European Commission

NEWSLETTER on STI Data and Indicators

DG RTD, A4, Analysis and monitoring of national research policies

1. Eurostat data on public spending on education

On 28 August 2017 **Eurostat** published 2015 data on general government total expenditure on education as a % of GDP. According to Eurostat:
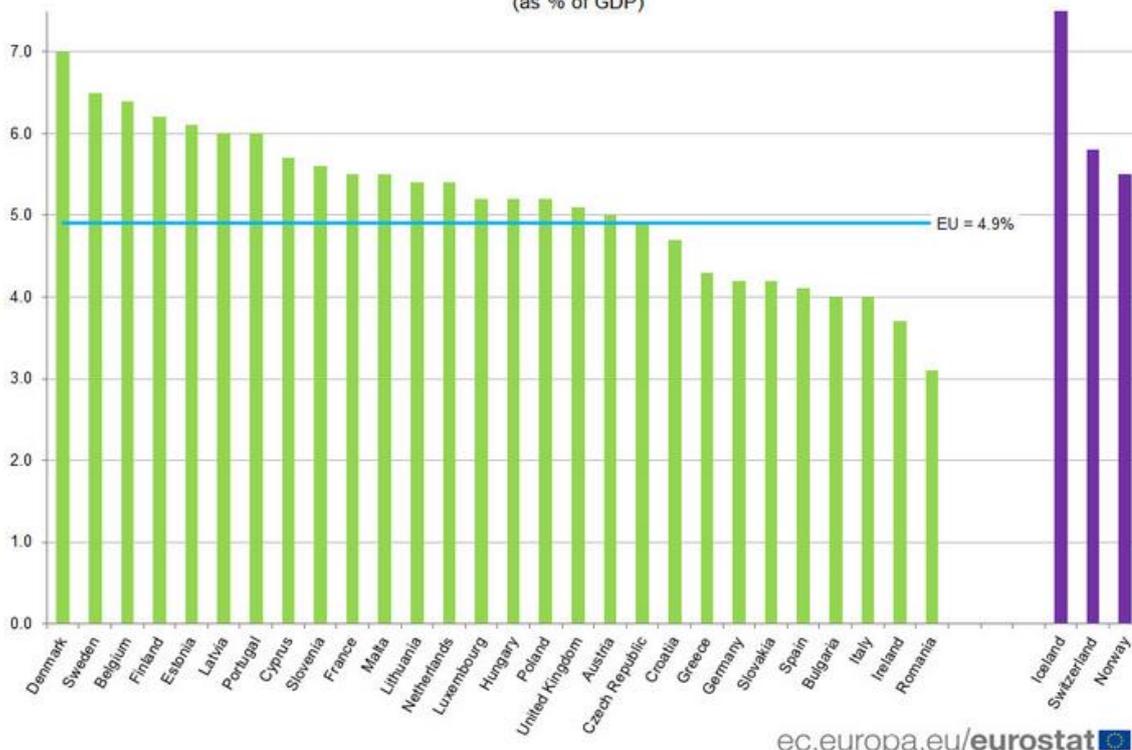*'In 2015, over €716 billion of general government expenditure was spent by the Member States on education. This figure is equivalent to almost 5% (4.9%) of the EU's GDP. 'Education' is the fourth largest item of public expenditure, after 'social protection' (19.2%), 'health' (7.2%) and 'general public services' such as external affairs and public debt transactions (6.2%).*
Denmark (7.0%) spent the most in relative terms, ahead of Sweden (6.5%), Belgium (6.4%), Finland (6.2%), Estonia (6.1%), Latvia and Portugal (both 6.0%). At the
lower end was Romania (3.1%), followed by Ireland (3.7%), Bulgaria and Italy (both 4.0%), Spain (4.1%), Germany and Slovakia (both 4.2%) as well as Greece (4.3%).'

As regards EFTA countries, Iceland, with its young population, spends even more in relative terms than Denmark. In Luxembourg a slightly above average level combined with a very high GDP per capita results in one of the highest spending levels in terms of Euro per pupil/student worldwide. Bulgaria and Romania on the other hand have a relatively low spending per pupil/student in absolute terms (and at the same time low results in pupils skills tests).

