



NEWSLETTER on STI Data and Indicators

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

1. Eurostat data on the share of energy from renewable sources

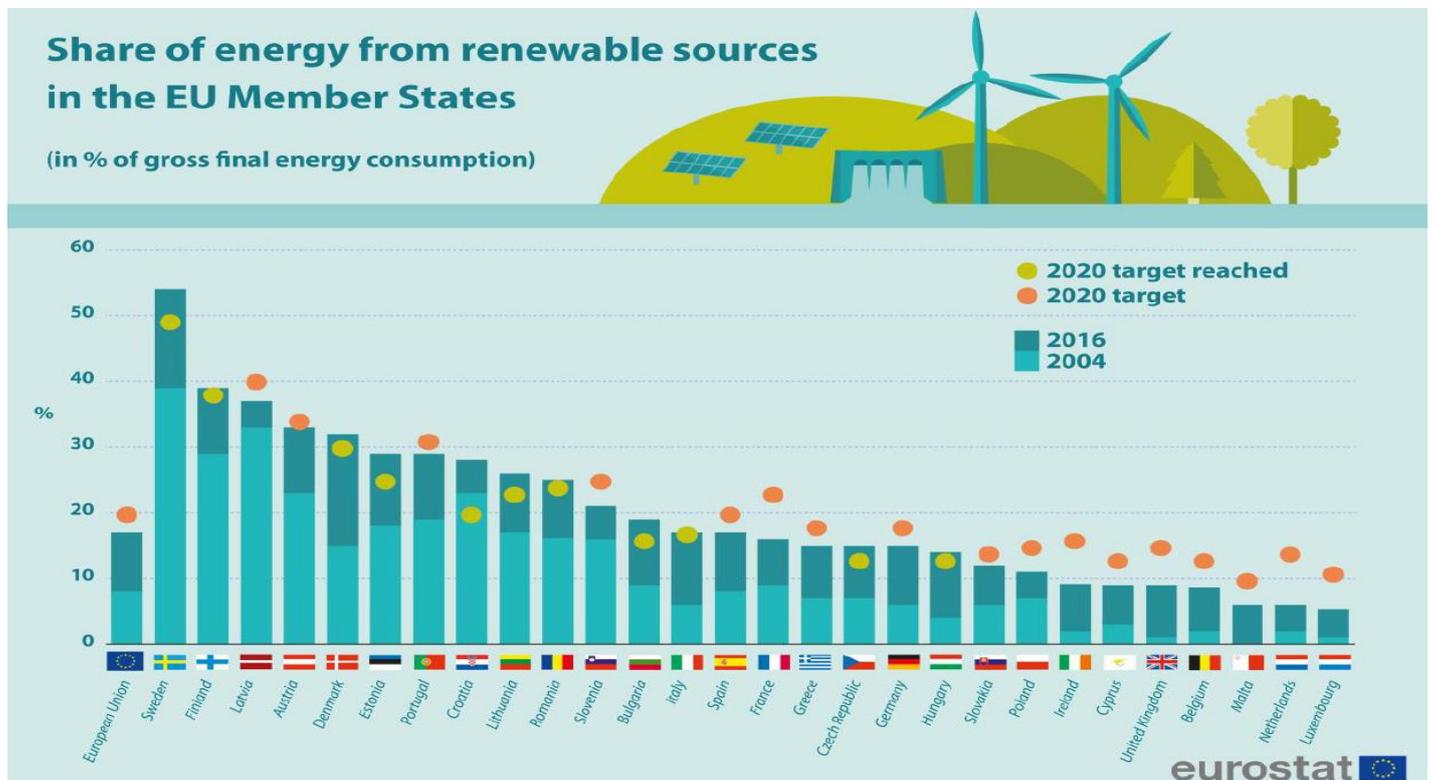
On 25 January 2018 Eurostat published 2016 results on the share of energy from renewable sources. Renewable energy sources cover solar thermal and photovoltaic energy, hydro (including tide, wave and ocean energy), wind, geothermal energy and all forms of biomass (including biological waste and liquid biofuels). It should be noted that that biomass, but also wind and most of hydro energy indirectly originate in solar energy.

In relation to the EU target of 20% of energy in gross final consumption coming from renewable sources by 2020 (and at least 27% by 2030), according to Eurostat 'in 2016, the share of energy from renewable sources in gross final consumption of energy reached

17% in the European Union (EU), double the share in 2004 (8.5%), the first year for which data are available.

