

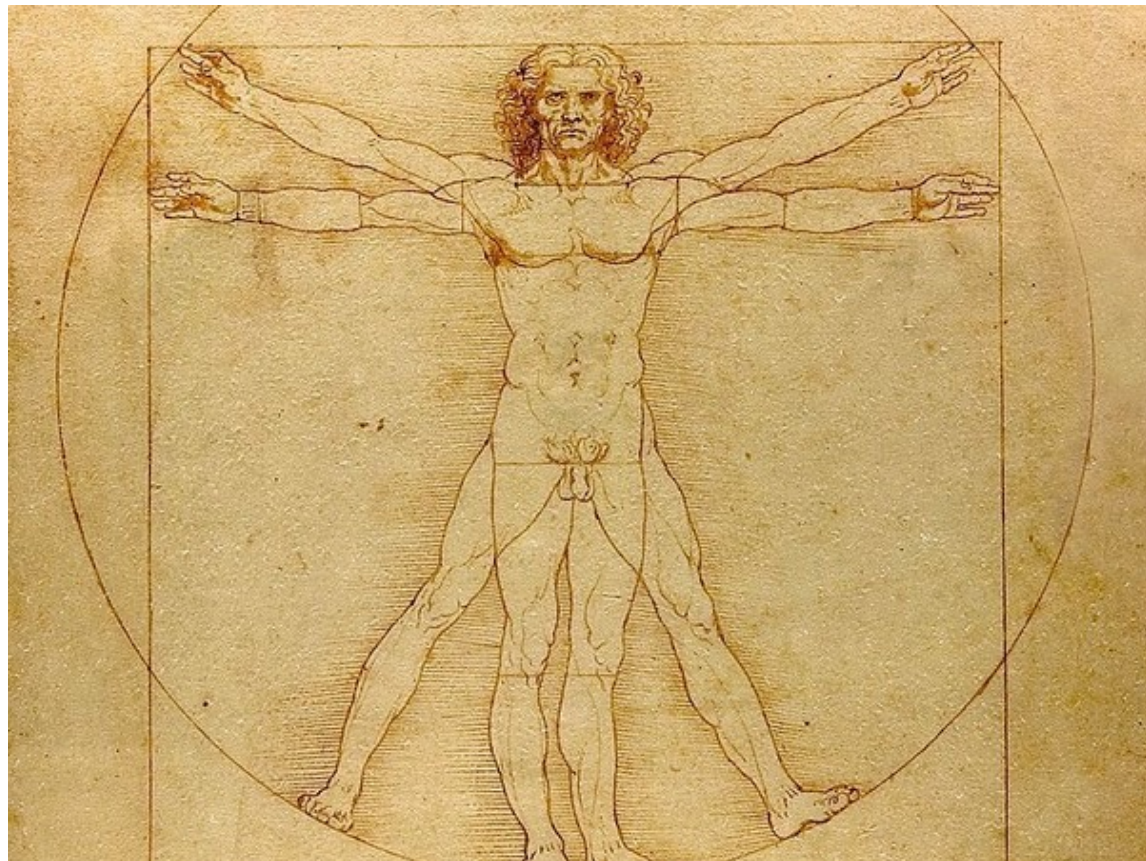
Infographic views and interactive cartography: tools to ensure greater access to official statistics

Outline

- Introduction
- Data visualization
- Infographics
- Interactive cartography
- Conclusions and Tips

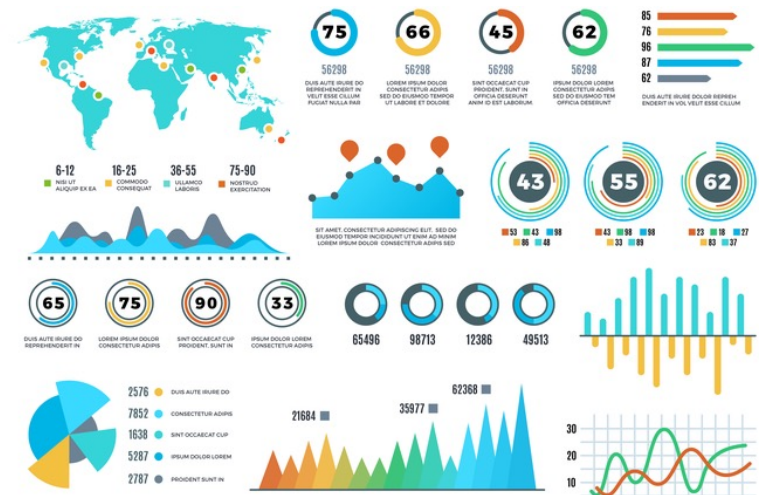
Simplicity is the
ultimate form of
sophistication

