

Competitiveness Scoreboard

The Competitiveness Scoreboard should point to the most pressing problems concerning competitiveness in the EU and the EU Member States. The Scoreboard includes indicators on the overall competitiveness as well as on those thematic areas, which are most important for the competitiveness check-up by the Competitiveness Council. As the number of indicators used in the Scoreboard should be limited, they can only give some indications, and thus do not provide a comprehensive picture of the problem.

Pillar 1: Overall competitiveness

1. **Current account balance, % of GDP:** This is a widely known and understood indicator, which has been extensively explored in economic literature.*
2. **Extra-EU28 exports (goods and services), % of GDP:** Exports are a useful output indicator on the competitiveness of a country. In order to measure competitiveness vis-à-vis the rest of the world, extra-EU-exports are used (see also below thematic area on Single Market).
3. **Real labour productivity (in PPS)**
4. **Real labour productivity per person, %-change**
5. **Real labour productivity per hour worked, %-change:** Many definitions of competitiveness (e.g. Porter 1990) focus on productivity. Real productivity in absolute and relative terms is included in the Scoreboard. In order to adjust for working-time effects, the change of productivity per hour worked is used in addition to the change of productivity per person employed.
6. **Nominal unit labour costs, %-change:** Nominal unit labour cost (ULC) measure the average cost of labour per unit of output. It is a widely used indicator for cost competitiveness which provides a direct link between costs and productivity.*
7. **Real effective exchange rate, % change:** As a measure of persistent changes in price competitiveness relative to the major trading partners of the respective country, an indicator on the real effective exchange rate (REER) based on the harmonised index of consumer prices deflators (HICP/CPI) should be included. This indicator captures developments in global price-competitiveness.*
8. **Stock of FDI inward, % of GDP:** Countries with favourable economic conditions are able to attract firms from abroad. Therefore, inward FDI can serve as an output indicator for the attractiveness of a country as a business location.
9. **Stock of FDI outward, % of GDP:** Successful and competitive enterprises tend to look for profitable investment possibilities (at home and abroad) in order to further enhance their competitive position.

Pillar 2: Sectoral Structures

1. **Value added in Manufacturing, % of total value added**
2. **Value added in Services, % of total value added**
3. **Value Added of SMEs, % of total value added**

* http://ec.europa.eu/economy_finance/economic_governance/documents/swp_scoreboard_08_11_2011_en.pdf

Indicators in Pillar 2 characterise the structure of the economy in the EU Member States. They do not indicate that a certain structure is favourable or one should be preferred to another.

Pillar 3: Thematic Areas

Access to Finance

- 1. *Venture capital investments, % of GDP***
- 2. *Internal Funds (retained profits or sale of assets, relevance in %(survey data)***
- 3. *Willingness of banks to provide credit, net improvement in % (survey data)***
- 4. *Stock market capitalisation, % of GDP***

Enterprises may have access to different forms of financing. As regards the external sources, bank lending is among the most important, particularly for SMEs. The soft indicator on bank lending used in this scoreboard reflects the level of difficulty for enterprises regarding access to loan financing. But also Venture Capital plays a vital role for financing innovative activities, and the stock market becomes relevant in the later stages. The indicators used for VC and the stock market show the market outcome - hence they do not only depict the supply side, but implicitly also the demand side. On the other hand, internal sources of funding (such as retained profits or sale of assets) point to the ability of corporations to self-finance investment projects and also reflect the credit worthiness of a company. The soft indicator shows how relevant these sources are to SMEs.

Digitalization

- 1. *Enterprises with broadband access, % of enterprises***
- 2. *Electronic Information Sharing in enterprises, % of enterprises***
- 3. *Enterprises' total turnover from e-commerce***
- 4. *Digital intensity score***

The main policy issues in the area of digitalization are infrastructure, skills, use/application by firms (implementation of new technologies, use of data) and the accomplishment of a fully Digital Single Market. The first indicator on broad band access gives some hints at the quality of infrastructure. The other indicators show the extent to which enterprises apply digital tools.

Business environment (SMEs/Startups)

- 1. *How burdensome is it for companies to comply with public administration's requirements (survey data)***
- 2. *Time to start a business, days***
- 3. *Cost to start a business, Euro***
- 4. *Survival rate of enterprises, % of start-ups in t-5***
- 5. *Total tax burden, % of GDP***

The indicators on business environment describe the administrative burden (in a broad sense) and the tax burden. The indicator on the administrative burden is a soft indicator, based on survey data. When enterprises decide on their business location, they usually compare hard data on costs. However, in respect of administrative costs it is difficult to calculate hard data, and enterprises may rely on subjective assessments. Therefore, in this case, survey data make sense. Time and cost to start a business are important aspects which depict the ease of starting an enterprise in a certain country. Combined with the survival rate of enterprises they provide an impression on the conditions for start-

ups in the very early stage, but also in later stages. Concerning the tax burden, data on company taxes or taxes on capital may seem more useful. However, taxes on the production factors directly influence the costs of enterprises, hence they should also be included. Finally, indirect taxes are part of sales prices and as a consequence influence the sales potential which is especially important in border regions. Therefore, the total tax burden is used in the scoreboard. Moreover, this indicator is also comparable to USA and Japan. Other important issues for SMEs, such as the insufficient access to finance, are covered in a separate thematic area.

