



# DG Research and Innovation

**Researchers' Report 2014**

*Scorecards*



**Deloitte.**

## Table of Contents

Introduction .....	3
1. Researchers (Full Time Equivalent) per thousand labour force, Europe .....	7
2. Women as Grade A academic staff, Europe .....	9
3. Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, Europe .....	11
4. New doctoral graduates (ISCED 6) per thousand population aged 25-34, Europe .....	13
5. Researchers employed on fixed-term contracts, Europe .....	15
6. Non-EU doctoral candidates as a percentage of all doctoral candidates, Europe (%) .....	17
7. Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, Europe .....	19
8. Researchers having spent a period of at least three months as a researcher in another country in the last 10 years, Europe, 2012 (%) .....	21
9. International scientific co-publications per million population, Europe .....	23
10. Scientific publications in the top 10% most-cited publications worldwide as a percentage of total scientific publications, Europe.....	25

## Introduction

The multi-coloured scorecards allow for quick visualisation of the countries' individual progress (or lack thereof) between two different dates for a number of key indicators<sup>1</sup>. The indicators were selected based on their a) relevance for the issue to be monitored, b) comparability between dates (availability of data) and c) robustness of the data set. Scorecards serve as a means of monitoring change between different dates by showing if the value of an indicator has increased, decreased or remained stable. The indicators are presented for the following 'monitoring categories':

- The stock of researchers in Europe;
- Women in the research profession;
- Open, transparent and merit-based recruitment;
- Education and training;
- Working conditions in the research profession;
- Mobility and international attractiveness.

The table below presents an overview of the key 10 indicators, the data source(s) and the year(s) of reference.

**Table 1: Scorecards - Key 10 indicators, *The Researchers' Report 2014***

Indicators	Data source(s)	Year(s) of reference
<b>The stock of researchers in Europe</b>		
Researchers (Full Time Equivalent) per thousand labour force, Europe, 2010 and 2011	Eurostat	2010, 2011
<b>Women in the research profession</b>		
Women as Grade A academic staff, Europe, 2002 and 2010 (%)	WiS database/SHE figures	2002, 2010
<b>Open, transparent and merit-based recruitment</b>		
Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, Europe, 2012 and 2013	EURAXESS Jobs Portal	2012, 2013
<b>Education and training</b>		
New doctoral graduates (ISCED 6) per thousand population aged 25-34, Europe, 2010 and 2011	Eurostat	2010, 2011
<b>Working conditions in the research profession</b>		
Researchers employed on fixed-term contracts, Europe, 2012 (%)	MORE2 study	2012
<b>Mobility and international attractiveness</b>		
Non-EU doctoral candidates as a percentage of all doctoral candidates, Europe, 2010 and 2011 (%)	Eurostat/Innovation Union Scoreboard 2014	2010, 2011
Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, Europe, 2010 and 2011 (%)	Eurostat	2010, 2011
Researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years, Europe, 2012 (%)	MORE2 study	2012
International scientific co-publications per million population, Europe, 2011 and 2012	Science Metrix/Scopus/Innovation Union Scoreboard 2014	2011, 2012
Scientific publications in the top 10% most-cited publications worldwide as a percentage of total scientific publications, Europe, 2008 and 2009 (%)	Science Metrix/Scopus/Innovation Union Scoreboard 2014	2008, 2009

Source: Deloitte

<sup>1</sup> These indicators were agreed upon by the ERA SGHRM (Steering Group on Human Resources and Mobility).

Each scorecard refers to two dimensions:

1. **Score:** the value of the indicator for the latest year available is summarised in four value ranges (from 4 to 1) represented by colours, from 4 (green) to 1 (orange);
2. **Progress:** the value of the indicator against its value from the previous year (or latest year available). This makes it possible to monitor progress (or lack thereof) by showing if the value of the indicator has increased (↑), decreased (↓) or remained stable (↔).

The countries (and in some cases the EU<sup>2</sup>, US, Japan and China) are put in four performance groups<sup>3</sup>:

**Table 2: Scorecards – Methodology**

Category	Calculation
Green (4)	The country's/region's performance is at least 20% above the EU average.
Light green (3)	The country's/region's performance is between -10% and +20% of the EU average.
Yellow (2)	The country's/region's performance is between -50% and -10% of the EU average.
Orange (1)	The country's/region's performance is below 50% of the EU average.

Source: Deloitte

In most cases, we observe a positive trend in the EU performance between two different dates:

- Between 2010 and 2011, the number of researchers (FTE) per 1 000 labour force increased in the EU-28 by 1.1%, less than in Japan (5.2%) and slightly less than in the US (1.3%); Over a longer timeframe, the figure has increased by 38% since 2000;
- Between 2002 and 2010, the average percentage of women Grade A academic staff in the EU increased from 15.3% to 19.8% (+29%);
- Between 2012 and 2013, the average number of research posts advertised via the EURAXESS Jobs portal per thousand researchers in the public sector in the EU-28 increased from 40.8% to 43.7% (+7%); Since 2009, the increase has been eightfold;
- The number of new doctoral graduates (ISCED 6) per thousand population aged 25-34 in the EU increased from 1.6 in 2010 to 1.7 in 2011 (+6%);
- Between 2010 and 2011, the EU share of non-EU doctoral candidates as a percentage of all doctoral candidates increased from 19.1% to 24.2% (+27%);
- Between 2011 and 2012, the number of international scientific co-publications per million population in the EU-28 increased from 331 in 2011 to 343 in 2012 (+4%). The EU-28 average was 343 co-publications per million population in comparison with 448 in the United States, 215 in Japan and 46 in China;
- Between 2008 and 2009, EU-28 scientific publications in the top 10% most-cited publications worldwide as a percentage of all scientific publications increased from 10.8% to 11.0% (+1%).

The table below presents the performance of the EU (and in some cases of the US, Japan and China) for a number of indicators, showing the name of the indicator(s), the values per year of reference and the long- and short-term trend for each indicator (where data are available).

<sup>2</sup> Since Croatia joined the EU on 1 July 2013, not all EU averages have been adapted yet; some still present the EU average for 27 countries only. Any difference between the EU and EU-28 averages is not considered statistically significant.

