatian universities and research institutes, and enrolled in an accredited doctoral study in Croatia, to carry out their research or pursue part of their doctoral education at internationally recognised institutions. Foreign doctoral students from academic institutions are invited to conduct research projects within accredited doctoral study courses at one of the Croatian scientific and academic institutions. Personal grants are given for research stays lasting from three to twelve months and the monthly budget per grant is approximately HRK 7 500 (some EUR 988).
<b>HRZZ Installation Grants (ongoing)</b>	The objective of the Installation Grants is to help leading scientists, with two to five years of postdoctoral experience, to set up their research activity in Croatia and rapidly establish a reputation in the European scientific community. The grants are available to Croatian and foreign researchers with two to five years of postdoctoral experience in Croatia or abroad with proven institutional support. Projects are submitted within three research fields. Successful applicants receive up to HRK 350 000 (some EUR 46 141) annually for three years.
<b>Postdoc Programme (ongoing)</b>	The objective of the Postdoc programme is to improve the professional competencies of young researchers holding a PhD and to support their early scientific independence. The programme targets Croatian postdoctoral students from Croatian research institutions and foreign postdoctoral students coming to Croatia in order to carry out research projects. Personal grants are given for research stays lasting from three to twelve months

<sup>8</sup> See Figure 1 "Key indicators – Croatia"

<sup>9</sup> Croatian Bureau of Statistics, "Students Enrolled on Postgraduate Specialist Studies, 2010/2011 Academic Year", available at: [http://www.dzs.hr/default\\_e.htm](http://www.dzs.hr/default_e.htm)

Measure	Objectives
	and the monthly budget per grant is approximately HRK 9 750 (some EUR 1 285).

Source: Deloitte

### **Inward mobility (funding)**

The Republic of Croatia has so far published two action plans for mobility of researchers:

- Action Plan for the Mobility of Researchers 2009-10;
- Action Plan for the Mobility of Researchers 2011-12.

Publicly-funded research jobs often require Croatian citizenship, which therefore excludes incoming non-Croatian researchers.

The Croatian Science Foundation provides fellowships for Doctoral and Postdoctoral Students (see table above). The objective of these fellowships is to improve the research standard and quality of doctoral studies and to promote international mobility of young researchers during and after their doctoral studies.

In addition, the HRZZ Installation Grants programme of the Croatian Science Foundation (see table above) encourages young scientists to further develop their research careers in Croatia and not only to contribute to modernisation of the Croatian higher education and research area but also to enhance the competitiveness of Croatia's researchers in the European Research Area.

### **Outbound mobility**

On the basis of bilateral agreements and programmes, and in accordance with common interests and priorities, the Ministry of Science, Education and Sports of the Republic of Croatia supports international research projects (usually biennial projects). In 2012, bilateral research projects were financed with the following countries: Austria, Germany, France, FYR Macedonia, Montenegro, Serbia, Slovenia, China, Japan, and USA. Finance allocated for these projects is intended to serve the mobility of researchers: the Ministry covers the travel expenses of Croatian researchers travelling abroad and the expenses of foreign partners' stay in Croatia (whereas the contracting party covers the travel expenses of their researchers and the cost of the stay in the other country of Croatian researchers). Joint committees decide on the selected projects, on the basis of competitions and completed reviews. See also table above (the Croatian Science Foundation fellowships).

### **Promotion of 'dual careers'**

The Government of the Republic of Croatia does not actively promote policies/measures supporting researchers' dual careers.

### **Portability of national grants**

In Croatia, publicly funded grants or fellowships are not portable to other EU countries.

### **Access to cross-border grants**

Doctoral and postdoctoral grants of the Croatian Science Foundation can only be awarded to successful candidates:

- a) with Croatian citizenship, who are already employed by Croatian universities and research institutes;
- b) without Croatian citizenship – foreign doctoral students who plan to conduct a research project at one of the Croatian scientific and academic institutions as part of accredited doctoral study in Croatia (regardless of their employment status).

See also chapter 6 "Working conditions" (Installation Grants, Postdoc, Senior and Visitor programmes).