

NEWSLETTER on STI Data and Indicators

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

1. Eurostat data on trade in medicinal and pharmaceutical products

On 13 June 2017 **Eurostat** published 2016 data on trade in medicinal and pharmaceutical products (which are classified as high-tech goods). According to Eurostat 'in 2016, the EU was by far the largest world trader in medicinal and pharmaceutical products, with total exports amounting to 144 bn €, and imports to 75 bn €'. The main destinations of EU exports of medicinal and pharmaceutical products were the United States (34 % of all EU exports) and Switzerland (11 %). They were followed by China and Japan (both 6 %), and Russia (4 %).

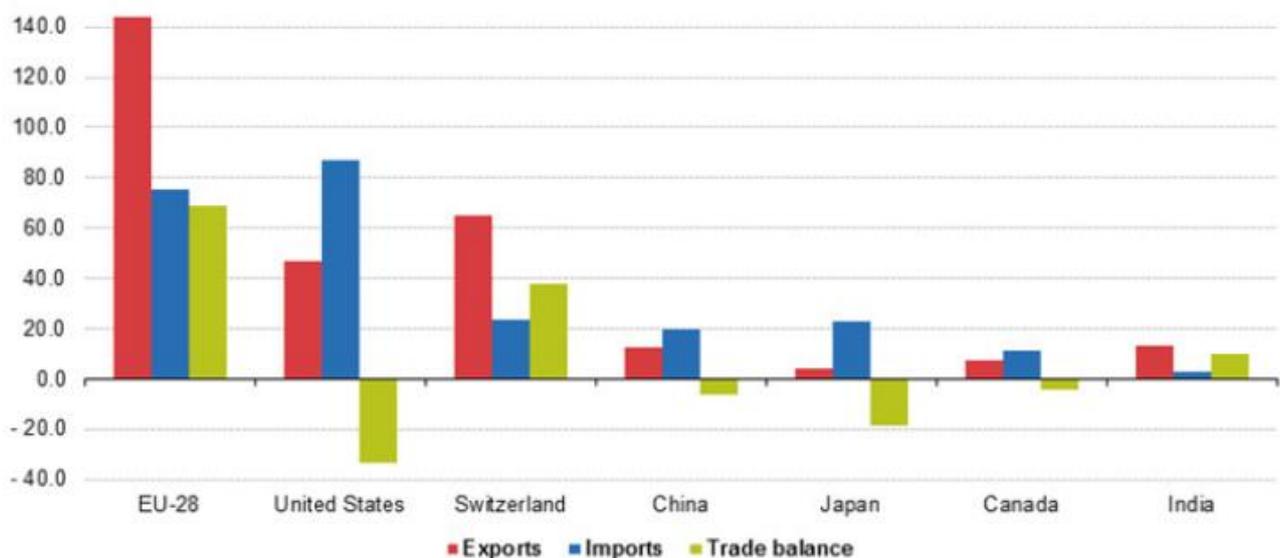
Switzerland was the world's second largest exporter of pharmaceutical products (65 bn €; Roche and Novartis being two large Swiss producers). The United States (47 bn €) came only third, despite its large pharma companies. The United States was on the other hand the

largest importer of medicinal and pharmaceutical products in the world (87 bn €), followed by the EU (75 bn €) and Switzerland (23 bn €).

Among EU Member States Germany was the largest exporter to non-EU countries (35.6 bn €), followed by Belgium (19.4 bn €), the UK (15.8 bn €) and Ireland (14.0 bn €), the biggest EU exporter on a per capita basis.

Malta showed the strongest growth since 2001 (45% per year) and has the highest share of such products in extra-EU exports. Despite robust growth extra-EU exports of all EU-13 countries together are still lower than those of Denmark.

Main countries in worldwide trade in medicinal and pharmaceutical products, 2016



More info: <http://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170613-1>

2. European Innovation Scoreboard 2017

On 20 June 2017 the European Commission (DG GROW/RTD) published the 2017 edition of the **European Innovation Scoreboard**.

