ATTRACTIVE DANUBE WP4 - DANUBE ATTRACTIVENESS

A. 4.1 Upgrading attractiveness indicators and databases for the entire Danube region

Metadata for attractiveness indicators and indicator database for ROMANIA

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Date:	**29.12.2017**
Work package:	**WP4 National Attractiveness**

INTRODUCTION

1.1. Scope

The following document present the metadata information for the common attractiveness indicators and indicator database (at national level), as part of the ***Activity 4.1 Upgrading attractiveness indicators and databases for the entire Danube region***.

The common attractiveness indicators are represented by the 22 indicators defined through the ATTRACT – SEE project, as follows:

COMMON ATTRACTIVENESS INDICATORS:

NO.	DESCRIPTION
1.	Air pollution: Ozone concentration (*note: Indicator not available for Romania*)
2.	Population connected to urban waste water treatment with at least secondary treatment
3.	Electricity generated from renewable sources
4.	Consumption of water per capita
5.	% of terrestrial area protected (total and by ecological region)
6.	Population (or households) with accessibility to high-speed broadband (1 Mbit/second up and down)
7.	European cultural sites on the UNESCO World Heritage List, 2010
8.	Life expectancy at birth by sex (Europe 2020 indicator)
9.	Gross disposable household income
10.	People at risk of poverty or social exclusion (Europe 2020 indicator)
11.	Population aged 25-64 with tertiary education
12.	Research & Experimental Development expenditure as % of Gross Domestic Product (Europe 2020 indicator)
13.	Employment rate 20-64 years by sex [%] (Europe 2020 indicator)
14.	Youth unemployment rate
15.	Share of employment by sector
16.	Number of overnight stays of tourists per capita per year
17.	Share of tourism related employment in total employment
18.	% of GDP of foreign direct investment stock
19.	Population growth rate
20.	% of population in age 20-64 years
21.	Ageing index
22.	Number of foreign students

1.2. Data sources

The following key data sources are used for the collection of the indicators at transnational level:

NO.	ORGANISATION	ACRONYM
1.	Institutul Național de Statistică (National Institute of Statistics	INSSE
2.	Statistical Office of the European Communities	EUROSTAT
3.	World Development Indicators, The World Bank	WORLD BANK
4.	UNESCO Institute for Statistics	UNESCO
5.	United Nations Conference on Trade and Development - Statistics	UNCTAD STAT
6.	International Labour Organization	ILO
7.	Organisation for Economic Co-operation and Development	OECD

2. INDICATORS FOR TERRITORIAL ATTRACTIVENESS AT A NATIONAL LEVEL

2.1. Air pollution: Ozone concentration (number of days/Year; yg/m3)

Description

Indicator defined as the number of days with ground level concentration exceedances of more than 120 yg/m3. Attractive regions of high ecological values and strong territorial capital. The indicator tries measuring the degree of reductions in emissions for healthier natural living environments. Territorial distribution of the annual average of exceedings of the concentration limit established by law.

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	No reliable data source found, to accurately reflect statistics at national level for Romania. There is no information for the number of days per year in which the ground concentration exceeds 120 yg/m3 for Ozone, except for the Summer of 2014 (Source: <u>EEA</u>)
Key statistical data used	Data sought in EEA database, National Agency for Environment Protection
Spatial level	Unavailable at national, regional, county level; Data available at monitoring station / local level.
Data completeness	Romania has reliable national air quality reports for 2014-2016. For the national level, there are three thresholds for Ozone concentration, out of which the first two are the most common and used: 1. Alert threshold: 240 mg/m3 2. Informing threshold: 180 mg/m3 3. Reference target for human health protection: 120 mg/m3 The number of days with concentration values recorded over 120 ug/m3 is listed in the reports as a graph of the days, per station. The indicator relevance at national level is severely affected by the following: 1. The reports are inconsistent on the number of stations which

	monitor O3 concentration (2014 – 7, 2015 – 21, 2016 – 19) 2. There is no free access to the data behind the graphs and as such we cannot determine whether the days recorded for the stations are overlapping or not 3. Monitoring is not evenly distributed territorially, there are clusters of stations and large-scale unmonitored areas which will have an impact on the trustworthyness and relevance of the indicator at national level.
Policy/goals	Indicator unavailable, not used for Romania.
Contact person if available	Indicator unavailable, not used for Romania.
Conditions of use	Indicator unavailable, not used for Romania.

2.2. Population connected to urban waste water treatment with at least secondary treatment

Description

This indicator is defined as the percentage of the urban population connected to waste water treatment systems with at least secondary treatment (% of equivalent population).

Urban wastewater treatment plant: a treatment plant for urban wastewater, formed generally from a mixture of domestic and industrial wastewater.

Industrial wastewater treatment plant: a treatment plant for treating the industrial (and possibly some domestic) wastewater in a proper manner to be discharged into an urban sewerage network or directly into a natural receiver or to be reused.

In the secondary treatment step biodegradable organic matter is mainly removed. The bacteria in activated sludge consume it in their metabolism. This process can take place in the presence of oxygen (in aerobic conditions, the process being named bio-oxidation) or in oxygen absence by anaerobic fermentation. In this step are also removed very fine divided suspended solids (colloids), which have not been removed in the previous step and also part of the substances containing nitrogen and phosphorus (nutrients).

The tertiary (advanced) treatment mainly achieves the removal of nutrients (substances containing nitrogen and phosphorus). The nitrogen containing compounds are removed usually using the procedure named nitrification denitrification, consisting in biological oxidation of all nitrogen variety existing into wastewater to nitrates, which are reduced in the second phase (also by microorganisms, in absence of oxygen this time) to elementary nitrogen escaping from treated wastewater. In the same time there are removed a part of substances containing phosphorus. If necessary to remove more phosphorous compounds, this can be done by chemical precipitation.
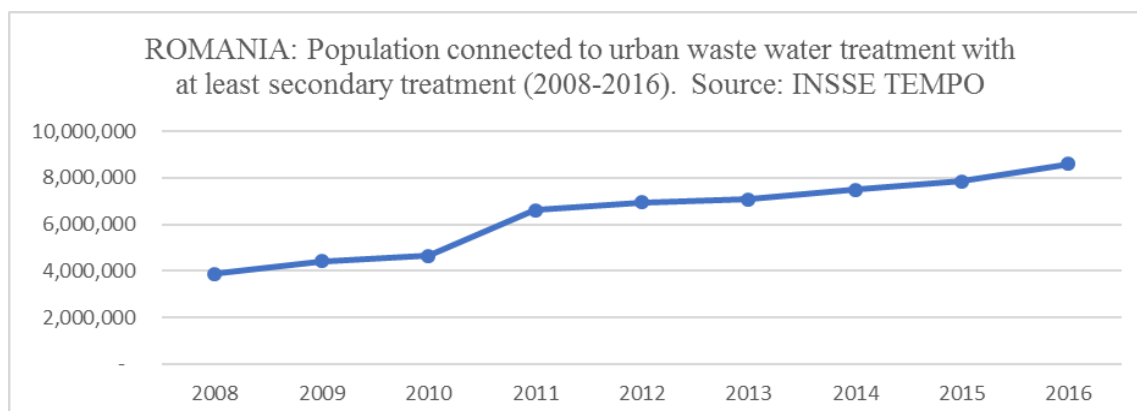
Public water supply system refers to public water distribution network, operated by specialized units in water abstraction and distribution. (source: Romanian National Statistics Institute).

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) -

	https://goo.gl/pGGCNC and EUROSTAT - https://goo.gl/TP8L2r
Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO) and EUROSTAT has been conducted, with negligible differences. The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. Indicator Resident population by age group and ages, sex, urban/ rural area, macro regions, development regions and counties, at January 1st; 2. Indicator PMI109A - Population connected to wastewater collecting systems: • Number of population connected to municipal waste water treatment plants with secondary treatment; • Number of population connected to municipal waste water treatment plants with tertiary treatment; Indicator PMI109A is collected by self-recording, via paper questionnaires, at the level of local government observation units, through exhaustive statistical survey.
Spatial level	National, Regional, County
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity.
Policy/goals	Indicator collected at Romanian level under the Order of the NIS President no. 787/2004 in compliance with Decision of the EP and of the EC no.1600/2002/EC of 22/07/2002, amended; Framework directive on water of the EP and of the EC no. 2000/60/EC of 23.10.2000, amended; Directive of the EC 91/271/ECC of May 21, 1991, amended. The indicator supports assessment and monitoring of Environmental Quality, and it can be used in the reach of the national targets and alignment to the European Directives for wastewater treatment and urban wastewater treatment. It can also support policies for sustainable urban development.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Anastasiu Daniela, e-mail: daniela.anastasiu@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Data between 2008 and 2016 shows a significant increase in the percentage of population connected to urban waste water treatment with at least secondary treatment, from 18.8% in 2008 to 43.6% in 2016. Tertiary treatment has been introduced, according to data from the National Statistics Institute, since 2010. There has been a 10% surge in the value of the indicator for the year 2011, potentially due to the finalization of the Glina Treatment Plant for the Bucharest capital, a Municipality which is inhabited by about 10% of the country's population.

ROMANIA: Population connected to urban waste water treatment with at least secondary treatment (2008-2016). Source: INSSE TEMPO

2.3. Electricity generated from renewable sources

Description

The indicator measures the share of electricity generated from renewable sources in total electricity.

Energy produced from renewable energy sources includes: energy generated by hydropower (excluding pumping), wind, sun, geothermal and biomass / waste electricity. Biomass / waste includes energy generated from wood burning / wood waste and other solid waste of renewable nature (straw), municipal waste incineration, biogas (including buried waste, sewerage and farm gas) and liquid biofuels.