Industry and Energy

- 1. Greenhouse gas emissions in manufacturing and industry in % of value added**
- 2. Electricity price for medium sized industries, Euro per kWh**
- 3. Resource productivity, Euro per kg**
- 4. Investment in the manufacturing sector (volume terms compared to 2007)**

For industrial enterprises, energy prices as well as technologies needed to comply with environmental regulations have become important issues. As proxies for possible challenges and success in implementing the appropriate technologies, the Greenhouse gas emissions, in order to point out difficulties in fulfilling the ETS, and resource productivity are used in this scoreboard. One of the major indicators reflecting the state of our economy is the level of industrial investments. Low investment is not only a cyclical problem, but in the long run deteriorates competitiveness when enterprises do not upgrade, replace and expand their equipment and facilities sufficiently.

R&D and Skills

- 1. Gross domestic expenditure on R&D, % of GDP**
- 2. Patent applications, per billion GDP in PPS**
- 3. Total Factor Productivity, %-change**
- 4. Percentage population aged 30-34 having completed tertiary education**

The EU as a highly developed area must focus on fostering competitiveness on the high end of the technology ladder. Therefore, R&D and skills are key. The Europe 2020 strategy sets the objective of devoting 3% of its GDP to R&D activities by 2020. It is also used as an indicator in the Scoreboard, although it is often criticised as being an input indicator and therefore neglecting the effectiveness of expenditures. Patent applications are a widely used output indicator in research policy, although they also have their drawbacks, as they are linked to the structure of the economy and the patenting habits in a country. Total factor productivity (TFP) can be taken as a measure of an economy's long-term technological change. Within the Europe 2020 strategy, a target on tertiary education has also been set. Therefore, the indicator is also included in the scoreboard.

Single Market

- 1. Intra-EU28 exports in services, % of GDP**
- 2. Intra-EU28 exports in goods, % of GDP**
- 3. Inflows of intra-EU28 FDI, % of GDP**

As output indicators, intra-European trade in services and goods as well as intra-EU FDIs in % of GDP are included. They give some hints on the degree of integration on the internal market.

Annex: Sources and definitions of indicators

Pillar 1: Overall competitiveness

1. Current account balance, % of GDP

Source: MIP/Eurostat: <http://ec.europa.eu/eurostat/web/macroeconomic-imbances-procedure/indicators>; For US, JP, China IMF <http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx>

Current account shows the flows of goods, services, primary income and secondary income between resident and non-resident units:

1. Goods: BoP item Goods covers moveable goods for which a change of ownership occurs between residents and non-residents. It includes general merchandise, net exports of goods under merchanting, non-monetary gold. An export is marked as a credit (money coming in) and an import is noted as a debit (money going out).

2. Services: Services are the second major category of the current account. In the production of data on International Trade in Services the references are the IMF's BPM6 and the United Nations' Manual on Statistics of International Trade in Services 2010. Services are the result of a production activity that changes the conditions of the consuming units, or facilitates the exchange of products or financial assets. Services are not generally separate items over which ownership rights can be established and cannot generally be separated from their production.

3. Primary income: Primary income represents the return that accrues to institutional units for their contribution to the production process, or for the provision of financial assets and renting natural resources to other institutional units. It comprises Compensation of employees (D1), Investment income and Other primary income.

4. Secondary income: The secondary income account shows current transfers between residents and non-residents. A transfer is an entry that corresponds to the provision of a good, service, financial asset, or other non-produced asset by an institutional unit to another institutional unit where there is no corresponding return of an item of economic value. Current transfers consist of all transfers that are not capital transfers. Due to their nature, they are not considered real resources that affect economic production.

2. Extra-EU28 exports in goods and services, % of GDP

Source: Eurostat; <http://ec.europa.eu/eurostat/web/balance-of-payments/data/database>; Main Balance of Payments and International Investment Position items as share of GDP (BPM6) [bop_gdp6_q];

Worldbank; <http://data.worldbank.org/topic/trade>

The Balance of Payments (BOP) systematically summarizes all economic transactions between the residents and the non-residents of a country or of an economic area during a given period. The Balance of payments provides harmonized information on international transactions which are part of the current account (goods, services, primary and secondary income), as well as on transactions which fall in the capital and the financial account. International investment position presents value of financial assets owned outside the economy and indebtedness of the economy to the rest of the world.

Extra EU Exports Goods and Services, Credit, Partner: Extra EU-28; Percentage of gross domestic product (GDP).