The corresponding website states that 'The new scoreboard reveals that EU innovation performance continues to increase, especially due to improvements in human resources, the innovation-friendly environment, own-resource investments, and attractive research systems. Sweden remains the EU innovation leader, followed by Denmark, Finland, the Netherlands, the UK, and Germany. Lithuania, Malta, the UK, the Netherlands, and Austria are the fastest growing innovators.'

In a global comparison, the EU is catching up with Canada and the US, but South Korea and Japan are pulling ahead. China shows the fastest progress among international competitors.'

In the benchmarking against other European countries and neighbours Switzerland came out as the overall Innovation leader in Europe, outperforming all EU Member States. Iceland, Norway and Israel are classified as strong Innovators. The lowest performer of the European countries assessed is Ukraine.

The outlook section of the report expects EU performance to continue to improve in the coming years.

Figure 1: Performance of EU Member States' innovation systems

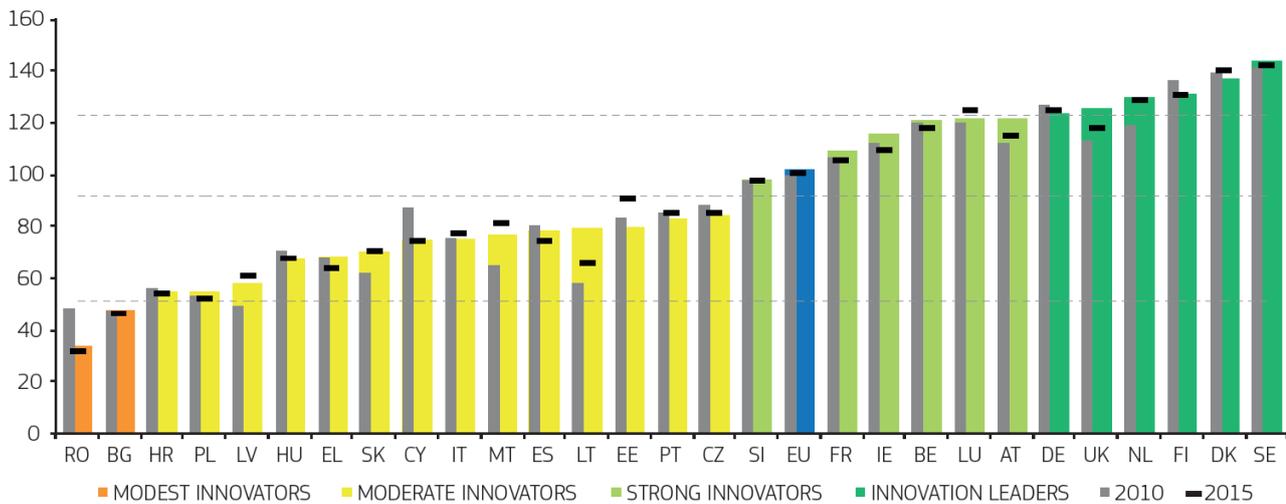
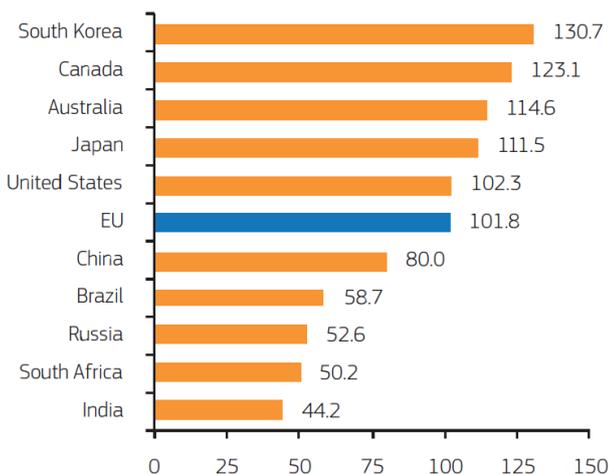
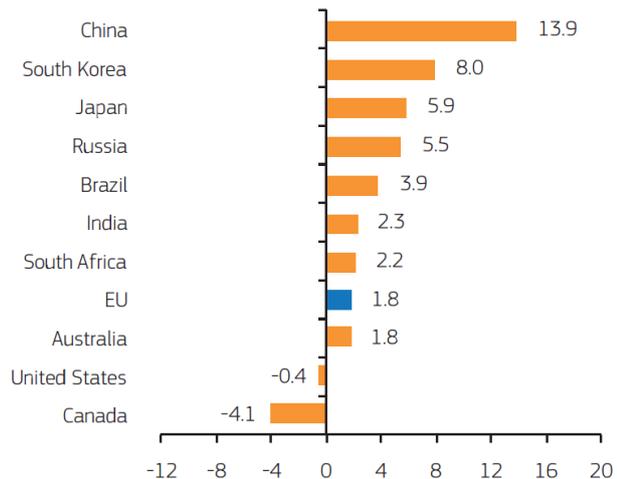