Electricity generation is the amount of electricity produced on the basis of solid, liquid and gaseous fuels in thermoelectric, hydropower, nuclear power and other energy sources (source: INSSE TEMPO)

The ratio of electricity generated from renewable sources to total electricity production is expressed as percentage.
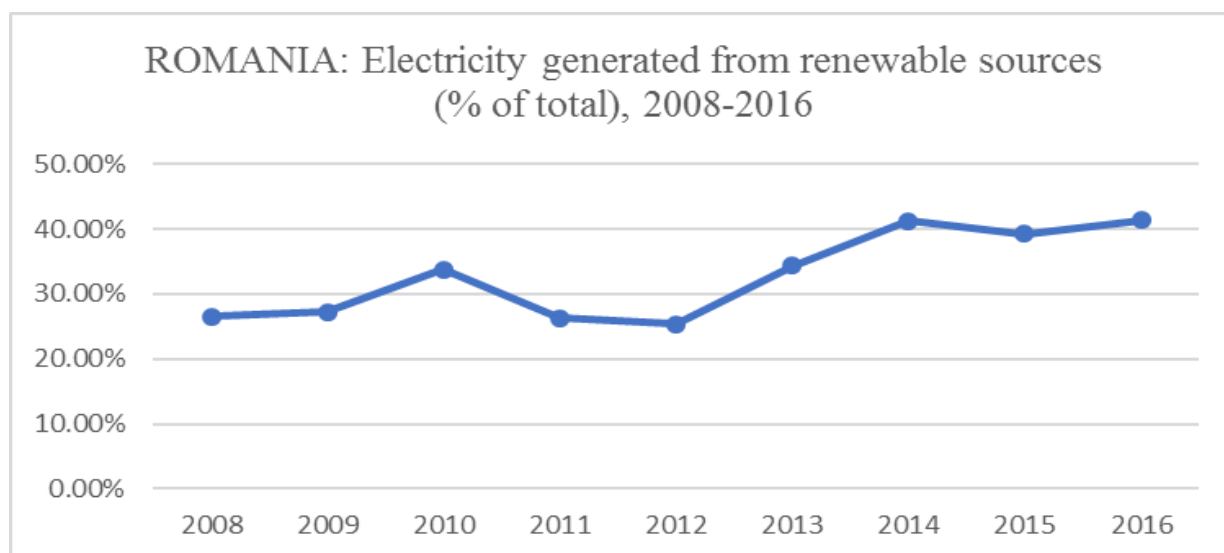
Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - https://goo.gl/Uekav9, EUROSTAT - Web link and definition, World Bank – Web link and definition
Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO), World Bank and EUROSTAT has been conducted, and shows higher values for the EUROSTAT dataset. The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. IND118A - Electricity generation by category of power plants: • Total (Million kW-hour) • Hydroelectric (Million kW-hour) • Wind power (Million kW-hour) • Solar power (Million kW-hour) Indicator PMI109A is collected by self-recording, via paper and online questionnaires, at the level of energy production enterprises, through exhaustive statistical research (1300 units observed)

Spatial level	National, Regional, County
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity.
Policy/goals	Indicator collected at Romanian level under the Order of the NIS President no. 787/2004 in compliance with Directive 8/2004/CE of the EP and EC; Regulation (CE) nr. 1099/2008 of the EU Parliament and EU Commission. The indicator supports assessment and monitoring of national targets with respect to the share of renewable energy in total energy production for 2020 and 2030. It also represents an indicator for territorial competitiveness, economic competitiveness (including facilities for new investments – eg. the Green Certificates Support Scheme), and sustainable development.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Adriana Magdalena Opriș, mail: adriana.opris@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Albeit the trend is a positive one for Romania with respect to the growing share of electricity generated from renewable sources, the period between 2010 and 2013 witnessed a dip in the production of RE, due to fluctuations of Hydroelectric energy production, the primary RES for Romania.

With a percentage over 40% electric energy from RES, Romania has surpassed already its Europe 2020 RES target of 24%.

ROMANIA: Electricity generated from renewable sources (% of total), 2008-2016

2.4. Consumption of water per capita

Description

This indicator measures how much water does the average person use and is a representation of the liters of water per inhabitant (household use) per day.

The drinking water supplied to consumers represents the entire quantity of drinking water actually delivered to all consumers, to the population and economic units for productive and non-productive needs (household needs, public baths, social-cultural and administrative buildings, hotels, the watering of streets, green areas, etc.) through distribution networks or directly through feed pipes; it is calculated by using watermeters installed in the consumers' households and, if watermeters do not exist, based on lump-sum consumption norms.
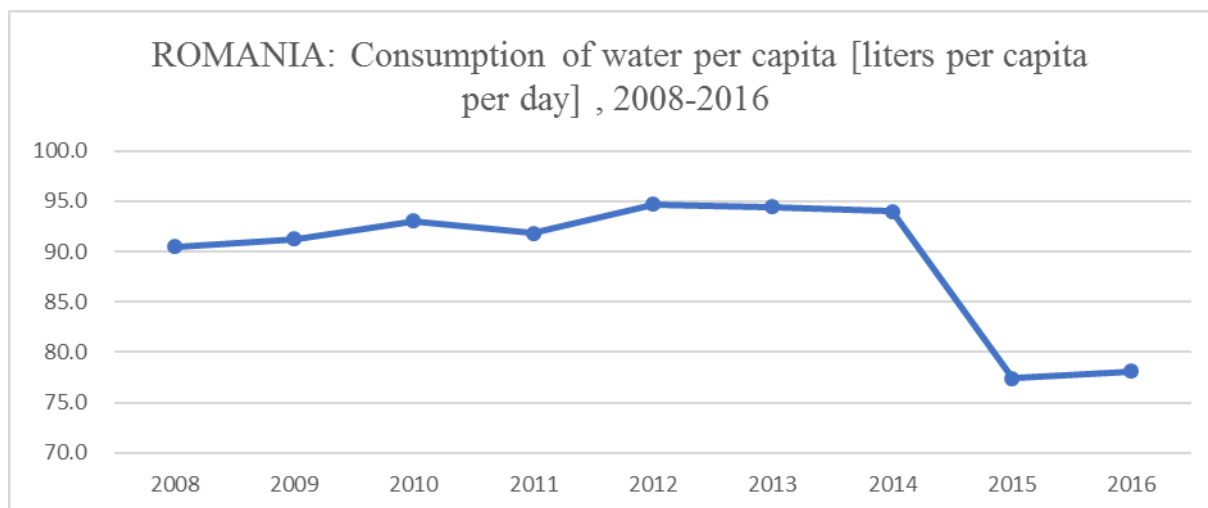
Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at county level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition
Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO), and EUROSTAT has been conducted, for the years in which EUROSTAT data was available (2012 and 2013), with significant differences to be found. The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. Indicator Resident population by age group and ages, sex, urban/ rural area, macro regions, development regions and counties, at January 1st; 2. GOS108A - Quantity of drinking water supplied to consumers by counties and localities: • Total (thousand cubic meters) • of which: for household use (thousand cubic meters) Indicator PMI109A is collected by self-recording, via paper and online questionnaires, at the level of companies with public utility activities of local interest (enterprise), through exhaustive statistical research (3700 units observed corresponding to LAU2 units)
Spatial level	National, County, Municipality
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity.
Policy/goals	Indicator collected at Romanian level under the Order of the NIS President no. 832 /2006 and Law no. 51/2006 on public utilities services. The indicator supports assessment and monitoring of quality of living conditions, as well as environmental and resource-use assessment.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics:

	Adriana Magdalena Opriș, mail: adriana.opris@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The household consumption of water per capita has been maintained relatively level between 2008 and 2014, and has dropped significantly (with 17.6%) in 2015. This dip has potentially been contributed to by campaigns aimed at stopping water loss (eg. due to dripping, old fittings) and upgrades of the water distribution systems, which have lowered water loss.

ROMANIA: Consumption of water per capita [liters per capita per day] , 2008-2016

2.5. % of terrestrial area protected (total and by ecological region)

Description

The indicator is defined as the share of terrestrial area that has been reserved by law or other effective means to protect part or all of the enclosed environment. It can be calculated separately for different terrestrial ecological regions. The indicator may also be disaggregated by management category of the protected areas.

Protected areas, according to G.P.O. no.57/2007, represents terrestrial, aquatic and/or underground areas, with legally settled perimeter and with a special protection and preservation regime, where wild plants and animal species, bio - geographic elements and formations or of other nature, with special ecological, scientific or cultural value exist and include:

- biosphere reserves - protected natural areas whose purpose is the protection and preservation of a natural habitat areas and of specific biologic diversity. They include a complex of terrestrial and/or aquatic eco - systems, lakes and water courses humid areas with unique flora and fauna biocenotic communities, with natural harmonious landscapes or resulted from the traditional arrangement of the territory, eco -systems modified under human influence and which could be brought back to natural state, human communities whose existence is based on natural resources capitalization based on the durable and harmonious development principle;

- national parks - natural protected areas whose purpose is the protection and preservation of representative samples for the national bio - geographic space, including natural elements with a special value from a physico - geographical aspect flora, fauna, hydrological, geological, paleontological, speological, pedological point of view or of another nature, giving the possibility of visiting them for scientific, educational, recreative and touristic purpose;
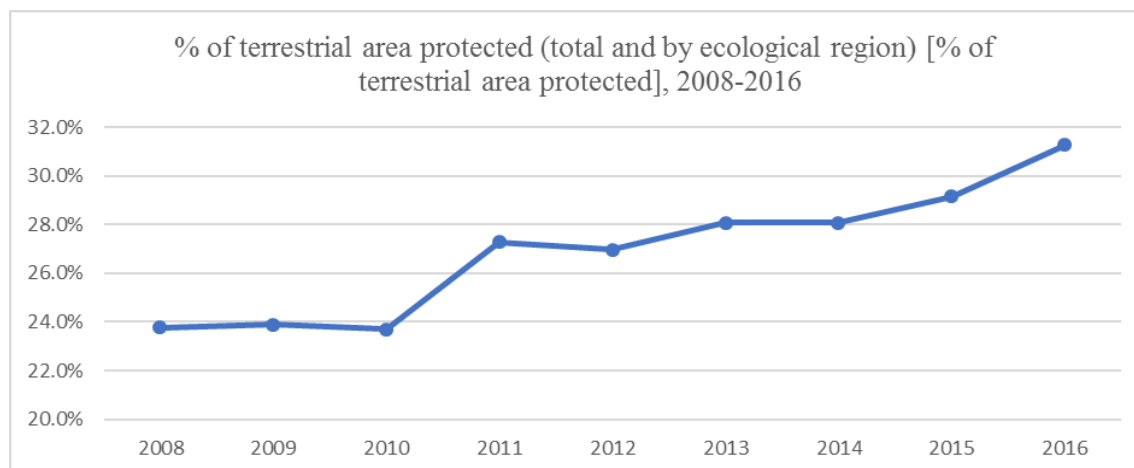
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- natural parks - natural protected areas whose purpose is the protection and preservation of landscape piles in which human activities interactions in time created a distinct area, with landscape and/or cultural significant value, often with a great biological diversity;

- scientific reserves - natural protected areas whose purpose is the protection and preservation of terrestrial and/or aquatic natural habitats, including representative elements of scientific interest from flora, fauna, geological, speological, paleontological, pedological point of view or of other nature;

- natural reserves - natural protected areas whose purpose is the protection and preservation of important natural habitats and species from flora, fauna, forestry, hydrological, geological, speological, paleontotogical, pedological point of view;

- natural monuments - natural protected areas whose purpose is the protection and preservation of natural elements and of ecological, scientific, landscape special significance, represented by wild plants and animal species, rare, endemic or endangered, secular trees, flora and fauna associations, geological phenomena - caves, erosion aspects, qorges, water courses, waterfalls and other types of geological manifestations and formations, fossils deposits and other natural elements with a natural patrimony value being unique or rare;

- wetlands of international importance are those protected natural areas whose purpose is to ensure the protection and preservation of the natural sites with a wetland-specific biological diversity.

- special protection areas are those protected natural areas whose purpose is the preservation, maintenance and where necessary the conservative rehabilitation of the bird species and specific habitats designated for wild migratory bird species protection.

- sites of community interest represent areas located in biogeographical regions, contributing significantly to the maintenance or restoration to a favourable preservation state of the natural habitats mentioned in Annex 2 to the Government emergency ordinance no. 57/2007 or of the community interest species mentioned in Annex 3 to the same ordinance, contributing significantly to the coherence of the ''NATURE 2000'' network and/or to the maintenance of the biological diversity in the concerned biogeographical regions.