General government total expenditure on education, 2015 (as % of GDP)

More info:
http://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170828-1?inheritRedirect=true&redirect=%2Feurostat%2Fnews%2Fwhats-new

2. Eurostat data on second quarter 2017 GDP growth

On 15 August 2017 Eurostat released quarterly GDP growth data up to the second quarter of 2017. According to the Eurostat flash estimate, seasonally adjusted GDP rose by 0.6% in the **EU** during the second quarter of 2017, compared with the previous quarter. Compared with the same quarter of the previous year, seasonally adjusted GDP rose by 2.3% in the **EU** in the second quarter of 2017 (faster growth than in the US). Compared to the same quarter of the previous year in Q2 Romania (+5.7%) had the highest growth , followed by Latvia (+4.8%), the Czech Republic (+4.5%) and Poland (+4.4%). Compared to the previous quarter the Czech Republic grew fastest, followed by Sweden. Finland was the only EU country, those output in Q2 was lower than in the quarter before.

Growth rates of GDP in volume
(based on seasonally adjusted* data)

	Percentage change compared with the previous quarter				Percentage change compared with the same quarter of the previous year			
	2016		2017		2016		2017	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
EA19	0.4	0.6	0.5	0.6	1.7	1.9	1.9	2.2
EU28	0.4	0.7	0.5	0.6	1.8	2.0	2.1	2.3
Member States								
Belgium	0.1	0.4	0.6	0.4	1.2	1.1	1.6	1.4
Bulgaria	0.7	0.9	0.9	0.9	3.4	3.4	3.5	3.6
Czech Republic	0.2	0.4	1.5	2.3	1.8	1.8	3.0	4.5
Denmark	0.8	0.6	0.6	0.5	2.0	2.9	2.6	2.5
Germany	0.3	0.4	0.7	0.6	1.9	1.9	1.9	2.1
Estonia	0.5	1.9	0.8	:	1.8	2.8	4.0	:
Ireland	3.0	5.8	-2.6	:	3.2	8.9	6.6	:
Greece	0.7	-1.1	0.4	:	2.1	-1.0	0.4	:
Spain	0.7	0.7	0.8	0.9	3.2	3.0	3.0	3.1
France	0.2	0.5	0.5	0.5	0.9	1.2	1.1	1.8
Croatia	1.4	0.6	0.6	:	2.9	3.4	3.4	:
Italy	0.3	0.4	0.4	0.4	1.0	1.1	1.2	1.5
Cyprus	0.8	0.8	1.0	0.9	2.9	3.0	3.7	3.5
Latvia	0.5	1.3	1.6	1.3	0.6	2.3	4.1	4.8
Lithuania	0.5	1.5	1.3	0.6	1.8	3.1	4.0	3.9
Luxembourg	1.0	1.2	0.1	:	5.2	3.9	3.3	:
Hungary	0.5	0.8	1.4	0.9	2.1	1.9	3.8	3.6
Malta	1.3	1.8	0.2	:	4.8	4.9	4.0	:
Netherlands**	0.8	0.7	0.6	1.5	2.4	2.6	2.7	3.8
Austria	0.7	0.6	0.7	0.9	1.7	2.0	2.1	2.9
Poland	0.4	1.7	1.1	1.1	2.2	3.0	4.2	4.4
Portugal	0.9	0.7	1.0	0.2	1.7	2.0	2.8	2.8
Romania	0.7	1.6	1.8	1.6	4.4	5.0	5.7	5.7
Slovenia	1.2	1.3	1.5	:	3.0	3.8	5.0	:
Slovakia	0.7	0.8	0.8	0.8	3.1	2.9	3.1	3.1
Finland	0.8	0.4	1.0	-0.5	2.3	2.3	2.6	1.7
Sweden	0.7	0.9	0.6	1.7	2.6	2.1	2.4	3.9
United Kingdom	0.5	0.7	0.2	0.3	2.0	1.9	2.0	1.7
Other countries								
Iceland	4.5	2.6	-1.9	:	8.1	11.7	7.6	:
Norway	-0.5	1.2	0.2	:	-0.9	2.0	0.9	:
Switzerland	0.0	0.2	0.3	:	1.3	1.0	0.9	:
United States	0.7	0.4	0.3	0.6	1.5	1.8	2.0	2.1

:   Data not available.
*   The seasonal adjustment does not include a calendar adjustment for Slovakia and Iceland.
**   Percentage change compared with the same quarter of the previous year calculated from calendar adjusted data.