<sup>3</sup> Based on the methodology applied in the "Innovation Union Scoreboard 2013", European Commission (2013)

Table 3: Scorecards - Current situation and trend per key indicator for the EUEU, US, China and Japan<sup>4</sup>

Name of the indicator	Values/ progress	Years of reference	EUEU		United States		China (except Hong Kong)		Japan	
Researchers (Full Time Equivalent) per thousand labour force, EU-28, US, China, Japan, 2000, 2010 and 2011	Values	2000	4.9		9.0		1.0		9.6	
		2010	6.7		9.5		1.5		10.0	
		2011	6.7		9.6		1.6		10.5	
	Progress	2000-2011	↑	38%	↑	7%	↑	71%	↑	9%
		2010-2011	↑	1%	↑	1%	↑	8%	↑	5%
Women as Grade A academic staff, Europe, 2002 and 2010, EU	Values (%)	2002	15.3		:	:	:	:	:	
		2010	19.8							
	Progress	2002-2010	↑	29%						
Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, EUEU, 2009, 2012 and 2013	Values	2009	4.9		:	:	:	:		
		2012	40.8							
		2013	43.7							
	Progress	2009-2013	↑	790%						
2012-2013		↑	7%							
New doctoral graduates (ISCED 6) per thousand population aged 25-34, EU, US, China, Japan, 2000, 2010 and 2011	Values	2000	1.1		1.1		:		0.7	
		2010	1.5		1.7		2.4		1.0	
		2011	1.7		1.8		2.2		1.0	
	Progress	2000-2011	↑	55%	↑	64%	n/a		↑	43%
		2010-2011	↑	13%	↑	6%	↓	-7%	↔	0%
Non-EU doctoral candidates as a percentage of all doctoral candidates, EU, 2004, 2010 and 2011	Values (%)	2004	15.8		:	:	:	:		
		2010	19.1							
		2011	24.2							
	Progress	2004-2011	↑	53%						
2010-2011		↑	27%							
International scientific co-publications per million population, EU-28, US, China, Japan, 2005, 2011 and 2012	Values	2005	229		:		:		:	
		2011	331		450		43		211	
		2012	343		448		46		215	
	Progress	2005-2012	↑	50%	n/a		n/a		n/a	
2011-2012		↑	4%	↓	-1%	↑	7%	↑	2%	
Scientific publications in the top 10% most-cited publications worldwide as a percentage of total scientific publications, EU-28, US, China, Japan, 2002, 2008 and 2009	Values (%)	2002	9.91		:		:		:	
		2008	10.8		14.3		6.8		7.3	
		2009	11.0		14.5		6.7		7.0	
	Progress	2002-2009	↑	10%	n/a		n/a		n/a	
		2008-2009	↑	1%	↑	1%	↓	-2%	↓	-4%

<sup>4</sup> Data per Member State for each of the ten key indicators are available in the "Scorecards". This includes three key indicators (doctoral candidates with a citizenship of another EU-27 Member State, share of mobile researchers and share of fixed-term contracts) which were excluded from this table as there is no information on progress in the EU nor any comparable data for the US, China and Japan.

Source: Deloitte.

The table below presents an overview of national performance for each key indicator, showing the number of European countries in each of the monitoring categories.

Table 4: Scorecards - Distribution of countries per key indicator, Europe

	Stock of researchers	Women in the research profession	Open, transparent and merit-based recruitment	Education and training	Working conditions in the research profession	Mobility and international attractiveness				
	Researchers (Full Time Equivalent) per thousand labour force, Europe, 2010 and 2011	Women as Grade A academic staff, Europe, 2002 and 2010 (%)	Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, Europe, 2012 and 2013	New doctoral graduates (ISCED 6) per thousand population aged 25-34, Europe, 2010 and 2011	Researchers employed on fixed-term contracts, Europe, 2012 (%) <sup>5</sup>	Non-EU doctoral candidates as a percentage of all doctoral candidates, Europe, 2010 and 2011 (%)	Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, Europe, 2010 and 2011 (%)	Researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years, Europe, 2012 (%)	International scientific co-publications per million population, Europe, 2011 and 2012 <sup>67</sup>	Scientific publications in the top 10% most-cited publications worldwide as a percentage of total scientific publications 2008 and 2009 (%)
<b>Green (4)</b>	11	8	11	8	13	4	12	12	24	5
<b>Light Green (3)</b>	5	8	3	9	6	2	4	8	2	11
<b>Yellow (2)</b>	13	13	4	8	4	6	6	12	5	8
<b>Orange (1)</b>	3	0	16	9	10	20	8	1	3	9
<b>Total number of countries</b>	<b>32</b>	<b>29</b>	<b>34</b>	<b>34</b>	<b>33</b>	<b>32</b>	<b>30</b>	<b>33</b>	<b>34</b>	<b>33</b>

Source: Deloitte

<sup>5</sup> For the purposes of this indicator, countries reporting a comparatively low share of researchers employed on fixed-term contracts compared to the EU-average are presented on top (green).

<sup>6</sup> Based on the average of EU-28 Member States.

<sup>7</sup> International scientific co-publications are a proxy for the quality of scientific research as collaboration increases scientific productivity. The numerator refers to the number of scientific publications with at least one co-author based abroad (where abroad is non-EU for the EU-28).

## 1. Researchers (Full Time Equivalent) per thousand labour force, Europe

Table 5: Value ranges - Researchers (Full Time Equivalent) per thousand labour force, Europe, 2010 and 2011

The number of researchers (Full Time Equivalent) per thousand labour force is:	
<b>Green (4)</b>	At least 20% above the EU-28 average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU-28 average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU-28 average.
<b>Orange (1)</b>	Below 50% of the EU average.

The EU is lagging behind its main competitors in the share of researchers in the total labour force, despite a moderate increase between 2010 and 2011. In 2011, the ratio was 6.75 per 1 000 in the EU-28, compared to 9.63 in the US and 10.47 in Japan. The Nordic countries and Luxembourg are significantly higher than the EU average.

Between 2000 and 2011, the number of researchers (FTE) in relation to the labour force increased from 4.90 to 6.75 in the EU-28, up from 6.68 in 2010. The increase in the United States between 2000 and 2011 was from 9.0 to 9.63. In Japan, it was from 9.57 to 10.47, while China reported an increase from 0.95 to 1.63, still below any European country except Romania. (The total labour force – i.e. including both the employed and unemployed – was some 241 million in the EU-28 in 2011, compared to 155 million in the United States, 63 million in Japan and 807 million in China.)