Figure 13: Global performance



Bars show countries' performance in 2016 relative to that of the EU in 2010.

Figure 14: Change in global performance



Change in performance is measured as the difference between the performance in 2016 relative to the EU in 2010 and the performance in 2010 relative to the EU in 2010.

Graphs: screenshots from EIS 2017 report

More info: http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en

3.Regional Innovation Scoreboard 2017

On 20 June the European Commission (DG GROW/RTD) published the 2017 edition of the biennial **Regional Innovation Scoreboard** (together with the European Innovation Scoreboard).

The RIS 2017 replicates the analytical framework of the European Innovation Scoreboard as much as possible in terms of data availability (using 18 of the 27 EIS indicators, sometimes with a slightly different scope). In addition, it introduces a more detailed breakdown of performance groups (3 subgroups each).

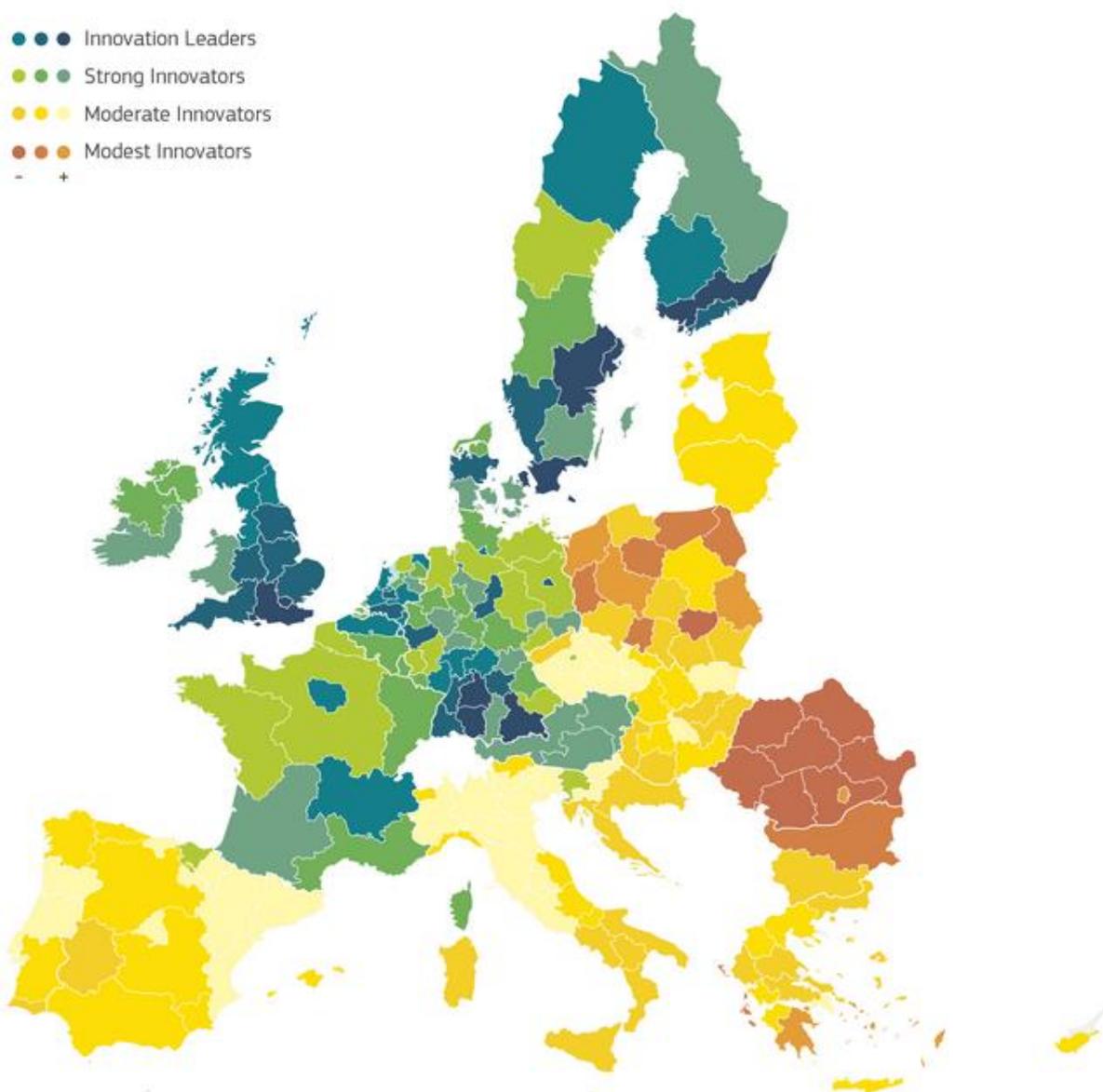
The RIS 2017 covers 220 regions across 22 EU countries, Norway, Serbia, and Switzerland. Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta are included at country level.