(Leonardo da Vinci)



Data visualization

Data visualization is a way to graphically represent information, highlighting patterns and trends in the data and helping the reader gain quick insights



Using visual elements such as charts, graphs, and maps, data visualization tools provide **an accessible way** to see and understand trends, outliers, and patterns in data

Data visualization

As knowledge increases amongst mankind, and transactions multiply, it becomes more and more desirable to abbreviate and facilitate the modes of **conveying information** from one person to another, and from one individual to the many

Infographics, dashboards, cards, images and photos with data therefore become our **best allies**



Data visualization

The importance of images and visualization in data telling

The greater the density and complexity of the data about the phenomenon we want to know, the more we will need a visual mediation, between us and the data

In a world where time is an increasingly scarce commodity, being able to tap into knowledge in just a few seconds turns out to be extremely important!

Data visualization formats

- Area chart
- Bar chart
- Bubble diagram
- Horizontal bar chart
- Cartogram
- Pie chart
- Point distribution map
- Gantt chart
- Histogram Matrix
- Maps
- Polar area
- Radial shaft
- Scatter plot (2D or 3D)
- Time line
- Tree diagram
- Word cloud
- any combination of them in a dashboard or an infographic

Some examples of data visualization



Bars



Lines



Areas



Labels



State
indicators

| | |
|---------------|----------|
| January 2016 | \$8,091K |
| February 2016 | \$7,341K |
| March 2016 | \$5,509K |
| April 2016 | \$3,707K |
| May 2016 | \$4,308K |
| June 2016 | \$6,295K |