3. Real labour productivity per person, level

Source: Eurostat; <http://ec.europa.eu/eurostat/web/purchasing-power-parities/data/database>
<http://ec.europa.eu/eurostat/web/national-accounts/data/database> - auxiliary indicators
definition: <http://ec.europa.eu/eurostat/web/products-datasets/-/tipsna60>

Purchasing power parities (PPPs) are indicators of price level differences across countries. PPPs tell us how many currency units a given quantity of goods and services costs in different countries. PPPs can thus be used as currency conversion rates to convert expenditures expressed in national currencies into an artificial common currency (the Purchasing Power Standard, PPS), eliminating the effect of price level differences across countries. The main use of PPPs is to convert national accounts aggregates, like the Gross Domestic Product (GDP) of different countries, into comparable volume aggregates. Applying nominal exchange rates in this process would overestimate the GDP of countries with high price levels relative to countries with low price levels. The use of PPPs ensures that the GDP of all countries is valued at a uniform price level and thus reflects only differences in the actual volume of the economy. PPPs are also applied in analyses of relative price levels across countries. For this purpose, the PPPs are divided by the current nominal exchange rate to obtain a price level index (PLI) which expresses the price level of a given country relative to another, or relative to a group of countries like the EU28.

GDP in PPS_EU28 is divided by the number of persons employed (total employment domestic concept, thousand persons).

Data are sourcing from National accounts data. The ESA2010 distinguishes two employment concepts depending on the geographical coverage: resident persons in employment (i.e. the national scope of employment) and employment in resident production units irrespective of the place of residence of the employed person (i.e. domestic scope). The table presents total employment, according to the domestic concept.

4. Real labour productivity per person, %-change

Source: Eurostat; http://ec.europa.eu/eurostat/data/database?node_code=tipsna70

OECD: http://stats.oecd.org/Index.aspx?DataSetCode=PDB_GR

The labour productivity = GDP/ETO with GDP = Gross domestic product, chain-linked volumes reference year 2010 ETO = Total employment, all industries, in persons The GDP per person employed is intended to give an overall impression of the productivity of national economies expressed in relation to the European Union (EU28) average. If the index of a country is higher than 100, this country's level of GDP per person employed is higher than the EU average and vice versa. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. Please note that persons employed does not distinguish between full-time and part-time employment. The input data are obtained through official transmissions of national accounts' country data in the ESA2010 transmission programme. Data are expressed as percentage change comparing year Y with year Y-1 and as Index 2010.

5. Real labour productivity per hour worked, %-change

Source: Eurostat; http://ec.europa.eu/eurostat/data/database?node_code=tsdec310

OECD: http://stats.oecd.org/Index.aspx?DataSetCode=PDB_GR

Labour productivity per hour worked is calculated as real output (deflated GDP measured in chain-linked volumes, reference year 2010) per unit of labour input (measured by the total number of hours worked). Measuring labour productivity per hour worked provides a better

picture of productivity developments in the economy than labour productivity per person employed, as it eliminates differences in the full time/part time composition of the workforce across countries and years. The standard followed is the European System of National and Regional Accounts (ESA 2010).

6. Nominal unit labour costs, %-change

Source: MIP/Eurostat: <http://ec.europa.eu/eurostat/web/macroeconomic-imbances-procedure/indicators>, AMECO for comparison with Competitors

The unit labour cost (ULC) measures the average cost of labour per unit of output. It is calculated as the ratio of labour costs to labour productivity. The ULC represents a link between productivity and the cost of labour in producing output. The input data are obtained through official transmissions of national accounts' country data in the European system of accounts - ESA2010 - transmission programme. Nominal ULC (NULC) is calculated as: $(D1/EEM) / (B1GM/ETO)$, where: D1 = Compensation of employees, all industries, in current prices EEM = Employees, all industries, in persons (following the domestic concept) B1GM = Gross domestic product at market prices in millions, chain-linked volumes reference year 2010 ETO = Total employment, all industries, in persons (following the domestic concept).

7. Real effective exchange rate, %-change

Source: MIP/Eurostat: <http://ec.europa.eu/eurostat/web/macroeconomic-imbances-procedure/indicators>, ECFIN:

http://ec.europa.eu/economy_finance/db_indicators/competitiveness/data_section_en.htm

The Real Effective Exchange Rate (REER) aims to assess a country's price or cost competitiveness relative to its principal competitors in international markets. Changes in cost and price competitiveness depend not only on exchange rate movements but also on cost and price trends. A rise in the index means a loss of competitiveness. The REER is entirely based on official statistics (exchange rates, trade data, deflators), however the selection of the specific statistical series used in its calculation (in particular the choice of deflator) and some of the modalities of their calculation (namely the choice of a country basket) depend on the analytic purpose of the indicators. The specific REER for the MIP is deflated by the consumer price indices relative to a panel of 42 countries. Directorate General for Economic and Financial Affairs (DG ECFIN) is the data source.

8. Stock of FDI inward, % of GDP

Source: Eurostat; <http://ec.europa.eu/eurostat/web/balance-of-payments/data/database> BPM6, EU Direct Investment Position; bop_fdi6_pos

The Balance of Payments (BOP) systematically summarizes all economic transactions between the residents and the non-residents of a country or of an economic area during a given period. The Balance of payments provides harmonized information on international transactions which are part of the current account (goods, services, primary and secondary income), as well as on transactions which fall in the capital and the financial account. International investment position presents value of financial assets owned outside the economy and indebtedness of the economy to the rest of the world.

