Numbers in/for Policy Making: Uses and Abuses

Science, Numbers and Politics, European Parliament Workshop, 20-21 May 2019

Åsa Önnerfors,
Eurostat

What is Eurostat?

Did you know?
The first statistical office in the world was created in Sweden in **1749**.

The statistical office of the European Union

Director General: Mariana Kotzeva

National statistical institutes + Eurostat = European Statistical System (ESS)

What is Eurostat?

Did you know?
Eurostat was created as a part of the European Coal and Steel Community in **1953**.

A part of the European Commission

Commissioner: Marianne Thyssen

Eurostat's role is to supply statistical evidence for monitoring EU policies

Creating TRUST in official statistics?

- We need scientific and statistical data to promote evidence-based policy making.
- How can we make people trust in the facts and figures we deliver?
- Trust must be earned – we need to prove that we are **TRUSTWORTHY**!

European Statistics Code of Practice

Institutional environment

- Professional independence
- Mandate for data collection and access to data
- Adequacy of resources
- Commitment to quality
- Statistical confidentiality and data protection
- Impartiality and objectivity

Statistical processes

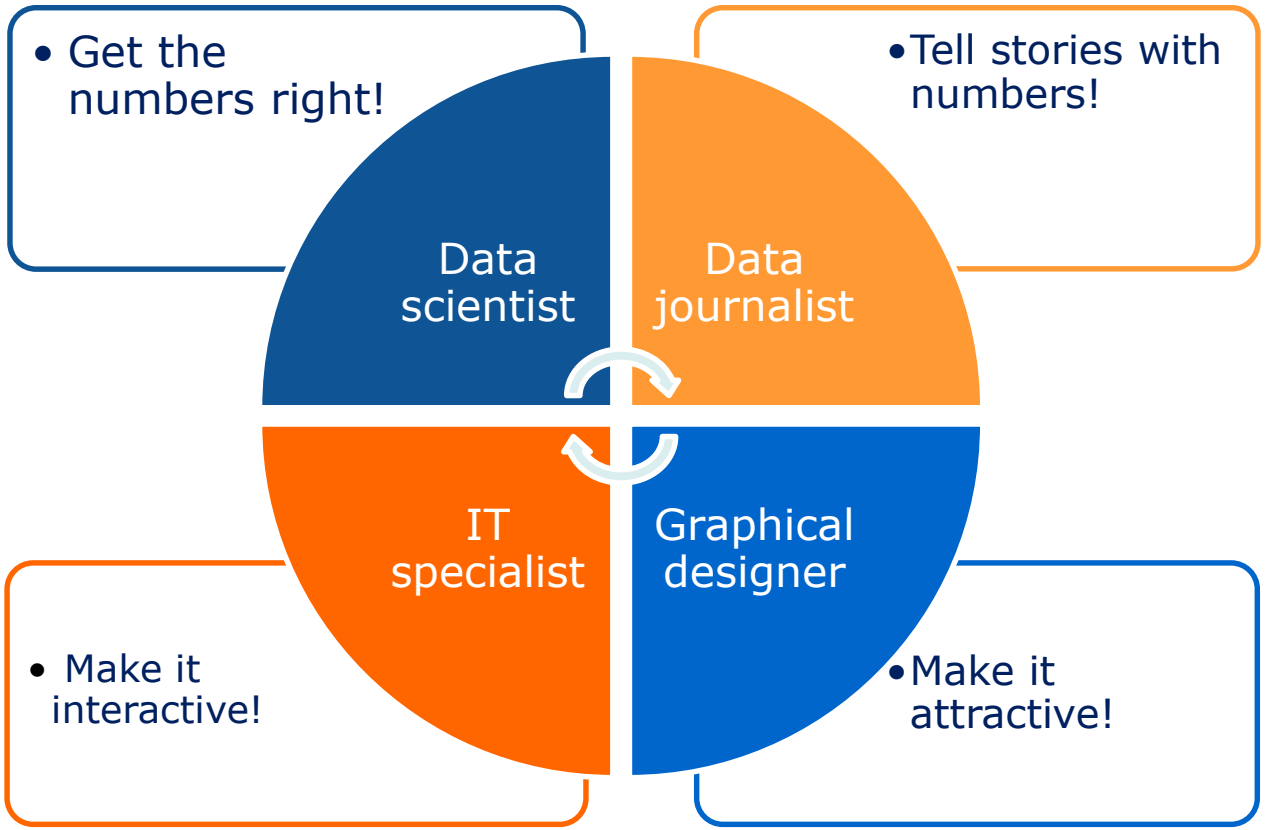
- Sound methodology
- Appropriate statistical procedures
- Non-excessive burden on respondents
- Cost effectiveness

Statistical output

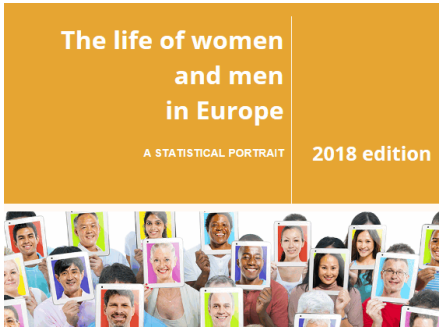
- Relevance
- Accuracy and reliability
- Timeliness and punctuality
- Coherence and comparability
- Accessibility and clarity

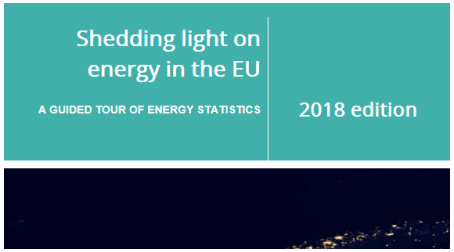
OFFICIAL STATISTICS = QUALITY

Effective data communication – which skills are needed?



Data communication tools at Eurostat



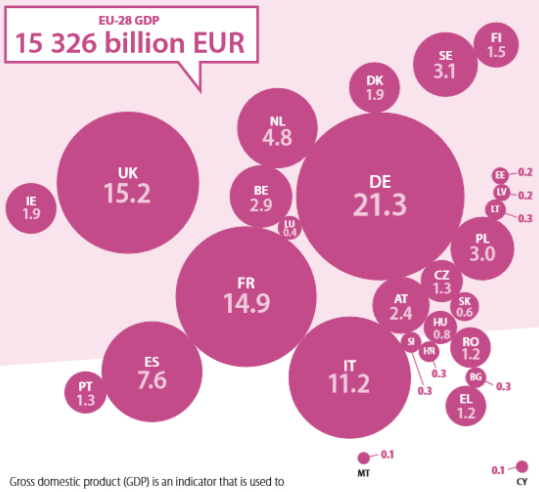


Key figures on Europe

European Commission

Economy and finance

GDP
(% share of EU-28, 2017)

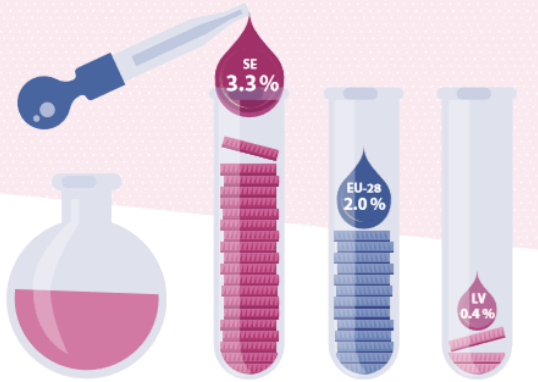


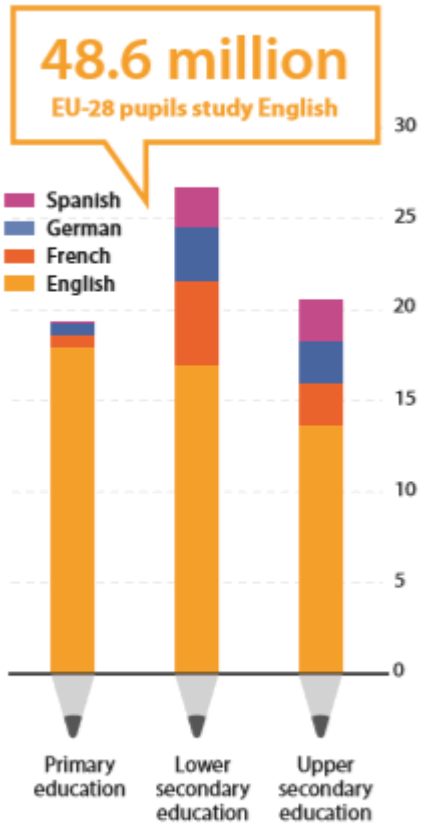
Gross domestic product (GDP) is an indicator that is used to measure the size and performance of an economy; it provides information on the goods and services produced during a given

Source: Eurostat (online data code: nama_10_gdp)

Research and development

Gross domestic expenditure on R & D
(% relative to GDP, 2016)



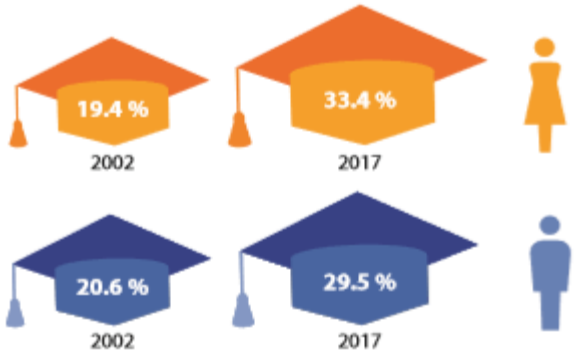


Note: a pupil/student may study more than one language (and would therefore be included more than once).