Tables



Maps



Pie charts

Up to a few different
data points



Bullet
charts

Radio gauges take
a lot of space

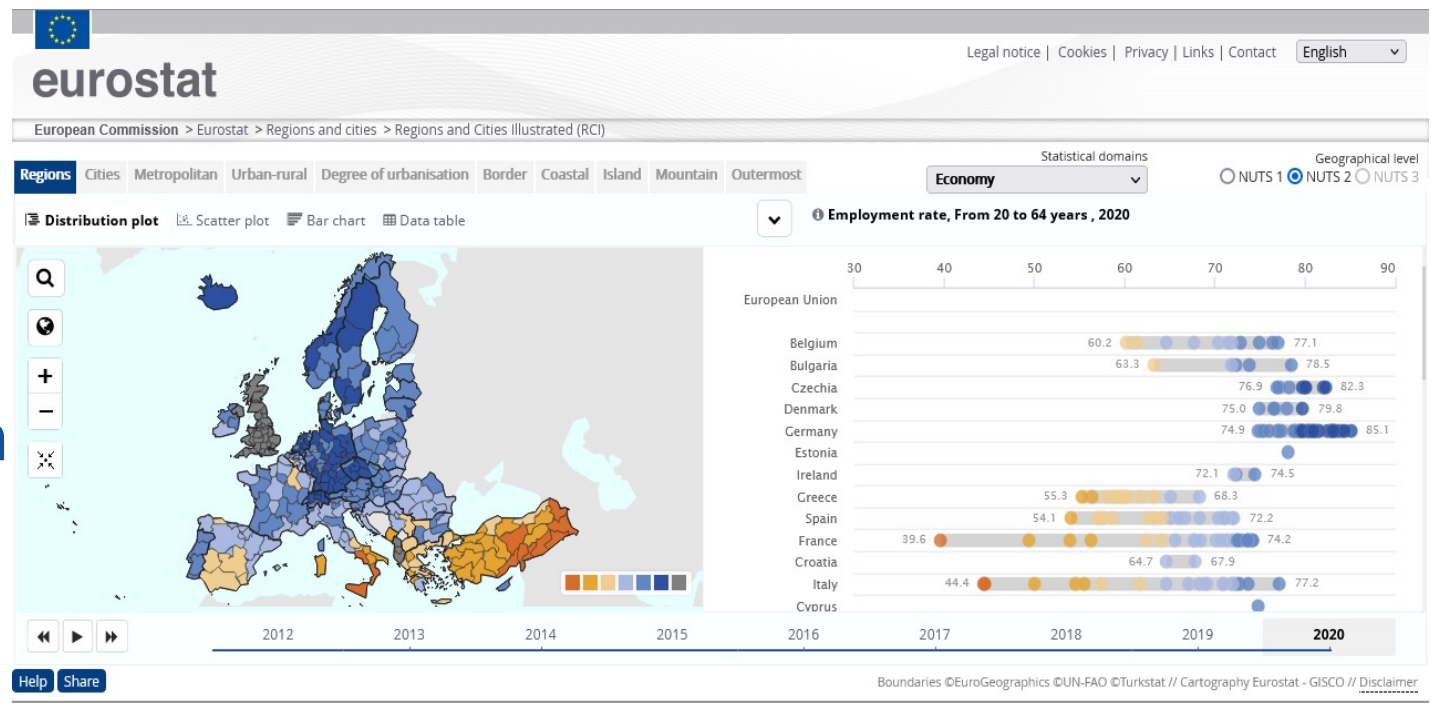
Some examples of data visualization

An example of a
basic
visualization



Some examples of data visualization

An example
of an
elaborate
visualization



<https://ec.europa.eu/eurostat/cache/RCI/#?vis=nuts2.labourmarket&lang=en>

Infographics

Infographics

It is a **hybrid tool**; it has a dual component:

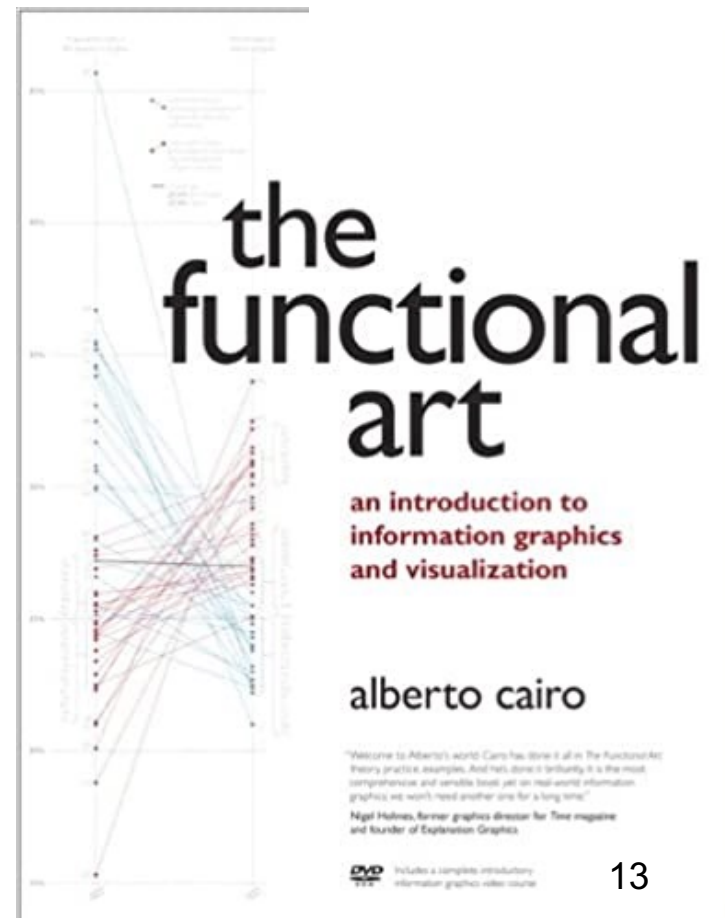
- an informative one (data, concepts and relationships between them)
- a visual/graphic one: colors, shapes and layouts

Using the two components together provides a way to build a visual narrative that is not only engineering, but also creative

Infographics

Infographics as functional art:
*It doesn't matter if you
consider yourself an engineer
or artists: if you create
infographics and
visualizations, the balance
you will reach between these
two dimensions will determine
the validity of your work*

(Alberto Cairo - Data designer)



What infographics to use?

There is no one infographic that is good for all purposes

The communication strategy to be used depends on the specific context in which it is to be transmitted and therefore on the audience concerned

What infographics to use?