Net FDI inward Direct investment in the reporting economy (DIRE), FDI Position (Stock), NACE_R2: All FDI activities; Partner: Rest of the World; in million Euro; divided by GDP (own calculations)

9. Stock of FDI outward, % of GDP

Source: Eurostat; <http://ec.europa.eu/eurostat/web/balance-of-payments/data/database>
BPM6, EU Direct Investment Position; bop_fdi6_pos

The Balance of Payments (BOP) systematically summarizes all economic transactions between the residents and the non-residents of a country or of an economic area during a given period. The Balance of payments provides harmonized information on international transactions which are part of the current account (goods, services, primary and secondary income), as well as on transactions which fall in the capital and the financial account. International investment position presents value of financial assets owned outside the economy and indebtedness of the economy to the rest of the world.

Net FDI outward Direct investment in the reporting economy (DIRE), FDI Position (Stock), NACE_R2:All FDI activities; Partner: Rest of the World; in million Euro; divided by GDP (own calculations)

Pillar 2: Sectoral Structures

1. Value added in Manufacturing, % of total value added

Source: Eurostat; <http://ec.europa.eu/eurostat/web/national-accounts/data/database>
nama_10_a10

NACE Section C Manufacturing. The standard followed is the European System of National and Regional Accounts (ESA 2010).

For US, JP, China UN National Accounts;

<http://unstats.un.org/unsd/snaama/Introduction.asp>; Value Added by Economic Activity, Percentage Distribution (Shares)

2. Value added in Market Services (Services excluding Public administration and defence; compulsory social securities), % of total value added

Source: Eurostat; <http://ec.europa.eu/eurostat/web/national-accounts/data/database>,
nama_10_a64

+G Wholesale and retail trade; repair of motor vehicles and motorcycles

+H Transportation and Storage

+I Accommodation and food service activities

+J Information and Communication

+K Financial and insurance activities

+L Real estate activities

+M Professional, scientific and technical activities

+N Administrative and support service activities

+P Education

+Q Human health and social work activities

+R Arts, entertainment and recreation

+S Other service activities

+T Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use

+U Activities of extraterritorial organisations and bodies

(O Public activities and defence, compulsory social security excluded)

in million Euro; divided by total value added (own calculations)

For Comparison with Competitors: OECD, NACE G-N+P-T for US/EU23

3. Value added by SMEs, % of total value added

Source: Eurostat <http://ec.europa.eu/eurostat/web/structural-business-statistics/data/database>; sbs_sc_sca_r2; http://ec.europa.eu/growth/smes/business-friendly-environment/performance-review/index_en.htm

SMEs are defined as businesses which employ less than 250 staff and have an annual turnover of less than EUR 50 million, and / or their balance sheet total is less than EUR 43 million. The size-class definition used is based on the definitions used in the Structural Business Statistics (SBS) database maintained by Eurostat, and the definition is solely based on the number of people employed.

Total value added is part of the structural business statistics (SBS) which describe the structure, conduct and performance of economic activities, down to the most detailed activity level (several hundred economic sectors).

SBS are transmitted annually by the EU Member States on the basis of a legal obligation from 1995 onwards.

Pillar 3: Thematic Areas

Access to Finance

1. Venture capital investments, % of GDP

Sources: EIS; http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en
Venture capital investment is defined as private equity being raised for investment in companies. Management buyouts, management buyins, and venture purchase of quoted shares are excluded. Venture capital includes early stage (seed + start-up) and expansion and replacement capital % of GDP.

For EU comparison with USA, Japan see:

Invest Europe: <http://www.investeurope.eu/media/476271/2015-European-Private-Equity-Activity.pdf>; OECD-Entrepreneurship at a Glance: http://www.oecd-ilibrary.org/industry-and-services/entrepreneurship-at-a-glance-2015_entrepreneur_aag-2015-en

2. Internal funds (retained profits or sale of assets), relevance in % (survey data)

Source: ECB/COM (Survey on the access to finance (SAFE);
http://ec.europa.eu/growth/access-to-finance/data-surveys/index_en.htm

The SAFE provides evidence on changes in the financial situation, financing needs and access to financing of small and medium-sized enterprises (SMEs)

Q4a. Retained earnings or sale of assets (Internal funds) - Are the following sources of financing relevant to your firm, that is, have you used them in the past or considered using them in the future? (% of: yes, this source is relevant to my enterprise).

3. Willingness of banks to provide credit - net improvement in %

Source: ECB/COM (Survey on the access to finance (SAFE);
http://ec.europa.eu/growth/access-to-finance/data-surveys/index_en.htm

The SAFE provides evidence on changes in the financial situation, financing needs and access to financing of small and medium-sized enterprises (SMEs)

Q11f. Willingness of banks to provide credit to your enterprise - For each of the following factors, would you say that they have improved, remained unchanged or deteriorated over the past 6 months? (net balance in % of responses).