Source: Eurostat (online data code: educ_uoe_lang01)

Tertiary educational attainment

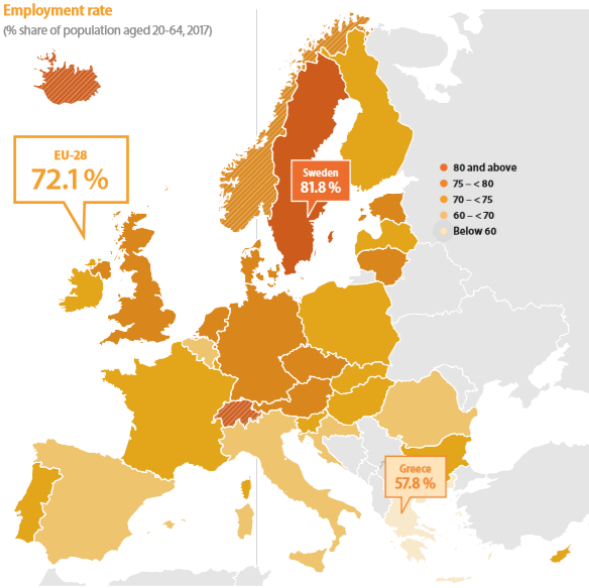
(% share of women/men aged 25-64, EU-28, 2002 and 2017)



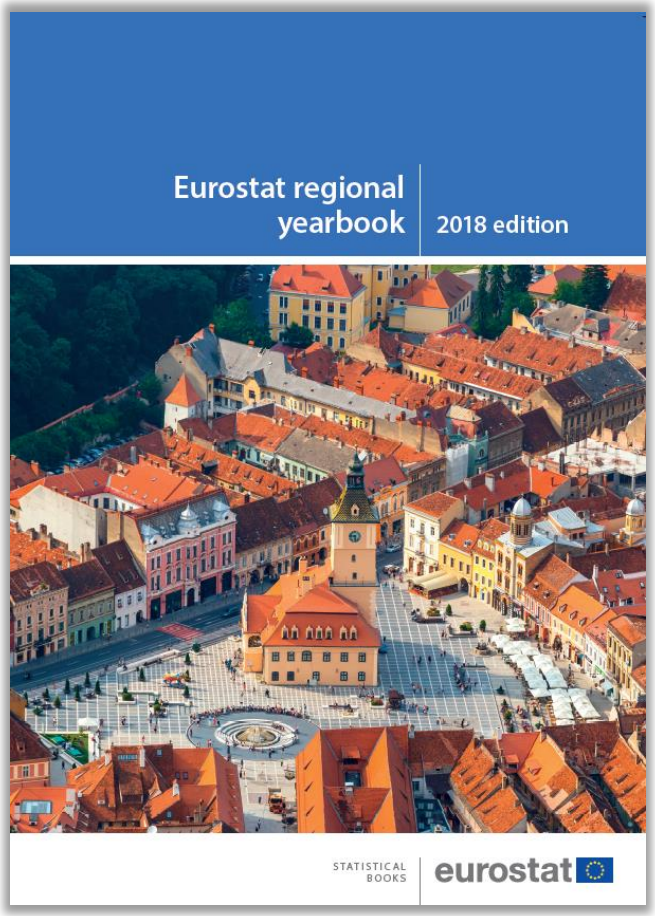
Source: Eurostat (online data code: edat_lfse_03)

Employment rate

(% share of population aged 20-64, 2017)



Eurostat data for regions and cities



Detailed report on a wide range of socio-economic indicators at regional and local level in the EU, EFTA and candidate countries.

European Commission

1 Regional policies and European Commission priorities

2 Population

3 Health

4 Education and training

5 Labour market

6 Economy

7 Structural business statistics

8 Research and innovation

9 Digital economy and society

10 Tourism

11 Transport

12 Agriculture

13 Focus on European cities

14 Focus on regional typologies

eurostat

Employment rate, by NUTS 2 regions, 2017
(%, share of population aged 20-64)

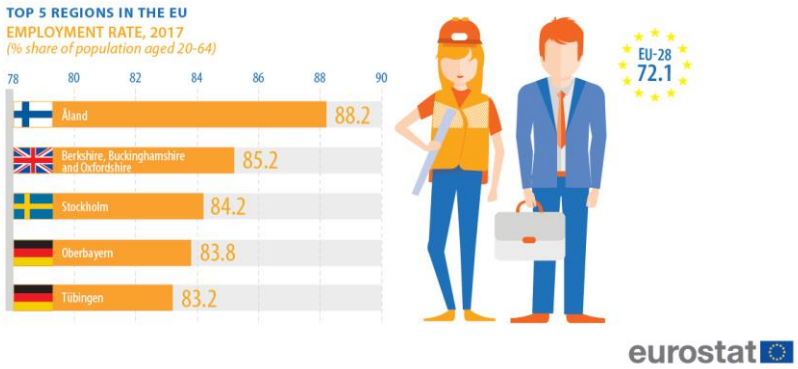
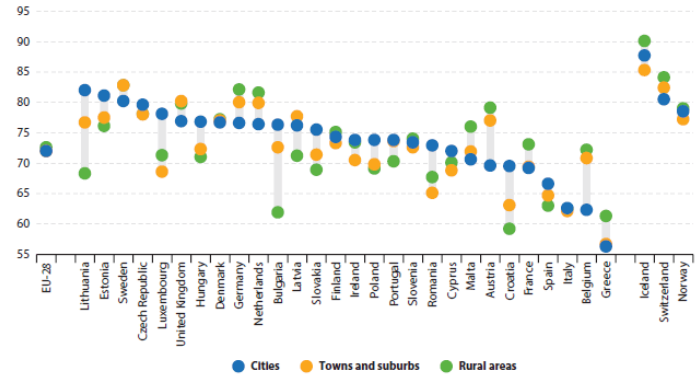
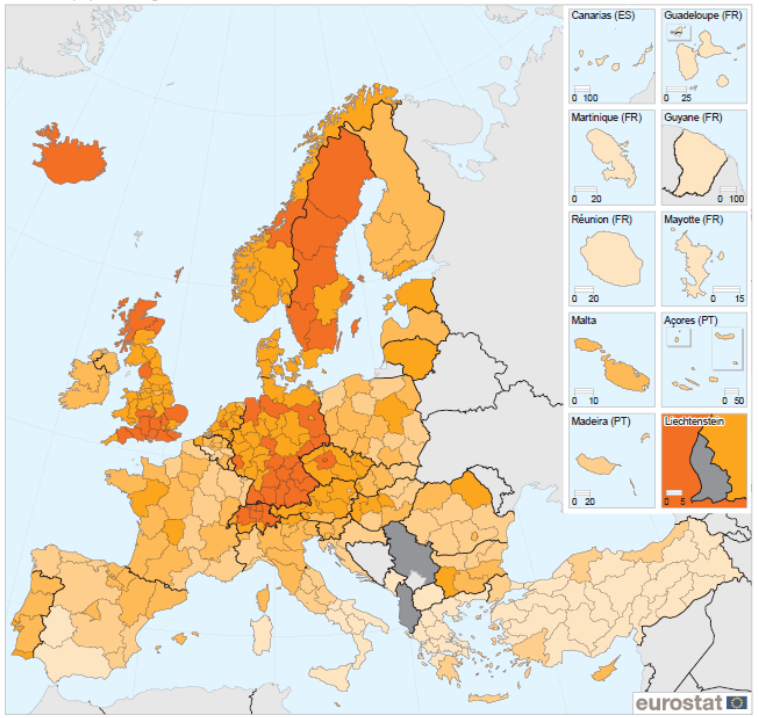


Figure 5.1: Employment rate, by degree of urbanisation, 2017
(% share of population aged 20-64)



Note: ranked on cities.
Source: Eurostat (online data code: lfst_r_ergau)

Map 5.1: Employment rate, by NUTS 2 regions, 2017
(% share of population aged 20-64)



(% share of population aged 20-64)

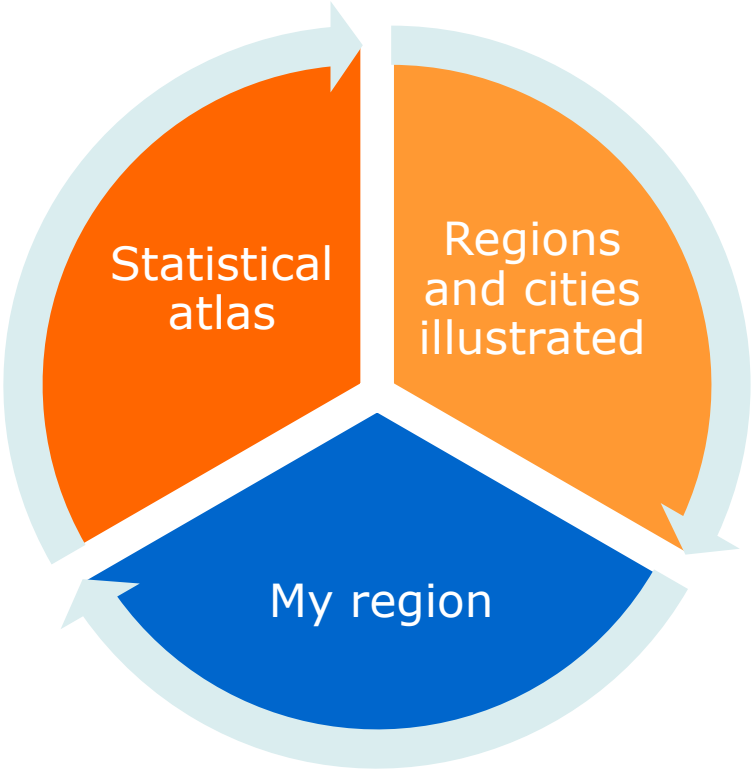
EU-28 = 72.2
< 60
60 - < 70
70 - < 75
75 - < 80
≥ 80
Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2018

