1. Eurostat data on R&D expenditure

On 16 November 2016 Eurostat released provisional data on R&D expenditure in 2015. The data show that EU R&D intensity stagnated at 2.04% of GDP. Sweden continues to be the leading EU country in terms of R&D intensity (3.26% of GDP in 2015 compared to 3.15% in 2014). R&D intensity in Finland fell below 3% for the first time since 2000, to reach 2.9% in 2015. Austria (3.07%) now holds the second place, Denmark (3.03%) is third. R&D intensity in Germany, the largest spender in the EU in absolute terms, declined slightly from 2.89% in 2014 to 2.87% in 2015. There has been some progress in R&D intensity in countries with low spending levels, including Bulgaria (from 0.79% in 2014 to 0.96% in 2015), Greece (from 0.84% to 0.96%), Croatia (0.79% to 0.85%), Poland (0.94% to 1.0%), Romania (0.38% to 0.49%) and Slovakia (0.88% to 1.18%). The data also show that in 2014 (2015 results not yet available) China (2.05%) has overtaken the EU and that Japan (3.59%) and Korea (4.29%) were moving further ahead.
2. Commission Autumn 2016 Economic Forecast

On 9 November 2016 the Commission (DG ECFIN) published the Autumn 2016 Economic Forecast. GDP growth in the EU as a whole is forecast at 1.8% in 2016, 1.6% in 2017 and 1.8% in 2018 (Spring forecast: 2016: 1.8%, 2017: 1.9%). The EU unemployment rate is forecast to decline from 8.6% in 2016 to 8.3% in 2017 and 7.9% in 2018. Inflation is forecast to accelerate from 0.3% in 2016 to 1.6% in 2017 and 1.7% in 2018.

In 2016 Romania's GDP is forecast to grow the fastest (5.2%), followed by Ireland (4.1%) and Malta (4.1%). Greece (-0.3%) is forecast to be the only shrinking EU economy. In 2017 Romania is again forecast to have the fastest growth (3.9%), followed by Luxembourg (3.8%) and Malta (3.7%). Greece is expected to return to growth in 2017 (2.7%), while growth in Italy and Finland will, as in 2016, remain below 1%. Growth in the UK is expected to slow considerably in 2017.

In 2018 the UK, Finland and Portugal are forecast to be the EU countries with the slowest economic growth. More info: [http://ec.europa.eu/economy_finance/eu/forecasts/2016_autumn_forecast_en.htm](http://ec.europa.eu/economy_finance/eu/forecasts/2016_autumn_forecast_en.htm)


On 7 November the Commission (DG EAC) published the 2016 edition of the Education and Training Monitor. The report shows that as regards the EU targets for 2020 in education (which include two headline targets of the Europe 2020 Strategy) performance in early school leaving (11% in 2015, target <10%) and in tertiary educational attainment (38.7% in 2015, target 40%) is already near the target (in both indicators women outperform men). Participation in early childhood education and care at age 4+ (now 94.3%, target 95%) is also close to the 2020 target.

The distance to the target is bigger as regards the employment rate of recent graduates (now 76.9%, target 82%). In this respect, the employment rate of tertiary graduates is much higher than for those having only general secondary education. The share of underachievers (target < 15%) is still relatively high in maths (22.1%), but lower in reading (17.8%) and science (16.6%). Achievement data relate to the year 2012 (source PISA study 2012, the results of the PISA study 2015 will be published on 6 December 2016). Performance is also clearly below the 15% target in adult participation in learning (now 10.7%) and participation rates are more than four times higher for those with high education levels compared to those with low levels.

4. OECD G20 Innovation Report

On 4 November 2016 the OECD released its G20 Innovation Report, showing key innovation related data for the G20 economies. The report includes country profiles for each G20 economy (except Saudi Arabia). As regards the EU, there is a profile for the European Union as a whole and for each of the 4 EU G20 countries (Germany, France, Italy, UK). Performance relative to the OECD average is assessed according to 23 indicators. Indicators where the EU performs relatively well compared to the OECD average include Top 500 corporate R&D investors, young patenting firms and industry financed public R&D expenditure. Indicators with low EU performance include ICT infrastructure and investment, as well as adult population at tertiary education level.