4. Stock market capitalisation, % of GDP

Source: Worldbank/World Federation of Exchanges database;

<http://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS>

Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values.

Digitalization

1. Enterprises with broadband access in % of enterprises

Source: Eurostat; http://ec.europa.eu/eurostat/data/database?node_code=isoc_bde15b_e, Benchmarking Digital Europe: 2011-2015 Indicator; Policy Indicators B. Broadband and Connectivity (isoc_bde15d)

Enterprises with broadband access (fixed or mobile), all enterprises, without financial sector (10 persons employed or more), percentage of enterprises.

Data given in this domain are collected on a yearly basis by the National Statistical Institutes or Ministries and are based on the annual [Eurostat Model Questionnaires](#) on ICT (Information and Communication Technologies) usage and e-commerce in enterprises.

Large part of the data collected are used in the context of the [2011 - 2015 benchmarking framework](#) (endorsed by i2010 High Level Group in November 2009) for the [Digital Agenda Scoreboard](#), Europe's strategy for a flourishing digital economy by 2020. This conceptual framework follows the [i2010 Benchmarking Framework](#) which itself followed-up the eEurope 2005 Action Plan.

The aim of the European ICT usage surveys is to collect and disseminate harmonised and comparable information on the use of Information and Communication Technologies in enterprises and e-commerce at European level.

For comparison with JP: OECD, ICT database and Eurostat, Community Survey on ICT usage in enterprises

2. Electronic Information Sharing in Enterprises, % of enterprises

Source: DESI; Eurostat - Community survey on ICT usage and eCommerce in Enterprises

[http://digital-agenda-data.eu/charts/desi-components#chart={"indicator":"DESI_4A1_EIS","breakdown-group":"DESI_TOTALS","unit-measure":"DESI_SCORE","time-period":"2016"};](http://digital-agenda-data.eu/charts/desi-components#chart={)

<http://ec.europa.eu/eurostat/web/information-society/data/database> isoc_bde15dip

Definition: Have in use an ERP-Enterprise resource planning software package, to share information between different functional areas (e.g. accounting, planning, production, marketing). Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment. Break in series in 2012 due to different wording of the question.

3. Enterprises' total turnover from e-commerce in % of turnover

Source: Eurostat; Eurostat;

http://ec.europa.eu/eurostat/data/database?node_code=tin00110#, Benchmarking Digital Europe: 2011-2015 Indicator; Policy Indicators D. ICT usage by enterprises (isoc_bde15d)

Enterprises' total turnover from e-commerce, All enterprises, without financial sector (10 persons employed or more), Percentage of turnover,

Data given in this domain are collected on a yearly basis by the National Statistical Institutes or Ministries and are based on the annual Eurostat Model Questionnaires on ICT (Information and Communication Technologies) usage and e-commerce in enterprises.

Large part of the data collected are used in the context of the 2011 - 2015 benchmarking framework (endorsed by i2010 High Level Group in November 2009) for the Digital Agenda Scoreboard, Europe's strategy for a flourishing digital economy by 2020. This conceptual framework follows the i2010 Benchmarking Framework which itself followed-up the eEurope 2005 Action Plan.

The aim of the European ICT usage surveys is to collect and disseminate harmonised and comparable information on the use of Information and Communication Technologies in enterprises and e-commerce at European level.

4. Digital intensity score:

Share of enterprises with a very high intensity score.

[http://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={"indicator-group":"ebusiness","indicator":"e_di_hivhi","breakdown":"ent_all_xfin","unit-measure":"pc_ent","ref-area":\["BE","BG","CZ","DK","DE","EE","IE","EL","ES","FR","IT","CY","LV","LT","LU","HU","HR","MT","NL","AT","PL","PT","RO","SI","SK","FI","SE","UK","EU27"\]}](http://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={)

The Digital Intensity score is based on counting how many out of 12 technologies are used by each enterprise. Then they are divided into four clusters of digital intensity: Very Low (scores 0-3), Low (score 4-6), High (score 7-9), Very High (score 10-12). The list of technologies includes: usage of internet by a majority of the workers; access to ICT specialist skills; fixed broadband speed > 30 Mbps; mobile devices used by more than 20% of employed persons; has a website; has some sophisticated functions on the website; presence on social media; use an ERP software; use a CRM software; share electronically supply chain management information; does e-sales for at least 1% of turnover; exploit the B2C opportunities of web sales. Source: Eurostat - Community survey on ICT usage and eCommerce in Enterprises Breakdown: Very High (10-12); Unit of measure: Percentage of enterprises (all sectors); Definition: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. (breakdown code 10_C10_S951_XK).