0 190 380 570 760 km

Source: Eurostat (online data codes: lfst_r_lfe2emprt and lfsi_emp_a)

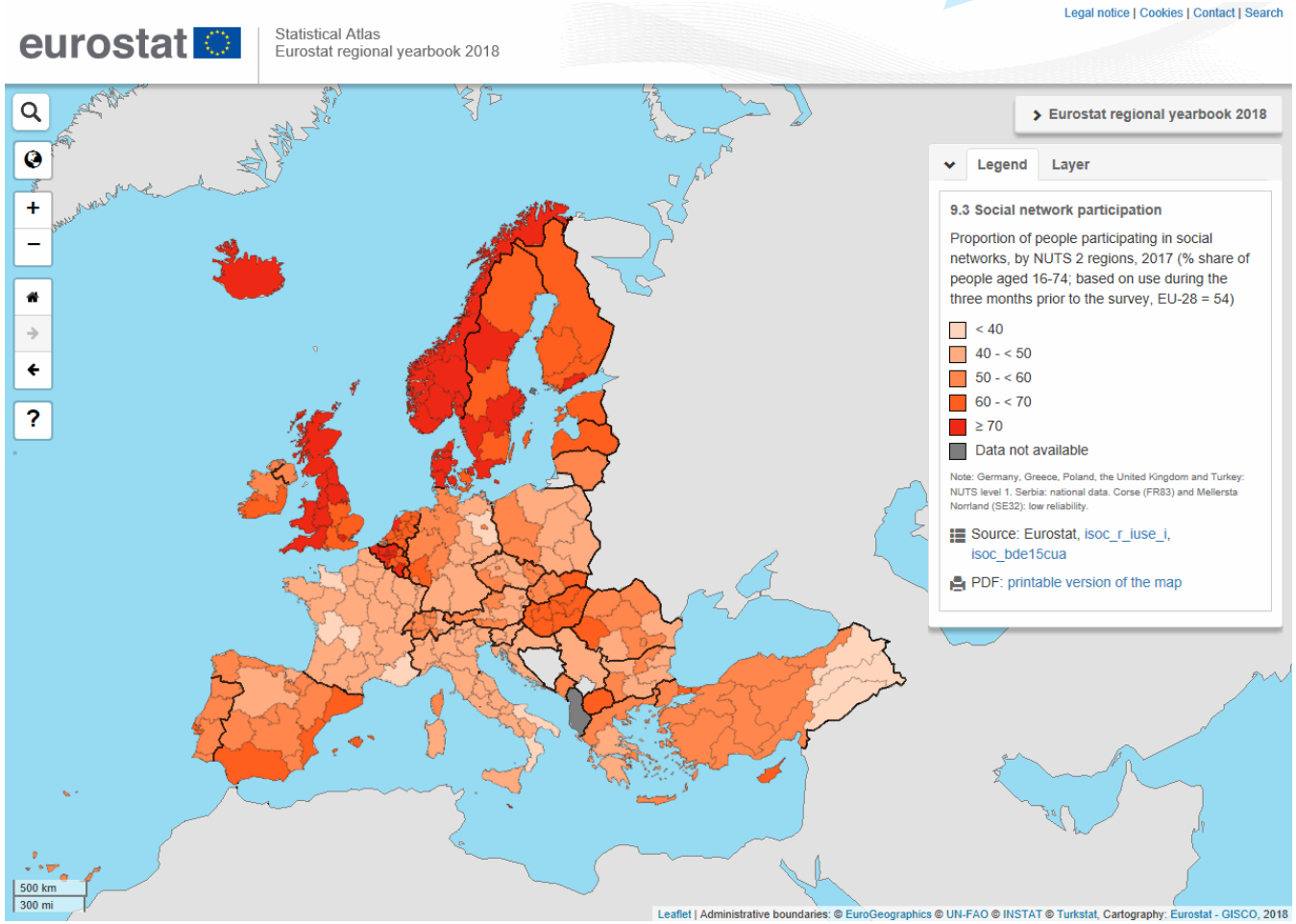
Eurostat data visualisation tools



European Commission

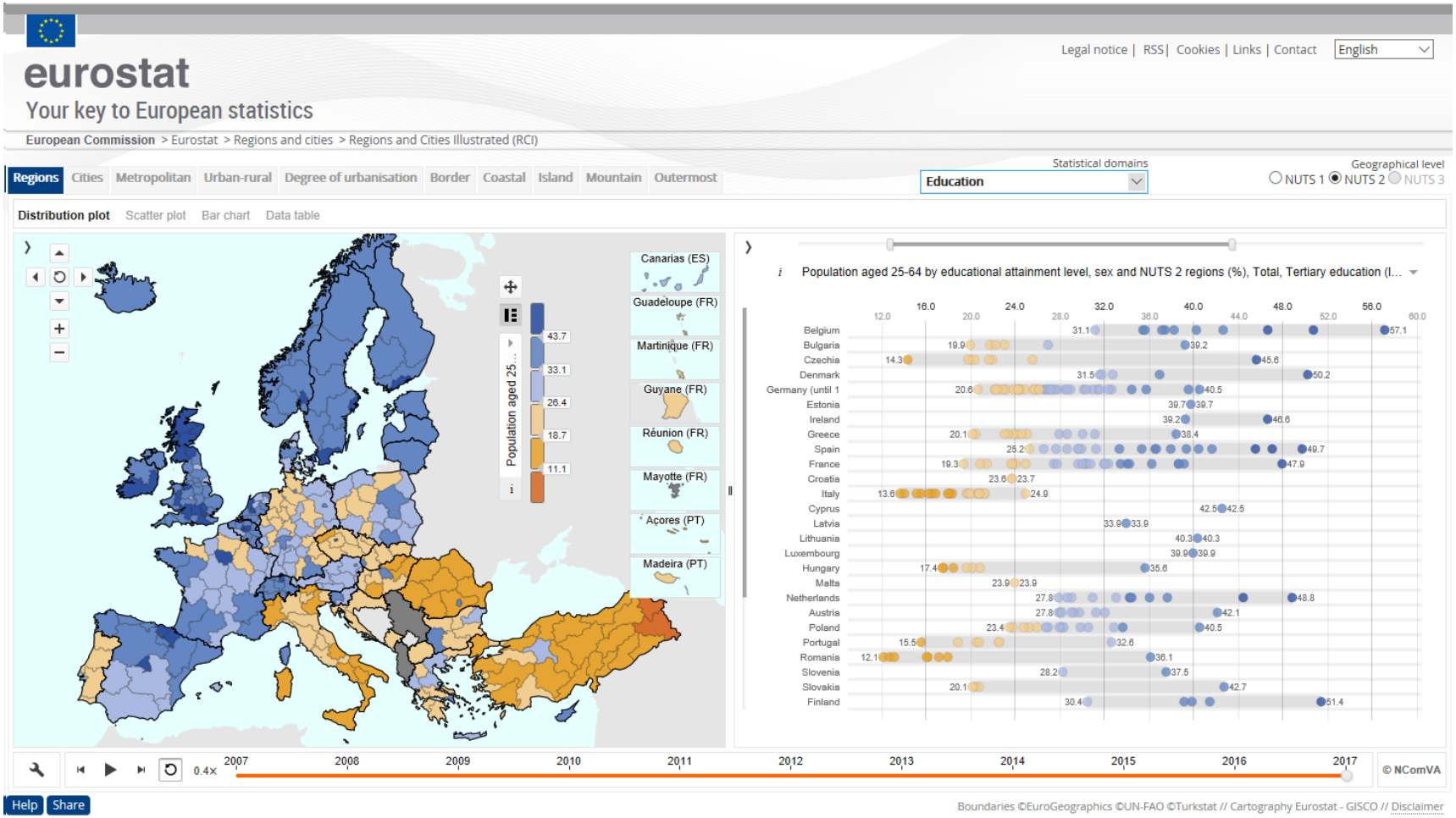
Statistical atlas

Did you know?
4 viewers in one: Regional yearbook, NUTS and territorial typologies, LUCAS and Population and housing census.