Between 2010 and 2011, the number of researchers (FTE) per 1 000 labour force increased in Europe by 1.1%, less than in Japan (5.2%) and slightly less than in the US (1.3%).

Table 6: Scorecard: Researchers (Full Time Equivalent) per thousand labour force, EU-28, US, China, Japan, 2010 and 2011

Region	2010	2011	Progress/2010 (%)	
<i>EU</i>	6.7	6.7	↑	1
<i>United States</i>	9.5	9.6	↑	1
<i>China (except Hong Kong)</i>	1.5	1.6	↑	8
<i>Japan</i>	10.0	10.5	↑	5

Source: Deloitte  
Data: Eurostat

All Nordic countries have a higher share of researchers (FTE) per thousand labour force than the US. Finland and Denmark rank highest of EU-28 countries, with more than fifteen researchers per thousand labour force – higher also than Japan.

Within the EU-28 in 2011, the share of researchers per thousand labour force was highest in two Nordic countries (Finland and Denmark). It was lowest in a number of Eastern European countries, such as Romania, Bulgaria, Poland and Latvia.

Table 7: Scorecard: Researchers (Full Time Equivalent) per thousand labour force, Europe, 2010 and 2011

Country	2010	2011	Progress/2010 (%)	
<i>Finland</i>	15.5	14.9	↓	-4
<i>Denmark</i>	12.8	13.0	↑	1
<i>Iceland</i>	16.0	11.9	↓	-25
<i>Luxembourg</i>	11.4	11.2	↓	-2
<i>Norway</i>	10.2	10.4	↑	2
<i>Sweden</i>	10.0	9.7	↓	-3
<i>Portugal</i>	8.2	9.0	↑	10
<i>Belgium</i>	8.3	8.8	↑	5
<i>France</i>	8.5	8.7	↑	2
<i>Slovenia</i>	7.4	8.6	↑	16
<i>Austria</i>	8.5	8.6	↑	2
<i>Germany</i>	7.9	8.0	↑	2
<i>United Kingdom</i>	8.2	8.0	↓	-3
<i>Ireland</i>	6.5	7.0	↑	8
<i>Netherlands</i>	6.1	6.7	↑	9
<i>Estonia</i>	5.9	6.5	↑	9
<i>Czech Republic</i>	5.5	5.9	↑	6
<i>Slovakia</i>	5.6	5.7	↑	2
<i>Lithuania</i>	5.6	5.7	↑	0
<i>Spain</i>	5.8	5.6	↓	-3
<i>Hungary</i>	5.0	5.4	↑	7
<i>Switzerland</i>	:	5.1	n/a	n/a
<i>Greece</i>	4.6	5.0	↑	8
<i>Italy</i>	4.1	4.2	↑	2
<i>Malta</i>	3.4	4.2	↑	24
<i>Croatia</i>	4.1	4.0	↓	-2
<i>Latvia</i>	3.4	3.8	↑	13
<i>Poland</i>	3.8	3.7	↓	-1
<i>Bulgaria</i>	3.2	3.6	↑	10
<i>Turkey</i>	2.5	2.7	↑	7
<i>Cyprus</i>	2.1	2.1	↓	-1
<i>Romania</i>	2.0	1.6	↓	-18

Source: Deloitte

Data: Eurostat

\*No information available for 2010 and 2011 for BiH, FYROM, IL, LI, ME and SR and for 2010 CH



## 2. Women as Grade A academic staff, Europe

Table 8: Value ranges – Women as Grade A<sup>8</sup> academic staff, Europe, 2002 and 2010 (%)

The percentage of women as Grade A academic staff is:	
<b>Green (4)</b>	At least 20% above the EU average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU average.
<b>Orange (1)</b>	Below 50% of the EU average.

**The ratio of women in top-level positions in research between 2007 and 2010 rose in nearly every country but unevenly.**

Between 2007 and 2010, the average percentage of women academic Grade A staff in the EU increased from 18.7% to 19.8%, and the majority of countries in the scope of this report reported an increase in the ratio of women in high-ranking academic positions.

Table 9: Scorecard: Women as Grade A academic staff, EU, 2002 and 2010 (%)

Region	2002	2010	Progress/2002 (%)	
EU	15.3	19.8	↑	29

Source: Deloitte  
Data: WiS database/SHE figures

The under-representation of women at the higher levels of the academic hierarchy is reflected in the share of women in Grade A academic positions. The culmination of a research career is reaching a top-level position. In 2010, the EU average of the share of women among Grade A academics was 19.8%. The proportion of women in top research positions was highest (>25%) in Romania (35.6%), followed by Latvia (32.1%), Turkey (28.1%), Croatia (26.4%), Switzerland (25.9%) and Bulgaria (25.9%). Cyprus (10.7%), Luxembourg (11.4%), Belgium (12.2%), the Czech Republic (13.1%), and the Netherlands (13.1%) reported lowest (<14%) figures for women in top-level academic positions.

The next 'She Figures' publication, with updated data, is due for publication by the end of 2015.

<sup>8</sup> Grade A: The single highest grade/post at which research is normally conducted.

Table 10: Scorecard: Women as Grade A academic staff, Europe, 2002 and 2010 (%)

Country	2002	2010	Progress/2002 (%)	
Romania	26.2	35.6	↑	36
Latvia	22.9	32.1	↑	40
Turkey	25.3	28.1	↑	11
Croatia	26.2	26.4	↑	0
Switzerland	11.0	25.9	↑	137
Bulgaria	17.8	25.9	↑	45
Iceland	16.0	24.2	↑	52
Finland	19.9	24.2	↑	21
Slovakia	9.2	22.7	↑	148
Portugal	20.5	22.5	↑	10
Norway	15.7	21.4	↑	36
Hungary	13.6	20.6	↑	51
Slovenia	12.1	20.1	↑	66
Italy	15.6	20.1	↑	29
Sweden	14.0	20.0	↑	43
France	17.3	18.7	↑	8
United Kingdom	15.1	17.5	↑	16
Austria	9.5	17.4	↑	83
Estonia	17.3	17.2	↓	-1
Spain	12.6	16.9	↑	35
Denmark	10.3	15.0	↑	45
Germany	8.0	14.6	↑	82
Israel	12.7	14.5	↑	14
Lithuania	12.2	14.4	↑	18
Czech Republic	8.7	13.1	↑	50
Netherlands	8.2	13.1	↑	59
Belgium	8.4	12.2	↑	46
Luxembourg	10.0	11.4	↑	14
Cyprus	5.6	10.7	↑	92

Source: Deloitte

Data: WiS database/SHE figures

\*No information available for BiH, EL, FYROM, IE, LI, MT, ME, PL and SR

\*\* Exceptions to the reference years: 2002: NL, UK, NO; 2003: HR; 2008: IL; 2006; 2010: CZ; 2008; DK, FR, CY, AT, PT, RO, SE; 2009; EE: 2004; LT: 2007; SK: 2011; UK: 2006

\*\*\* Data estimated: EU (by DG Research and Innovation)

### 3. Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, Europe

Table 11: Value ranges – Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, Europe, 2011 and 2012

The number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector is:	
<b>Green (4)</b>	At least 20% above the EU-28 average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU-28 average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU-28 average.
<b>Orange (1)</b>	Below 50% of the EU-28 average.