- natural sites of universal natural heritage - protected natural area containing natural elements whose value is recognize as being of universal importance. (Source: INSSE TEMPO)

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition
Key statistical data used	The total terrestrial areas protected include the following main categories of sites: national parks, natural parks, scientific reserves, scientific reserves, natural monuments and natural reserves, natural sites of universal natural heritage, natural monuments, natural reserves, wetlands of international importance and sites of community interest (NATURA 2000). Data used from the INSSE TEMPO:

	1. Indicator PMI101A - Protected areas Indicator PMI101A is collected by the National Agency for Protection of the Environment. Starting with 2015, scientific reserves, natural monuments and natural reserves have been merged because National Environment Protection Agency is in process of classification and mapping the boundaries of protected areas.
Spatial level	National
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity. However, there is no centralized overview of the total surface of the country which is protected. A detailed spatial analysis is necessary, to eliminate potential errors that might result from the inclusion of one protected site within the boundary limit of another protected site (e.g. thus resulting in doubling of some areas)
Policy/goals	Data is collected by National Environment Protection Agency according to the law 462/2001. The indicator supports assessment and monitoring of biodiversity conservation, natural heritage, natural resource maintenance, etc. Protected areas are essential for maintaining ecosystem diversity in countries and ecological regions, in conjunction with management of human impacts on the environment; as such, the indicator can serve the purpose of lanscape quality assessment and determination of key territorial capitals for valorization.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Anastasiu Daniela, e-mail: daniela.anastasiu@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Currently (2016), the protected surface of Romania has surpassed the 30% mark. In 2011, 23 new sites were included in the list of national protected areas, resulting in a 13% increase of the total protected surface.

2.6. Population (or households) with accessibility to high-speed broadband

Description

This indicator is a share of population (households) with broadband access.

The share of households having Internet access at home, by types of connections represents the ratio between the number of households having Internet access at home using a specific connection within each breakdown and the total number of households in that breakdown.
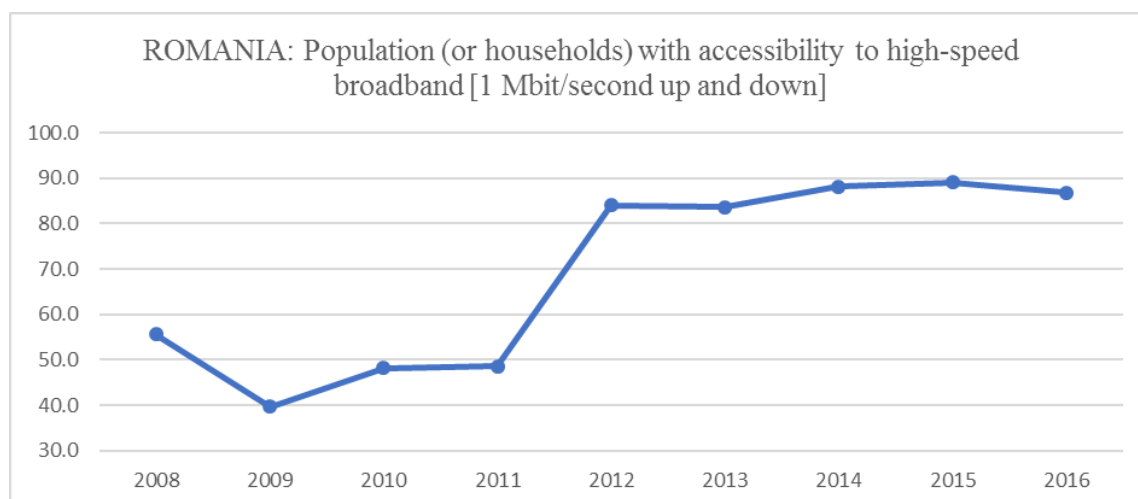
Types of connection: modem (dial-up via standard phone line), ISDN, narrowband mobile phone access (less than 3G, e.g. 2G+/GPRS, used by mobile phone or smart phone or modem in laptop), fixed broadband connections (e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public WiFi connections) and mobile broadband connections (via mobile phone network, at least 3G, e.g. UMTS, using (SIM) card or USB key, mobile phone or smartphone as modem).

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition
Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO), and EUROSTAT has been conducted, with significant differences to be found between the two (in the range of 10%). The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. Indicator TIC104B - The share of households having Internet access at home by the types of connection used and residence area Indicator TIC104B is collected by face-to-face interview, via paper questionnaires, at the level of households, through sample statistical survey. The number of observation units is of about 10,000 households located in 780 research centres.
Spatial level	National
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity. It is to note that the statistical sample represents about 0.14% of the total number of households in Romania, and as such its reliability is not sufficiently high; potentially, the differences between the Eurostat and INSSE Tempo indicator values stem from the same issue. Another aspect is the fact that internet connection typologies surveyed are, as listed below, devoid of a speed assessment. However, in Romania, starting with the early 2000s, internet speed skyrocketed, and plans for broadband connections have quickly surpassed the 1Mbit/second mark. Modem or ISDN connection DSL (ADSL,SHDSL e.g.) Other broadband connection (e.g. cable, UMTS, e.g.)

	Mobile phone
	DSL, e.g. ADSL, VDSL, SHDSL
	Wired fixed (cable, optical fibre, Ethernet, PLC, etc.)
	Fixed wireless (satellite, public WiFi)
	Mobile phone network (at least 3G, e.g. UMTS) via a handset
	Mobile phone network (at least 3G, e.g. UMTS) via a card or USB key
	Dial-up access over normal telephone line or ISDN
	Mobile narrowband connection (less than 3G, e.g. 2G+/GPRS, used by mobile phone or modem in laptop)
	Fixed broadband connections, e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public WiFi connections)
	Mobile broadband connections (via mobile phone network, at least 3G, e.g. UMTS, using (SIM) card or USB key, mobile phone or smart phone as modem)
Policy/goals	Data is collected by INS in compliance with the Regulation (EC) No. 808/2004 of the European Parliament and of the Council, concerning Community statistics on the information society (ICT); Regulation (EC) No. 1006/2009; Regulation (EC) No. 1099/2005;Regulation (EC) No. 1031/2006;Regulation (EC) No. 847/2007; Regulation (EC) No. 960/2008;Regulation (EC) No. 1023/2009. The dataset represents an indicator on living quality, communication infrastructure and amenities / services, while also indicating the innovation capacity of Romania and potential for economic development.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Lidia Miloiu, e-mail: lidia.miloiu@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

According to an Akamai ranking in 2016, Romania is ranked 10th in the world and 1st in Europe in terms of average Internet peak connection speed, with 85 Mbit/s. The INS dataset shows a relative stagnation in the last years (2012-2016), with a slow decline, as Mobile Data plans become increasingly speedier and affordable.

ROMANIA: Population (or households) with accessibility to high-speed broadband [1 Mbit/second up and down]

2.7. European cultural sites on the UNESCO World Heritage List

Description

This indicator quantifies cultural sites Listed by the UNESCO as of special cultural or physical significance – number of sites.

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	UNESCO Database - http://whc.unesco.org/en/statesparties/ro
Key statistical data used	This indicator represents the number of the properties inscribed on the World Heritage List for Romania
Data availability	National
Data completeness	Data available for the period 2008-2017
Policy/goals	UNESCO protected areas represent a strong value and territorial capital at national level, and their existence / approval represents a strong basis for developing policies for: • Promotion and Development • Protected Area or Goods maintenance and monitoring • Sanctions, Statutes of limitation
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu

Interesting facts about specific indicator:

In 2017, the 8th UNESCO World Heritage Site has been approved for Romania - Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe *(2007,2011,2017)*

2.8. Life expectancy at birth by sex

Description

Life expectancy represents average number of years an infant would live, if he / she lived all his / her life, under the conditions of mortality by age in the reference period.

Life expectancy is computed based on the number of permanent resident population at January 1st and July 1st, the number of deaths and internal migration due to change of domicile.

The conditions of mortality are determined by the following:

- *L(x) - number of survivors at a certain exact age (x) from a hypothetical generation of 100.000 live-births.*
- *D(x) - number of deaths between exact age of (x) years and next age (x+1).*
- *Q(x) - probability of death between exact age of (x) years and next age (x+1) years.*
- *P(x) - probability of survival between exact age of (x) years and next age (x+1) years.*
- *LM(x) - average number of survivors in age interval of (x) to (x+1) years.*
- *E(x) - life expectancy at age (x) represents the average number of years that a person of a certain age (x) has to live, if that person would live all her life under the conditions of mortality by age during the reference period of the mortality table.*
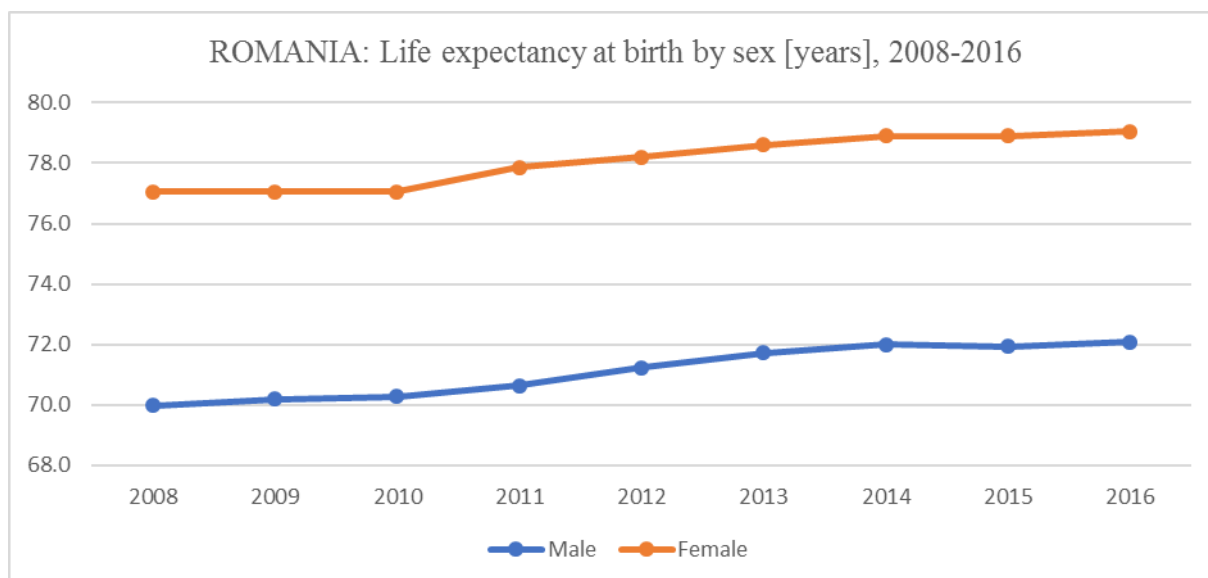
- *E(0) - life expectancy at birth is referred to as mean life expectancy.*
- *E(0) - represents the average number of years a newborn might live in the conditions of the intensity of the mortality by age from the reference period of the mortality table. (Source: INSSE TEMPO)*

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at county level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition, World Bank – Web link and definition

Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO), World Bank and EUROSTAT has been conducted, with negligible differences between the datasets. The dataset in the Atlas is corresponding to the INSSE TEMPO data.
	Data used from the INSSE TEMPO:
	1. POP217A - Life expectancy by urban/ rural area, sex, macroregions, development regions and counties:
	   • Total (years)
	   • Male (years)
	   • Female (years)
	
	Indicator PMI109A is collected by retrieving data from other statistical results (deaths, births, change of residence), per demographic events and inhabitants (as observation unit).