The look of the infographic you choose to use will depend on the goal of your infographic, as well as the type of data you're displaying

The problem? There are really **MANY** different types of infographics. Enough to be confusing, especially if you're new to creating infographics

What infographics to use?

A **statistical infographic focuses on your data.**
The layout and graphic elements will help you tell the story behind your data

To tell your story, you should not underestimate the use of attractive graphics, icons, images and fonts

What infographics to use?

Some advice

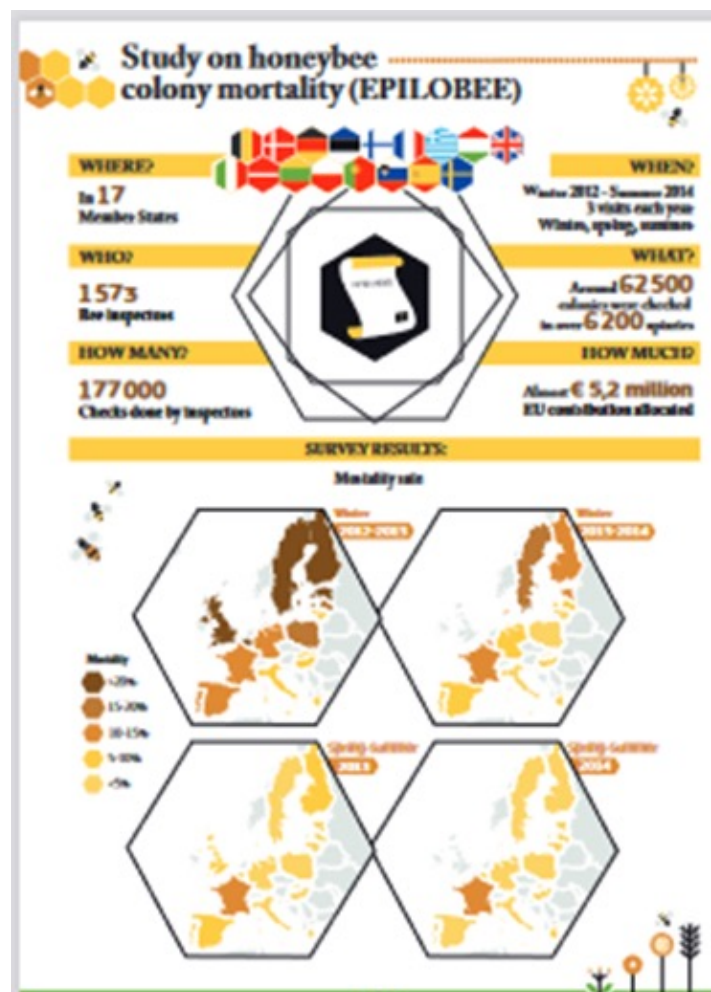
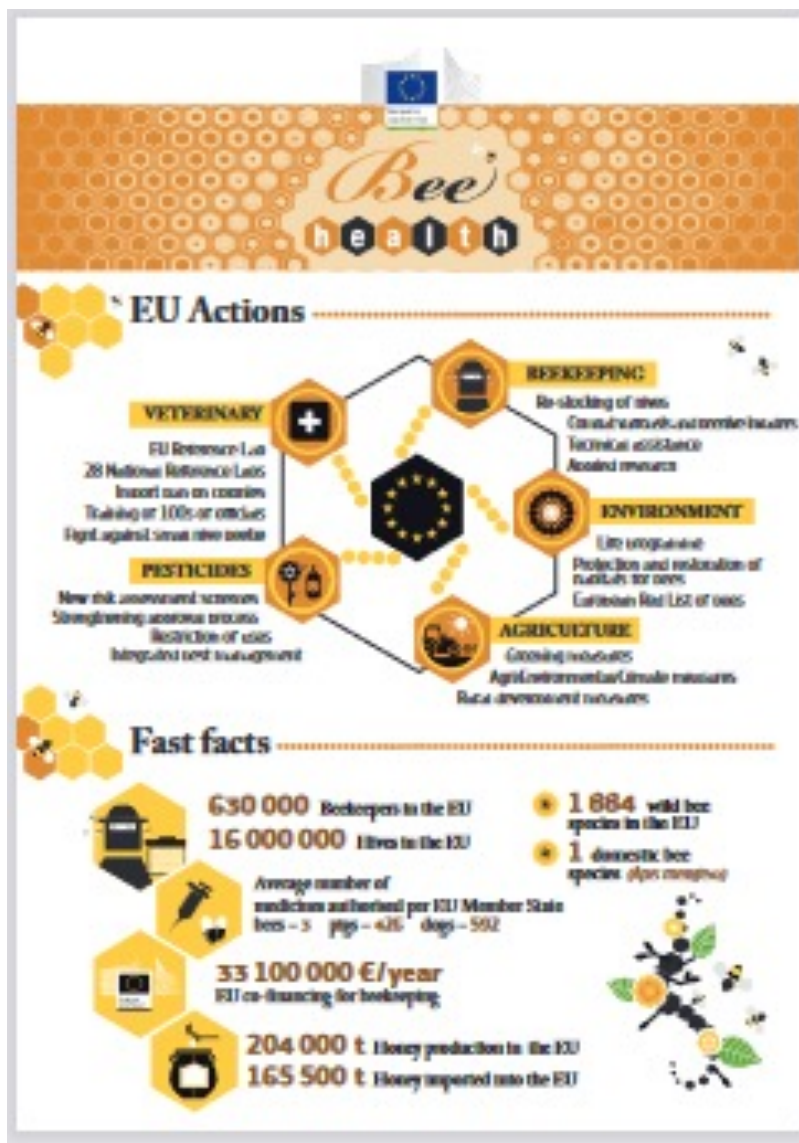
- Research the story your data is based on and make sure it is reflected in your design
- Vary the type of data visualization you use - such as charts, icons and text
- Write a descriptive title to put your data in context
- Emphasize key data by using contrasting colors or matching the number to an icon