The number of research posts advertised via the EURAXESS Jobs portal per thousand researchers in the public sector continued to rise in a number of European countries between 2012 and 2013, albeit at a different pace.

Between 2012 and 2013, the average number of research posts advertised via the EURAXESS Jobs portal per thousand researchers in the public sector in the EU-28 increased from 40.8 to 43.7 (+7%), and a number of countries within the scope of this report reported an increase in the number of research posts advertised on the portal, though the pattern of increases was uneven.

Table 12: Scorecard: Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, EU-28, 2012 and 2013

Region	2012	2013	Progress/2012 (%)	
EU	40.8	43.7	↑	7

Source: Deloitte  
Data: Euraxess Jobs Portal

The share of research posts advertised on the EURAXESS Jobs portal per thousand researchers in the public sector provides an indication as to the level of (international) transparency in each country. Sweden, the Netherlands, Poland, Luxembourg, Croatia and Ireland rank best for the share of jobs posted on the EURAXESS Jobs portal.

Generally speaking, if job positions are not advertised publicly and widely, the chances of recruiting the best possible talent are more limited. In 2013, the average number of job postings on the EURAXESS Jobs portal per thousand researchers in the public sector for the EU-28 was 44, with a range from 160 in Sweden to five or fewer in several countries. The number of jobs advertised via the online platform was particularly high (>100) in Sweden (160), the Netherlands (154), Poland (143), Luxembourg (120), Croatia (110) and Ireland (105). Thus, researchers across Europe benefit from more open and transparent access to research-related jobs in these countries.

We note a low (<5) share of researchers posts advertised on the EURAXESS Jobs portal per thousand researchers in the public sector in a range of countries: Portugal, Serbia, Hungary, Latvia, Lithuania, Bulgaria, Turkey, Slovakia, FYROM and Malta. It is important to note that countries such as Germany,

which report a relatively low number of research posts advertised on the EURAXESS Jobs portal have set up national systems to advertise positions. Moreover, the publication of job vacancies on relevant Europe-wide online platforms such as EURAXESS Jobs is only one of many indications of an open, transparent and merit-based recruitment system.

**Table 13: Scorecard - Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector, Europe, 2012 and 2013**

Country	2012	2013	Progress/2012 (%)	
Sweden	112.4	160.4	↑	43
Netherlands	83.7	153.8	↑	84
Poland	158.5	143.2	↓	-10
Luxembourg	158.2	120.3	↓	-24
Croatia	20.6	110.4	↑	435
Ireland	100.1	104.8	↑	5
Greece	116.5	80.7	↓	-31
Austria	58.1	76.0	↑	31
Norway	58.1	66.0	↑	14
Cyprus	82.7	65.5	↓	-21
United Kingdom	55.5	54.8	↓	-1
Estonia	19.1	51.1	↑	168
Belgium	53.3	44.1	↓	-17
France	37.5	39.6	↑	6
Iceland	17.3	27.8	↑	61
Romania	37.4	24.7	↓	-34
Italy	23.2	24.2	↑	4
Czech Republic	32.9	22.8	↓	-31
Switzerland	17.8	13.4	↓	-25
Denmark	18.1	13.0	↓	-28
Slovenia	18.8	12.7	↓	-33
Spain	8.1	10.6	↓	-
Germany	5.1	9.6	↑	90
Finland	10.1	7.2	↓	-29
Portugal	3.5	3.4	↓	-4
Serbia	:	2.7	n/a	n/a
Hungary	2.0	2.0	↓	-2
Latvia	0.9	1.8	↑	92
Lithuania	2.3	1.3	↓	-45
Bulgaria	0.7	0.4	↓	-
Turkey	0.4	0.4	↑	0
Slovakia	0.3	0.2	↓	-25
Malta	15.5	0.0	↓	-100
FYROM	1.3	0.0	↓	-100

Source: Deloitte; Data: EURAXESS Jobs portal; no information available for 2012 and 2013 for BiH, IL, LI, and ME and for 2012 for SR

## 4. New doctoral graduates (ISCED 6) per thousand population aged 25-34, Europe

Table 14: Value ranges – New doctoral graduates (ISCED 6) per thousand population aged 25-34, Europe, 2010 and 2011

The number of new doctoral graduates (ISCED 6) per thousand population aged 25-34 is:	
<b>Green (4)</b>	At least 20% above the EU average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU average.
<b>Orange (1)</b>	Below 50% of the EU average.

The number of new doctoral graduates in the EU has risen significantly in the past decade, increasing from around 72 000 in 2000 to around 118 000 in 2011.

The number of new doctoral graduates in the EU increased from 72 251 (in 2000) to 117 958<sup>9</sup> (in 2011). The increase for the US was from 44 808 in 2000 to 73 041 in 2011. In Japan, the number of new doctoral graduates increased from 12 192 in 2000 to 15 910 in 2011.

The number of new doctoral graduates (ISCED 6) per thousand population aged 25-34 in the EU increased from 1.1 in 2000 to 1.7<sup>10</sup> in 2011. The increase in the United States was from 1.1 in 2000 to 1.8 in 2011, while in Japan, it went from 0.7 in 2000 to 1.0 in 2011.

Table 15: Scorecard: New doctoral graduates (ISCED 6) per thousand population aged 25-34, EU, US, China, Japan, 2010 and 2011

Region	2010	2011	Progress/2010 (%)	
<i>EU</i>	1.6	1.7	↑	6
<i>United States</i>	1.7	1.8	↑	6
<i>China</i>	2.4	2.2	↓	-7
<i>Japan</i>	1.0	1.0	↔	0

Source: Deloitte  
Data: Eurostat

The highest number of new doctoral graduates per thousand population aged 25-34 in Europe in 2011 was in Switzerland. The leading EU countries were Sweden, Germany, Finland, UK, Denmark and Austria.

