

NEWSLETTER on STI Data and Indicators

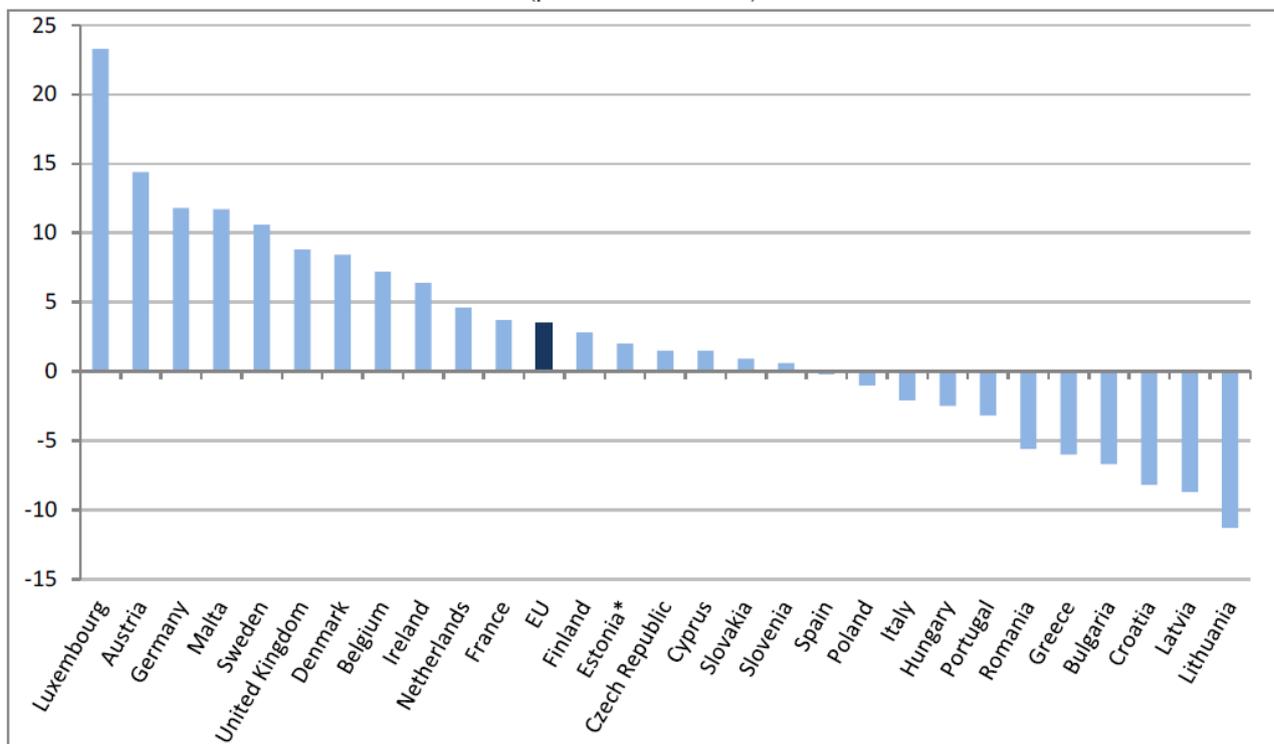
DG RTD, A4, Analysis and monitoring of national research policies

1. Eurostat data on EU population change 2015

On 8 July 2016 *Eurostat* published first **population estimates** for the year 2015. On 1 January 2016, the population of the European Union (EU) was estimated at 510.1 million, compared to 508.3 million on 1 January 2015, an increase of 1.8 million. While 5.1 million babies were born in 2015, 5.2 million persons died (the first negative natural change ever recorded by Eurostat for the EU population). As a result of a net migration of about 1.9 million the EU population still increased. In 2015 Ireland was the EU country with the highest birth rate (14.2 live births /1000 population), followed by France (12.0) and the UK (11.9). Italy had the lowest birth rate in the EU (8.0), followed by Portugal (8.3) and Greece (8.5). As a result of a high death rate the natural