Spatial level	National, Regional, County
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity. Data from 2016 is listed as semi-final.
Policy/goals	Data is collected by the INSSE for the social statistics sector, population domain – vital statistics. It estimates the life expectancy of the population, with a very wide range of dataset beneficiaries, both national and international (CE, EUROSTAT, WHO, UNICEF). The indicator represents a proxy for the overall quality of the health-care system at national, regional, county and area of residence level. The indicator is useful for assessing the health of the living environment and together with ageing index it allows to assess social policies projections and risk of exclusion.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Manescu Verona, verona.manescu@insse.ro; Bunea Georgiana, georgiana.bunea@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Between 2008 and 2016, life expectancy for males has increased by 3% (2.1 years) and 2.6% for females (2 years). Life expectancy continues to grow at constant pace for Romania.

ROMANIA: Life expectancy at birth by sex [years], 2008-2016

2.9. Gross disposable household income

Description

The indicator (GDHI) is the amount of money that individuals (i.e. the household) have available for spending or saving. This is money left after expenditure associated with income, e.g. taxes and social contributions, property ownership and provision for future pension income. It is calculated gross of any deductions for capital consumption.

The adjusted gross disposable income of households per capita in PPS is calculated as the adjusted gross disposable income of households and Non-Profit Institutions Serving Households (NPISH) divided by the purchasing power parities (PPP) of the actual individual consumption of households and by the total resident population. (Source: EUROSTAT)
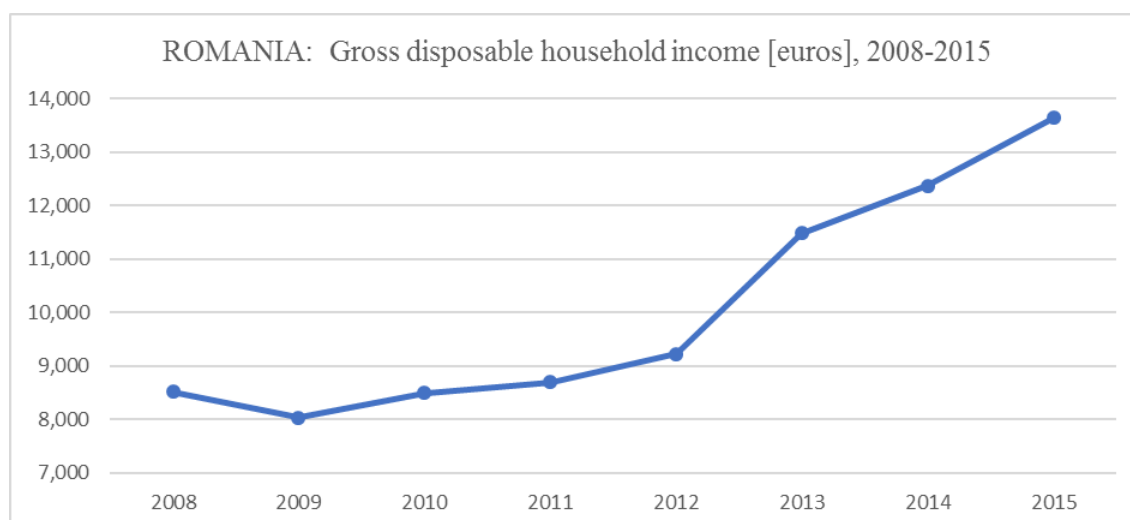
Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	EUROSTAT - Web link and definition
Key statistical data used	This indicator is available from EUROSTAT - [tec00113] - Adjusted gross disposable income of households per capita in PPS. Figures are collected and transmitted to Eurostat by the National Statistical Institutes of the EU Member States following ESA2010 transmission programme (Table 8) introduced by the Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union (annex B).
Spatial level	National, Regional, County
Data completeness	Data available for the period 2008-2015 (by 29.12.2017), annual periodicity. Data from 2016 is lacking. Possible limitation: Member States' accounts may show statistical discrepancies (explicit or implicit) between GDP and the sum of components. In order to compile coherent and balanced set of sector

	accounts, some variables may be used to adjust for any possible lack of additivity between the total and the sum of its components, i.e. these variables are effectively used as balancing items. (Source: EUROSTAT)
Policy/goals	This indicator measures the disposable income of the households and by extension, individuals; it is an indicator with a high degree of comparability which provides relevant information on the welfare of the citizens over a certain period, as well as the level of poverty.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The effects of the global economic crisis are visible in the Romanian data for this indicator, with a dip in the GDHI in the year 2009, at the peak of the crisis (during which the indicator value dropped to 8,038 EUR / year). A slow recovery between 2010 and 2012 was followed by a more accelerated growth between 2012-2015, during which period the GDHI has grown with 47.8% (4,414 EUR), from 9231 EUR (2012) to 13,645 EUR (2015).

ROMANIA: Gross disposable household income [euros], 2008-2015

2.10. People at risk of poverty or social exclusion

Description

This indicator is the share of people with an equivalised disposable income (after social transfer) below the at-risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income after social transfers. The AROPE indicator is defined as the share of the population in at least one of the following three conditions:
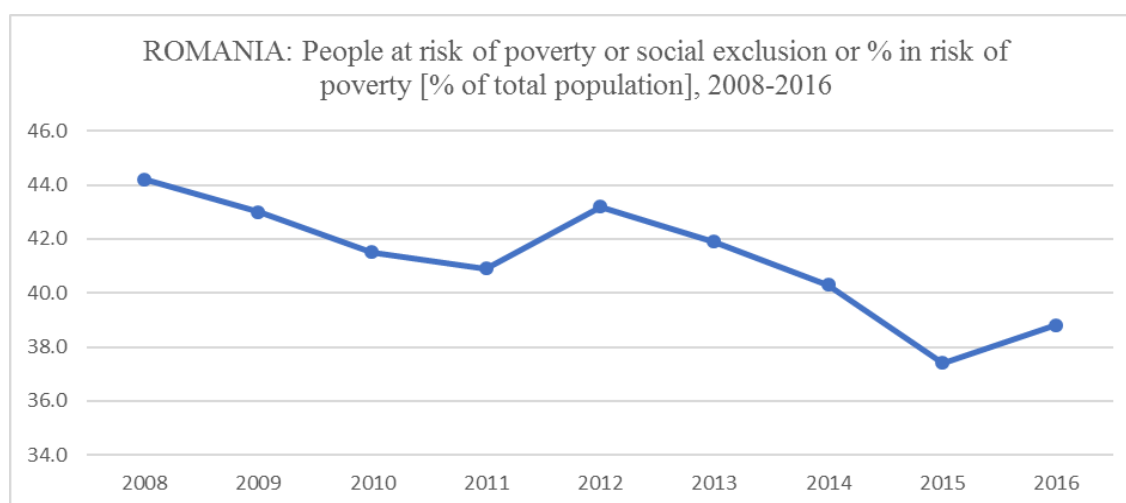
1. People living in households with very low work intensity: People living in households with very low work intensity are people aged 0-59 living in households where the adults work less than 20% of their total work potential during the past year
2. Severe material deprivation rate
3. At-risk-of poverty rate: The persons with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income.

Type of indicator	Transnational (CO-TAMP), collection at national level

17

Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition
Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO), and EUROSTAT has been conducted, with values found to be identical. The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. SAR111A – AROPE - at risk of poverty or social exclusion rate by gender Indicator SAR111A - AROPE is collected by retrieving data from other statistical results, at the level of the whole population by various characteristics and economic, social and demographic profiles.
Spatial level	National (Regional data are collected by INS but not freely available)
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity.
Policy/goals	The indicator supports assessment and monitoring of quality of living conditions
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Alina Cuturela, alina.cuturela@insse.ro;
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The general trend in Romania is for the number of people at risk of poverty or social exclusion to decrease, and the value of the indicator dropped between 2008-2016 with 5.4%, from 44.2% to 38.8%. However, this trend is not linear, with the years 2012 and 2016 witnessing an actual trace-back (rise) of the percentage of at-risk people.

ROMANIA: People at risk of poverty or social exclusion or % in risk of poverty [% of total population], 2008-2016

2.11. Population aged 25-64 with tertiary education

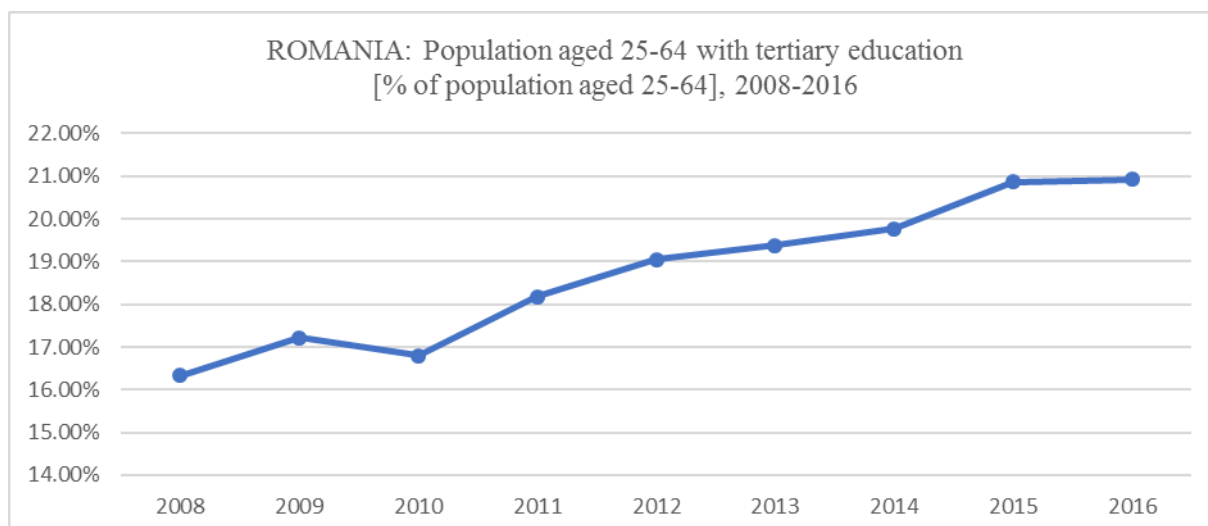**Description**

This indicator is defined as population aged 25-64 with tertiary education as percentage of all population aged 25-64.