The corresponding website furthermore states that *The new Scoreboard confirms that Europe's most innovative regions are located in the most innovative countries.*

The most innovative region in the EU is Stockholm in Sweden, followed by Hovedstaden (Copenhagen) in Denmark, and South East in the United Kingdom. Some regional innovative hubs exist also in moderate innovator countries: Praha (Prague) in the Czech Republic, Bratislavský kraj (Bratislava) in Slovakia, and País Vasco (Basque Country) in Spain.

2017 REGIONAL INNOVATION SCOREBOARD

- ● ● Innovation Leaders
- ● ● Strong Innovators
- ● ● Moderate Innovators
- ● ● Modest Innovators
- +



More info: http://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en

4. Global Innovation Index 2017

On 15 June **Cornell**, **INSEAD** and **WIPO** published the 2017 edition of the *Global Innovation Index (GII)*.

A focus of the 2017 edition of the *GII* is innovation in the agro-food section (subtitle 'Innovation feeding the world'). The 2017 edition of the report looks for the first time at regional innovation clusters.

The *Global Index* covers 127 countries, including all 28 EU Member States and is based on 81 indicators. Some indicators are the same as in the *EIS* (for example, R&D intensity), whilst others are relatively distant from core aspects of innovation. The list also includes data from opinion surveys based on relatively small samples. Data on innovation trends over time is more limited than in the

EIS. The screenshot below shows the top 45 countries, and includes all EU Member States. Switzerland comes out as the top performer, followed by Sweden and the Netherlands. The top 6 EU Member States are the same as in the *EIS* (where they are classified as innovation Leaders). Lowest EU performers in the *GII* are Croatia, Romania and Greece. Belgium has a lower rank than in the *EIS*, while Bulgaria has a higher rank. The *GII* includes an output and an input subindex, and based on these elements an efficiency ratio. Luxembourg leads in efficiency, followed by Switzerland, China and the Netherlands.