change showed the highest negative figures in Bulgaria (-6.2), Croatia (-4.0) and Hungary (-4.0). However, strong emigration rates resulted in the biggest decline in population in 2015 in Lithuania and Latvia, followed by Croatia and Bulgaria. As in past years Luxembourg was the EU country with the highest population growth (+2.3%), a result of strong net migration. A high number of refugees, but also intra-EU migration, boosted the population of Austria (+1.4%), Germany (+1.2%) and Sweden (+1.1%) in 2015. Malta's favourable labour market situation also led to population inflow and a robust population growth (+1.2%).

Total population change in the EU Member States, 2015
(per 1 000 residents)



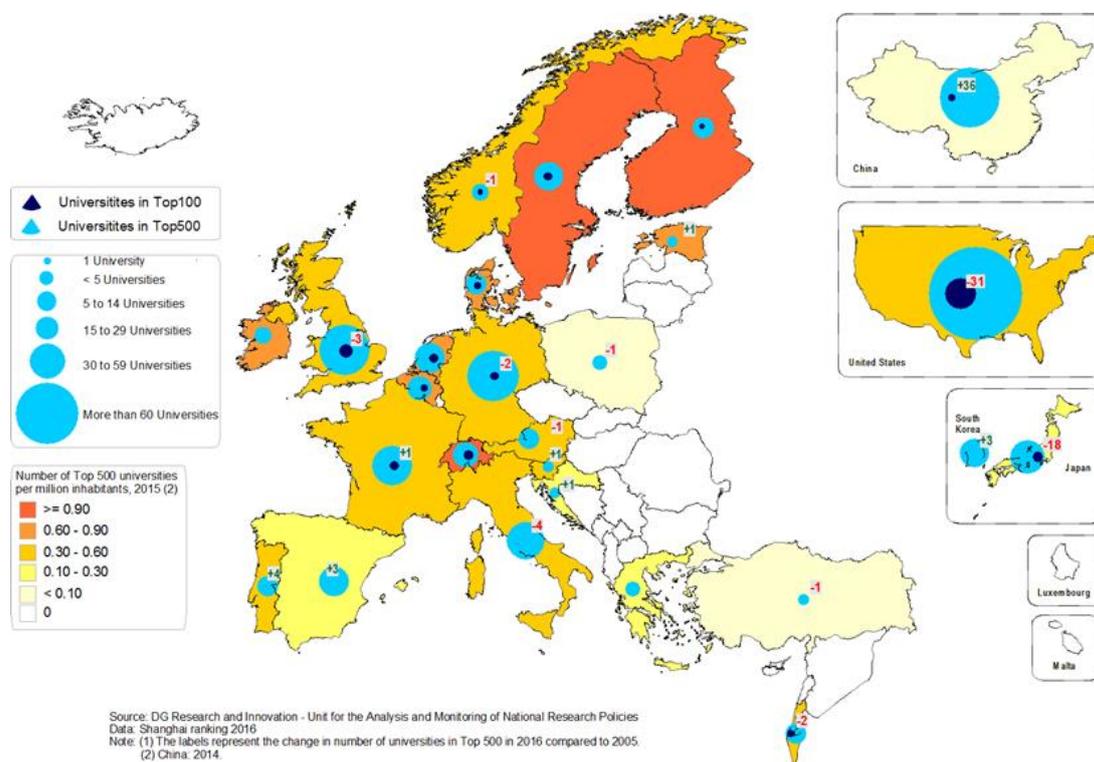
* Estonia: due to a modification in the methodology, the change 2016/2015 should be interpreted with caution.