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at regional level
Annual range	2008/2021
Data source for indicator	This is an indicator computed from two sources: • Resident population – Institutul Național de Statistică (INSSE TEMPO) - Web link and definition • Total number of population aged 25-64 with tertiary education - EUROSTAT - Web link and definition
Key statistical data used	INSSE does not provide annual statistical data on the total number of population aged 25-64 with tertiary education (as % of the total population aged 25-64). The most recent data is provided by the 2011 Population and Housing Census. Data used from the INSSE TEMPO: 1. POP105A - Resident population by age group and ages, sex, urban/ rural area, macroregions, development regions and counties at January 1st Indicator POP105A is collected by retrieving data from other statistical results, half-yearly, at the level of the whole population and through demographic events. Data used from the EUROSTAT: 2. edat_lfs_9902 - Population by educational attainment level, sex, age and labour status (1 000)
Spatial level	National Regional statistics (NUTS2) are available through EUROSTAT, indicator edat_lfse_04
Data completeness	Data available for the period 2008-2016 (by 29.12.2017), annual periodicity.
Policy/goals	This indicator measures the highly-qualified labour force as basis for future R&D activities. Human capital is an essential factor for innovation potential.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Laura Ichim; laura.ichim@insse.ro; Manuela Vlaicu; manuela.vlaicu@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The data pertaining to ROMANIA shows a steady upwards trend of the population aged 25-64 with tertiary education, with a rise of 4.6% of the total active population (25-64 years of age) having graduated a level of education of 5-8 (EQF) between 2008 and 2016. However, the number is still low, with approximately a fifth of the whole 25-64 age group representing a potential labor pool for high-innovation or high-pay tertiary and quaternary economic activities.

ROMANIA: Population aged 25-64 with tertiary education [% of population aged 25-64], 2008-2016

2.12. Research & Experimental Development expenditure as % of Gross Domestic Product

Description

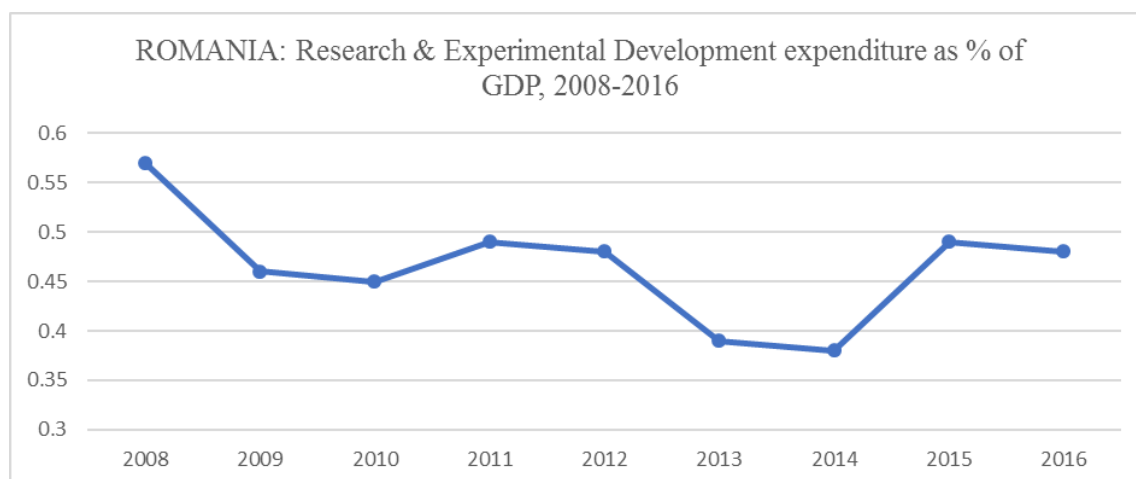The indicator provided is GERD (Gross domestic expenditure on R&D) as a percentage of GDP. "Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications" (Frascati Manual, 2002 edition, § 63). – Source: EUROSTAT

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT -Web link and definition, World Bank – Web link and definition, OECD - Web link and definition, UNESCO UIS – Web link and definition
Key statistical data used	All five data sources present the same figures; the indicator is not present in the INSSE TEMPO database and has not been updated on the INS page, so for the purpose of reliable updating, the EUROSTAT source is being considered the primary source for this indicator. EUROSTAT: t2020_20 indicator - Gross domestic expenditure on R&D (GERD)
Spatial level	National Level
Data completeness	Dataset complete for 2008-2016 (EUROSTAT)
Policy/goals	The Europe 2020 Strategy, with its 'Innovation Union', aims to improve framework conditions and access to finance for research and innovation to help turn ideas into products and services that create growth and jobs. To this end, the aim of raising combined public and private investment levels in the R&D sector to 3 % of GDP has been

	formulated as one of the five headline targets of the Europe 2020 Strategy. R&D expenditure represents one of the major drivers of economic growth in a knowledge-based economy. As such, trends in the R&D expenditure indicator provide key indications of the future competitiveness and wealth of the EU. GERD includes expenditure from business enterprise, higher education, government and private non-profit expenditure on R&D. The indicator measures the key R&D investments that support future competitiveness and result in higher GDP.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Romania has a target of 2% GERD, but is making little progress to attain it. The highest value of the indicator has been recorded in 2008 for the 2008-2016 dataset (0.57% of total GDP), and the drop can partially be attributed to budget cuts undertaken due to the economic crisis.

ROMANIA: Research & Experimental Development expenditure as % of GDP, 2008-2016

2.13. Employment rate 20-64 years by sex

Description

The employment rate is calculated by dividing the number of persons aged 20 to 64 (by sex) in employment by the total population of the same age group.

Employment comprises, according to the methodology of Statistical household labour force survey, all persons aged 15 years and over who carried out an economic activity producing goods or services of at least one hour (at least 15 hours for self-employed and contributing family workers from agriculture - previously to 2011) during the reference period (one week), in order to get income as salary, payment in kind or other benefits.

Beginning with 2011, self-employed and contributing family workers from agriculture are considered as employed persons only if they are the owners of agricultural production (not necessarily of lands) achieved and they meet one of the following conditions:

> a) *The agricultural production is intended, even partially, to sale or to barter agreements;*

> b) *The agricultural production is exclusively intended to self-consumption if it accounts for a significant part of household 's total consumption. (Source: INSSE TEMPO)*

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at county level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO), EUROSTAT
Key statistical data used	Comparative analysis of the values for this indicator as provided by the National Statistics Institute (INSSE TEMPO), and EUROSTAT has been conducted, with negligible differences noted. The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. POP105A - Resident population by age group and ages, sex, urban/ rural area, macroregions, development regions and counties at January 1st. 2. AMG110A - AMIGO - Employment by age group and by sex The indicator 2.AMG110A - AMIGO is collected through sample statistical survey, on households in 28,512 dwellings, per quarter. The observation unit is a person member of an individual household, and the method of data collection is the face-to-face interview through paper questionnaire.
Spatial level	National, County, Municipality
Data completeness	Data available for the period 2008-2016 (by 29.12.2017) for AMG110A – AMIGO, with quarterly periodicity, and for the period 2008-2017 for POP105A, annual periodicity.
Policy/goals	Indicator collected at Romanian level under the Order of the President of the NIS no. 394/2004 in compliance with EC Regulation no.577/1998; EC Regulation no. 377/2008. The employment rate, in other words the proportion of the working age population in employment, is considered as a key social indicator for analytical purposes when studying developments within labour markets. It is essential for the analysis of the economic and human capital in an area, and it can be an indicator of attractiveness per
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Mirela Ionita: Mirela.Ionita@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The employment rate for both male and female 20-64 year age groups has not witnessed significant changes in the period 2008-2016. The employment gap in Romania remains relatively high, with a difference of 17.6 points between male and female employment.

ROMANIA: Employment rate 20-64 years by sex [% of population 20-64 y.o.], 2008-2016

2.14. Youth Unemployment Rate

Description

This indicator refers to the share of the labour force ages 15-24 without work but available for and seeking employment.
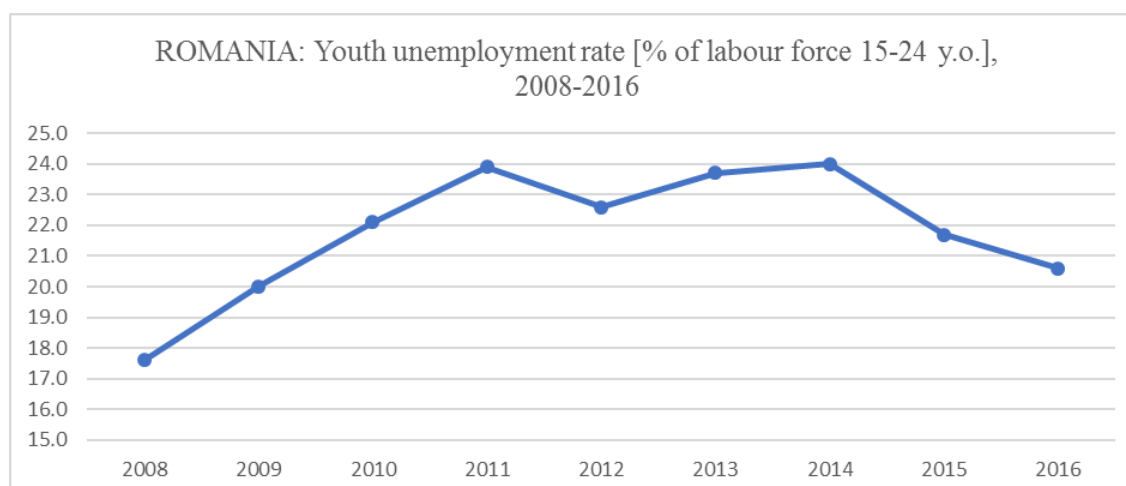
Unemployment rate represents the ratio of the unemployed, according to international definition (ILO – International Labour Office criteria), in economically active population.

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at regional level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT -Web link and definition, ILO – Web link and definition
Key statistical data used	All three data sources present the same figures. The dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. AMG157F - AMIGO - ILO unemployment rate by age group and sex, by macro-regions and development regions The indicator AMG157F – AMIGO - ILO is collected through sample statistical survey, on households in 28,512 dwellings, per quarter. The observation unit is a person member of an individual household, and the method of data collection is the face-to-face interview through paper questionnaire.
Spatial level	National Level, Regional Level

Data completeness	Dataset complete for 2008-2016 (INSSE TEMPO)
Policy/goals	This indicator's objective is to elaborate the necessary information for the evaluation of phenomena on the labour force market; count the economically active young population - employed and unemployed - and the economically inactive young population. High youth unemployment rates do reflect the difficulties faced by young people in finding jobs. However, this does not necessarily mean that the group of unemployed persons aged between 15 and 24 is large because many young people are studying fulltime and are therefore neither working nor looking for a job (so they are not part of the labour force which is used as the denominator for calculating the unemployment rate). Coupled with data on the NEETS (Youth not in education and not in employment), this indicator is useful in designing and implementing policies related to minimizing early school leave, supporting youth employment, supporting inclusiveness and economic growth, as well as promoting regional human capital.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Mirela Ionita: Mirela.Ionita@insse.ro, Diana Popa: Diana.Popa@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Youth unemployment peaked in Romania as an effect of the economic crisis, which had the strongest impact on the young age group. It reached 24% in 2011, plateaued and started to decrease between 2014-2016. The current trend is for youth unemployment to decrease, yet data shows that the effect of the 2008 crisis has still not been overcome.

ROMANIA: Youth unemployment rate [% of labour force 15-24 y.o.], 2008-2016

2.15. Share of employment by sector

Description

This indicator refers to the share of the employment in different sector.