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.62
Switzerland	67.69	1	HI	1	EUR	1	0.95	2	
Sweden	63.82	2	HI	2	EUR	2	0.83	12	
Netherlands	63.36	3	HI	3	EUR	3	0.93	4	
United States of America	61.40	4	HI	4	NAC	1	0.78	21	
United Kingdom	60.89	5	HI	5	EUR	4	0.78	20	
Denmark	58.70	6	HI	6	EUR	5	0.71	34	
Singapore	58.69	7	HI	7	SEAO	1	0.62	63	
Finland	58.49	8	HI	8	EUR	6	0.70	37	
Germany	58.39	9	HI	9	EUR	7	0.84	7	
Ireland	58.13	10	HI	10	EUR	8	0.85	6	
Korea, Rep.	57.70	11	HI	11	SEAO	2	0.82	14	
Luxembourg	56.40	12	HI	12	EUR	9	0.97	1	
Iceland	55.76	13	HI	13	EUR	10	0.86	5	
Japan	54.72	14	HI	14	SEAO	3	0.67	49	
France	54.18	15	HI	15	EUR	11	0.71	35	
Hong Kong (China)	53.88	16	HI	16	SEAO	4	0.61	73	
Israel	53.88	17	HI	17	NAWA	1	0.77	23	
Canada	53.65	18	HI	18	NAC	2	0.64	59	
Norway	53.14	19	HI	19	EUR	12	0.66	51	
Austria	53.10	20	HI	20	EUR	13	0.69	41	
New Zealand	52.87	21	HI	21	SEAO	5	0.65	56	
China	52.54	22	UM	1	SEAO	6	0.94	3	
Australia	51.83	23	HI	22	SEAO	7	0.60	76	
Czech Republic	50.98	24	HI	23	EUR	14	0.83	13	
Estonia	50.93	25	HI	24	EUR	15	0.79	19	
Malta	50.60	26	HI	25	EUR	16	0.84	8	
Belgium	49.85	27	HI	26	EUR	17	0.67	47	
Spain	48.81	28	HI	27	EUR	18	0.70	36	
Italy	46.96	29	HI	28	EUR	19	0.73	31	
Cyprus	46.84	30	HI	29	NAWA	2	0.74	28	
Portugal	46.05	31	HI	30	EUR	20	0.71	33	
Slovenia	45.80	32	HI	31	EUR	21	0.68	44	
Latvia	44.61	33	HI	32	EUR	22	0.74	26	
Slovakia	43.43	34	HI	33	EUR	23	0.75	25	
United Arab Emirates	43.24	35	HI	34	NAWA	3	0.49	104	
Bulgaria	42.84	36	UM	2	EUR	24	0.80	15	
Malaysia	42.72	37	UM	3	SEAO	8	0.68	46	
Poland	41.99	38	HI	35	EUR	25	0.67	48	
Hungary	41.74	39	HI	36	EUR	26	0.73	30	
Lithuania	41.17	40	HI	37	EUR	27	0.59	84	
Croatia	39.80	41	HI	38	EUR	28	0.66	52	
Romania	39.16	42	UM	4	EUR	29	0.69	39	
Turkey	38.90	43	UM	5	NAWA	4	0.84	9	
Greece	38.85	44	HI	39	EUR	30	0.56	87	
Russian Federation	38.76	45	UM	6	EUR	31	0.61	75	

More info: <https://www.globalinnovationindex.org/>

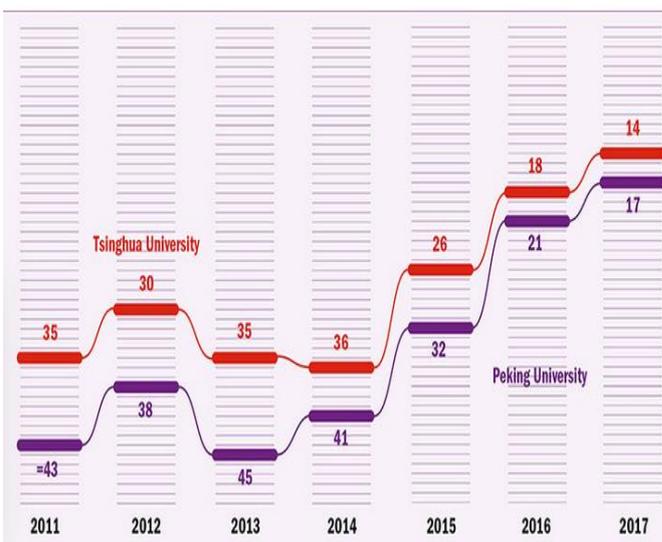
5. Times Higher Education Reputational Ranking

On 14 June **Times Higher Education** published the *World Reputation Rankings 2017*. This is based on an opinion survey of leading academics, who are asked to name no more than 15 universities that they believe are the best for research and teaching, based on their own experience. This results in a list of the top 100 universities based on reputation. The results of this survey are later combined with 11 indicators to create

the *Times Higher Education Rankings 2017-18*, which will be published in September.