In 2011, the average number of new doctoral graduates per thousand population aged 25-34 for the EU was 1.7, with a range from 3.5 in Switzerland to 0.5 or less in some other European countries.

<sup>9</sup> Eurostat

<sup>10</sup> Computed by Deloitte by including Italy in the total provided by Eurostat

Table 16: Scorecard: New doctoral graduates (ISCED 6) per thousand population aged 25-34, Europe, 2010 and 2011

Country	2010	2011	Progress/2010 (%)	
Switzerland	3.7	3.5	↓	-5
Sweden	2.9	2.9	↔	0
Germany	2.7	2.8	↑	4
Finland	2.6	2.7	↑	4
Liechtenstein	0.2	2.6	↑	1200
United Kingdom	2.3	2.4	↑	4
Denmark	2.1	2.3	↑	10
Austria	2.3	2.2	↓	-4
Norway	1.9	2.0	↑	5
Ireland	1.6	1.9	↑	19
Netherlands	1.9	1.9	↔	0
Slovakia	3.1	1.9	↓	-39
Croatia	1.4	1.8	↑	29
France	1.6	1.7	↑	6
Romania	1.4	1.7	↑	21
Slovenia	1.5	1.7	↑	13
Portugal	1.9	1.6	↓	-16
Belgium	1.5	1.5	↔	0
Czech Republic	1.3	1.5	↑	15
Italy	:	1.5	n/a	n/a
Estonia	0.9	1.3	↑	44
Spain	1.2	1.2	↔	0
Greece	1.2	1.1	↓	-8
Latvia	0.4	1.0	↑	150
Lithuania	0.9	0.9	↔	0
Iceland	0.8	0.8	↑	1
Luxembourg	:	0.8	n/a	n/a
Hungary	0.8	0.8	↔	0
Bulgaria	0.5	0.6	↑	20
FYROM	0.5	0.6	↑	20
Poland	0.5	0.5	↔	0
Turkey	0.4	0.4	↔	0
Cyprus	0.2	0.3	↑	50
Malta	0.2	0.3	↑	50

Source: Deloitte

Data: Eurostat

\*No information available for 2010 and 2011 for BiH, IL, ME and SR and for 2011 LU

## 5. Researchers employed on fixed-term contracts, Europe

Table 17: Value ranges – Researchers employed on fixed-term contracts, Europe, 2012 (%)<sup>11</sup>

The percentage of researchers employed on fixed-term contracts is:	
<b>Green (4)</b>	Below -80% of the EU average.
<b>Light Green (3)</b>	Between -80% and +10% of the EU average.
<b>Yellow (2)</b>	Between 10% and 50% of the EU average.
<b>Orange (1)</b>	More than 50% of the EU average.

A significant proportion of researchers in the higher education sector are employed on a fixed-term contract or have no contract at all. This was most pronounced during earlier career stages.

The type of employment contract has a significant impact on the attractiveness of researchers' employment and working conditions. Young researchers are often employed on temporary short-term contracts to help carry out specific research projects to the detriment of academic independence, job security and sufficient social security. Senior researchers, on the other hand, are often employed on permanent contracts, with progression based on seniority rather than performance. This indicator should however be treated with caution as there are a number of other factors which can have a major impact on a researcher's working conditions. This includes the remuneration package, access to research funding, provision of training and career development, career prospects, etc.

In 2012, researchers with no contracts, 'others' (often student status) and those with a fixed-term contract of one year maximum accounted for 31% of R1<sup>12</sup> PhD researchers, 10% of R2<sup>13</sup>, 4% of R3<sup>14</sup> and 3% of R4<sup>15</sup>. Moreover, 55% of researchers in the R1 group with a PhD and 47% of the R2 group also had fixed-term contracts, albeit of a slightly longer duration than 12 months. These figures highlight the precarious contractual situation of early-stage researchers, particularly PhD researchers. The share of permanent (open-ended) contracts increases from lower (13% of R1 in PhD) to higher career stages (90% of R4). This suggests that researchers typically find stable positions only relatively late during their career paths, after having completed their doctorate<sup>16</sup>.

Table 18: Scorecard: Researchers employed on fixed-term contracts, EU, 2012 (%)

Region	% of fixed-term contracts
EU	34.3

Source: Deloitte

Data: MORE2 study "Support for continued data collection and analysis concerning mobility patterns and career paths of researchers", IDEA Consult (2013)

<sup>11</sup> The individual countries' scores are presented in ascending order: the countries reporting a comparatively lower share of researchers employed on fixed-term contracts compared to the EU-average are presented in green (the percentage of researchers employed on fixed-term contracts is below -80% of the EU average).

<sup>12</sup> R1: First Stage Researcher (up to the point of PhD)

<sup>13</sup> R2: Recognized Researcher (PhD holders or equivalent who are not yet fully independent)

<sup>14</sup> R3: Established Researcher (researchers who have developed a level of independence)

<sup>15</sup> R4: Leading Researcher (researchers leading their research area or field)

<sup>16</sup> IDEA Consult (2013)

Table 19: Scorecard: Researchers employed on fixed-term contracts, Europe, 2012 (%)

Country	% of fixed-term contracts
Malta	4.8
Italy	6.9
Romania	7.1
Bulgaria	11.2
Slovenia	20.0
France	20.3
Spain	20.7
Iceland	21.0
Greece	22.6
Hungary	22.7
Macedonia (FYROM)	23.9
Turkey	25.0
Ireland	25.8
United Kingdom	28.0
Norway	30.7
Poland	31.7
Cyprus	33.7
Portugal	36.6
Latvia	37.6
Austria	45.3
Croatia	45.7
Czech Republic	45.7
Sweden	50.5
Slovakia	51.8
Netherlands	51.8
Germany	53.9
Denmark	56.0
Switzerland	61.4
Finland	63.1
Belgium	63.1
Luxembourg	65.1
Estonia	72.9
Lithuania	73.9

Source: Deloitte

Data: MORE2 study "Support for continued data collection and analysis concerning mobility patterns and career paths of researchers", IDEA Consult (2013)

\* The individual countries' scores are presented in ascending order: the countries reporting a comparatively lower share of researchers employed on fixed-term contracts compared to the EU-average are presented on the top.