> **I Agriculture**
> **II. Industry and construction**: Mining and quarrying; Manufacturing, electricity, gas, steam and air conditioning supply; Water supply, sewerage and waste management; Construction
> **III. Services:** Market services: Wholesale and retail trade; Accommodation and food service activities; Communication; Financial and insurance activities; Real estate activities; Professional scientific and technical activities; Administrative and support service activities. Mainly non market services: Public administration; Education; Health; Arts, entertainment and recreation; Other services activities; Activities of households as employers; Activities of extraterritorial organisations.

The civil employed population includes all the persons who work for an income and whose work is usually done in one of the activities of the national economy, being defined as an economic or social activity, based on a work contract or a free-lance activity (self-employed) in order to get income such as salary , in kind payment, etc.

The following categories of persons are included:

- employees who work in one of the activities of the national economy in the public (integrally of state and public of national interest), mixed, private, cooperative and collective;
- employers - managers of private units - that employ labour force for the activity of their units;
- self-employed;
- unpaid family workers.

The civil employed population does not include the armed forces and similar (the personnel of the Ministry of Defence, Ministry of Administration and Interior, Romanian Intelligence Office, conscripts), convicts and political and community organisations employees. (SOURCE: INSSE TEMPO)

The data is aggregated on the three main above-mentioned categories, taking into account differences in classification between the national Romanian level, the ISIC and NACE categories used by ILO and EUROSTAT respectively:

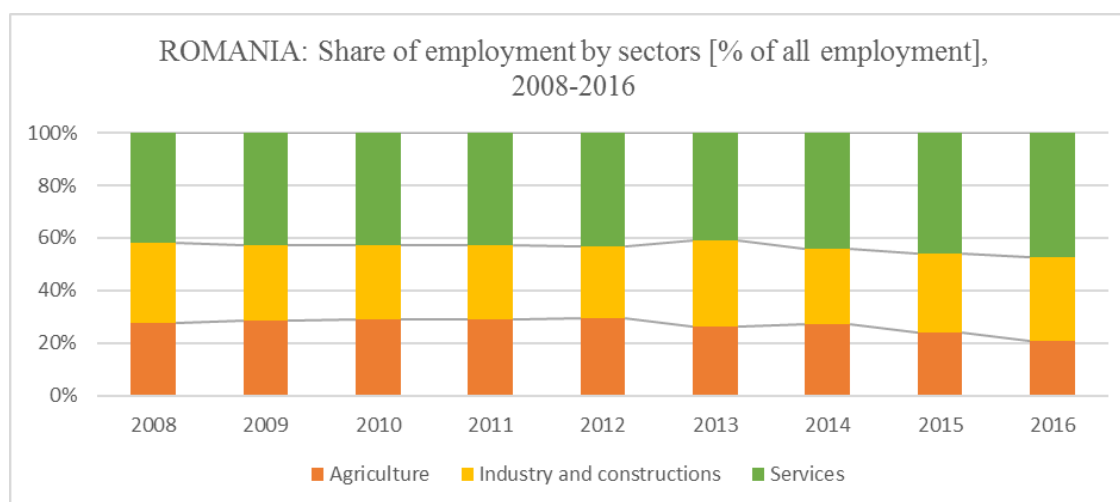| INSSE ECONOMIC ACTIVITY SECTORS	ILO ECONOMIC ACTIVITY SECTORS	EUROSTAT ECONOMIC ACTIVITY SECTORS
A AGRICULTURE, FORESTRY AND FISHING	ISIC-Rev.4: **A**. Agriculture, forestry and fishing	NACE_R2 **A** Agriculture, forestry and fishing
B MINING AND QUARRYING	ISIC-Rev.4: **B.** Mining and quarrying	NACE_R2 **B** Mining and quarrying
C MANUFACTURING	ISIC-Rev.4: **C.** Manufacturing	NACE_R2 **C** Manufacturing
D ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	ISIC-Rev.4: **D.** Electricity, gas, steam and air conditioning supply	NACE_R2 **D** Electricity, gas, steam and air conditioning supply
E WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES	ISIC-Rev.4: **E.** Water supply; sewerage, waste management and remediation activities	NACE_R2 **E** Water supply; sewerage, waste management and remediation activities
F CONSTRUCTION	ISIC-Rev.4: **F.** Construction	NACE_R2 **F** Construction
G WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	ISIC-Rev.4: **G.** Wholesale and retail trade; repair of motor vehicles and motorcycles	NACE_R2 **G** Wholesale and retail trade; repair of motor vehicles and motorcycles

H TRANSPORTATION AND STORAGE	ISIC-Rev.4: **H.** Transportation and storage	NACE_R2 **H** Transportation and storage
I ACCOMMODATION AND FOOD SERVICE ACTIVITIES	ISIC-Rev.4: **I.** Accommodation and food service activities	NACE_R2 **I** Accommodation and food service activities
J INFORMATION AND COMMUNICATION	ISIC-Rev.4: **J.** Information and communication	NACE_R2 **J** Information and communication
K FINANCIAL AND INSURANCE ACTIVITIES	ISIC-Rev.4: **K.** Financial and insurance activities	NACE_R2 **K** Financial and insurance activities
L REAL ESTATE ACTIVITIES	ISIC-Rev.4: **L.** Real estate activities	NACE_R2 **L** Real estate activities
M PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	ISIC-Rev.4: **M.** Professional, scientific and technical activities	NACE_R2 **M** Professional, scientific and technical activities
N ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	ISIC-Rev.4: **N.** Administrative and support service activities	NACE_R2 **N** Administrative and support service activities
O PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	ISIC-Rev.4: **O.** Public administration and defence; compulsory social security	NACE_R2 **O** Public administration and defence; compulsory social security
P EDUCATION	ISIC-Rev.4: **P.** Education	NACE_R2 **P** Education
Q HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	ISIC-Rev.4: **Q.** Human health and social work activities	NACE_R2 **Q** Human health and social work activities
R ARTS, ENTERTAINMENT AND RECREATION	ISIC-Rev.4: **R.** Arts, entertainment and recreation	NACE_R2 **R** Arts, entertainment and recreation
S OTHER SERVICE ACTIVITIES	ISIC-Rev.4: **S.** Other service activities	NACE_R2 **S** Other service activities
-	ISIC-Rev.4: **T.** Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	NACE_R2 **T** Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
	ISIC-Rev.4: **U.** Activities of extraterritorial organizations and bodies	NACE_R2 **U** Activities of extraterritorial organisations and bodies

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at regional level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT -Web link and definition, ILO – Web link and definition, World Bank - Web link and definition
Key statistical data used	The data from the four sources presents minor inconsistencies. Due to the necessity of national and regional consistency for Romania, the dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 2. FOM103D - Civil economically active population by activity of national economy at level of CANE Rev.2 section, gender, macroregions, development regions and counties The indicator FOM103D is collected through retrieving data

	from other statistical results, yearly, by the INS
Spatial level	National Level, Regional Level
Data completeness	Dataset complete for 2008-2016 (INSSE TEMPO)
Policy/goals	This indicator's objective is to elaborate the necessary information for the evaluation of phenomena on the labour force market; Regional sector specialisation is broadly understood to be the extent to which particular economic sectors attract larger shares of employment or output in one region as compared with another. The indicator is useful for assessing the national economic profile and the regional specialization trends and can be used in designing RIS3 support policies.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu On behalf of the data provider – National Institute of Statistics: Toma Cornelia; e-mail: cornelia.toma@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Employment in Agriculture for Romania is slowly decreasing, hitting the 20% mark in 2016, while an upwards trend can be witnessed for the third sector / services, with a rise of 6% of total employment between 2008 and 2016.

2.16. Number of overnight stays of tourists per capita per year
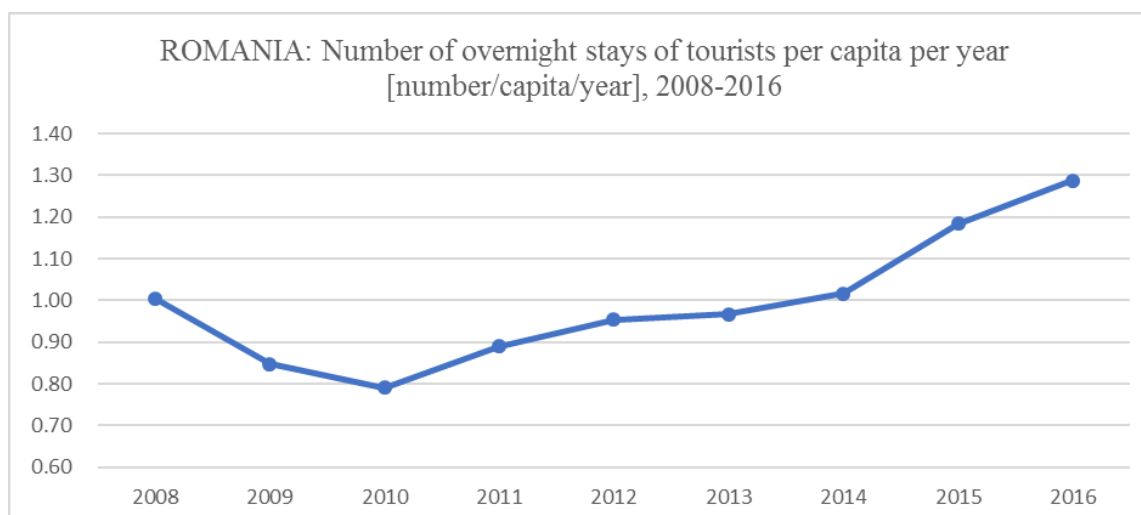
Description

This indicator is a ratio of yearly tourist stays by total resident population.

Tourist overnight stay it is the 24 hour interval, beginning with the hotel hour, for which a person is registered in the evidence of the tourist accommodation establishment and benefits of accommodation in exchange for the fee paid for the occupied space on the premises, even if the actual duration of stay is inferior to the mentioned interval. The overnight stays for additional beds (paid by tourists) are also taken into account. (Source: INSSE TEMPO)

Type of indicator	Transnational (CO-TAMP), collection at national level
	National (TAMP), collection at regional level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT -Web link and definition
Key statistical data used	The data computed from INSSE TEMPO and EUROSTAT is nearly identical, with negligible different values for 2013 and 2014. Due to the necessity of national and regional consistency for Romania, the dataset in the Atlas is corresponding to the INSSE TEMPO data.
	Data used from the INSSE TEMPO:
	1. POP105A - Resident population by age group and ages, sex, urban/ rural area, macroregions, development regions and counties at January 1st.
	2. TUR105E - Staying overnight in the establishments of touristic reception by counties and localities:
	Indicator POP105A is collected by retrieving data from other statistical results, half-yearly, at the level of the whole population and through demographic events.
	The indicator FOM103D is collected through exhaustive statistical survey of approximately 6000 units monthly (Units with establishments of tourist reception with functions of tourist accommodation with at least 10 beds/places). The means of data collection is via self-recording, through on-line and paper questionnaires.
Spatial level	National Level, Regional Level
Data completeness	Dataset complete for 2008-2016 (INSSE TEMPO)
	Due to the data recording of only tourist accommodations with at least 10 places, the indicator does not take into account overnight stays at micro-resorts/units.
Policy/goals	This indicator offers information on the tourism attractiveness at national level (CO-TAMP) and county level (TAMP), for the purpose of assessing and monitoring the state of play, and for developing tourism support policies.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu
	On behalf of the data provider – National Institute of Statistics: Apreutesei Bianca, bianca.apreutesei@insse.ro
Conditions of use	Indicators available for download

Interesting facts about specific indicator:

A decrease in the number of overnight stays can be observed for the period 2008-2010, which is consistent with the decrease in purchasing power and / or disposable income of families as a result of the economic crisis. From 2010 onwards, the indicator presents a positive trend, more accelerated between 2014-2016.