More info: http://ec.europa.eu/eurostat/documents/2995521/8134589/2-16082017-AP-EN.pdf/dc908a55-fc6d-42d8-ac25-d20c44fc40aa

3. Shanghai Academic Ranking of World Universities 2017

The Shanghai Ranking Consultancy released the 2017 edition of its annual **Academic Ranking of World Universities** on 15 August. This ranking has been carried out since 2003 and was originally commissioned by the Chinese govern-ment to monitor the planned rise of key Chinese universities (Beijing U and Tsinghua).

The number of Chinese universities in the top 500 has more than tripled since 2005 to 57 (of which 12 are in Taiwan and Hong Kong), while the number of US and Japanese institutions has decreased. The number of top EU universities has declined slightly. Sweden, Finland and Denmark are the EU countries with the highest number of top ranked institutions per inhabitant. The top ranked EU university is Cambridge (rank 3). Outside the UK the university of Copenhagen (30) is the EU university with the highest rank.

Croatia, Lithuania, Luxembourg, Slovakia and Romania do not have universities in the top 500, but each has one university ranked 501-800, while Hungary has three universities in that category

Number of top 500 universities in Shanghai ranking per million inhabitants, 2017
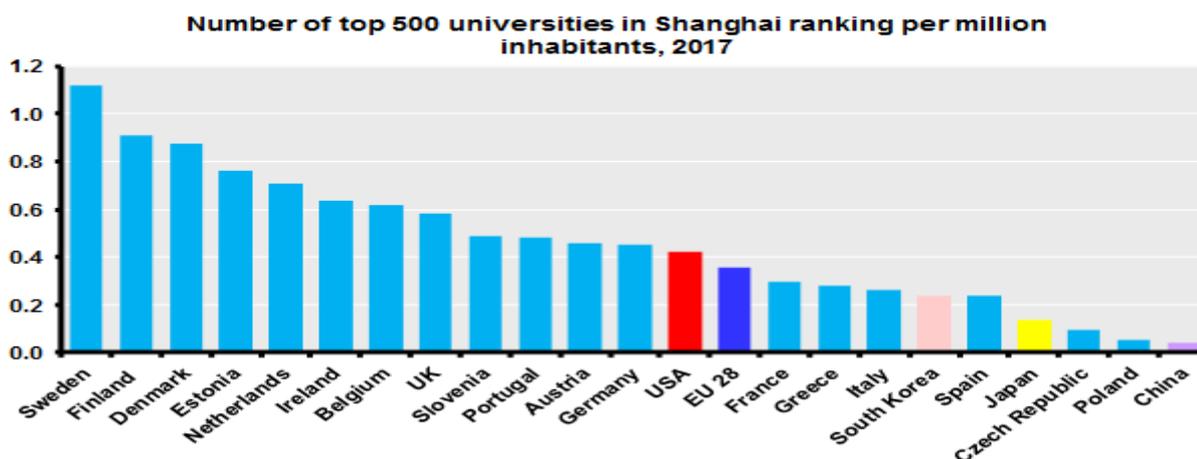
Source: DG Research and Innovation - Unit for the Analysis and Monitoring of National Research and Innovation Policies
Data: Shanghai university ranking
Note: (1) Population data refers to 2016.

Country/Region	Number of top 500 universities in 2017 (change to 2016/2005)		Number of top 100 universities in 2017 (change to 2016/2005)		Top ranked university (Rank)
UK	38	(+1/-2)	9	(+1/-2)	U Cambridge (3)
Germany	37	(-1/-3)	4	(+1/-1)	Heidelberg (42)
France	20	(-2/-1)	3	(-/-1)	Paris 6 (40)
Italy	16	(-3/-7)	0	(/-1)	Sapienza Rome (151-200)
Netherlands	12		4	(+1/+2)	Utrecht U (47)
Spain	11	(-1/+2)	0		U Barcelona, Pompeu Fab. (151-200)
Sweden	11		3	(-/-1)	Karolinska (44)
Belgium	7		2	(-/+2)	U Ghent (62)
Finland	5	(-/-)	1		U Helsinki (56)
Denmark	5		2	(-/+1)	U Copenhagen (30)
Portugal	5	(-/+4)	0		U Lisbon (151-200)
Austria	4	(-1/-2)	0	(/-1)	U Innsbruck (151-200)
Ireland	3		0		Trinity College (151-200)
Greece	3	(+1/+1)	0		National U Athens (301-400)
Poland	2	(-/-1)	0		Warsaw U (301-400)
Slovenia	1	(-/+1)	0		U Ljubljana (401-500)
Czech Republic	1		0		Charles U Prague (201-300)
Estonia	1	(-/+1)	0		University of Tartu (301-400)
EU 28	**182**	**(-6/-7)**	**27**	**(-2/-3)**	**U Cambridge (3)**
USA	135	(-2/-33)	48	(-2/-5)	Harvard U (1)
China	57	(+3/+39)	2	(-/+2)	Tsinghua U (48)
Japan	17	(+1/-17)	3	(-1/-2)	Tokyo U (24)
South Korea	12	(+1/+4)	0		Seoul National U (101-150)