## 6. Non-EU doctoral candidates as a percentage of all doctoral candidates, Europe (%)

Table 20: Value ranges - Non-EU doctoral candidates as a percentage of all doctoral candidates, Europe, 2010 and 2011 (%)

Non-EU doctoral candidates as percentage of all doctoral candidates is:	
<b>Green (4)</b>	At least 20% above the EU average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU average.
<b>Orange (1)</b>	Below 50% of the EU average.

The share of non-EU doctoral candidates<sup>17</sup> as a percentage of all doctoral candidates serves as a useful indicator of the openness and attractiveness of a research system. The average share for the EU is 24.2%. Those above the EU average are the UK (30.6%) and France (35.4%).

The share of non-EU doctoral candidates serves as an indication of the openness and attractiveness of the research system. The average share of non-EU doctoral candidates is 24.2%.

Table 21: Scorecard: Non-EU doctoral candidates as a percentage of all doctoral candidates, EU, 2010 and 2011 (%)

Region	2010	2011	Progress/2010 (%)	
EU	19.1	24.2	↑	27

Source: Deloitte

Data: Eurostat/Innovation Union Scoreboard 2014

In the UK and France, the share of non-EU doctoral candidates is between 30% and 35%. The proportion of foreign doctoral candidates is even higher in Switzerland — almost half, and it is above 30% in Norway, but this includes those from EU countries. In addition to the cases of France and the UK, there is a relatively high share (10-20%) of non-EU doctoral candidates in a number of other Member States, e.g. Spain (18.0%), Denmark (17.7%), Portugal (12.0%) and Germany (11.2%) while the lowest share of non-EU doctoral candidates as a percentage of all doctoral candidates (<5%) is in a number of the new Member States, ranging from 4.2% in Estonia to 0.03% in Lithuania.

Table 22: Scorecard: Non-EU doctoral candidates as a percentage of all doctoral candidates, Europe, 2010 and 2011 (%)

Country	2010	2011	Progress/2010 (%)	
Switzerland	48.2	49.3	↑	2
France	35.3	35.4	↑	0
Norway	30.9	33.0	↑	7
United Kingdom	31.4	30.6	↓	-2
Iceland	20.8	23.4	↑	13
Sweden	20.0	21.9	↑	10
Belgium	19.6	21.0	↑	7

<sup>17</sup> "Non-EU doctoral candidates" refers to foreign doctoral candidates in the case of non-EU countries.

Country	2010	2011	Progress/2010 (%)	
<i>Netherlands</i>	:	20.9	n/a	n/a
<i>Ireland</i>	22.2	20.5	↓	-7
<i>Luxembourg</i>	20.4	20.3	↓	-1
<i>Spain</i>	17.3	18.0	↑	4
<i>Denmark</i>	15.4	17.7	↑	16
<i>Portugal</i>	10.5	12.0	↑	14
<i>Germany</i>	:	11.2	n/a	n/a
<i>Austria</i>	8.2	8.6	↑	4
<i>Italy</i>	9.3	8.4	↓	-9
<i>Serbia</i>	7.1	7.1	↑	1
<i>Finland</i>	5.9	6.8	↑	16
<i>Slovenia</i>	4.7	6.4	↑	37
<i>Estonia</i>	1.5	4.2	↑	170
<i>Czech Republic</i>	4.0	4.1	↑	4
<i>Bulgaria</i>	4.1	3.8	↓	-8
<i>Turkey</i>	2.5	3.2	↑	28
<i>Hungary</i>	2.4	2.7	↑	12
<i>Croatia</i>	2.0	2.4	↑	23
<i>Romania</i>	1.9	2.1	↑	8
<i>Poland</i>	1.9	1.9	↓	-1
<i>Cyprus</i>	1.6	1.7	↑	3
<i>Slovakia</i>	1.4	1.4	↑	1
<i>Malta</i>	:	1.4	n/a	n/a
<i>Latvia</i>	0.6	0.2	↓	-59
<i>Lithuania</i>	0.2	0.0	↓	-86
<i>FYROM</i>	7.0	:	n/a	n/a

Source: Deloitte

Data: Eurostat/Innovation Union Scoreboard 2014

\* No information available for 2010 and 2011 for BiH, IL, LI, and ME and for 2010 for NL, DE, and MT and for 2011 for FYROM

## 7. Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, Europe

Table 23: Value ranges - Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, Europe, 2010 and 2011 (%)

The percentage of doctoral candidates (ISCED 6) with a citizenship of another EU Member State is:	
<b>Green (4)</b>	At least 20% above the EU average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU average.
<b>Orange (1)</b>	Below 50% of the EU average.

The Netherlands (20.4%)<sup>18</sup> is the EU country where the highest proportion of doctoral students from other EU countries are to be found, followed by Austria (18.5%), Ireland (16.9%) and the UK (16.2%). The EU average is 7.7%<sup>19</sup>. The Member States with the lowest relative inflows of doctoral candidates from other EU countries are some of the new Member States, and Italy and Portugal.

The highest level of doctoral candidates with citizenship of another EU Member State in 2011 (>10%) was in a number of the older Member States, e.g. the Netherlands (20.4%), Austria (18.5%), Ireland (16.9%), the UK (16.2%), Belgium (14.2%), Denmark (13.8%), and Sweden (10.9%). In terms of absolute numbers, the UK is the first choice (14 625), followed by Germany (10 700), France (5 886), Austria (4 807) and Spain (3 508). The lowest share (<5%) was in a number of the new Member States, ranging from 3.1% in Bulgaria to 0.2% in Lithuania.

Table 24: Scorecard: Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, EU, 2010 and 2011 (%)

Region	2010	2011	Progress/2010 (%)	
EU	:	7.7	n/a	n/a

Source: Deloitte

Data: Eurostat

No information available for 2010 for the EU

Table 25: Scorecard: Doctoral candidates (ISCED 6) with a citizenship of another EU Member State, Europe, 2010 and 2011 (%)

Country	2010	2011	Progress/2010 (%)	
<i>Liechtenstein</i>	88.9	89.7	↑	1
<i>Luxembourg</i>	:	67.9	n/a	n/a
<i>Switzerland</i>	36.3	36.6	↑	1
<i>Netherlands</i>	:	20.4	n/a	n/a
<i>Austria</i>	18.2	18.5	↑	2
<i>Ireland</i>	16.0	16.9	↑	5
<i>United Kingdom</i>	16.4	16.2	↓	-1

<sup>18</sup> Luxembourg being an exception due to the proximity of the other countries.