11 EU Member States have already reached their targets, most of them countries with ambitious ones.

Sweden also reached its 50% 2020 target and is the EU country with the highest share of energy from renewable sources (53.8%), followed by Finland (38.7%), Latvia (37.2%), Austria (33.5%) and Denmark (32.2%). Malta (6.0%) and Luxembourg (5.4%) have the lowest shares of energy from renewables.



More info: <http://ec.europa.eu/eurostat/documents/2995521/8612324/8-25012018-AP-EN.pdf/9d28caef-1961-4dd1-a901-af18f121fb2d>

2. Eurostat data on government debt levels

On 24 January 2018, Eurostat published a news release on **Government debt** in the third quarter of 2017.

According to this release 'at the end of the third quarter of 2017, the government debt to GDP ratio in the **euro area** (EA19) stood at 88.1%, compared with 89.0% at the end of the second quarter of 2017. In the **EU28**, the ratio also decreased from 83.3% to 82.5%'.*

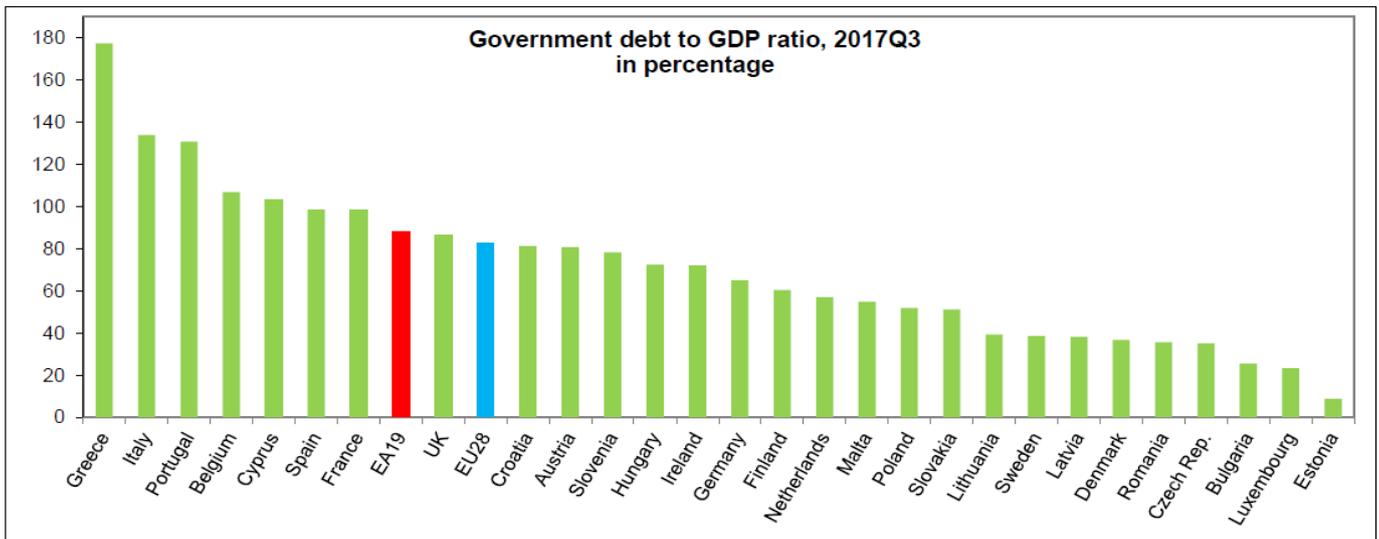
Debt securities accounted for 81.4% of general government debt in the EU, loans for 14.5% and currency and deposits for 4.2%.

In the third quarter of 2017 Greece (177.4% of GDP), Italy (134.1), Portugal (130.8), Belgium (106.1) and Cyprus (103.2) had the highest government debt to GDP ratios in the EU, at over 100% of GDP, with Spain (98.7)

and France (98.4) close to that level. Estonia had the lowest ratio (8.9), followed by Luxembourg (23.4) and Bulgaria (25.6).

Compared to the same quarter in 2016 three Member States saw an increase in the debt ratio: Italy (+2.0 pp), Luxembourg (+1.7 pp) and France (+1.0%). While the ratio remained stable in Latvia, 24 Member States saw a decrease. The largest decreases were recorded in Cyprus (-7.4 pp), the Netherlands (-4.5 pp), Malta (-4.4 pp) and Germany (-4.1 pp).