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The 16 principles of the European Statistics Code of Practice



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4

Commitment to Quality

Statistical authorities regularly and systematically review their processes and the quality of their statistical products.



5

Statistical Confidentiality and Data Protection

The privacy of data providers and the confidentiality of the information they provide is guaranteed by law.



6

Impartiality and Objectivity

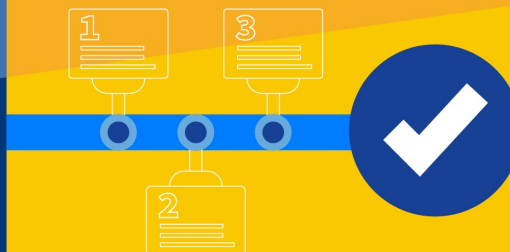
European statistics are developed, produced and published in a professional and transparent manner, treating all users fairly and equally.



7

Sound Methodology

European statistics have a sound methodological basis and are in line with European and international standards.





First time asylum applicants in the EU28 (2016)

eurostat

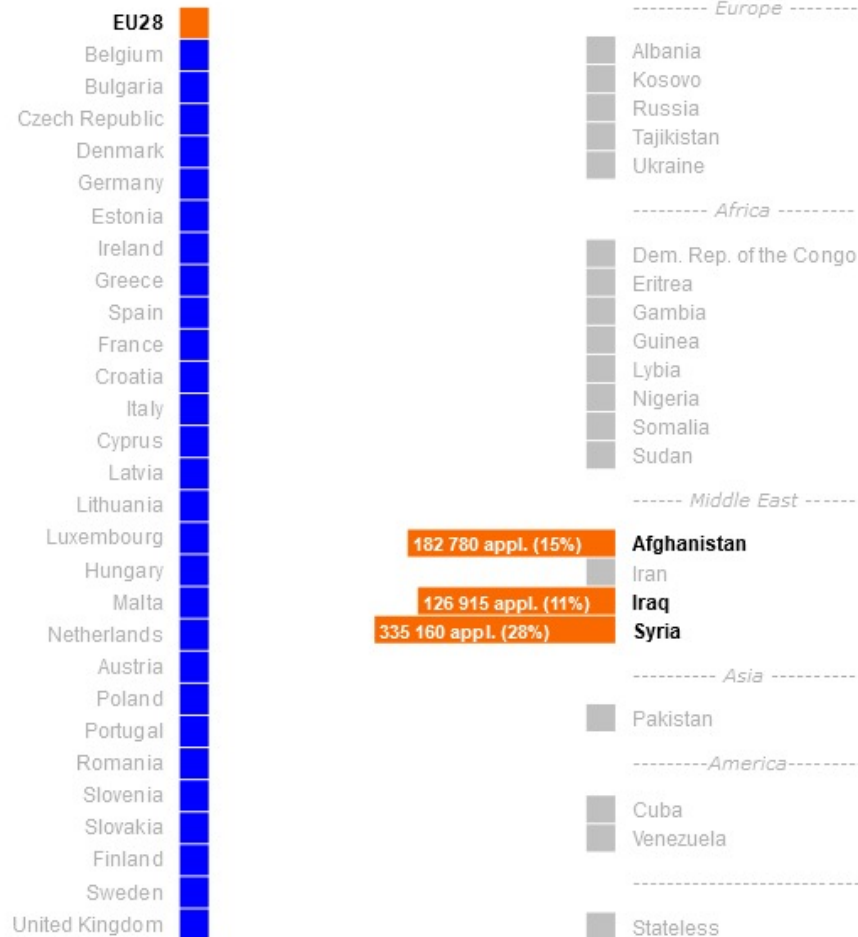
European Union

Click on a blue square below to see which are the 3 main citizenships of asylum applicants who applied in this EU Member State

Total : 1 204 280
Share in EU28 total : 1 00%
Per million inhabitants : 2 360

Country of citizenship of applicants

Click on a grey square below to see which are the 3 main EU Member States in which asylum seekers with this citizenship applied



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Asylum applicants in the EU: an interactive infographic

<https://ec.europa.eu/eurostat/news/themes-in-the-spotlight/asylum2016>

Warning note

If numbers and graphs persuade easily they can also deceive

In fact, what happens if this power of infographics and data visualizations is used to deceive us?

Let's talk about "**disinfographics**" - infographics that **misinform** - and how to defend ourselves from persuasive numbers and graphics

When does an infographic turn into a disinfographic?

1. Visualization is the result of bad design
2. The visualization shows us data of dubious or disputable origin
3. The visualization contains insufficient data to support the thesis presented
4. The visualization hides or downplays the uncertainty present in the data
5. Visualization suggests misleading conclusions

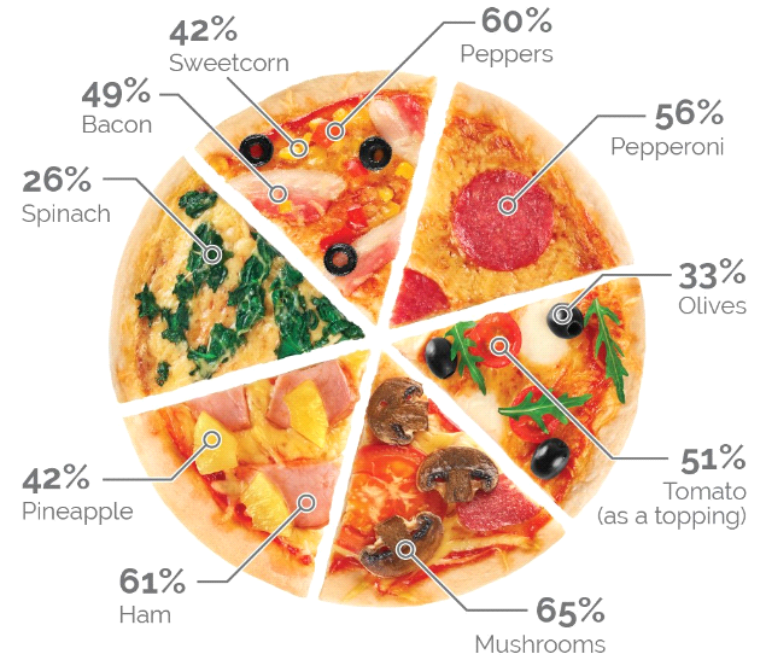
Disinfographic: an example

**The visualization is the
result of bad design:**

You can't use a pie chart if
you have to represent a
multiple choice survey
result!