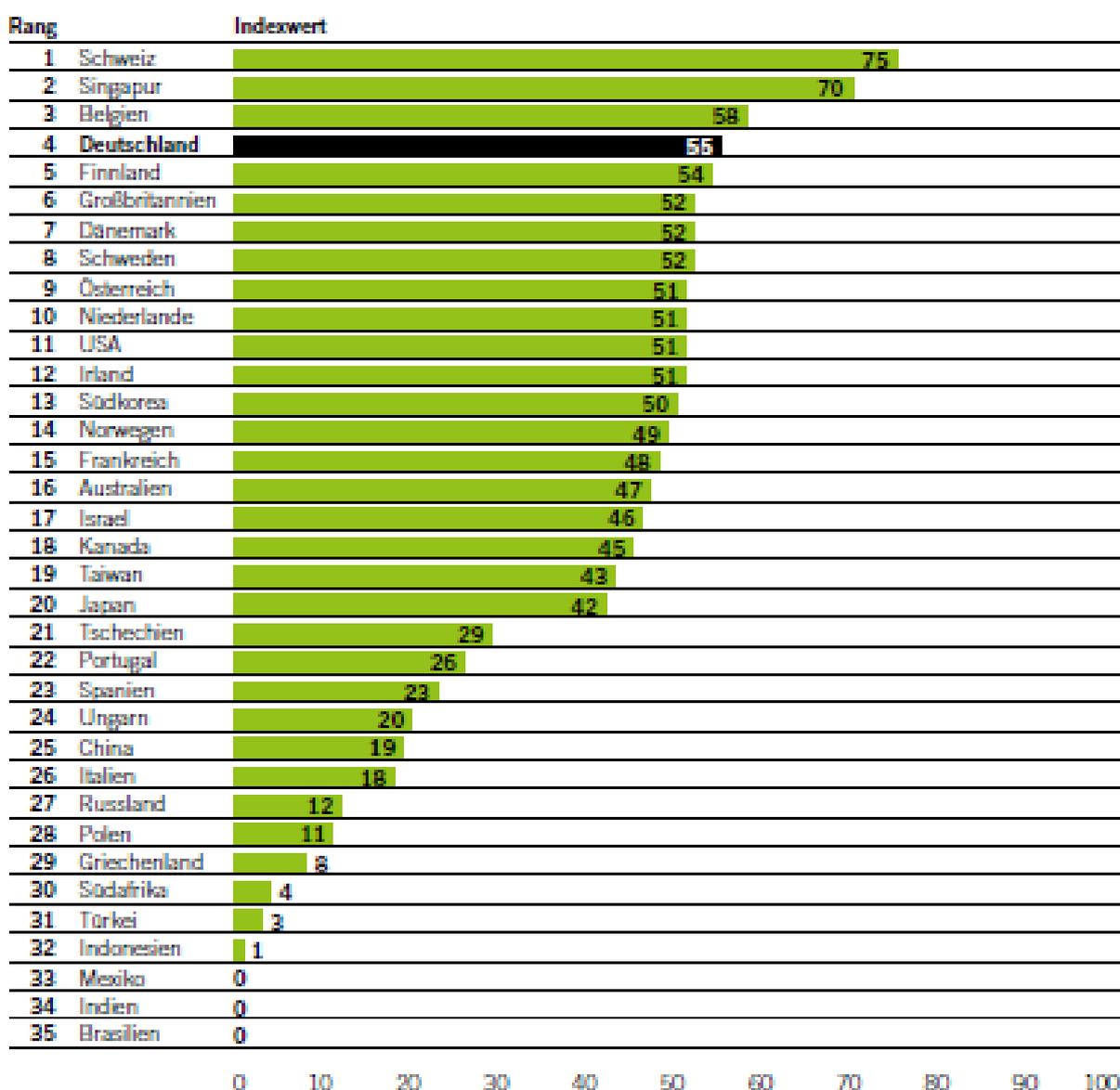**More info:** http://www.shanghairanking.com/