Business environment (SMEs and Startups)

1. How burdensome is it for companies to comply with public administration's requirements (survey data)

Source: WEF, survey data <http://reports.weforum.org/global-competitiveness-report-2015-2016/>;

In your country, how burdensome is it for companies to comply with public administration's requirements (e.g., permits, regulations, reporting)? [1 = extremely burdensome; 7 = not burdensome at all]

2. Time to start a business, days

Source COM; http://europa.eu/youreurope/business/start-grow/start-ups/index_en.htm;
definitions see: Commission Staff Working Document: Assessing Business Start-up
Procedures in the context of the renewed Lisbon strategy for growth and jobs, SEC(2007)
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Procedures required to start-up a company are understood to refer to a private limited company both because it is a societal form involving more and potentially more complex processes than individual firms and also for its higher potential for growth and job creation. Should multiple legal forms of a private limited company exist in one country, the most prevalent one should be used for measurement. The procedural cycle for a start-up can only be considered complete when the company is fully operational to develop its economic activities. Mere registration is not sufficient. The final aim is not the creation of a new legal entity (a new name on the registry) but the creation of a new entity fully capable of carrying out an economic activity (a new company). Procedures must include pre-registration and registration and contemplate all the processes and documentation required by all the different layers of administration, whether local, regional or national. In addition, possible variations in terms of procedural steps, their length and their costs within a country will have to be taken into account.

Measure of time for start-up procedures shall include all steps necessary from the entrepreneur's submission of the official application to start the registration procedure until the company is in possession of all the legal permits, certifications and documentation to be fully operational. Advice, training and support in the elaboration of business plans or any other support service that may be provided is not to be considered part of the administrative procedure unless it is an integral part of the registration process. Compliance with the Spring Summit commitment⁷ would require that each of these companies can be set up in one week, i.e. 5 working days. The attainment rate is based on how many of the five benchmark companies can be set up in 5 working days.

For EU comparison with USA, Japan, China see:

Worldbank: <http://www.doingbusiness.org/data/exploretopics/starting-a-business>; definition:
<http://www.doingbusiness.org/Methodology/starting-a-business#time>

3. Cost to start a business, Euro

Source COM; http://europa.eu/youreurope/business/start-grow/start-ups/index_en.htm;
definitions see: Commission Staff Working Document: Assessing Business Start-up
Procedures in the context of the renewed Lisbon strategy for growth and jobs, SEC(2007)
129 Procedures required to start-up a company are understood to refer to a private limited
company⁶ both because it is a societal form involving more and potentially more complex
processes than individual firms and also for its higher potential for growth and job creation.
Should multiple legal forms of a private limited company exist in one country, the most
prevalent one should be used for measurement. The procedural cycle for a start-up can only
be considered complete when the company is fully operational to develop its economic
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entity (a new name on the registry) but the creation of a new entity fully capable of carrying
out an economic activity (a new company). Procedures must include pre-registration and
registration and contemplate all the processes and documentation required by all the
different layers of administration, whether local, regional or national. In addition, possible
variations in terms of procedural steps, their length and their costs within a country will have
to be taken into account.

The cost of setting up a company must include all the fees and costs associated with the procedures enunciated in the previous point plus certificates from third parties that are required for the registration process. It will not include any form of capital that the company may be required to set aside as long as these funds remain in the possession of the future firm.

For EU comparison with USA, Japan, China see:

Worldbank: <http://www.doingbusiness.org/data/exploretopics/starting-a-business>; definition: <http://www.doingbusiness.org/Methodology/starting-a-business#time>

4. Survival rate of enterprises, % of start-ups in t-5

Source: Eurostat; Structural business statistics; sbd_9bd_sz_cl_r2

<http://ec.europa.eu/eurostat/web/structural-business-statistics/entrepreneurship/business-demography>; definitions see: <http://ec.europa.eu/eurostat/documents/3859598/5901585/KS-RA-07-010-EN.PDF/290a71ec-7a71-43be-909b-08ea6bc521?version=1.0>

Survival rate 5: number of enterprises in the reference period (t) newly born in t-5 having survived to t divided by the number of enterprise births in t-5

The survival of an enterprise is defined in the following way: An enterprise born in year xx or having survived to year xx from a previous year is considered to have survived in year xx+1 if it is active in terms of turnover and/or employment in any part of year xx+1 (= survival without changes). An enterprise is also considered to have survived if the linked legal unit(s) have ceased to be active, but their activity has been taken over by a new legal unit set up specifically to take over the factors of production of that enterprise (= survival by take-over).

For comparison with US: OECD, Entrepreneurship at a glance, EU10 (AT, CZ, FR, HU, IT, LV, PT, RO, SI, ES) data for comparison with US (2008-2012)

5. Total tax burden, % of GDP

Source: AMECO Database;

http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm

Total tax burden excluding imputed social security contributions is the sum of: Indirect taxes+ Direct taxes+ Capital taxes+ Actual social security contributions

Annotation: Indirect taxes correspond to taxes on production and imports (ESA 95-code D.2), see AMECO-code UTVT. They comprise - Value added type taxes (D.211), Taxes and duties on imports excluding VAT (D.212), Taxes on products, except VAT and import taxes (D.214), Other taxes on production (D.29) like car registration taxes and taxes on insurance premiums.