*According to IMF figures the EU government debt ratio of 83% in 2016 compares to a level of 239 % in Japan, 107 % in the US, 70% in India, 44% in China and 16 % in Russia. According to the World Bank the world figure stood at 94% in 2014.



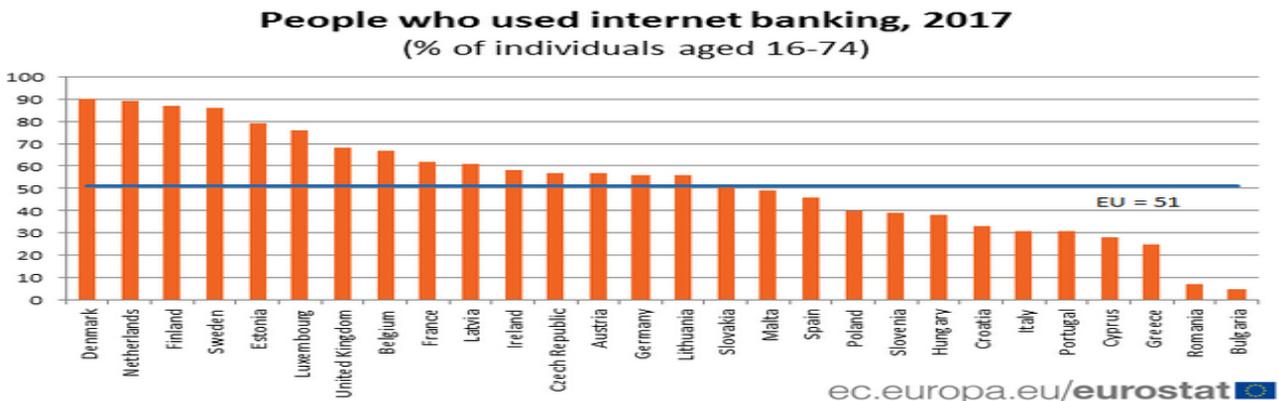
More info: <http://ec.europa.eu/eurostat/documents/2995521/8609567/2-24012018-AP-EN.pdf/7eaaeb1a-8f25-4b25-bac4-2942106473a4>

3. Eurostat data on internet banking

On 15 January 2018 Eurostat published data on Internet banking. The share of adult Europeans (aged 16-74) using internet banking doubled in the last 10 years from 25% in 2007 to 51% in 2017.

However, differences between Member States are still large. Internet banking is most common in Denmark

(90% of people aged 16-74 said they are using it), followed by the Netherlands (89%), Sweden (87%) and Finland. On the other hand the share of people using internet banking is very low in Romania (7%) and Bulgaria (5%).



More info: <http://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180115-1?inheritRedirect=true&redirect=%2Feurostat%2Fnews%2Fwhats-new>