More info: <http://ec.europa.eu/eurostat/documents/2995521/7553787/3-08072016-AP-EN.pdf/c4374d2a-622f-4770-a287-10a09b3001b6>

2. Shanghai Academic Ranking of World Universities 2016

The *ShanghaiRanking Consultancy* released on 15 August the 2016 edition of the annual **Academic Ranking of World Universities**. This ranking, carried out since 2003, was once commissioned by the Chinese government to monitor the rise of Chinese universities (the goal of two Chinese universities among the top 10 worldwide by 2010 was, however, not achieved, but progress accelerated lately).

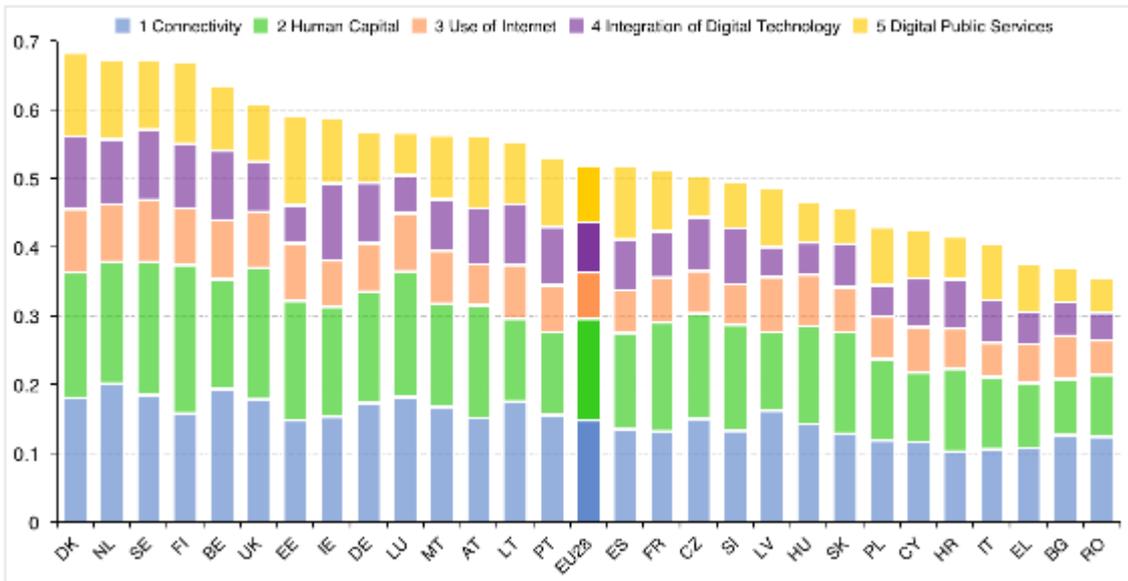
The number of Chinese universities in the top 500 has tripled since 2005 to 54 (of which 12 from Taiwan and Hong Kong), while the number of US and Japanese institutions has declined. The number of top EU universities has been relatively stable (with Portugal gaining most and Italy losing most). Sweden, Finland and Denmark are the EU countries with the highest number of top ranked institutions per inhabitant.