<sup>19</sup> There is no EU average for 2008 because data for Germany are missing.

Country	2010	2011	Progress/2010 (%)	
<i>Iceland</i>	13.7	14.9	↑	8
<i>Belgium</i>	13.6	14.2	↑	5
<i>Norway</i>	12.9	13.9	↑	7
<i>Denmark</i>	12.4	13.8	↑	12
<i>Sweden</i>	10.0	10.9	↑	9
<i>Cyprus</i>	7.8	9.0	↑	15
<i>Czech Republic</i>	8.4	9.0	↑	7
<i>France</i>	8.0	8.3	↑	3
<i>Slovenia</i>	6.7	7.2	↑	8
<i>Slovakia</i>	6.3	6.7	↑	6
<i>Finland</i>	5.8	6.4	↑	11
<i>Hungary</i>	5.7	6.3	↑	10
<i>Estonia</i>	5.2	5.6	↑	8
<i>Germany</i>	:	5.3	n/a	n/a
<i>Spain</i>	5.7	5.1	↓	-10
<i>Italy</i>	3.3	3.6	↑	9
<i>Portugal</i>	3.0	3.2	↑	7
<i>Bulgaria</i>	3.3	3.1	↓	-7
<i>Croatia</i>	2.2	2.5	↑	13
<i>Poland</i>	1.8	1.7	↓	-2
<i>Romania</i>	1.7	1.6	↓	-6
<i>Latvia</i>	0.8	0.4	↓	-56
<i>Lithuania</i>	0.3	0.2	↓	-51
<i>FYROM</i>	6.3	:	n/a	n/a

Source: Deloitte

Data: Eurostat

\*No information available for 2010 and 2011 for BiH, EL, IL, ME, MT and SR, and for 2010 for LU, NL, and DE, and for 2011 for FYROM

## 8. Researchers having spent a period of at least three months as a researcher in another country in the last 10 years, Europe, 2012 (%)

Table 26: Value ranges - Researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years, Europe, 2012 (%)

Researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years is:	
<b>Green (4)</b>	At least 20% above the EU average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU average.
<b>Orange (1)</b>	Below 50% of the EU average.

Mobility is a feature of the career path of many researchers. Around one in three EU researchers (31%) in their post-PhD phase have been 'internationally mobile' for at least three months in the last 10 years.

Table 27: Scorecard: Researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years, EU, 2012 (%)

Region	2012
EU	31.0

Source: Deloitte

Data: MORE2 study "Support for continued data collection and analysis concerning mobility patterns and career paths of researchers", IDEA Consult (2013)

Switzerland and Denmark have the highest levels of internationally mobile researchers on this criterion (>50%) while researchers from Latvia, Romania, Croatia, Lithuania, Bulgaria, Czech Republic and Poland were the least mobile of those in the study population (<20%). In Greece, Hungary, Ireland, Spain, France and the UK, on the other hand, a relatively large group of researchers was mobile for three months more than ten years ago (>20%).

Table 28: Scorecard: Researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years, Europe, 2012 (%)

Country	2012
Switzerland	53.1
Denmark	53.0
Iceland	48.9
Luxembourg	47.4
Belgium	46.5
Netherlands	46.1
Austria	45.4
Germany	44.7
Cyprus	44.1
Norway	43.4
Finland	42.3

Country	2012
<i>Sweden</i>	39.5
<i>Ireland</i>	36.9
<i>Hungary</i>	34.0
<i>Greece</i>	33.9
<i>Slovenia</i>	33.8
<i>Macedonia (FYR)</i>	33.5
<i>Spain</i>	32.3
<i>Turkey</i>	28.6
<i>United Kingdom</i>	28.5
<i>Slovakia</i>	27.6
<i>Portugal</i>	27.4
<i>Estonia</i>	26.6
<i>France</i>	26.5
<i>Italy</i>	25.2
<i>Malta</i>	24.2
<i>Latvia</i>	19.7
<i>Romania</i>	19.7
<i>Croatia</i>	18.9
<i>Lithuania</i>	18.1
<i>Bulgaria</i>	18.0
<i>Czech Republic</i>	16.2
<i>Poland</i>	9.1

Source: Deloitte

Data: MORE2 study "Support for continued data collection and analysis concerning mobility patterns and career paths of researchers", IDEA Consult (2013)

\*No information available for BiH, IL, LI, ME and SR.

## 9. International scientific co-publications per million population, Europe

Table 29: Value ranges - International scientific co-publications per million population, Europe, 2011 and 2012

The number of international scientific co-publications per million population is:	
<b>Green (4)</b>	At least 20% above the EU-28 average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU-28 average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU-28 average.
<b>Orange (1)</b>	Below 50% of the EU-28 average.

**In 2012, the EU-28 was second to the United States in the production of international scientific co-publications.**

In 2012, the EU-28 lagged behind the United States in terms of international scientific co-publications per million population<sup>20</sup>. The EU-28 average was around 343 co-publications per million population in comparison with around 448 in the United States, 215 in Japan and 46 in China. The EU-28 average should be seen in context: only co-publications with non-EU countries are included. This obviously creates a downward distortion. For individual Member States, the picture is different with many co-publishing more than the US in relative terms.

Switzerland and Iceland have very high levels, of more than 2 500 co-publications per million population, followed by a number of Nordic countries such as Denmark, Norway, Sweden and Finland (in descending order) and Luxembourg, Netherlands, Belgium, Austria, Ireland, Cyprus, Slovenia and UK with more than 1 000 co-publications per million population. The lowest number (<500) of co-publications per million population was in a number of new Member States, such as Croatia, Hungary, Malta, Slovakia, Lithuania, Poland, Bulgaria, Latvia and Romania (in descending order).

Table 30: Scorecard: International scientific co-publications per million population, EU-28, US, China, Japan, 2011 and 2012

Region	2011	2012	Progress/2011 (%)	
<i>EU</i>	331	343	↑	4
<i>United States</i>	450	448	↓	-1
<i>China</i>	43	46	↑	7
<i>Japan</i>	211	215	↑	2

Source: Deloitte

Data: Science Metrix/Scopus/Innovation Union Scoreboard 2014

<sup>20</sup> International scientific co-publications are a proxy for the quality of scientific research as collaboration increases scientific productivity. The numerator refers to the number of scientific publications with at least one co-author based abroad (where abroad is non-EU for the EU).