Mushroom is the UK's most liked pizza topping

Generally speaking, which of the following toppings do you like on a pizza? Select as many as you like



Other items not depicted include: onions (62%), chicken (56%), beef (36%), chillies (31%), jalapeños (30%), pork (25%), tuna (22%), anchovies (18%). 2% of people say they only like Margherita pizzas

YouGov | yougov.com

February 26-28, 2017



YouGov @YouGov · Mar 6

Forget pepperoni - mushroom is Britain's most liked pizza topping (65%), followed by onion (62%) and then ham (61%) yougov.co.uk/news/2017/03/0... pic.twitter.com/AJezMfJHbk

185 378 555

Disinfographic: an example

- Dan McClellan** @maklelan · 6 Mar 2017
Replying to @YouGov
How did you poll 695% of the population?
- 5 28 368
- Kane** @kanecalvin · 6 Mar 2017
people can pick more than one topping
- 2 23
- Dan McClellan** @maklelan · 6 Mar 2017
Then they can also use something other than a pie chart.
- 6 1 254
- Leon** @StephensLeon · 6 Mar 2017
it's a pizza chart. Different rules.
- 3 14 314

- Alithea** @AlitheaP · 6 Mar 2017
Replying to @YouGov
this is appalling data visualisation :(
- 1 13
- Rachel** @rachy_____ · 6 Mar 2017
thank you omg, their data isn't wrong, it's just a poor way to present data as a pizza that resembles a pie chart :(
- 1
- Alithea** @AlitheaP · 6 Mar 2017
Quite. The white lines dividing up the pizza make it particularly misleading
- 1
- Graeme** @DameGrowling · 6 Mar 2017
Replying to @YouGov
#ChartGore - Who designed this? My God.
- 8
- Simon Fitzpatrick** @simonpatfitz · 6 Mar 2017
Replying to @YouGov
@lucyrak - this is further evidence that people simply should not be allowed to vote on "anything".
- 1 7
- 1 more reply

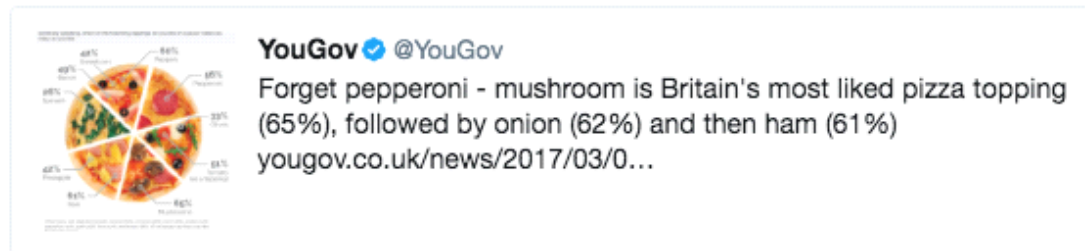
- Cole** @colemickens · 7 Mar 2017
Replying to @YouGov
whoever designed this should never be allowed to graphically represent data ever again.

Disinfographic: an example



Following

We're very sorry for the confusion, but this is NOT a pie chart - it is just a top-down photo of a pizza with some topping stats pointed out