| Country/Region | Number of top 500 universities in 2016 (change to 2015/2005) | | Number of top 100 universities in 2016 (change to 2015/2005) | | Top ranked university (Rank) |
|----------------|--|-------------|--|----------------|---------------------------------|
| Germany | 38 | (-1/-2) | 3 | (-1/-2) | Heidelberg (47), TU Munich (47) |
| UK | 37 | (-/-3) | 8 | (-1/-3) | U Cambridge (4) |
| France | 22 | (-/+1) | 3 | (-1/-1) | Paris 6 (39) |
| Italy | 19 | (-1/-4) | 0 | (-/-1) | Sapienza Rome (151-200) |
| Spain | 12 | (-1/+3) | 0 | | U Barcelona (151-200) |
| Netherlands | 12 | | 3 | (-1/+1) | Utrecht U (65) |
| Sweden | 11 | | 3 | (-/-1) | Karolinska (44) |
| Belgium | 7 | | 2 | (-/+2) | U Ghent (62) |
| Finland | 5 | (-1/-) | 1 | | U Helsinki (56) |
| Austria | 5 | (-1/-1) | 0 | (-/-1) | U Vienna (151-200) |
| Denmark | 5 | | 2 | (-/+1) | U Copenhagen (30) |
| Portugal | 5 | (+2/+4) | 0 | | U Lisbon (151-200) |
| Ireland | 3 | | 0 | | Trinity College (151-200) |
| Poland | 2 | (-/-1) | 0 | | Jagiellonian U (301-400) |
| Greece | 2 | | 0 | | National U Athens (301-400) |
| Slovenia | 1 | (-/+1) | 0 | | U Ljubljana (401-500) |
| Czech Republic | 1 | | 0 | | Charles U Prague (201-300) |
| Estonia | 1 | (+1/+1) | 0 | | University of Tartu (401-500) |
| Croatia | 1 | (+1/+1) | 0 | | U of Zagreb (401-500) |
| EU 28 | 189 | (-2) | 25 | (-4/-5) | U Cambridge (4) |
| USA | 137 | (-9/-31) | 50 | (-1/-3) | Harvard U (1) |
| China | 54 | (+36) | 2 | (+2/+2) | Tsinghua U (58) |
| Japan | 16 | (-2/-18) | 4 | (-/-1) | Tokyo U (20) |
| South Korea | 11 | (-1/+3) | 0 | | Seoul National U (101-150) |

More info: <http://www.shanghairanking.com/>

3. The Commission's Digital Economy & Society Index (DESI) 2016

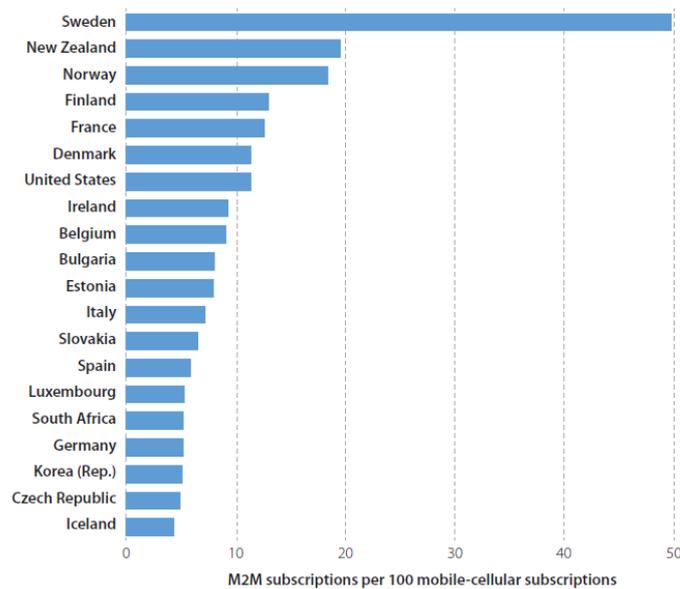


On 29 June 2016 the *Commission (DG CNECT)* published the 2016 edition of the **Digital Economy & Society Index (DESI)**. DESI is based on 5 dimensions, 12 sub-dimensions and 30 indicators. DESI 2016 shows that overall, Europe is progressing. The score for the EU improved from 0.50 in 2015 to 0.52 in 2016. Croatia,

Portugal and Romania have improved most from 2015 to 2016. The best performing EU country in 2016 was Denmark, followed by the Netherlands, Sweden and Finland. Greece, Bulgaria and Romania were the lowest performers in 2016.