4. Bloomberg's 'Most Innovative Economies'

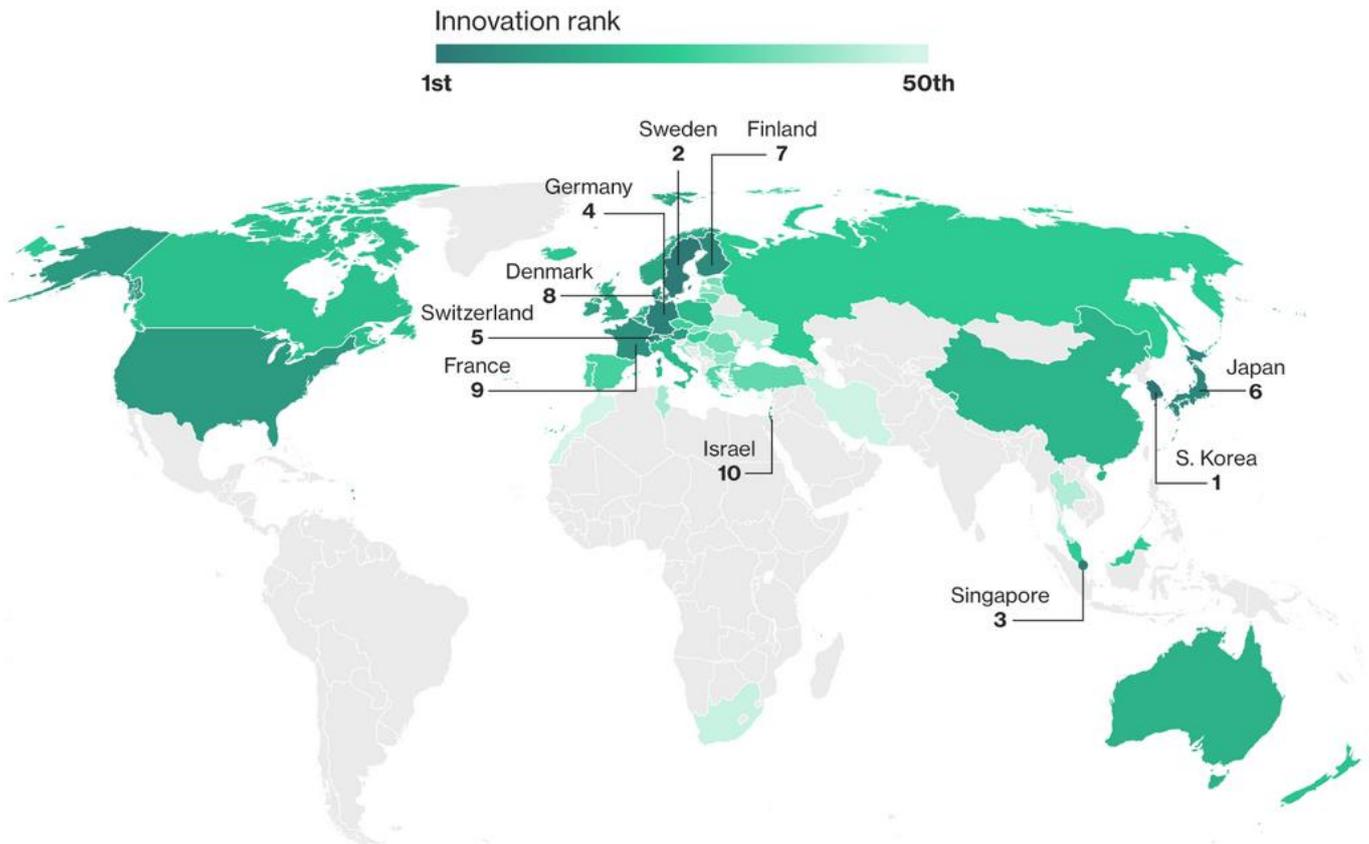
On 23 January 2018 **Bloomberg** published the 2018 edition of its *Innovation Index* showing the fifty most innovative economies. The Bloomberg Innovation index is based on 7 groups of indicators (R&D intensity, Manufacturing value added, Productivity, High-Tech density, Tertiary efficiency, Researcher concentration and Patent activity). Not all sub-components are normalised and there is hence a slight bias towards larger economies. In addition the index favours countries with a strong manufacturing sector versus service economies. The top ranked country in the index is South Korea, followed by Sweden, Singapore and Germany (ranked third in 2017). Singapore jumped up three ranks because of the efficiency of its tertiary education system. The US dropped out of the top ten for the first time (from rank 9 to 11) since the index was set up 6 years ago, caused by a slump in tertiary education efficiency and value added

in manufacturing. The US swapped its place with France, a new entrant to the top 10. Ireland (+ 3 ranks) and Italy (+4 ranks) were the EU countries that improved their rankings the most.

The top ranked country South Korea is also the top performer in the international comparisons made by the European Innovation Scoreboard (EIS), and the top 4 EU countries on the Bloomberg index are among the 6 Innovation leaders in EIS. The lowest performing EU Member State in the Bloomberg index is Cyprus. The fact that Cyprus is ranked much higher in the EIS, shows the size and manufacturing bias of the Bloomberg index. The Bloomberg index covers all EU Member States except Slovenia. Surprisingly, there is no Latin American country in the ranking.

Fifty Most Innovative Economies

South Korea, Sweden and Singapore top the list; U.S. drops out of top 10.



Sources: Bloomberg, International Labour Organization, International Monetary Fund, World Bank, Organization for Economic Co-operation and Development, World Intellectual Property Organization

Bloomberg

More info: <https://www.bloomberg.com/news/articles/2018-01-22/south-korea-tops-global-innovation-ranking-again-as-u-s-falls>

5. Expert Market's 'Top 10 Tech Hubs' to live and work in



In November 2017 *Expert Market* published a list of the *top 10 tech hubs to live and work in*. The study looked at 20 tech hubs worldwide in total (taken from the Genome Startup Ecosystem list), ranking all and highlighting the top 10.