The report also shows R&D expenditure targets (% of GDP) of non-EU countries, such as Russia (1.75%, 2015), Brazil (2.0%, 2019), India (2%), Turkey (3.0%, 2023), USA (3%) and Japan (4%, 2020).

Figure 38. Science and Innovation in the European Union

Comparative performance of national science and innovation systems, 2015

Vote: Normalised index of performance relative to the median values in the OECD area (Index median=100).

5. Results of the IEA study on maths and science achievement (TIMSS 2015)

On 29 November 2016 the International Association for the Evaluation of Educational Achievement (IEA) published the results of the 2015 round of the Trends in International Mathematics and Science Study (TIMSS 2015). The study tests pupils’ achievement at 4th and 8th grade. 21 EU countries participated in the test at the 4th grade, 8 participated at the 8th grade (more participated in the OECD PISA study, whose skills test also focused on science and which was carried out in 2015 as well). In both mathematics and science and on both grades east Asian education systems came out as top performers, with Singapore in the lead in all assessments. Countries in the middle East and Africa were the bottom performers. In the EU in maths at 4th grade Ireland, UK-England and Belgium-Flemish Community came out as top performers, while Slovakia and France were the lowest performers in the EU. In science at grade 4, Finland, Poland and Slovenia were the EU’s top performers, while France and Cyprus performed worst. At 8th grade in mathematics Ireland and UK-England were the EU’s top performers, Italy and Malta the lowest ones. At 8th grade in science UK-England and Ireland were the EU’s top performers, Italy and Malta again the lowest ones. It should be considered, however, that the average age of pupils differs between countries, with an impact on the level of cognitive development. In Sweden and Russia 4th graders are on average 10.8 years old, in Italy only 9.7 years. In Italy and Malta 8th graders are on average 13.8 years old, compared to 14.7 years in Sweden and Russia.

6. Miscellaneous results from national data sources and studies

a) Germany: study shows decline in startup rate

A recent study by the Leipzig Graduate School of Management shows a decline of the startup rate in Germany in recent years. The start-up rate (start-ups per 10,000 persons aged 18-65) is highest in Berlin and lowest in the eastern Länder (without Berlin, green curve). After increasing in the period 2008-2011, the start-up rate has declined in Berlin since 2011. In both the eastern and western Länder of Germany (without Berlin) the start-up rate is already declining since 2005. The study also shows that since 2012 enterprise deaths surpass enterprise births in Germany. In 2015 men represented 57% of enterprise founders compared to 64% in 2005. In 2015 49% of enterprise creations were opportunity driven compared to 38% in 2010. The share of need driven enterprise creations declined from 35% to 27%. Lack of societal acceptance of entrepreneurs (79%) and lack of a culture accepting failure (58%) were seen as key features characterising the German start-up culture.


b) Greece: third quarter growth rate revised upwards

The Statistical Office of Greece (ELSTAT) on 29 November revised upwards third quarter growth rates from a 0.5% quarter on quarter growth rate to a 0.8% growth rate. The growth compared to the same quarter in 2015 was revised upwards from 1.2% to 1.6%. After a long recession from 2008-2013, GDP grew for the first time in the first quarter of 2014. However, growth was unstable and in the third quarter 2015 and in the first two quarters 2016 year on year growth was again negative. The upward revision might signal that finally a turning point has been reached, after several years where forecasted growth forecasted didn't materialise. The Commission forecast, published before the revision, expects a growth of the Greek economy of -0.3% in 2016 and 2.7% in 2017.


7. Quotation check

"Everything that can be invented has been invented"
(wrongly) attributed to Charles Holland Duell, Commissioner of the US Patent Office 1898-1901

This quotation seems to be an invention of the early 1980s. Samuel Sass traced it back to a 1981 book titled "The Book of Facts and Fallacies" by Chris Morgan and David Langford. The quotation might have been inspired by a joke from an 1899 edition of the Punch magazine, which offered a look at the 'coming century' and where a genius asked "isn't there a clerk who can examine patents?" and a boy replied "Quite unnecessary, Sir. Everything that can be invented has been invented" (see Wikipedia article on Duell).

In fact Duell said in 1902:
"In my opinion, all previous advances in the various lines of invention will appear totally insignificant when compared with those which the present century will witness. I almost wish that I might live my life over again to see the wonders which are at the threshold."
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