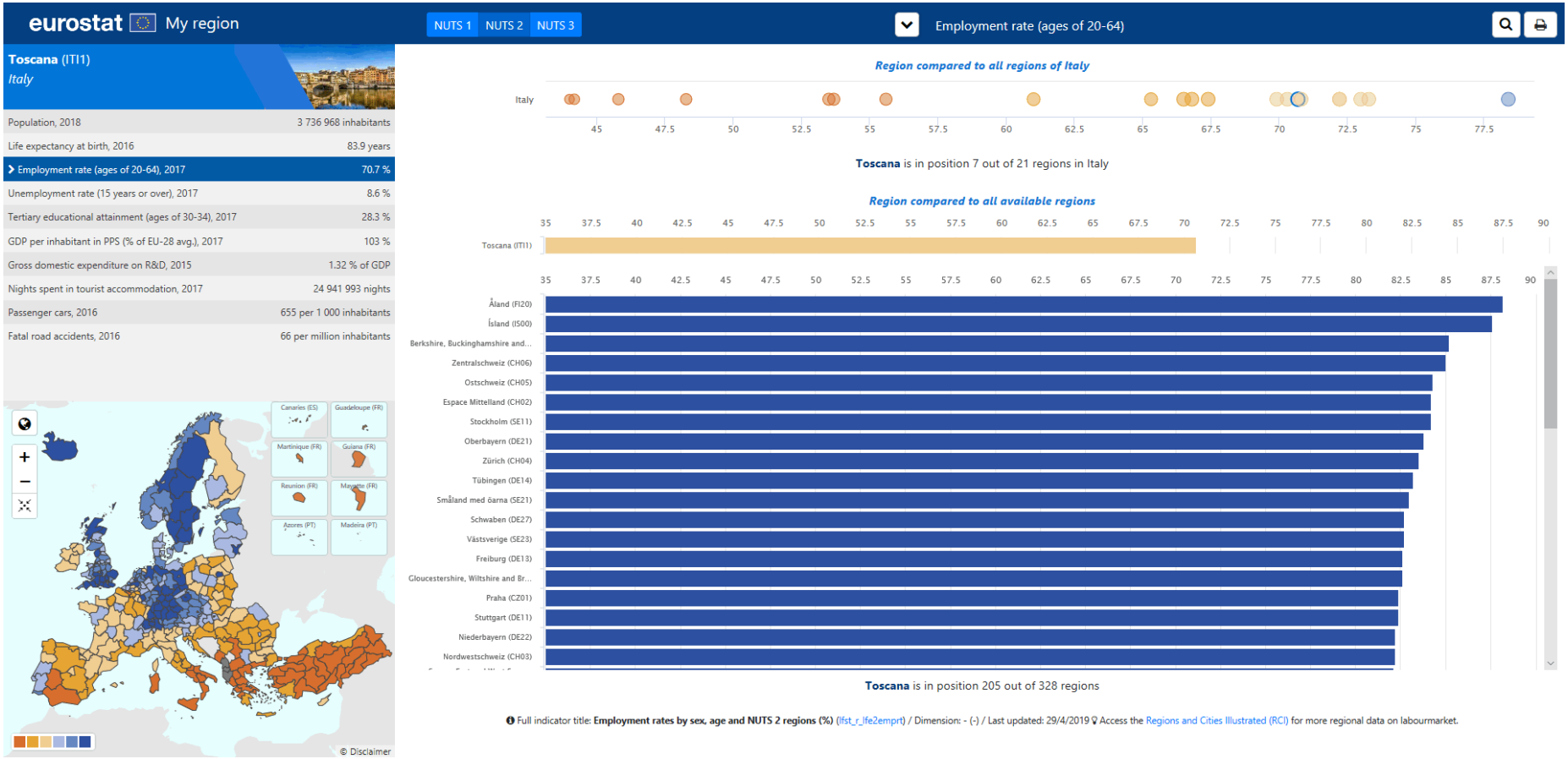
European Commission

Regions and cities illustrated



European Commission

My region



Question & Answer session:

- Best practice for creating statistical maps and graphs?
- Often misunderstood statistical indicators?
- Eurostat communication policy – still room for improvement?
- How is Eurostat defining NUTS regions, cities and territorial typologies?



Thank you for your attention!

Contact me: asa.onnerfors@ec.europa.eu



Eurostat regional yearbook: publication process

January – February:

Detailed chapter planning in close cooperation with Eurostat units.

March - April:

Downloading data from Eurobase, map and graph production. Text writing.

May - June:

Consultation on draft content, approval of online version in Statistics Explained.

July - September:

Translation, layout and printing.

September:

News release on the Eurostat website, maps released in the Statistical Atlas.

October:

Presentation at the *European week of regions and cities*.

Telling stories with numbers

Please do:

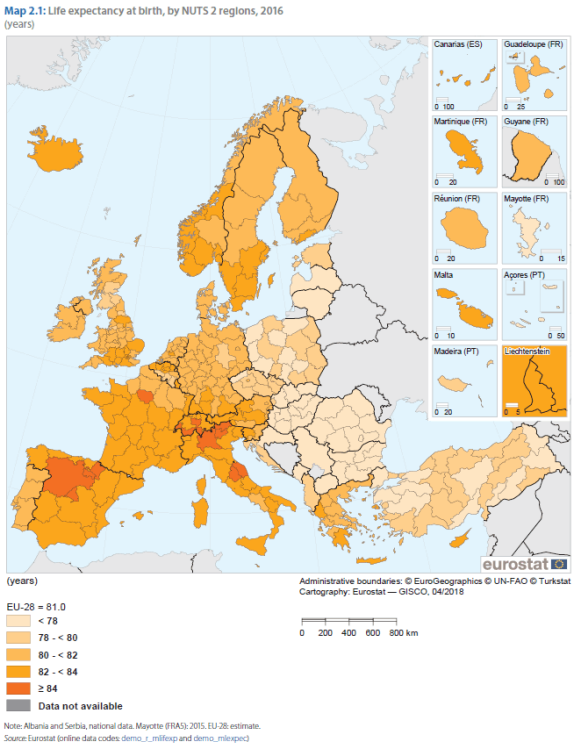
- *Use infographic icons to reinforce the topic.*
- *Include national or EU average to compare.*
- *Rank by values.*
- *Use clear labelling and annotations to explain.*

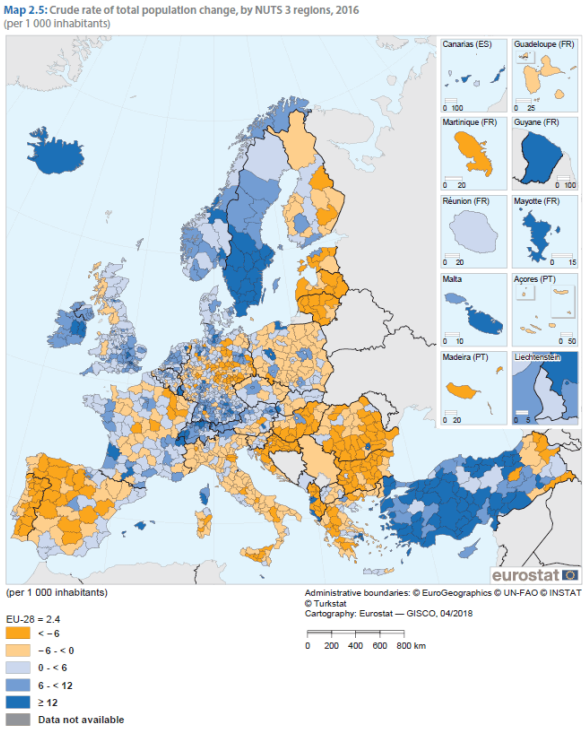
Please don't:

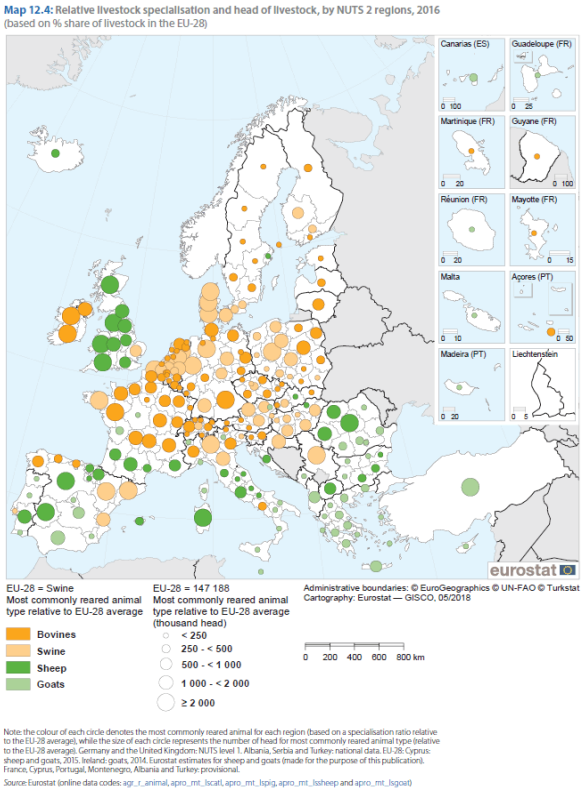
- *Overload with too much information.*
- *Don't cut the axis without indicating.*
- *Don't use abbreviations.*
- *Don't use too many colours.*

Remember: make grey your best friend.

Statistical maps, some examples:





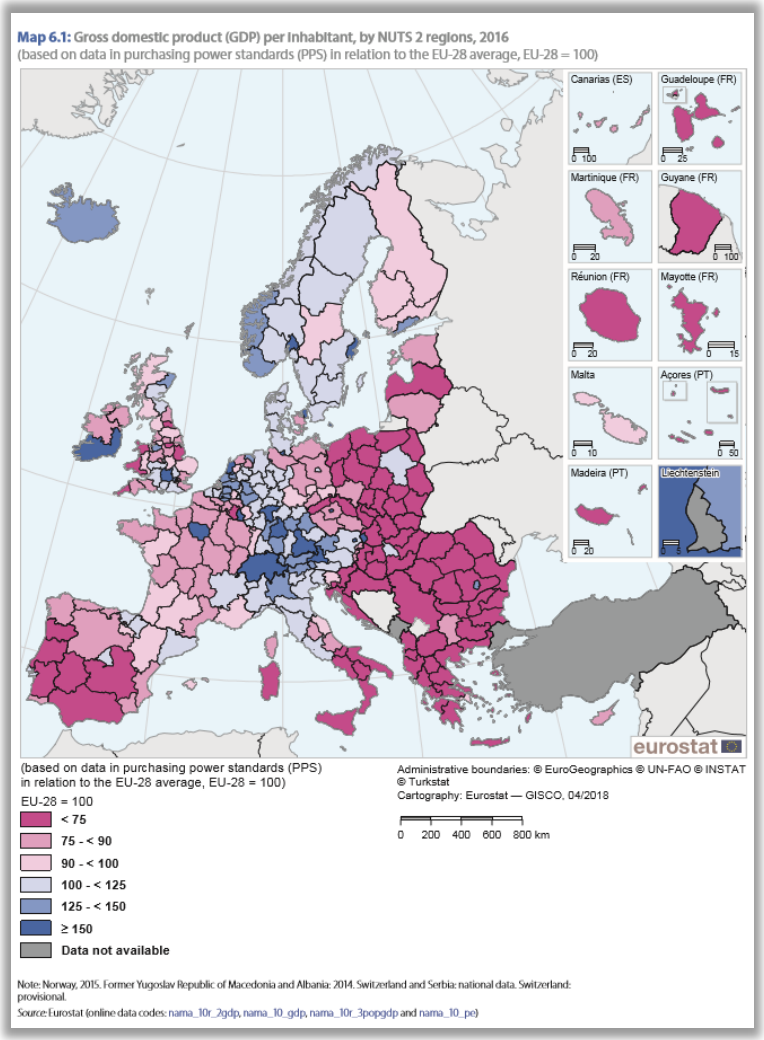


Sequential colours

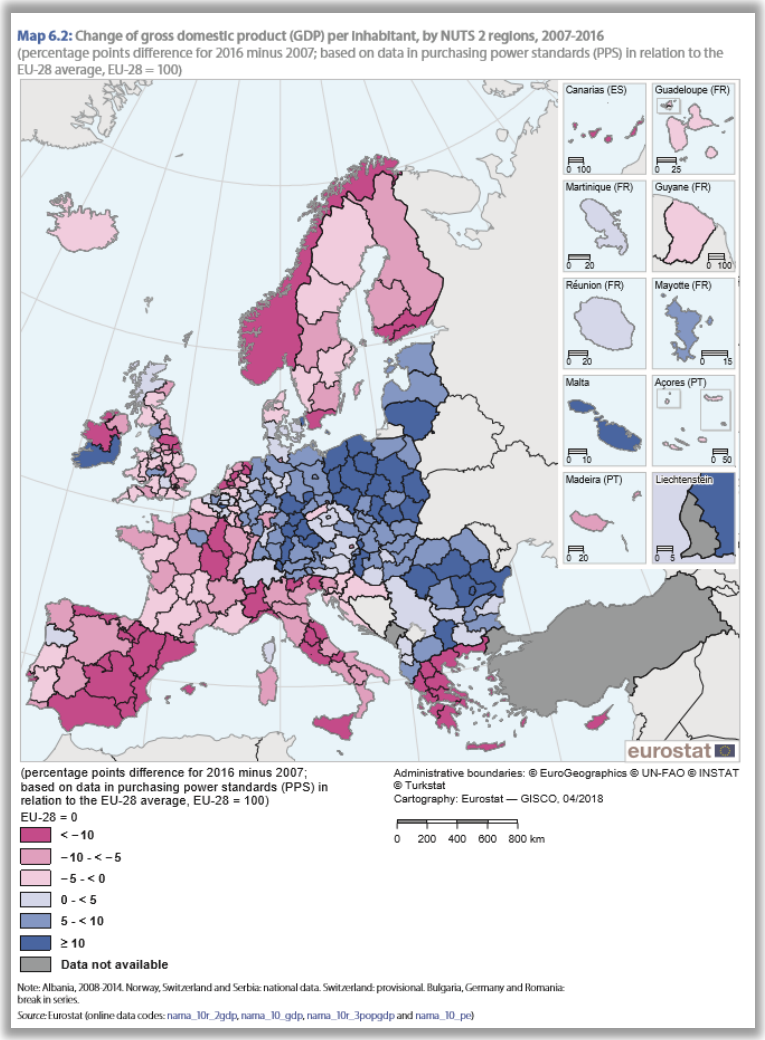
Diverging colours

Proportional circles

GDP per inhabitant, 2016

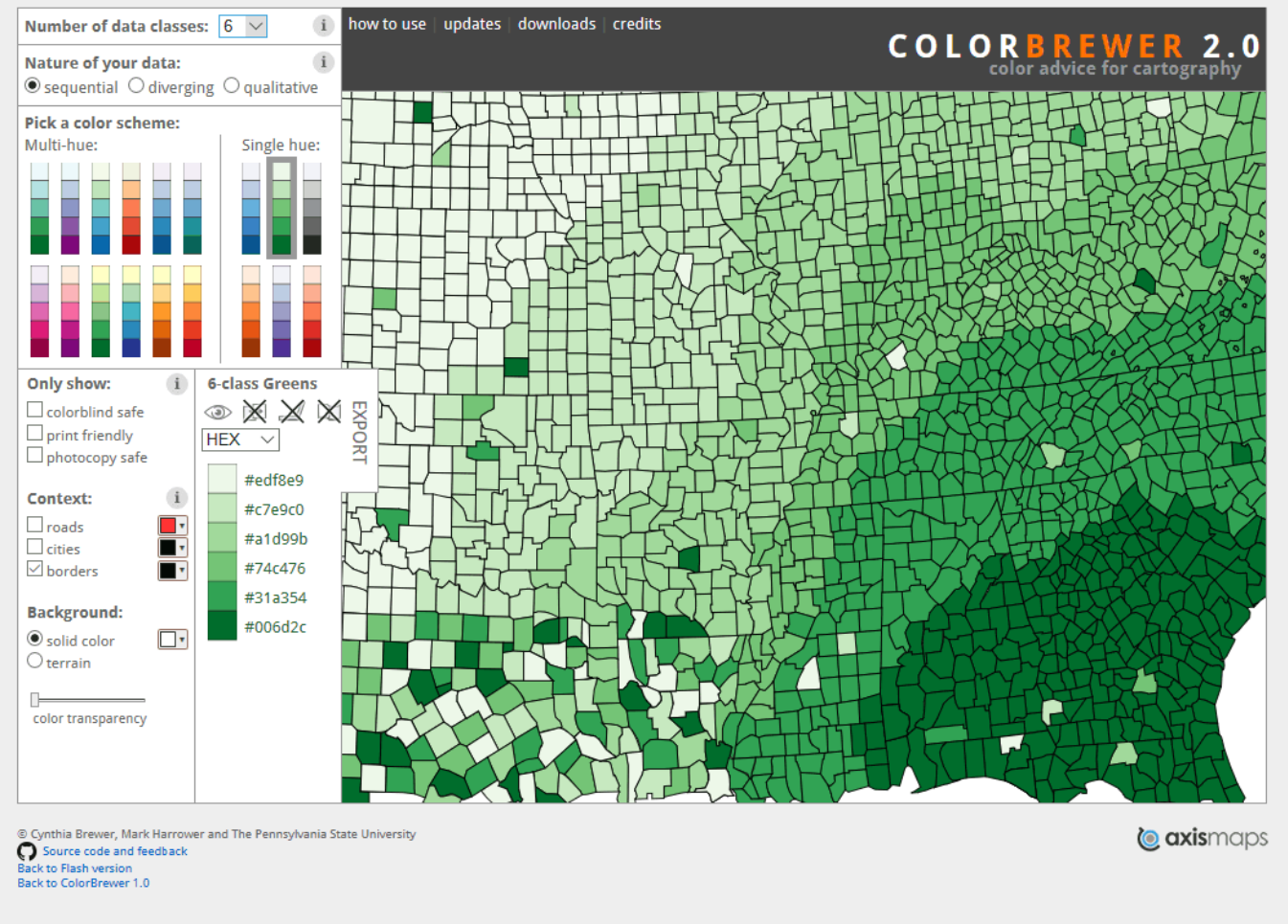


Change in GDP per inhabitant, 2007-2016

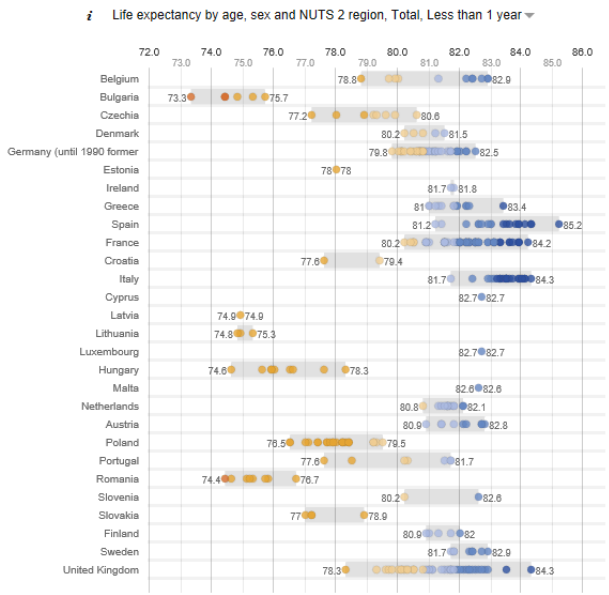


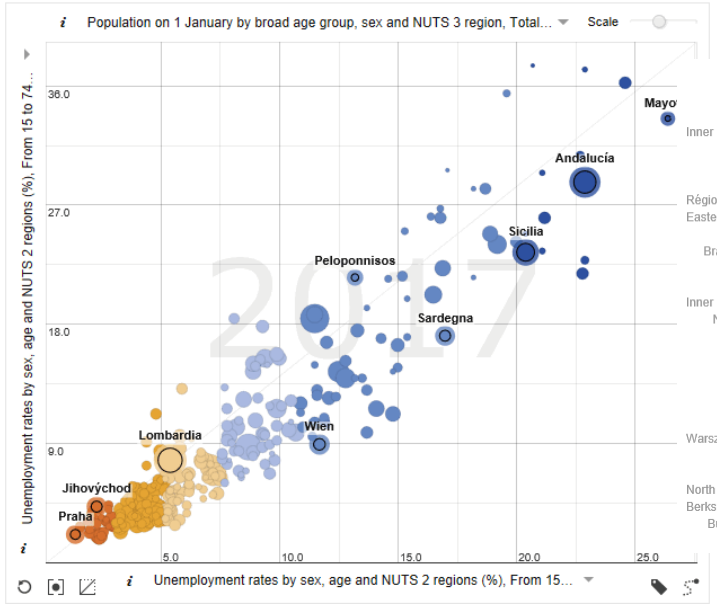
European Commission

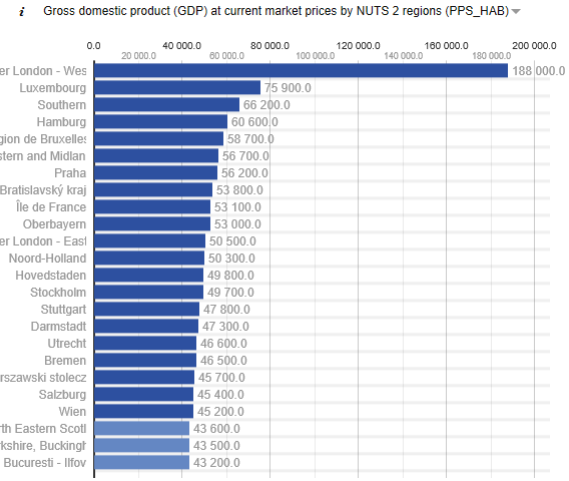
ColorBrewer: colour advice for cartography