Data taken into account for the ranking include the average salaries for software engineers, the amount of funding available to early-stage businesses, and the cost of living. Data sources include the Startup Genome report, World Bank Doing Business and data from cost of living studies.

The inclusion and weight of the cost of living* contributed to relatively affordable cities like Beijing and Berlin achieving high ranks. Berlin was even ranked first in 2016, but was overtaken by Beijing in 2017.

Two EU cities, Berlin and London (ranked 9th) appear in the top 10. The US has three hubs, China two and Israel, India and Canada one each. There are three more EU cities in the top 20: Paris, Amsterdam and Stockholm.

The ranking leaflet shows also the nicknames or cluster areas in each hub: Zhongguancun/Beijing, Silicon Allee/Berlin, Silicon Valley/Bay Area/San Francisco, Silicon Hills/Austin, Silicon Wadi/Tel Aviv, Zhangjiang Hi-Tech Park/Shanghai, Silicon Plateau/Bangalore, Route 128/ Boston, Silicon Roundabout/London, Silicon Valley of the North/Vancouver.

More info: <https://www.expertmarket.com/focus/research/top-tech-cities>

*An interesting source for cost of living data is the UBS *Prices and Earnings* study (which unfortunately has not been updated since 2015). The 2015 study showed New York as the most expensive city to live in (incl. rent), with Berlin at 51.3% of the New York price level, and Beijing at 53.2%. The city with the lowest price level in the UBS study is Sofia (30%).

Price levels

Cities ¹	Excl. rent	Incl. rent
Zurich	108.7	92.6
Geneva	106.1	91.8
New York City	100.0	100.0
Oslo	92.9	79.9
Copenhagen	88.0	74.3
London	84.7	79.5
Chicago	83.5	76.7
Tokyo	83.1	70.6
Auckland	82.8	67.6
Sydney	80.5	72.5
Seoul	79.2	64.2
Toronto	78.1	63.7
Milan	77.9	64.5
Stockholm	76.9	62.8
Montreal	76.2	58.9
Miami	76.1	67.7
Los Angeles	76.0	67.4
Helsinki	74.3	63.2
Hong Kong	72.9	76.8
Paris	72.6	63.8

More info: <https://www.ubs.com/microsites/prices-earnings/prices-earnings.html>

6. Miscellaneous results from national data sources

USA: California by far the leading US state in terms of R&D expenditure

In January 2018 the US National Science Foundation (NSF) published the 2018 edition of the two-yearly *Science&Engineering Indicators*. The publication includes a list of the top 10 US States ranked in terms of R&D expenditure in 2015. With an R&D spending of 125 billion \$ (113 bn €). California leads by a wide margin. If California was a country, it's R&D spending would rank third in the world after China and Japan (if we disregard the rest of the US) and ahead of Germany (whose population is more than twice as high). R&D spending in

Massachusetts, the US State ranked second and where Harvard and MIT are located, amounts to less than ¼ of the value for California. Massachusetts, however, has a higher R&D intensity (5.87% of GDP), than California (5.02%).

The US State with the highest R&D intensity is, however, New Mexico (6.52%), a relatively small state by population, but with huge national research laboratories, including those at Los Alamos.

Top 10 states in U.S. R&D performance, by sector and intensity: 2015

(Millions of current dollars, ranking, and R&D-to-GDP ratio)

Rank	All R&D ^a		Sector ranking			R&D intensity (R&D-to-GDP ratio)		
	State	Amount (current \$millions)	Business	Higher education	Federal intramural and FFRDCs ^b	State	R&D/GDP (%)	GDP (current \$billions)
1	California	125,056	California	California	Maryland	New Mexico	6.52	93.2
2	Massachusetts	28,665	Massachusetts	New York	California	Massachusetts	5.87	488.1
3	Texas	23,668	Michigan	Texas	New Mexico	Maryland	5.57	366.2
4	New York	22,401	Texas	Maryland	Virginia	California	5.02	2,491.6
5	Maryland	20,385	Washington	Massachusetts	District of Columbia	Washington	4.49	446.4
6	Michigan	19,891	New York	Pennsylvania	Massachusetts	Michigan	4.23	470.6
7	Washington	20,038	New Jersey	North Carolina	Alabama	Delaware	4.19	68.9
8	Illinois	16,502	Illinois	Illinois	Tennessee	Connecticut	3.87	256.3
9	New Jersey	15,865	Pennsylvania	Florida	Illinois	Idaho	3.34	72.6
10	Pennsylvania	14,839	Connecticut	Michigan	Washington	Oregon	3.38	215.3

FFRDC = federally funded research and development center; GDP = gross domestic product.