More info: <https://ec.europa.eu/digital-single-market/en/desi>

4. ITU data on M2M subscriptions



In June 2016 the *International Telecommunications Union (ITU)* published its brochure **Facts and Figures 2016**. It includes information on the *Internet of things (IoT)*, represented by data on M2M (machine to machine) subscriptions per 100 mobile cellular subscriptions. The data show Sweden as the leading country in M2M with nearly 50 such subscriptions per 100 mobile phone

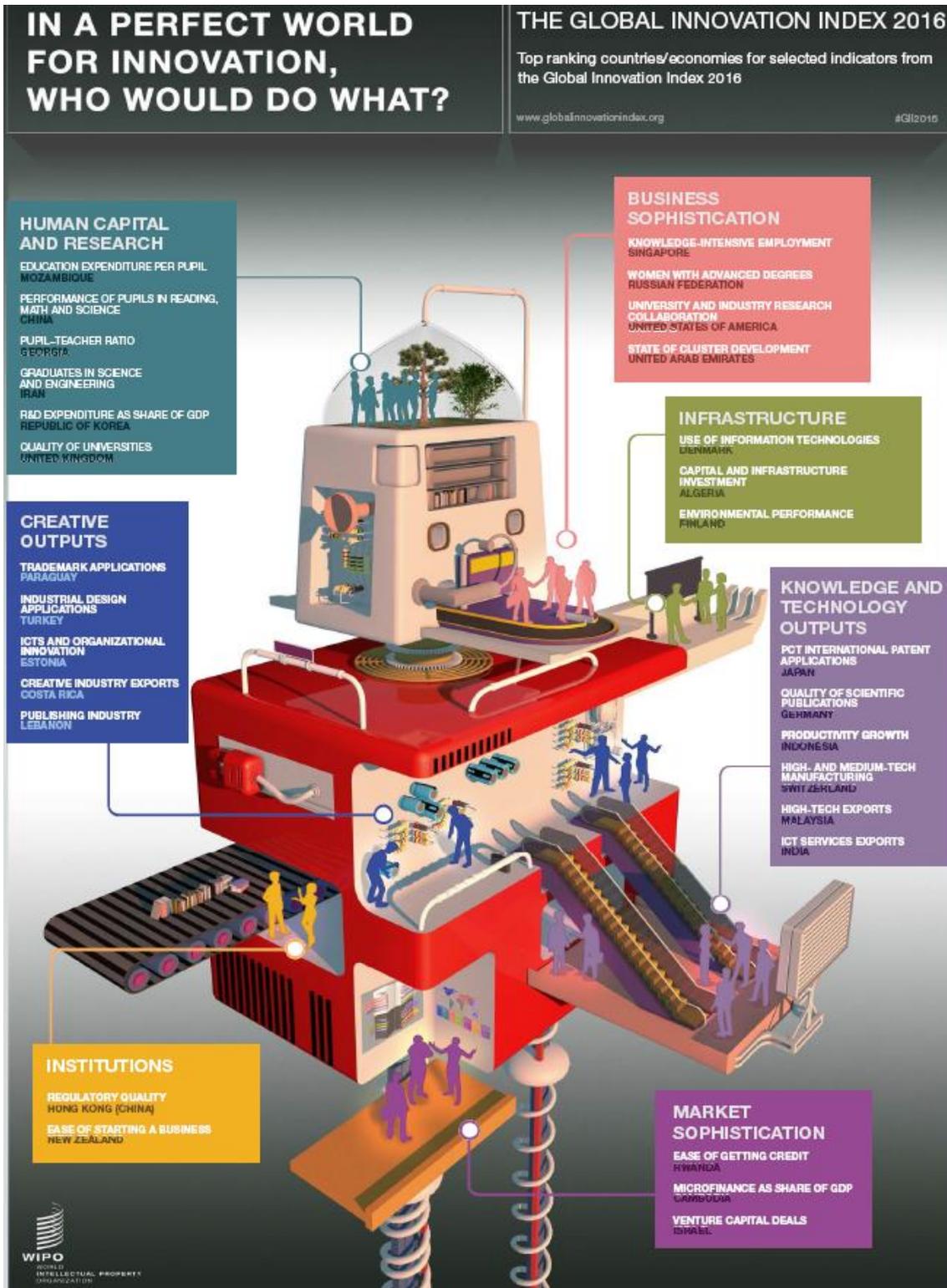
subscriptions. Other relatively advanced countries according to this indicator are New Zealand and Norway. Germany and Korea on the other hand still perform relatively low on M2M, despite efforts in Germany to promote *Industry 4.0* and the Korean *Manufacturing 3.0* initiative.