Graphs suitable for regional datasets:







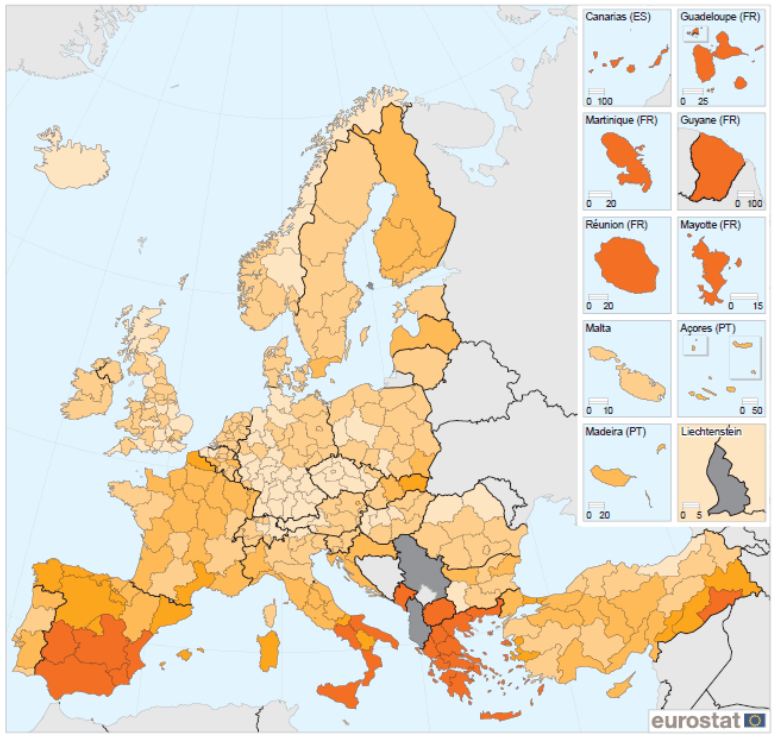
Distribution plot

Scatter plot

Bar graph ranking

Unemployment rate: often misunderstood

Map 5.3: Unemployment rate, by NUTS 2 regions, 2017
(% share of labour force aged 15-74)



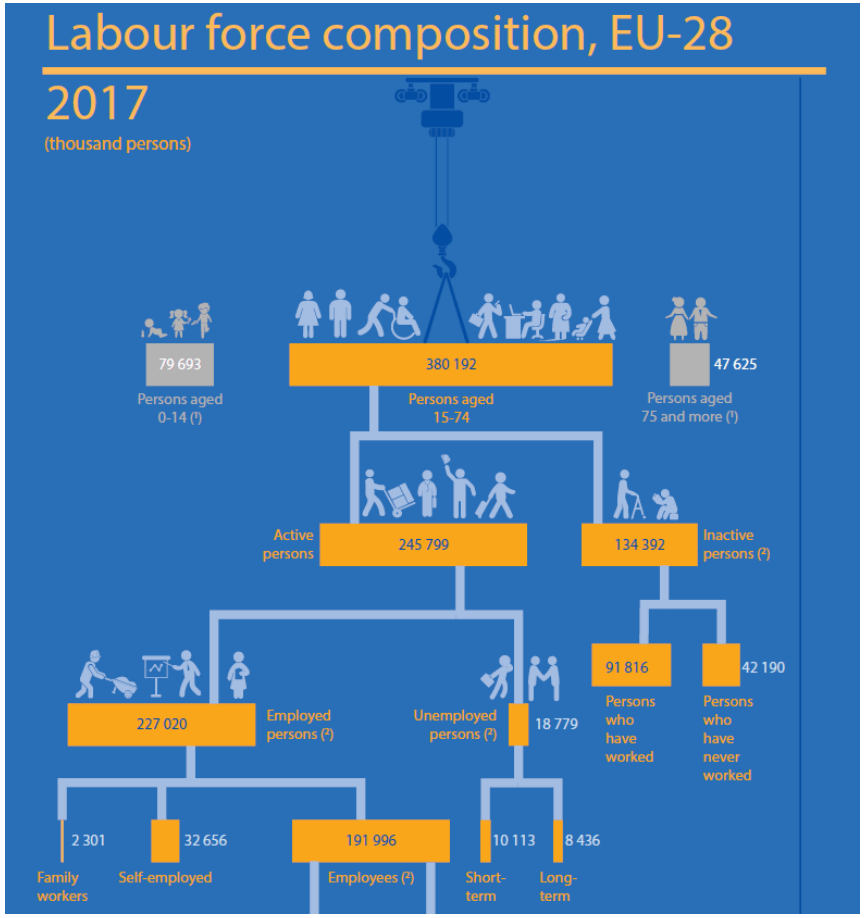
(% share of labour force aged 15-74)

EU-28 = 7.6
< 4
4 - < 8
8 - < 12
12 - < 16
≥ 16
Data not available

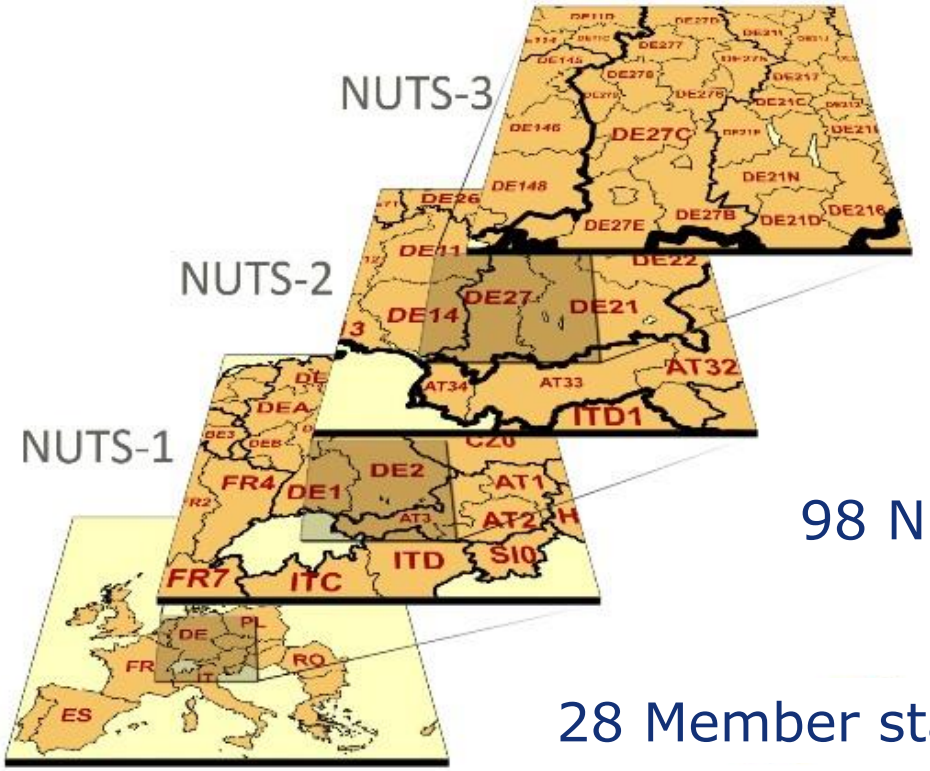
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2018

0 200 400 600 800 km

Note: Corse (FR83), Cumbria (UKD1), Cornwall and Isles of Scilly (UKK3) and Highlands and Islands (UKM6), low reliability.
Source: Eurostat (online data code: lfst_r_lfu3rt)