4. The 2017 edition of the German Innovation Indicator

On 24 July Acatech/BDI/Fraunhofer/ZEW published the 2017 edition of the (German) **Innovation Indicator** (the release was originally scheduled for December 2016). The indicator aims at assessing the overall ranking of Germany in innovation and covers 35 countries. The underlying pillars of the model are research, education, government, society and the economy. The model is based on 38 indicators and relates to performance in the reference year 2015. According to this indicator Germany ranks 4th (it ranked 5th in the previous edition, 4th in 2010 and 10th in 2005 and 2000). The leading country is Switzerland, followed by Singapore and, surprisingly, Belgium. Sweden (ranked 2nd in 2005 and 3rd in 2010), South Korea and Japan are ranked lower than in the European Innovation Scoreboard.

Switzerland ranks first in the economic pillar, Denmark first in research, Singapore first in education and government and Australia first in society. Greece ranks lowest among the 17 EU countries assessed, Mexico, India and Brazil perform lowest amongst the countries included.

Gesamtergebnis des Innovationsindikators

Rang		Indexwert
1	Schweiz	75
2	Singapur	70
3	Belgien	58
4	**Deutschland**	55
5	Finnland	54
6	Großbritannien	52
7	Dänemark	52
8	Schweden	52
9	Österreich	51
10	Niederlande	51
11	USA	51
12	Irland	51
13	Südkorea	50
14	Norwegen	49
15	Frankreich	48
16	Australien	47
17	Israel	46
18	Kanada	45
19	Taiwan	43
20	Japan	42
21	Tschechien	29
22	Portugal	26
23	Spanien	23
24	Ungarn	20
25	China	19
26	Italien	18
27	Russland	12
28	Polen	11
29	Griechenland	8
30	Südafrika	4
31	Türkei	3
32	Indonesien	1
33	Mexiko	0
34	Indien	0
35	Brasilien	0

More info: http://www.innovationsindikator.de/2017/
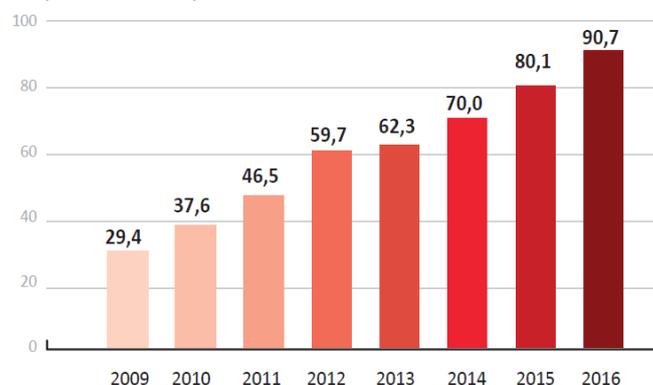http://www.innovationsindikator.de/fileadmin/2015/PDF/methodology_report.pdf

5. Miscellaneous results from national data sources

Lithuania: Laser industry growing strongly

The Lithuanian Laser association has recently published the 2017 update of its Brochure **Laser Technologies in Lithuania.** According to this publication, sales of the Lithuanian laser industry doubled since 2011, from €46.5 million to €90.7 million in 2016, of which 90% are exported (representing ca. 0.3% of Lithuanian exports). The number of laser companies has increased over the last ten years from 10 to over 30 in 2017, employing 800 people, of which 10% have PhD degrees. The laser industry clusters in Vilnius ('Sunrise valley'). The Vilnius University Laser Research Center, which is a member of Laser-Lab Europe, is a key research institution for the sector and Altechna and Ekspla are the two biggest manufacturers.

More info: http://www.ltoptics.org/about-association

Growth in laser industry sales (million EUR)

Year	Value
2009	29,4
2010	37,6
2011	46,5
2012	59,7
2013	62,3
2014	70,0
2015	80,1
2016	90,7

Malta: since August 2017 first unicorn in the country

On 23 August CB Insights included for the first time a Maltese company, VistaJet, in its list of unicorns (startups with a market valuation of $ 1 billion or more). An investment by Rhône Capital of $150 million led to the surge in valuation.