More info: <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2016.pdf>

5. Global Innovation Index 2016

On 15 August *INSEAD*, *WIPO* and others published the **Global Innovation Index 2016**, which ranks the performance of 128 countries based on 82 innovation related indicators. Switzerland is the top performer in the 2016 index, followed by Sweden and the UK. Other top 10 EU countries: Finland, Ireland, Denmark, Netherlands and Germany. Croatia and Romania came out as the lowest performers in the EU.

The report was released with an info-graph (see below), showing world leaders for selected indicators. Top performing EU countries include for the quality of universities: UK, ICTs and organisational innovation: Estonia, Quality of scientific publications: Germany, Use of information technologies: Denmark, Environmental performance: Finland.



More info: <http://www.wipo.int/publications/en/details.jsp?id=4064>

6. Miscellaneous results from national data sources

a) Ireland: Surprising GDP growth in 2015

On 12 July the Irish *Central Statistical Office CSO* published a remarkable revision of the Irish GDP growth rate for the year 2015. According to the new figures Irish GDP went up by 26.3% in 2015, three times the previous estimate of 7.8%.

The revisions were explained by the CSO by:

- an increase in the number of new aircraft imports into Ireland for international leasing activities.
- corporate restructuring both through imports of individual assets and also reclassifications of entire balance sheets in 2015 so that capital assets in Ireland increased strongly compared to 2014.

Foreign companies that switched their base to Ireland (which has a low corporate tax rate) after a merger or acquisition and that were included in the value of the

Irish corporate sector were hence an important reason. This includes several US companies, such as drug maker Allergan, security system provider Tyco and medical technology specialist Medtronic. A surge in aircraft imported into Ireland by leasing companies that send the jets out on loan to airlines was another reason. Lease operators based in Ireland account for 20% of the global market.

As Ireland represents more than 1% of EU GDP, the revised figures will boost EU GDP in 2015 by about 0.3%. The new GDP figures tend to lead to lower performance of Ireland in innovation related indicators where GDP is in the denominator, such as R&D intensity.

More info: <http://www.cso.ie/en/releasesandpublications/er/nie/nationalincomeandexpenditureannualresults2015/>

b) Liechtenstein: the most industrialised country in the world?

Liechtenstein, an European Economic Area (EEA) country with a population of only 37 000, has a limited statistical system and is participating in only few international surveys. It is hence often absent in performance assessments, including on innovation. The limited data available from the statistical office of the country, show, however, that Liechtenstein performs strongly in several areas. In terms of GDP Liechtenstein is the richest country in the EEA, in 2014 GDP amounted to EUR 4.9 bn, or EUR 130 000 Euro per capita, compared to about EUR 85 000 Euro per capita in Luxembourg, the EU's richest country. The wealth of the country is also reflected in the motorisation rate (790 passenger cars and 1060 motor vehicles/ 1000 inhabitants), the highest worldwide.

Liechtenstein has 4100 companies and as many jobs as inhabitants (37 000). 53% of employees are border-

crossing commuters (mainly from Switzerland and Austria). The unemployment rate amounted to 2.4% in 2015, the lowest in the EEA. Liechtenstein is the most industrialised country worldwide, when measured by the share of employment in manufacturing (39%, compared to 15% in EU 28). Notable manufacturing companies include toolmaker Hilti (turnover over EUR 4 bn, more than 2000 employees in Liechtenstein) and Ivoclar, the world's largest maker of false teeth. For its tech companies the country is also nicknamed 'Precision Valley'.

While Europe still works on establishing a patent with unitary effect, for Liechtenstein and Switzerland there is already a unitary patent, the only one worldwide so far.

More info: <http://www.llv.li/#/1312>

b) China: ABTX, the 'Chinese GAFA'?