Industry and Energy

1. Greenhouse gas emissions, share of value added in manufacturing and construction

Source: Eurostat/EEA; <http://ec.europa.eu/eurostat/data/database> - Energy - Emissions of Greenhouse gases and air pollutants - Air emission inventories - Greenhouse gas emissions, env_air_gge; <http://ec.europa.eu/eurostat/web/national-accounts/data/database> - annual national accounts- Basic breakdowns

This dataset includes data on greenhouse gas emissions inventory, as reported to the [European Environment Agency \(EEA\)](http://ec.europa.eu/eea/). The European Union (EU) as a party to the [United Nations Framework Convention on Climate Change \(UNFCCC\)](http://unfccc.org/) reports annually its greenhouse gas inventory for the year t-2 and within the area covered by its Member States. The inventory contains data on carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O),

perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF6). The EU inventory is fully consistent with national greenhouse gas inventories compiled by the EU Member States.

The dataset has five dimensions:

- 1) Air pollutant (AI): aggregate of 6 greenhouse gases (CO₂, N₂O, CH₄, HFC, PFC, SF₆) in CO₂ equivalents.
- 2) Geopolitical entity (GEO): EU Member States, EFTA Countries, Candidate Countries
- 3) Source sector for air emissions (AIRSECT): Sectors are classified according to the Common Reporting Format (CRF) in line with the [UNFCCC reporting requirements](#).
- 4) Period of time (TIME): Data are annual.
- 5) Unit (UNIT): Thousand tonnes.

Greenhouse gas emissions in the manufacturing industry and construction (according to the Common Reporting Format) are divided by the value added in manufacturing and construction (according to ESA2010).

Please note: Definitions of sectors according to the Common Reporting Format (CRF) in line with the [UNFCCC reporting requirements](#) are not exactly the same as according to the ESA 2010.

For EU comparison with USA, Japan see:

OECD https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG

Eurostat <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

Tonnes of CO₂ equivalent, thousands

2. Electricity price for medium sized industries, Euro per kWh

Source: Eurostat;

<http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=en00117>

This indicator presents electricity prices charged to final consumers. Electricity prices for industrial consumers are defined as follows: Average national price in Euro per kWh without taxes applicable for the first semester of each year for medium size industrial consumers (Consumption Band Ic with annual consumption between 500 and 2000 MWh). Until 2007 the prices are referring to the status on 1st January of each year for medium size consumers (Standard Consumer with annual consumption of 2 000 MWh). The end-users are characterised by predefined annual consumption bands.

For comparison with competitors: IEA, ENERGY PRICES AND TAXES, Electricity prices for industry in USD/MWh (using PPPs).

3. Resource productivity, Euro per kg

Source: Eurostat; <http://ec.europa.eu/eurostat/web/environment/material-flows-and-resource-productivity/database>

Resource productivity (GDP/DMC) is defined as the ratio of gross domestic product (GDP) over domestic material consumption (DMC) and commonly expressed in Euro per kilogram of material. The term designates an indicator that reflects the GDP generated per unit of resources used by the economy. This is typically a macro-economic concept that can be presented alongside labour or capital productivity. **Domestic material consumption (DMC):** measures the total amount of material actually consumed domestically by resident units (DE+IMP-EXP). Economy-wide material flow accounts (EW-MFA) compile material flow inputs into national economies. EW-MFA cover all solid, gaseous, and liquid material inputs, except for water and air, measured in mass units per year. Like the system of national

accounts, The detailed material flows provide a rich empirical database for numerous analytical purposes and are used to derive various **material flow indicators, such as:** Domestic extraction (DE): total amount of material extracted for further processing in the economy, by resident units from the natural environment; Imports (IMP): imports of products in their simple mass weight; Exports (EXP): exports of products in their simple mass weight; The GDP is used here as 'Euro 2010-based chain linked volumes per kilogram' (GDP in chain-linked volumes normalised to 2010 prices). Volume figures show the development of aggregates excluding inflation; to be used when comparing over time (various years) one single country.

For comparison with competitors: OECD, Green Growth Indicators

4. Level of investment in manufacturing (2007=100)

Source: Eurostat <http://ec.europa.eu/eurostat/web/national-accounts/data/database> - Detailed Breakdowns

Definition: http://unstats.un.org/unsd/publication/SeriesF/seriesF_85.pdf

Gross fixed capital formation includes:

- a) Acquisition less disposal of new or existing produced assets, such as dwellings, other building structures, machinery and equipment, cultivated assets (e.g., trees and livestock), mineral exploration, computer software, entertainment, literary or artistic originals, and other intangible fixed assets;
- b) Costs of ownership transfers on non-produced, non-financial assets, such as land and patented assets;
- c) Major improvements to produced and non-produced, non-financial assets that extend the lives of assets (e.g. reclamation of land from sea, clearance of forests, rock etc., draining of marches or irrigation of forests, and prevention of flooding or erosion);
- d) Acquisition can be in terms of purchase, own-account production, barter, capital transfer in kind, financial leasing, natural growth of cultivated assets and major repairs of produced assets;
- e) Disposal can be in terms of sale, barter, capital transfer in kind or financial lease. Exceptional losses, such as those due to natural disasters (fire, drought etc.) are not recorded as disposal.