More info: <https://www.nsf.gov/statistics/2018/nsb20181/assets/1038/tables/tt04-a.pdf>

Luxembourg: growing number of commuters, new urban rail systems open

Data from the Statistical Office of Luxembourg STATEC show that the employment boom in Luxembourg has continued in 2017. In December 2017 paid employment of the population living in Luxembourg increased by nearly 8000 compared to the year before, to reach about 238 000. Of those 225 000 worked in Luxembourg and 13 000 abroad. Interestingly Luxembourgers are a slight minority of those living and working in Luxembourg. In addition there were 185 000 border-crossing commuters (about 45 000 each from Germany and Belgium and 90 000 from France) working in Luxembourg in December 2017, an increase of about 8000 compared to the year before. Paid employment in Luxembourg in December 2017 amounted to 410 000, an increase of about 16 000 (or over 4%) compared to 2016. It should be noted that that only about ¼ of those working in Luxembourg are Luxembourgers (by nationality).

The growing commuter flows have led to a saturation of the road network and more investment in rail based transport. In December a tramway system opened on the Kirchberg plateau, which will be extended till summer 2018 to the Central railway station and later to the airport and to Gasperich south of Luxembourg city. From 1875-1964 Luxembourg already had a tramway system, but it disappeared as in many Western European cities, as

increasing car traffic led to a congestion of urban roads and because buses developed into a less costly alternative. While the number of urban tram systems decreased from over 1000 in the 1920s to about 300 in the early 1970s, there has been a renaissance of the tram after the 1974 oil crisis, with some countries like France providing incentives for the opening of new modern tram systems (with a first new system opening in Nantes in 1985 and 20 more systems since then). A renaissance also took place in formerly tram-rich North America, with Edmonton opening a first new light rail system in 1978. Currently, according to the Light Rail Transit Association LRTA, there are 342 classical tramway systems, 60 heritage trams and 94 other urban light rail systems (plus 162 metro systems). The number is further growing, with Luxembourg and Arhus/Denmark the newest systems in the EU (and Lund/Sweden being the next in store, opening in autumn 2019).

In addition a funicular opened in Luxembourg, to link the a new railway station in the Pfaffenthal valley with the Kirchberg tram. Luxembourg is hence now also one of the 10 EU capitals with such a cable-hauled mode of transport, mostly used for steeper gradients.

More info: http://www.statistiques.public.lu/stat/TableViewer/tableView.aspx?ReportId=12949&IF_Language=fra&MainTheme=2&FldrName=3

Calendar of data releases and indicator based publications

Update of: **31/1/2018** (grey= already published)

2018	Eurostat data updates	Commission indicator based reports	Data and indicator based reports of other organisations
January			Bloomberg Innovation Index
February	Tertiary attainment (2017, prov.) High growth enterprises data (provisional, 2016)	Winter forecast (ECFIN) Science Research and Innovation Performance Report (RTD)	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 (2017) Education enrolment, graduates Knowledge-int. activities (2017)	Spring Forecast (ECFIN) Europe 2020 publication (ESTAT)	Invest Europe European Private Equity Report IMD World Competitiveness Yearbook
June	Education spending Employment high-tech (2017) HRST education inflows (2016)	European Innovation Scoreboard (GROW/RTD)	OECD MSTI publication Times Higher Ed. Reputations Ranking WIPO/Cornell/INSEAD Global Innovation Index
July			UNESCO UIS STI stats release OECD Education at a Glance
August			Academic Ranking of World Universities (Shanghai)
September	Final high growth ent. data (2016) Economic data on high-tech (2017)		WEF Global Competitiveness Index
October	GBORD (2017 preliminary)		World Bank Doing Business
November	R&D intensity (2017 preliminary, 2016 final) Knowledge-int. activities (2017) Employment high-tech (2017)	Autumn Forecast (ECFIN) Education Monitor (EAC) Annual Growth Survey (ECFIN) Joint Employment Report (EMPL) (draft)	Top500.org: Top 500 Supercomputer list OECD STI Outlook (2-yearly)
December	ICT household data (2018) ICT enterprise data (2018) HRST stocks (2017)	Industrial R&D Investment Scoreboard (JRC) (ERA Progress Report)	WIPO World Intellectual Property Indicators

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