In January 2016 official statistics were released showing that in 2015 Internet users for the first time represented more than half of the Chinese population. Since then the number has increased to over 700 million. China now has more Internet users than the EU and the US combined. This large market is one of the reasons why China seems more successful than Europe in emulating the big US Internet companies, also acronymed '**GAFA**' (Google, Apple, Facebook, Amazon). The Chinese equivalent is called **ABTX** (Alibaba, Baidu, Tencent, Xiaomi). The ABTX companies employ 130 000 people (GAFA: 430 000) have an annual turnover of \$60 bn (GAFA \$425 bn) and a market valuation of \$500 bn (GAFA \$1700 bn).

Alibaba (an e-commerce company) and Tencent (which can be compared to Facebook, whose services are not

available in China), already have a market valuation of over \$200 bn each. Tencent recently bought the Finnish unicorn Supercell, a mobile gaming company, for \$ 8.6 bn. Baidu (the 'Chinese Google', Google services mostly unavailable in China) however, still has only 1/8 of the market valuation of Alphabet/Google. Facing new Chinese competitors, mobile phone vendor Xiaomi (founded in 2010) is unlikely to reach the market valuation and turnover of Apple.

China is also successful in emulating the 'new GAFA', acronymed **NATU** (Netflix, airbnb, Tesla, Uber), with companies such as LeEco (former LeTV), Tujia.com, Didi Chuxing ('Chinese Uber') and several Tesla clones.

More info <http://www.lenouveleconomiste.fr/la-nouvelle-route-de-la-soie-2-26089/>

Calendar of data releases and indicator based publications

Update of: 24/8/2016 (grey= already published)

| 2016 | 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 (2015, prov.) High growth enterprises data (provisional, 2014) IPR (patent 2013, CTM 2014 and RCD 2014) | Winter forecast (ECFIN) DESI indicator (CNECT) | OECD R&D expenditure data Excelacom Internet Minute |
| March | R&D intensity (2014 update) GBAORD final (2014) | She Figures (online version; RTD) Science, Research and Innovation performance report (RTD) | European Patent Office , EPO annual results (2015) Reuters Most Innov. Institutions OICA world motor vehicle production data |
| April | Education headline indicators (LFS) | | |
| May | High-tech trade (2015) Venture capital (2015) Education enrolment, graduates Knowledge-int. activities (2015) | Spring Forecast (ECFIN) Skills forecast (Cedefop) | Invest Europe 2015 European Private Equity Report Times Higher Ed. Reputations Ranking IMD World Competitiveness Yearbook |
| June | Education spending Employment high-tech (2015) HRST education inflows (2014) | | |
| July | IPR (Patents, 2013), Community Trademarks (2015), RC Designs (2015) | Innovation Union Scoreboard (GROW/RTD) | UNESCO UIS STI statistics release |
| August | | Europe 2020 publication (ESTAT) | Academic Ranking of World Universities (Shanghai) WIPO/Cornell/INSEAD Global Innovation Index |
| September | GBAORD (2015 preliminary) Final high growth ent. data (2014) Economic data on high-tech (2015) | | WEF Global Competitiveness Index |
| October | | | OECD STI Scoreboard (2-yearly) World Bank Doing Business |
| November | R&D intensity (2015 preliminary, 2014 final) Knowledge-int. activities (2015) CIS 2014 Employment high-tech (2015) IPR Statistics (CTM 2015 and RCD 2015) | Autumn Forecast (ECFIN) Education Monitor (EAC) European Competitiveness report (GROW) Industrial R&D Investment Scoreboard (JRC) Annual Growth Survey (ECFIN) | Top500.org: Top 500 Supercomputer list OECD Education at a Glance |
| December | ICT household data (2016) ICT enterprise data (2016) HRST stocks (2015) | Joint Employment Report (EMPL) | WIPO World Intellectual Property Indicators BDI/Telekom (German) Innovation Indicator |

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