Malta has thus replaced Luxembourg as the country with the highest number of unicorns per million inhabitants (Malta has 0.4 million inhabitants, Luxembourg has also one unicorn, but 0.6 million inhabitants).

Vistajet, an on demand business aviation company founded in 2004 by Swiss national Thomas Flohr and originally headquartered in Switzerland, but now based in Malta, has a market valuation of $2.5 billion and a fleet of 71 jets.

Two UK companies (beverage company Brewdog, AR/VR company Improbable) and one from Germany (Otto Bock, a healthcare company) also entered the list of unicorns in 2017 .

Currently the EU has 22 unicorns on the CB insights list, of which 9 are based in the UK, 4 in Germany, 2 in France, 2 in Sweden, and 1 each in Luxembourg, Denmark, the Czech Republic, the Netherlands and Malta.

More info: http://www.independent.com.mt/articles/2017-08-24/local-news/VistaJet-valued-at-2-65-billion-following-Rhone-Capital-150-million-investment-6736178183

Switzerland: Zug and its 'Crypto Valley'

The central Swiss town of Zug, located in the rich low tax canton of the same name, has developed in recent years years into a leading Blockchain/Bitcoin ecosystem, nicknamed 'Crypto Valley'. On the latest count there were 18 crypto-currency startups in Zug, including companies such as Ethereum, Monteas, Consensys.

Zug was also the first local administration that allowed (in May 2016) citizens to pay for government services with Bitcoin (amounts up to 200 Swiss Francs).

From September 2017 Ethereum (an open source, public blockchain based computing platform) digital identity will be available to the citizens of Zug.

More info: https://cryptovalley.swiss/

Estonia : Data on the usage of the E-residency programme

On 1 December 2014 Estonia launched the *E-residency of Estonia* program. The program provides the e-resident with a smart card which can be used to sign documents.

It allows non-Estonians access to Estonian services such as company formation, banking, payment processing, and taxation. According to the program website there are currently 23 735 applicants from 138 countries and 3877 companies have been established by E-residents. Since

Brexit started, demand from the UK has been growing. Otherwise usage is strongest in the Ukraine, the website is also avaliable in Ukrainian.

More info: https://e-resident.gov.ee/

Calendar of data releases and indicator based publications			
Update of: *31/8/2017 (grey= already published)*			
2017	**Eurostat data updates**	**Commission indicator based reports**	**Data and indicator based reports of other organisations**
January			Transparency International Corruption Perception Index Bloomberg Innovation Index
February	Tertiary attainment (2016, prov.) High growth enterprises data (provisional, 2015)	Winter forecast (ECFIN)	OECD MSTI statistics (R&D expenditure)
March		DESI indicator (CNECT)	European Patent Office , annual results Reuters Most Innov. Institutions OICA world motor vehicle production data OECD R&D Statistics
April	Education headline indicators (LFS)		Internet Minute (Excelacom/Allaccess)
May	High-tech trade (2016) Venture capital (2016) Education enrolment, graduates Knowledge-int. activities (2016)	Spring Forecast (ECFIN) Skills forecast (Cedefop) Europe 2020 publication (ESTAT)	Invest Europe European Private Equity Report IMD World Competitiveness Yearbook
June	Education spending Employment high-tech (2016) HRST education inflows (2015)	European Innovation Scoreboard (GROW/RTD) Regional Innovation Scoreboard (GROW/RTD)	OECD MSTI publication Times Higher Ed. Reputations Ranking WIPO/Cornell/INSEAD Global Innovation Index
July	IPR (Patents, 2014), Community Trademarks (2016), RC Designs (2016)		UNESCO UIS STI stats release
August			Academic Ranking of World Universities (Shanghai)
September	GBAORD (2016 preliminary) Final high growth ent. data (2015) Economic data on high-tech (2016)		WEF Global Competitiveness Index OECD Education at a Glance
October			World Bank Doing Business OECD STI Scoreboard (2-yearly)
November	R&D intensity (2016 preliminary, 2015 final) Knowledge-int. activities (2016) Employment high-tech (2016)	Autumn Forecast (ECFIN) Education Monitor (EAC) Annual Growth Survey (ECFIN)	Top500.org: Top 500 Supercomputer list
December	ICT household data (2016) ICT enterprise data (2016) HRST stocks (2016)	Industrial R&D Investment Scoreboard (JRC) Joint Employment Report (EMPL)	WIPO World Intellectual Property Indicators

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