ROMANIA: Number of overnight stays of tourists per capita per year [number/capita/year], 2008-2016

2.17. Share of tourism related employment in total employment
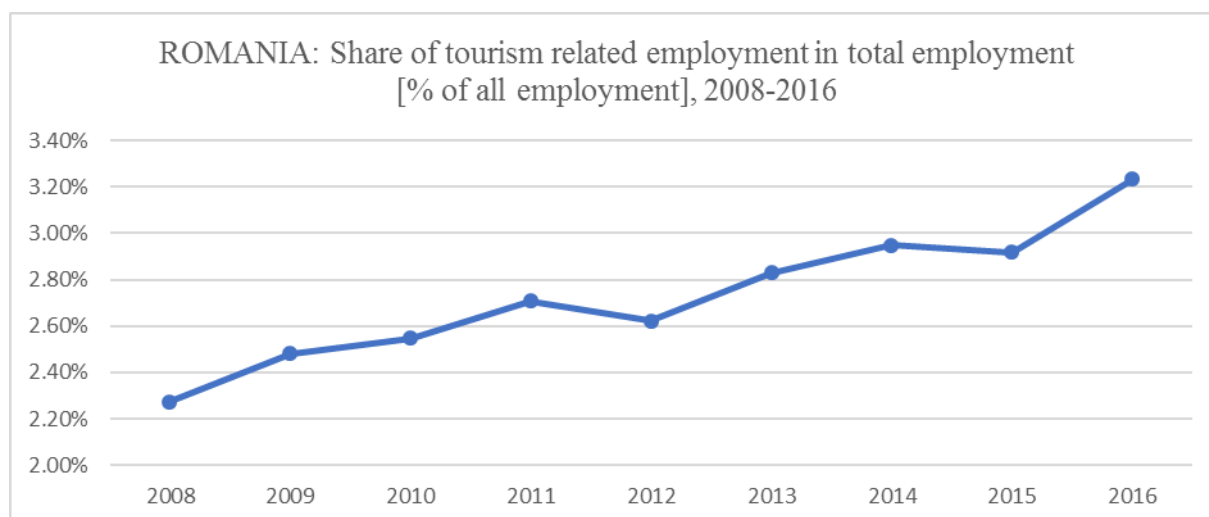
Description

This indicator refers to the share of employees working in tourism related employment to total employment. This data collection covers all main labour market characteristics, i.e. the total population, activity and activity rates, employment, employment rates, self employed, employees, temporary employment, full-time and part-time employment, population in employment having a second job, working time, total unemployment and inactivity, by NACE activities corresponding to Tourism-related activities.

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT -Web link and definition
Key statistical data used	Data from both INSSE TEMPO and EUROSTAT has been analyzed. EUROSTAT provides data on employment by detailed economic activity related to tourism (NACE Rev.2 H51, I, I55 and N79), thus allowing for a more detailed analysis on the tourism related employment in total employment; INSSE provides employment data at the level of an entire sector of economic activity (e.g. H Transportation and storage), which does not allow for a breakdown of the employment to more detailed economic activities related almost entirely to the tourism industry (e.g. Air transport); The present indicator uses data from EUROSTAT as primary source for the CO-TAMP, at national level. Data used from the EUROSTAT 1. tour_lfs1r2 – Employed persons by full-time/part-time activity and NACE Rev. 2 activity Indicator tour_lfs1r2 contains comparable information on the total number of employed persons in tourism related economic

	sectors of NACE Rev. 2 - **H51) Air transport, I) Accommodation and food service activities, I55) Accommodation, N79) Travel agency, tour operator reservation service and related activities**
Spatial level	National Level
Data completeness	Dataset complete for 2008-2016 (EUROSTAT)
Policy/goals	This indicator offers relevant information for policy design and implementation related to smart specialization and tourism. The importance of employment in tourism are: - continuous growth of tourism in the last decades - importance of economic contribution of tourism to national economies (TSA) - general recognition of tourism as a major job generator, especially for youth, women, unqualified workers, etc.
Contact person if available	On behalf of the ATTRACTIVE DANUBE partner: Sabina Leopa, e-mail: sabina.leopa@urbasofia.eu
Conditions of use	indicators available for download

Interesting facts about specific indicator:

While tourism-related employment is still relatively low in Romania, tourism is a clearly growing trend, with employment rising with 1% of the total employment between 2008 and 2016.

2.18. % of GDP of foreign direct investment stock

Description

This indicator refers to the share of foreign direct investment (stock) in GDP.

Foreign direct investment (FDI) is an investment made by a resident enterprise in one economy (direct investor or parent enterprise) with the objective of establishing a lasting interest in an enterprise that is resident in an another economy (direct investment enterprise

or foreign affiliate). The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence on the management of the enterprise. The ownership of 10% or more of the voting power of a direct investment enterprise by a direct investor is evidence of such a relationship.

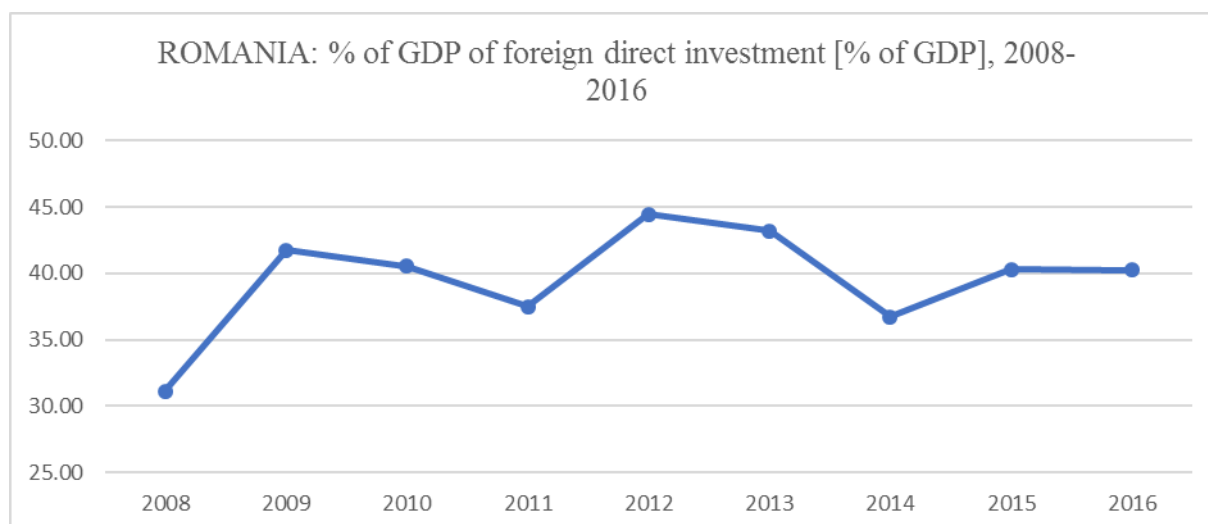*FDI flows comprise mainly three components:*

- *acquisition or disposal of equity capital. FDI includes the initial equity transaction that meets the 10% threshold and all subsequent financial transactions and positions between the direct investor and the direct investment enterprise;*
- *reinvestment of earnings which are not distributed as dividends;*
- *inter-company debt.* (Source: UNCTAD STAT)

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	EUROSTAT - Web link and definition and UNCSTAD - Web link and definition
Key statistical data used	Starting 2013, EUROSTAT uses new methodological standards for the Foreign Direct Investment statistics: Balance of Payments Manual, 6th edition (BPM6), and Benchmark Definition of FDI, 4th edition (BD4) (link) The present indicator uses data from UNCTAD as primary source for the CO-TAMP, at national level. Data used from the UNCTAD 1. Foreign direct investment: Inward and outward flows and stock, annual, 1970-2016 Data sources used to compile this indicator: - UNCTAD, Division on Investment and Enterprise, World Investment Report, Statistical Annex - UNCTAD, UNCTADstat, Total trade in goods and services - UNCTAD, UNCTADstat, Gross domestic product - UNCTAD, UNCTADstat, Total Population
Spatial level	Transnational (CO-TAMP), collection at national level
Data completeness	Dataset complete for 2008-2016 (UNCTAD STAT)
Policy/goals	Foreign direct investment (FDI) is defined as an investment involving a long-term relationship and reflecting a lasting interest in and control by a resident entity in one economy (foreign direct investor or parent enterprise) of an enterprise resident in a different economy (FDI enterprise or affiliate enterprise or foreign affiliate). Such an investment is illustrative of the attractiveness of a country for investors, either due to the financial facilities or because of strategic geographical position, low cost or high qualification of workforce.

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Conditions of use	indicators available for download

Interesting facts about specific indicator:

Barring a significantly lower FDI stock for the year 2008 (the year in which the economic crisis manifested itself in Europe the strongest), with certain fluctuations, the indicator shows a relatively constant stock of FDI for Romania. The relatively high value (40%) is indicative of a high attractiveness for investing (mainly due to low labor cost, still) and a relatively weak or uncompetitive native investment stock.

ROMANIA: % of GDP of foreign direct investment [% of GDP], 2008-2016

2.19. Population growth rate

Description

The indicator corresponds to the number of births and deaths during the certain period and the number of people migrating to (immigration) and from (emigration) a country.
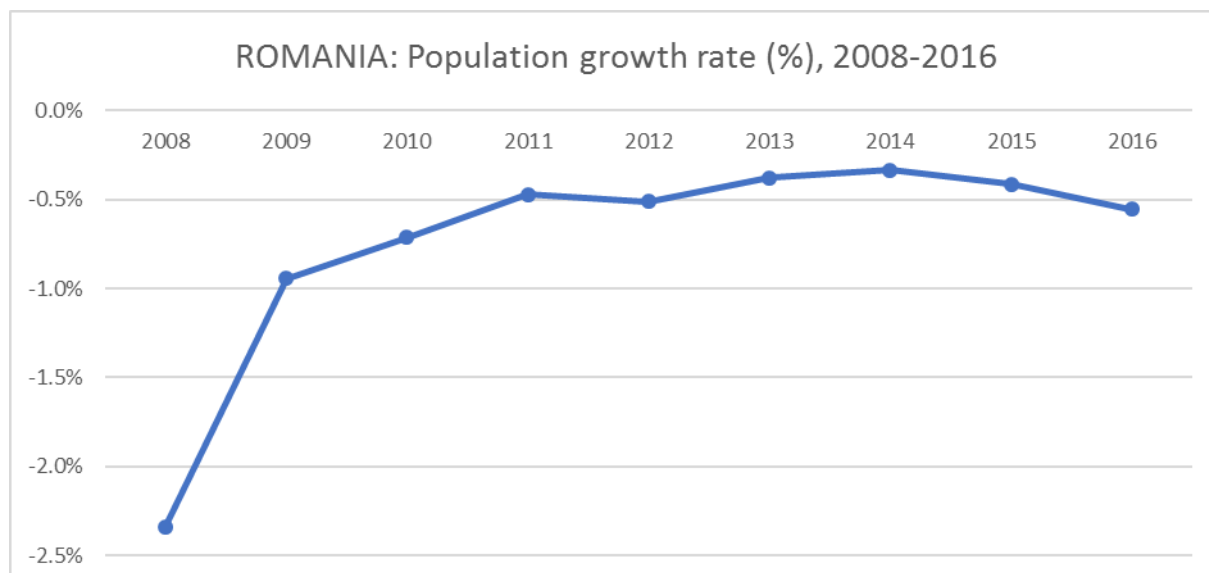
Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at county level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition, World Bank -Web link and definition
Key statistical data used	The data computed from INSSE TEMPO and EUROSTAT is identical, but the data from World Bank presents quite large differences (in some cases up to 0.6% difference). Due to the necessity of national and regional consistency for Romania, the dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. POP105A - Resident population by age group and ages, sex, urban/ rural area, macroregions, development regions and