While there was little change in the top 10 most reputed universities compared to the year before (Harvard ranked first, followed by MIT and Stanford, 8 of the top 10 are based in the US), Asian universities continue to catch up. Tsinghua and Peking University (both based in Beijing) moved up four ranks and are now in the top 20.

Reputation rank 2017	Reputation rank 2016	World rank 2016-17	University	Country
1	1	6	Harvard University	United States
2	2	5	Massachusetts Institute of Technology	United States
3	3	3	Stanford University	United States
=4	4	4	University of Cambridge	United Kingdom
=4	5	1	University of Oxford	United Kingdom
6	6	=10	University of California, Berkeley	United States
7	7	7	Princeton University	United States
8	8	12	Yale University	United States
9	11	=10	University of Chicago	United States
10	10	2	California Institute of Technology	United States

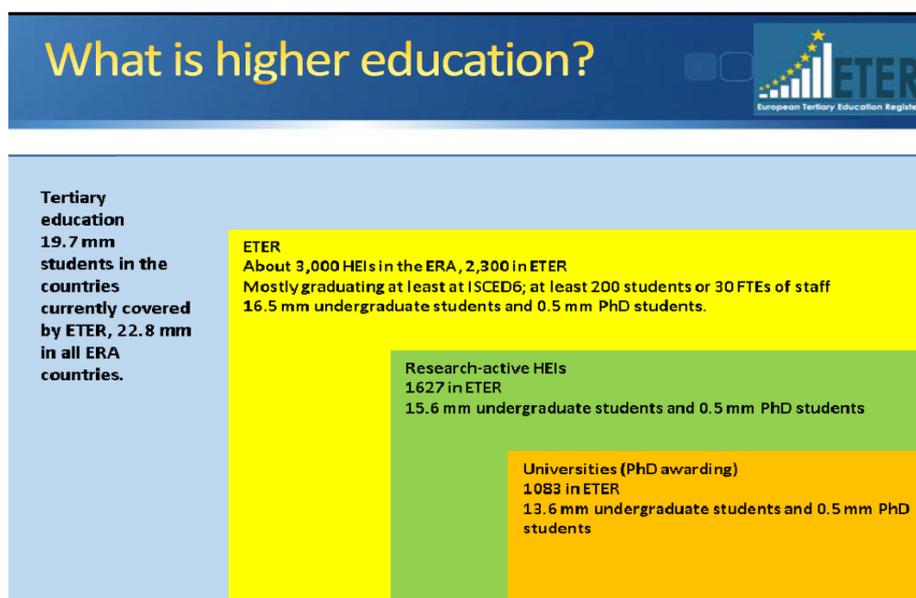


More info: <https://www.timeshighereducation.com/world-university-rankings/2017/reputation-ranking>

6. European Tertiary Education Register (ETER) June update

At the end of June the **European Tertiary Education Register (ETER)** database was updated with 2014 data on higher education institutions in ERA countries. The ETER initiative is managed and financed by the Commission (DG EAC in cooperation with DG RTD and

Eurostat) and is implemented by a consortium of five partners, including universities in Rome, Pisa, Lugano, Nifu (Oslo) and Joanneum Research (Graz). ETER currently includes 2764 HEIs in 36 countries. Micro-data are available for HEIs in 31 countries.



More info: <https://www.eter-project.com/>

7. Miscellaneous results from national data sources

Norway: Increase in the share of companies with innovation activities

On 13 June **Statistics Norway** published the results of its enterprise innovation survey (which is part of the Community Innovation Survey 2016, for which European results will be released at the end of 2018). 65% of Norwegian enterprises reported some innovation activities, a significant increase compared to the previous survey period (2012-2014), where the share reached

52%. 37% of enterprises reported product innovations, 37% process innovations, 38% marketing innovations and 33 % organisational innovations. Product innovation in the service sector (+57%) showed the strongest increase. The share of enterprises with innovations increased with the size of companies and was highest in companies which employ 500 persons or more.