Table 31: Scorecard: International scientific co-publications per million population, Europe, 2011 and 2012

Country	2011	2012	Progress/2011 (%)	
Switzerland	2738	2894	↑	6
Iceland	2648	2725	↑	3
Denmark	1725	1840	↑	7
Norway	1638	1767	↑	8
Sweden	1636	1712	↑	5
Luxembourg	1467	1559	↑	6
Netherlands	1359	1457	↑	7
Finland	1356	1415	↑	4
Belgium	1299	1313	↑	1
Austria	1206	1248	↑	3
Ireland	1133	1138	↑	0
Cyprus	1029	1066	↑	4
Slovenia	966	1042	↑	8
United Kingdom	999	1021	↑	2
Estonia	756	831	↑	10
Portugal	698	761	↑	9
Germany	729	746	↑	2
France	699	707	↑	1
Spain	603	631	↑	5
Greece	564	590	↑	5
Czech Republic	541	568	↑	5
Italy	511	532	↑	4
Croatia	405	428	↑	6
Hungary	396	412	↑	4
Malta	335	400	↑	19
Slovakia	390	399	↑	2
Lithuania	290	304	↑	5
Poland	215	226	↑	5
Bulgaria	213	213	↓	0
Latvia	196	196	↓	0
Romania	161	177	↑	10
FYROM	140	147	↑	5
Turkey	76	85	↑	11
Serbia	36	45	↑	27

Source: Deloitte

Data: Science Metrix/Scopus/Innovation Union Scoreboard 2014

\*No information available for BiH, IL, LI and ME



## 10. Scientific publications in the top 10% most-cited publications worldwide as a percentage of total scientific publications, Europe

Table 32: Value ranges - Scientific publications in the top 10% most-cited publications worldwide as a percentage of all scientific publications, Europe, 2008 and 2009 (%)

The number of scientific publications amounting to the top 10% most-cited publications worldwide as a percentage of total scientific publications is:	
<b>Green (4)</b>	At least 20% above the EU-28 average.
<b>Light Green (3)</b>	Between -10% and +20% of the EU-28 average.
<b>Yellow (2)</b>	Between -50% and -10% of the EU-28 average.
<b>Orange (1)</b>	Below 50% of the EU-28 average.

In 2009, the EU-28 lagged behind the US in terms of scientific publications in the top 10% most-cited publications worldwide. The indicator is a proxy for the excellence of the research system as highly cited publications are assumed to be of higher quality.

When it comes to the scientific quality of research worldwide, a better measure is a country's capacity to produce scientific publications with high international impact. The number of citations that a scientific publication generates is an indication of its excellence and its chance of generating further scientific results.

In 2009, 10.95% of EU-28 scientific publications were in the top 10% most-cited publications worldwide in comparison with 14.5% scientific publications produced in the United States.

Table 33: Scorecard: Scientific publications in the top 10% most-cited publications worldwide as a percentage of all scientific publications, EU-28, US, China, Japan, 2008 and 2009 (%)

Region	2008	2009	Progress/2008 (%)	
<i>EU</i>	10.8	11.0	↑	1
<i>United States</i>	14.3	14.5	↑	1
<i>China</i>	6.8	6.7	↓	-2
<i>Japan</i>	7.3	7.0	↓	-4

Source: Deloitte

Data: Science Metrix/Scopus/Innovation Union Scoreboard 2014

Individually, the best performance (>10%) in the EU-28 was shown (in descending order) by Netherlands, Denmark, UK, Belgium, Sweden, Luxembourg, Germany, Ireland, Finland, Austria, Spain, France and Italy. Countries like France and Germany, where researchers are more likely to publish more in their own language, are more likely to underperform on this indicator relative to their real academic excellence. The share is lowest (<5%) in a number of new Member States (in descending order): Slovakia, Poland, Romania, Bulgaria, Croatia and Latvia.

Table 34: Scorecard: Scientific publications in the top 10% most-cited publications worldwide as a percentage of all scientific publications, Europe, 2008 and 2009 (%)

Country	2008	2009	Progress/2008 (%)	
<i>Switzerland</i>	15.8	16.4	↑	3
<i>Netherlands</i>	15.2	15.6	↑	3
<i>Denmark</i>	14.7	14.5	↓	-1
<i>Belgium</i>	13.5	13.4	↓	-1
<i>United Kingdom</i>	13.2	13.4	↑	1
<i>Sweden</i>	12.6	12.7	↑	1
<i>Luxembourg</i>	9.4	12.4	↑	32
<i>Germany</i>	11.7	11.6	↓	0
<i>Ireland</i>	11.6	11.5	↓	0
<i>Iceland</i>	11.5	11.5	↑	1
<i>Norway</i>	12.1	11.5	↓	-5
<i>Finland</i>	11.5	11.4	↓	-1
<i>Austria</i>	11.0	11.1	↑	0
<i>Spain</i>	10.1	10.4	↑	3
<i>France</i>	10.3	10.4	↑	1
<i>Italy</i>	10.3	10.4	↑	1
<i>Portugal</i>	9.9	9.9	↓	-1
<i>Greece</i>	9.5	9.3	↓	-2
<i>Estonia</i>	7.4	8.5	↑	15
<i>Cyprus</i>	8.7	7.2	↓	-17
<i>Slovenia</i>	7.5	7.0	↓	-6
<i>Turkey</i>	6.8	7.0	↑	4
<i>Lithuania</i>	6.1	6.2	↑	2
<i>Czech Republic</i>	5.5	5.6	↑	2
<i>Hungary</i>	4.8	5.2	↑	9
<i>Malta</i>	7.7	4.8	↓	-38
<i>Slovakia</i>	3.2	4.0	↑	25
<i>Poland</i>	3.4	3.8	↑	13
<i>FYROM</i>	2.4	3.6	↑	49
<i>Romania</i>	3.5	3.5	↓	-1
<i>Bulgaria</i>	2.5	3.2	↑	27
<i>Croatia</i>	3.2	3.2	↑	1
<i>Latvia</i>	3.7	3.0	↓	-19

Source: Deloitte

Data: Science Metrix/Scopus/Innovation Union Scoreboard 2014

\*No information available for BiH, IL, LI and ME