	counties at January 1st. Indicator POP105A is collected by retrieving data from other statistical results, half-yearly, at the level of the whole population and through demographic events.
Spatial level	National Level, County Level
Data completeness	Dataset complete for 2008-2016 (INSSE TEMPO)
Policy/goals	Population growth rate is a measure of change of population of a certain area. The rate of population growth is identified by Agenda 21 of the United Nations as one of the crucial factors affecting long-term sustainability of natural resources. Rapid population growth can impose limitations on a country's capacity for handling a wide range of economic, social, and environmental issues, particularly when rapid population growth occurs in connection with poverty and lack of access to natural resources.
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Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The population of Romania witnesses a slow but stable decline, around the value of -0.5% per annum. The negative peak has been recorded for the year 2008, mostly due to external migration for economic purposes.
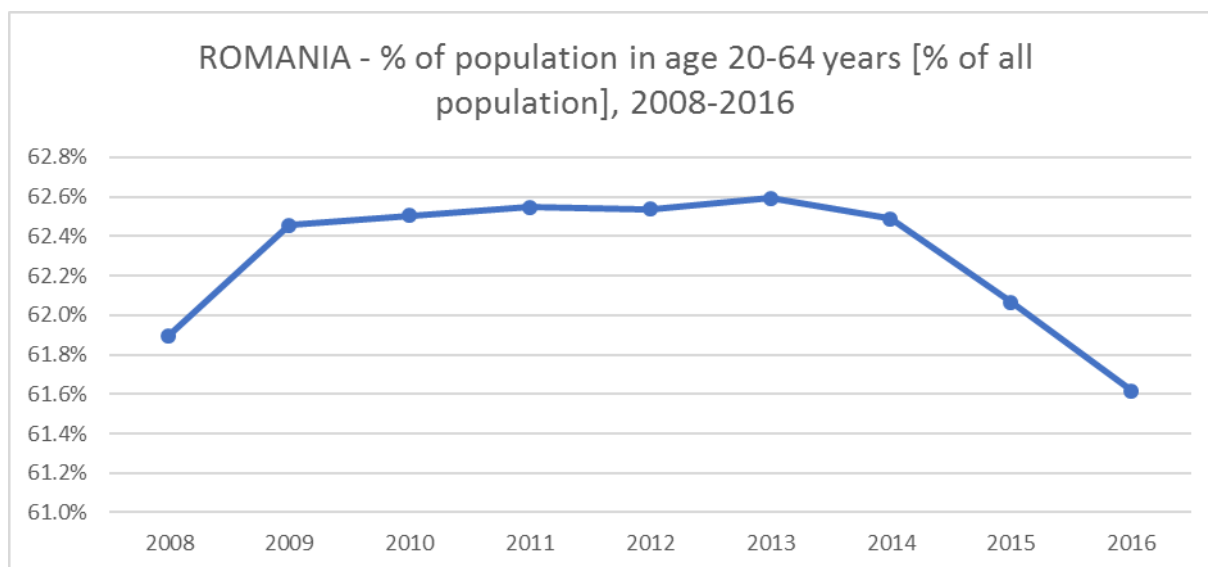

ROMANIA: Population growth rate (%), 2008-2016

2.20.   % of population in age 20-64 years

Description

This indicator refers to the share of persons aged 20-64 to total population.

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at county level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition
Key statistical data used	The data computed from INSSE TEMPO and EUROSTAT is identical. Due to the necessity of national and regional consistency for Romania, the dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. POP105A - Resident population by age group and ages, sex, urban/ rural area, macroregions, development regions and counties at January 1st. Indicator POP105A is collected by retrieving data from other statistical results, half-yearly, at the level of the whole population and through demographic events.
Spatial level	National Level, County Level
Data completeness	Dataset complete for 2008-2016 (INSSE TEMPO)
Policy/goals	This indicator measures working age persons out of total population. Together with the indicator for employment rate, it is the most accurate measure of labour market conditions. However, it is to note that for Romania, the active population is considered to be 15 years and older, and this indicator disregards potentially employable population of 15-19 years. Europe 2020 headline target is that 75 % of population aged 20-64 should be employed by 2020.
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Conditions of use	Indicators available for download

Interesting facts about specific indicator:

Romania has a fairly large active population basis, mostly due to a high birth rate in the period 1966 – 1989 (the so-called Children of the 660 Decree, which was banning pregnancy termination in Romania). However, as the older workforce retires, due to a negative natural population growth rate, the trend is for the % of population aged 20-64 to decrease.

ROMANIA - % of population in age 20-64 years [% of all population], 2008-2016

2.21.   Ageing index

Description

This indicator presents the ratio between the number of the population aged 65 years and above, and the number of population aged 15 years and below.

The indicator is calculated from the permanent resident population, which represents the number of persons with Romanian citizenship and permanent residence on the territory of Romania, delimited by territorial-administrative criteria.

The person's permanent residence is the address where he/she declares to have the main dwelling, printed as such on its identity card and registered by the administrative bodies of the State.
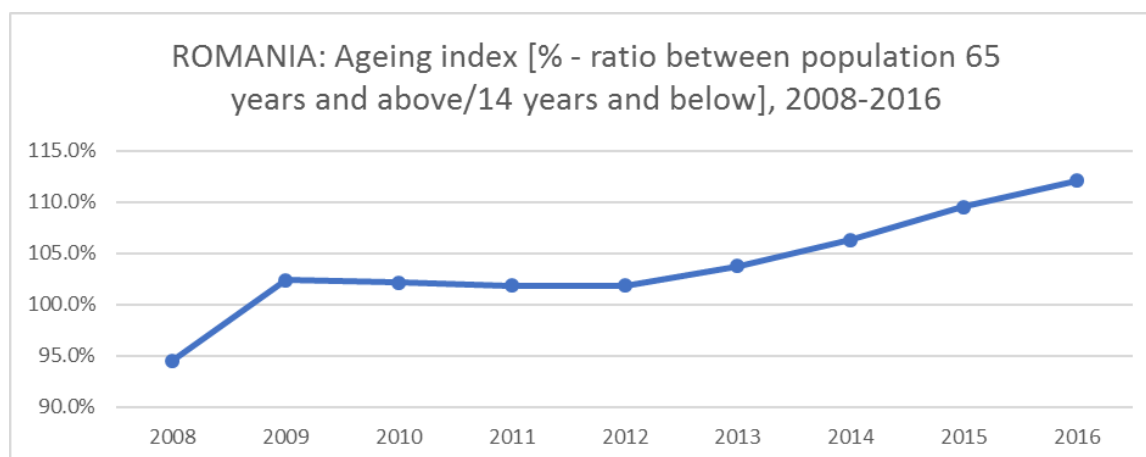
To set up the value of this indicator, the usual residence is not taken into account as well as the period and/or reason of absence from domicile. (Source: INSSE TEMPO)

Type of indicator	Transnational (CO-TAMP), collection at national level National (TAMP), collection at county
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition, World Bank - Web link and definition
Key statistical data used	The data computed from INSSE TEMPO and EUROSTAT is identical. Notable differences have been encountered when comparing with the World Bank data (up to 5% for 2008). Due to the necessity of national and regional consistency for Romania, the dataset in the Atlas is corresponding to the INSSE TEMPO data. Data used from the INSSE TEMPO: 1. POP107D - PERMANENT RESIDENT POPULATION, by counties, localities, age group and sex, at January 1st.

	Indicator POP107D is collected by retrieving data from other statistical results, half-yearly at Jan 1st and July 1st, at the level of the whole population through special processing of statistical data from various surveyss.
Spatial level	National Level, County Level
Data completeness	Dataset complete for 2008-2016 (INSSE TEMPO)
Policy/goals	This indicator illustrates the rate of aging of the population and as such is useful for the development of a number of policies with strong impact on the population and economy; among these the Active Aging and Healthy Aging policies. It also represents an instrument to monitor and assess several social policies, capacity and priorities to sustain the pension system, etc.
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Conditions of use	Indicators available for download

Interesting facts about specific indicator:

The aging index for Romania is well over the 100% mark with an accentuated growing trend, which represents an important policy challenge and raises concerns with respect to the possibility of sustaining the current social and welfare system unchanged. A raising aging index also indicates that a big priority of the future will be to address active and healthy aging.

ROMANIA: Ageing index [% - ratio between population 65 years and above/14 years and below], 2008-2016

2.22.   Number of foreign students

Description

The indicator refers to the percentage of students enrolled in tertiary education in Romania which represent foreign students, as share of the total students enrolled in tertiary education. Foreign students represent students who have crossed a national or territorial border for the purpose of education and are now enrolled outside their country of origin.

Type of indicator	Transnational (CO-TAMP), collection at national level
Annual range	2008/2021
Data source for indicator	Institutul Național de Statistică (INSSE TEMPO) - Web link and definition, EUROSTAT - Web link and definition, UNESCO UIS - Web link and definition, Web link and definition
Key statistical data used	There is no national data (from INSSE TEMPO) pertaining to the number of foreign students enrolled in tertiary education, only the number of Students and course atendees enrolled in tertiary education. From EUROSTAT, the indicator Share of mobile students from abroad by education level is inconsistent and presents data only for 2013-2015. Reliable data was found in the UNESCO Institute for Statistics (UIS) database, for: - Enrolment in tertiary education, all programmes, both sexes (number) - Inbound internationally mobile students by continent of origin Data is presented at national level.
Spatial level	National Level
Data completeness	Dataset complete for 2008-2015 except for the year 2012, data for 2016 not available yet (UNESCO UIS)
Policy/goals	This indicator illustrates the attractiveness of the tertiary education at national level and its capacity to attract foreign youth, which in turn have the potential of remaining in the country. A higher share of foreign students illustrates international confirmation for the higher education system; the indicator can assist the development of education policies, and to monitor education performance.
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Conditions of use	*indicators available for view/ available for download*

Interesting facts about specific indicator:

The data for Romania illustrates an ascending trend for the number of foreign students, as share of total students in Romania, with a maximum value of 3.7% registered in 2015.

ROMANIA: % of foreign students [% of total students], 2008-2016