More info: <https://www.ssb.no/en/teknologi-og-innovasjon/artikler-og-publikasjoner/a-higher-share-of-norwegian-enterprises-report-innovations>

China: Demographer claims population is 90 million lower

In recent months the press reported the claims of University of Wisconsin-Madison academic Yi Fuxian that the population of China might be 90 million lower (1.29 bn instead of 1.38 bn) than shown in official statistics, a result of the one child policy and overstated data on fertility. This would also imply that at 1.32 bn people India is now the world's most populous country. However, other demographers think that while there could be some overreporting it is unlikely the gap is that big and that the official figures are close to reality. Official statistics show a population of 1.37 bn in 2015, a

birth rate of 12/1000, a death rate of 7/1000 and a population growth of 0.5% per year (+7 million people). China will therefore have a population of 1.4 bn in 2019. India's population stood at 1.33 bn in 2016. It is growing by 16 million per year (9 million more than China) and is expected to overtake China by 2022. However, India's population growth rate is also declining. Its current fertility rate of 2.2 children is near the reproduction rate (and in cities is already below that rate). India's population is expected to peak in 2050 at 1.7 billion.

More info: <https://www.nytimes.com/2017/05/24/world/asia/china-india-population.html>

USA: US companies invest over 70 bn \$ per year in R&D outside the US

On 11 April 2017 the **US National Science Foundation** published 2013 data on R&D performed by US companies outside the US. R&D paid for by US companies and performed by companies outside of the United States amounted to 73 bn \$ in 2013 (compared to 323 bn \$ of domestic R&D expenditure), half of which was spent in Europe (35.4 bn \$). Leading EU destinations were the UK (8.9 bn \$), Germany (8.6 bn \$), France (3.1 \$), Ireland (1.7 bn \$), Belgium (1.7 bn \$), Italy (1.1 bn \$) and the Netherlands (1.1 bn \$). Among EU-13 countries Poland was the biggest destination (0.4 bn \$), followed by the

Czech Republic (0.4 bn \$). Important European destinations outside the EU were Switzerland (2.5 bn \$) and Norway (0.4 bn \$). In Asia, India (5.9 bn \$), China (5.8 bn \$), Japan (2.8 bn \$) and Singapore (2.1 bn \$) were the top locations, In the Middle East Israel (4.1 bn \$), in the Americas Canada (5.3 bn \$) and Brazil (1.6 bn \$). While 51 bn \$ went into R&D in manufacturing sectors (of which 10 bn \$ went to pharmaceuticals and medicines and 18 bn \$ to computer and electronic products), non-manufacturing sectors, mostly services, accounted for 22 bn \$ in 2013.

More info: <https://www.nsf.gov/statistics/2017/nsf17317/>

Germany: Start-ups attract more venture capital, one more unicorn

Since 2014 **Ernst & Young** has published the *Start-up Barometer* for Germany (since 2015 twice a year). The latest *Barometer*, published on 6 July 2017, shows venture capital investment in start-ups in Germany strongly increasing in the first 6 months of 2017, compared to the same period in 2016. The number of investment deals increased by 6% from 248 to 264 (Berlin attracting 44% of deals, followed by Bavaria and Hamburg). The value of investment increased from 962 million € to 2163 million € or by 123% (68% of which went to enterprises based in Berlin).

In June 2017, 4 companies joined the **CB Insights** list of unicorns (start-ups with a market valuation of 1 billion or more), one from the US, two from China and Otto Bock healthcare from Germany, a medical technology company and world leader in prosthetics. Germany now has 4 unicorns according to CB Insights (the ecommerce companies Auto 1 Group and Hellofresh, the healthcare company Curevac and Otto Bock).

More info: <http://www.ey.com/de/de/newsroom/news-releases/ey-20170706-rekordsummen-fuer-deutsche-start-ups-berlin-baut-vorsprung-aus>

Calendar of data releases and indicator based publications

Update of: **1/7/2017** (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
July	IPR (Patents, 2014), Community Trademarks (2016), RC Designs (2016)		UNESCO UIS STI stats release
August			Academic Ranking of World Universities (Shanghai) WIPO/Cornell/INSEAD Global Innovation Index
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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