Nomenclature of territorial units for statistics = NUTS



1342 NUTS 3 regions

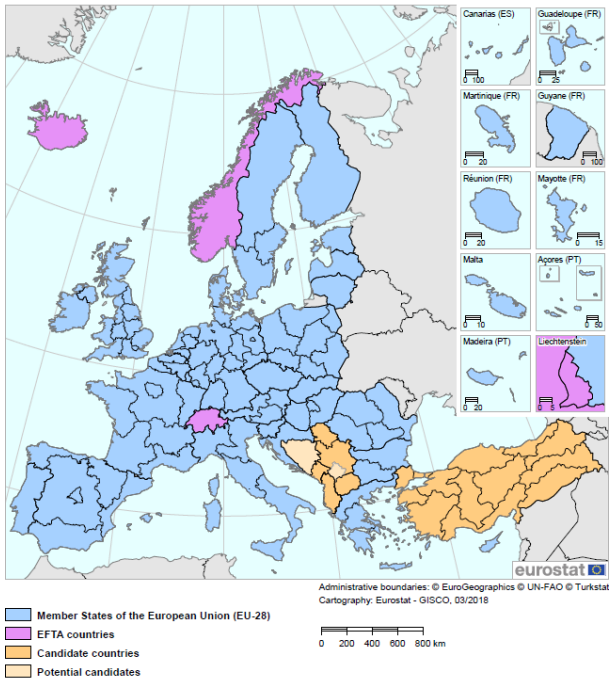
276 NUTS 2 regions

98 NUTS 1 regions

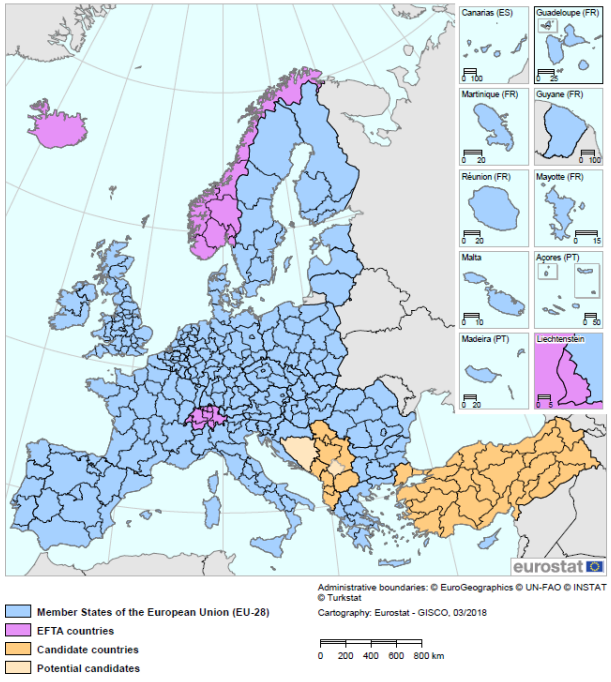
28 Member states of the EU

The NUTS classification:

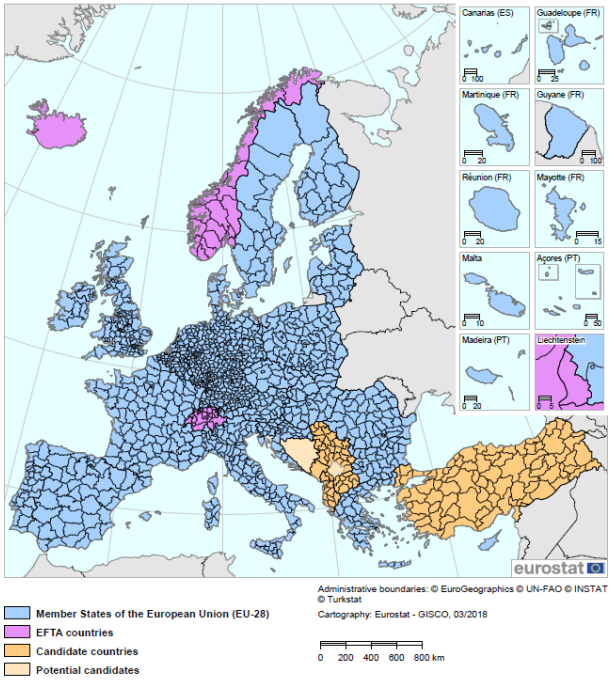
NUTS 1 regions in the European Union (EU-28), with corresponding statistical regions in EFTA countries, candidate countries and potential candidates



NUTS 2 regions in the European Union (EU-28), with corresponding statistical regions in EFTA countries, candidate countries and potential candidates



NUTS 3 regions in the European Union (EU-28), with corresponding statistical regions in EFTA countries, candidate countries and potential candidates

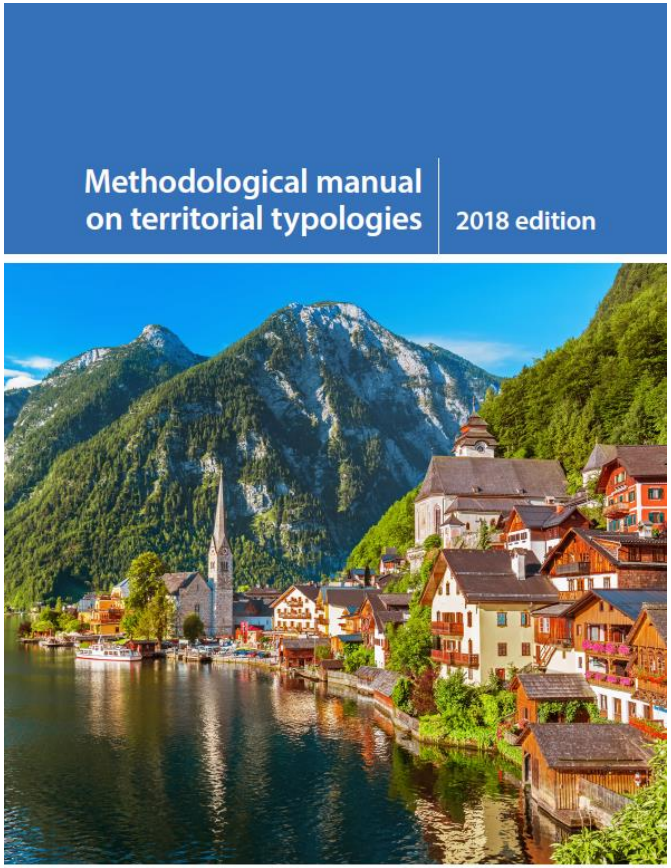


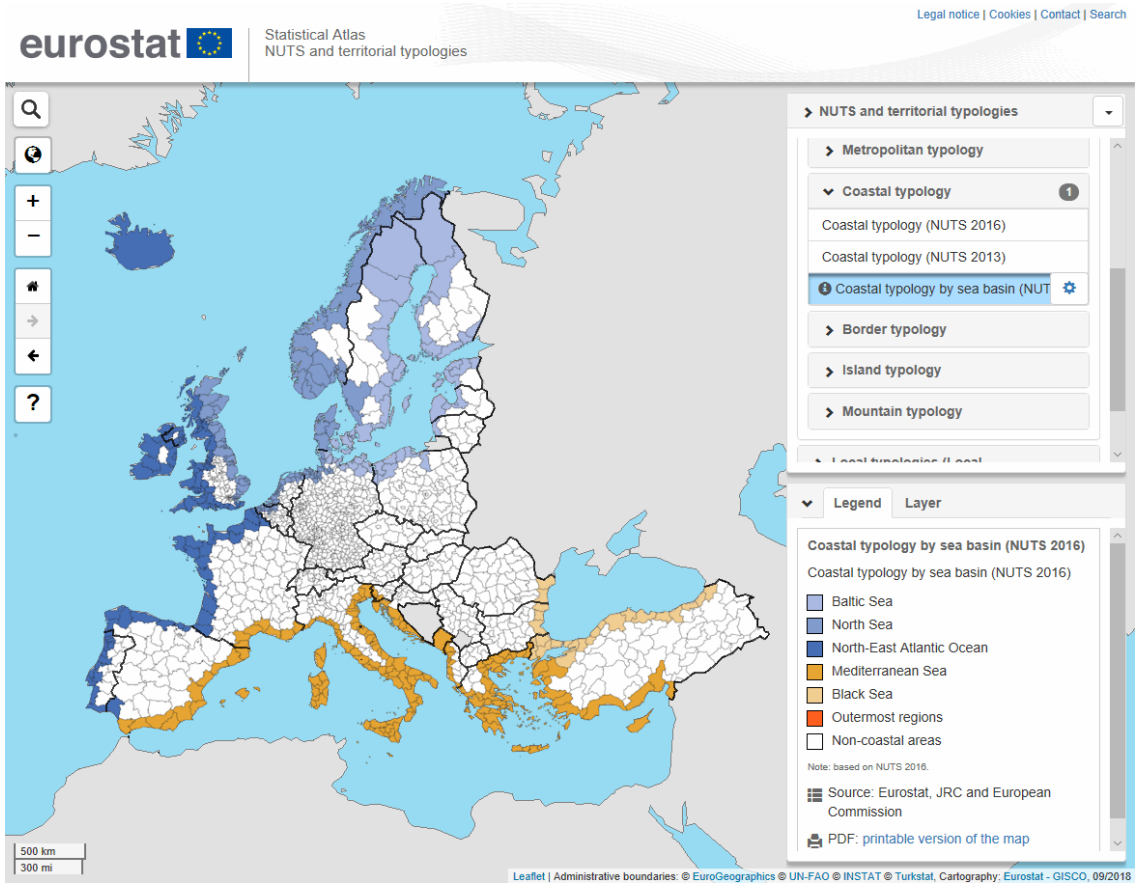
NUTS 1 regions

NUTS 2 regions

NUTS 3 regions

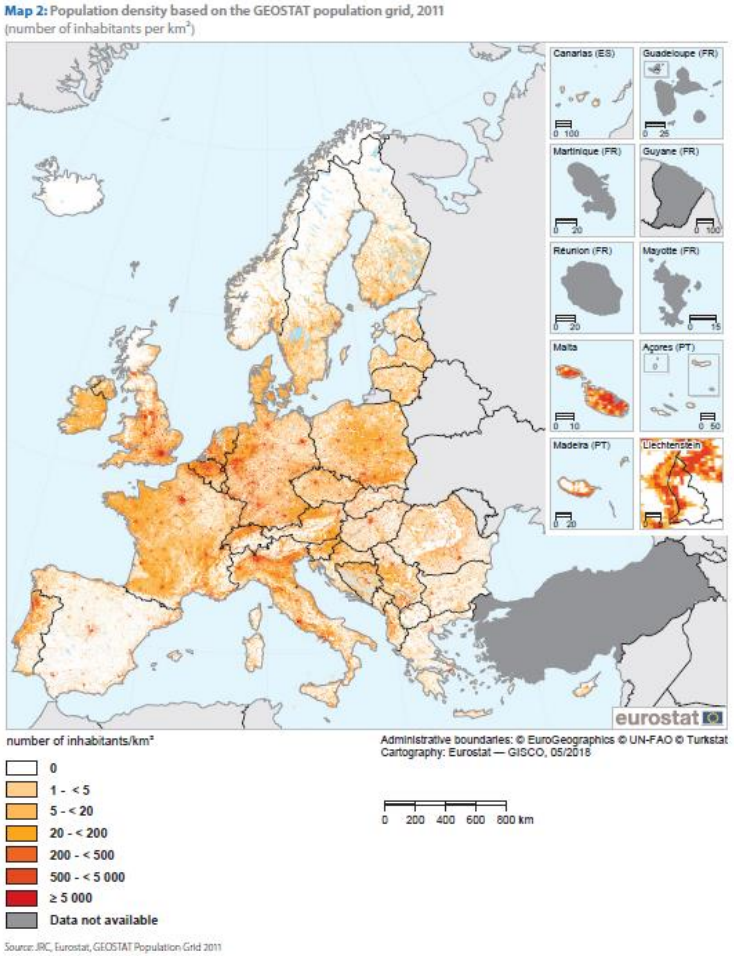
Territorial typologies: manual and viewer