The indicator is calculated as level in % of the level 2007, chain linked volumes are used in million euro.

Source for US: OECD, National Accounts; http://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE8A

R&D & Skills

1. Gross domestic expenditure on R&D, % of GDP

Source: Eurostat/Europe 2020; <http://ec.europa.eu/eurostat/web/europe-2020-indicators/europe-2020-strategy/main-tables>

Total gross domestic expenditure on research and experimental development (GERD) as a percentage of gross domestic product (GDP). R&D data are compiled in accordance to the guidelines laid down in the Proposed standard practice for surveys of research and experimental development - Frascati Manual (FM), OECD, 2002.

2. Patent applications, % of GDP

Source: EIS; http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en;

Number of patent applications filed under the PCT, at international phase, designating the European Patent Office (EPO). Patent counts are based on the priority date, the inventor's country of residence and fractional counts in % of Gross Domestic Product in Purchasing Power Standard.

3. Total Factor Productivity, %-change

Source: AMECO; http://ec.europa.eu/economy_finance/ameco/user/serie/ResultSerie.cfm
http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp420_en.pdf
http://ec.europa.eu/economy_finance/publications/qr_euro_area/2014/pdf/qrea1_section_1_en.pdf

TFP measures the efficiency with which inputs are being used in the production process and it can be understood as a rough measure of the rate of technological progress in the economy.

The new TFP method implemented by DG ECFIN to calculate the TFP uses a bivariate Kalman Filter (KF) model which exploits the link between the TFP cycle & the degree of capacity utilisation in the economy. This new approach was endorsed by the OGWG and its parent Economic Policy Committee in December 2009, with its formal adoption into the method occurring in the Autumn 2010 forecasting exercise.

4. Percentage population aged 30-34 having completed tertiary education

Source: Eurostat/Europe 2020; <http://ec.europa.eu/eurostat/web/europe-2020-indicators/europe-2020-strategy/main-tables>

The indicator is defined as the percentage of the population aged 30-34 who have successfully completed tertiary studies (e.g. university, higher technical institution, etc.). This educational attainment refers to ISCED (International Standard Classification of Education) 2011 level 5-8 for data from 2014 onwards and to ISCED 1997 level 5-6 for data up to 2013.

ISCED 2011 categories for educational attainment at 1-digit level:

Level 0 – Less than primary education

Level 1 – Primary education

Level 2 – Lower secondary education

Level 3 – Upper secondary education

Level 4 – Post-secondary non-tertiary education

Level 5 – Short-cycle tertiary education

Level 6 – Bachelor's or equivalent level

Level 7 – Master's or equivalent level

Level 8 – Doctoral or equivalent level

The data are calculated as annual averages of quarterly EU Labour Force Survey data (EU-LFS).

For EU comparison with USA, Japan, China see: Worldbank:

<http://data.worldbank.org/indicator/SE.TER.ENRR/countries/EU-US-CN-JP?display=graph>

Gross enrolment ratio, tertiary, both sexes (%): Total enrollment in tertiary education (ISCED 5 to 8), regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving.

Single Market

1. Intra-EU28 trade in services, exports by Member State, % of GDP

Source: Eurostat; <http://ec.europa.eu/eurostat/web/balance-of-payments/data/database>;
International trade in services; Total services, detailed geographical breakdown by EU
Member States (since 2010) (BPM6) [bop_its6_tot]

The Balance of Payments (BOP) systematically summarizes all economic transactions between the residents and the non-residents of a country or of an economic area during a given period. The Balance of payments provides harmonized information on international transactions which are part of the current account (goods, services, primary and secondary income), as well as on transactions which fall in the capital and the financial account. International investment position presents value of financial assets owned outside the economy and indebtedness of the economy to the rest of the world.

2. Intra-EU28 trade in goods, exports by Member State, % of GDP

Source: Eurostat; <http://ec.europa.eu/eurostat/web/balance-of-payments/data/database>;
balance of payments by country [bop_c6_q]

For Details see: indicator above Intra-EU28 trade in services, exports by Member State, % of GDP.

3. Inflows of intra-EU28 FDI, % of GDP

Source: Eurostat; <http://ec.europa.eu/eurostat/web/balance-of-payments/data/database>;
BPM6; EU Direct Investment Flows; bop_fdi6_flow

The Balance of Payments (BOP) systematically summarizes all economic transactions between the residents and the non-residents of a country or of an economic area during a given period. The Balance of payments provides harmonized information on international transactions which are part of the current account (goods, services, primary and secondary income), as well as on transactions which fall in the capital and the financial account. International investment position presents value of financial assets owned outside the economy and indebtedness of the economy to the rest of the world.

Net FDI inward Direct investment in the reporting economy (DIRE), FDI Flows; NACE_R2:All FDI activities; Partner: European Union (28 countries), in million Euro; divided by GDP (own calculations).