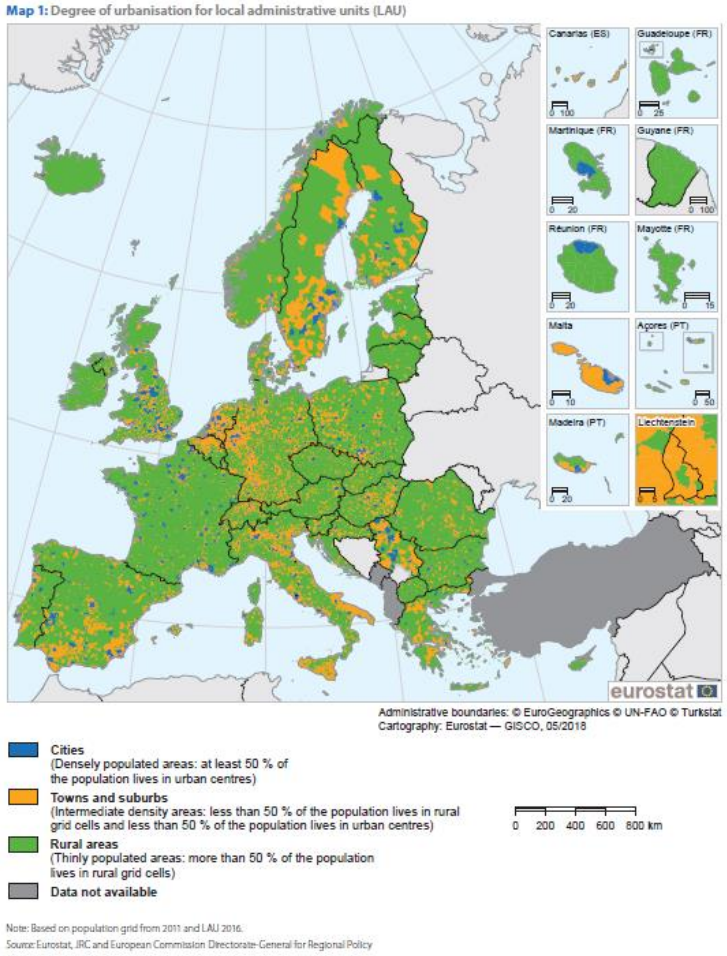


Building blocks for territorial typologies:

Population grid (inhabitants/km²)

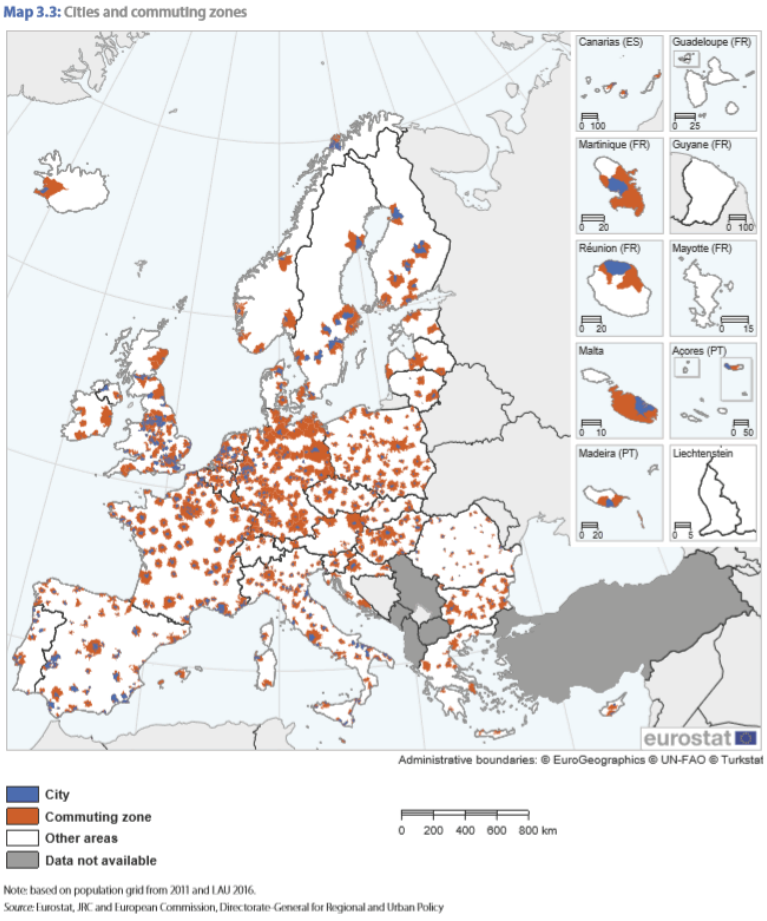


Local Administrative Units (LAU)

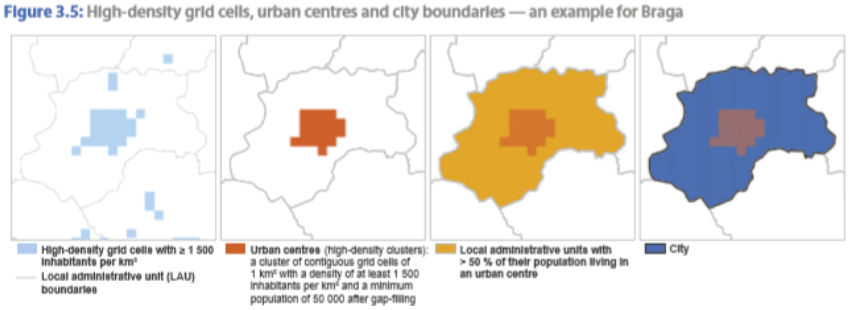


What is a city?

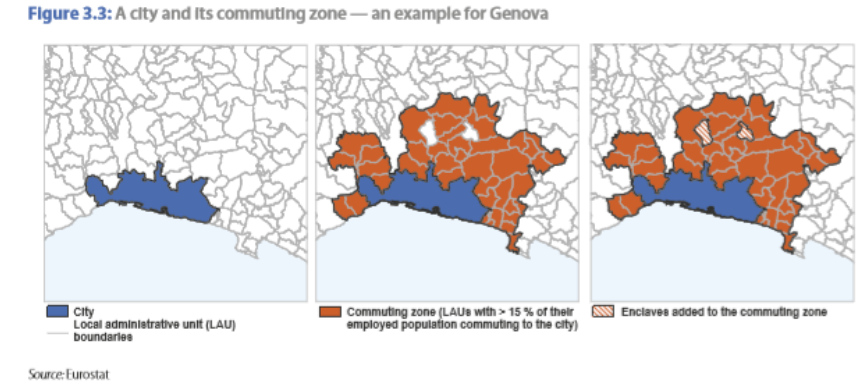
Cities and commuting zones



Defining cities from population grid



Defining a city and its commuting zone



Territorial typologies – an overview

	Geographical level	Basic typologies	Urban typologies	Coastal typology	Border typology	Island typology	Mountain typology
Regional typologies:	NUTS 1 regions						
	NUTS 2 regions						
	NUTS 3 regions	Urban-rural typology	Metropolitan regions	Coastal regions	Border regions	Island regions	Mountain regions
Local typologies:	Local administrative units (LAU)	Degree of urbanisation	City definitions	Coastal areas			
Grid typologies:	Grid cells (1 km²)	Cluster types	Urban clusters and urban centres				

Regions and cities on the Eurostat website:

- **Regions and cities – overview page:** https://ec.europa.eu/eurostat/web/regions-and-cities
- **Eurostat regional yearbook:** https://ec.europa.eu/eurostat/publications/statistical-books/regional-yearbook
- **Statistical atlas:** http://ec.europa.eu/eurostat/statistical-atlas/gis/viewer/?
- **Regions and cities illustrated:** https://ec.europa.eu/eurostat/cache/RCI/#?vis=nuts2.labourmarket&lang=en
- **My region:** https://ec.europa.eu/eurostat/cache/RCI/myregion/#?reg=BE10&ind=

Data visualisation references:

- **ColorBrewer – color advice for cartography:** http://colorbrewer2.org/#type=sequential&scheme=BuGn&n=3
- **Your Friendly Guide to Colours in Data Visualisation:** https://blog.datawrapper.de/colorguide/
- **Visual Vocabulary** – Designing with data: https://ft-interactive.github.io/visual-vocabulary/
- **Dataviz Project** (help to pick the right data visualisation): https://datavizproject.com/
- **Data Visualization Checklist:** https://datavizchecklist.stephanieevergreen.com/assets/DataVizChecklist_Feb2018.pdf
- **EU Open data portal** – Visualisation catalogue: https://data.europa.eu/euodp/en/visualisation-home