RETWEETS
494

LIKES
757



1:56 PM - 6 Mar 2017

62

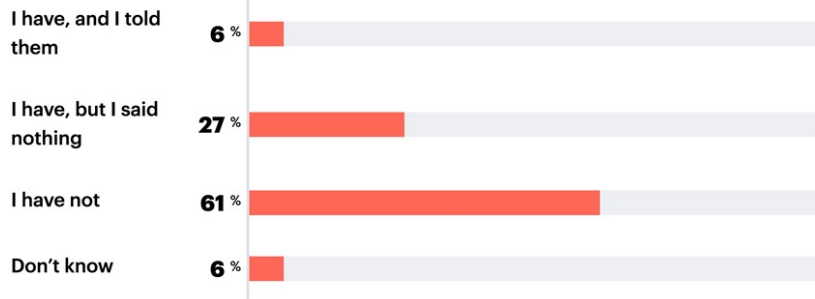
494

757

Disinfographic: an example

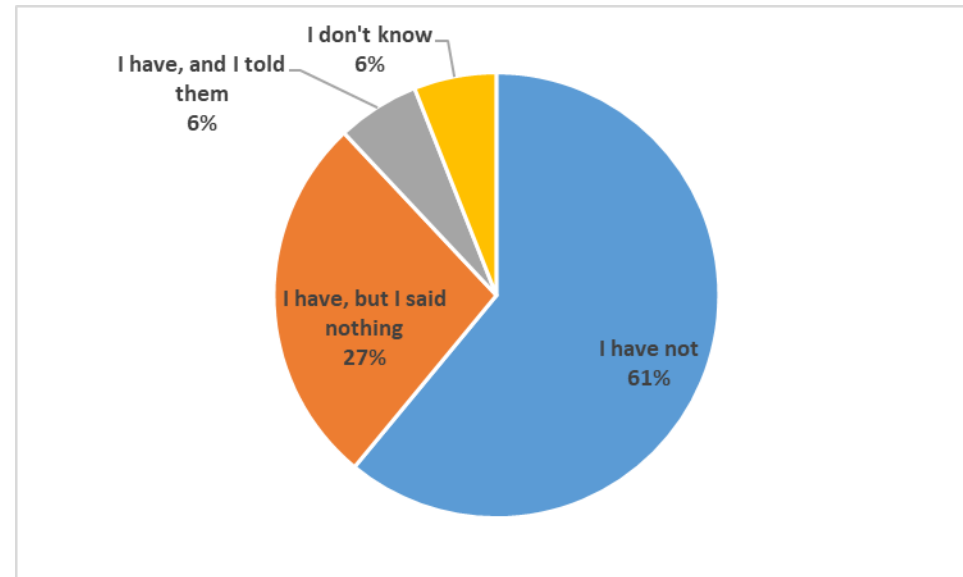
Have you ever thought a friend or family member who announced their engagement should not marry the person in question?

All adults (2232 GB adults - Feb 14, 2022)



YouGov | What the world thinks

yougov.co.uk

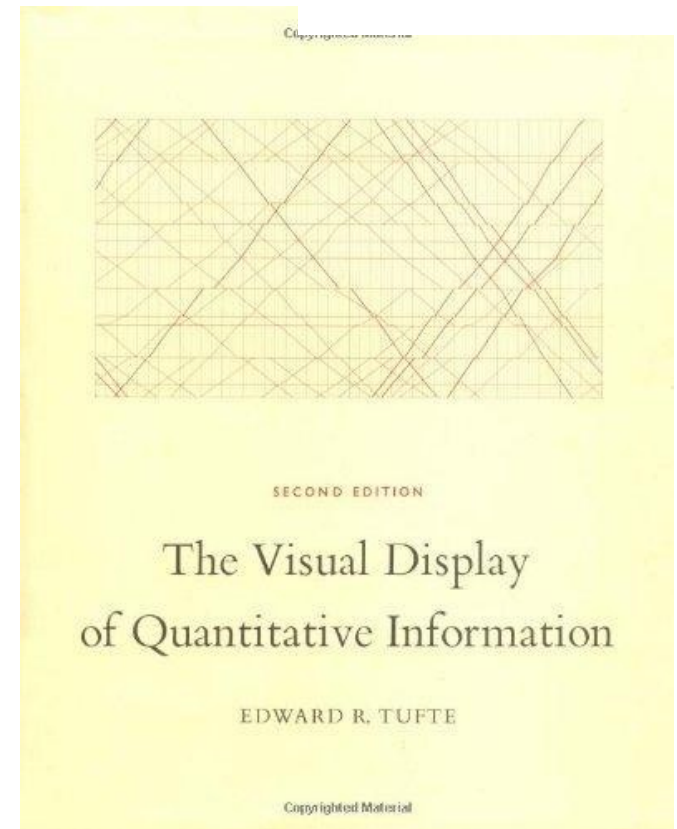


Infographics & Disinfographics

Cosmetic decoration, which frequently distorts the data, will never salvage an underlying lack of content.

If the numbers are boring, then you've got the wrong numbers

(Edward R. Tufte – American statistician and a pioneer in data visualization)



Interactive cartography

What is interactive cartography?

Interactive cartography involves the use of maps that allow you to zoom in and out, overview, identify specific features, query the underlying data either by topic or a specific indicator (e.g., socioeconomic status), generate reports and other formats to use or display selected information in the map

Cartography

- The development of statistical mapping has also been encouraged by a growing demand for **spatial information**
- Finding new methods that allow the acquisition and publication of data at any spatial level has so become one of the goals of official statistics
- A wider use of administrative sources by official statistics and their combination with geospatial information have led to major changes in this field

Warning note

- Each thematic map also has a basic content, namely topographic elements (in the GIS context called spatial reference data) and these ones are necessary to correctly interpret the geographical relationships of the quantitative data presented
- The base map contains the boundaries of the presented area
- The base map has to be prepared at the appropriate scale and using a correct map projection

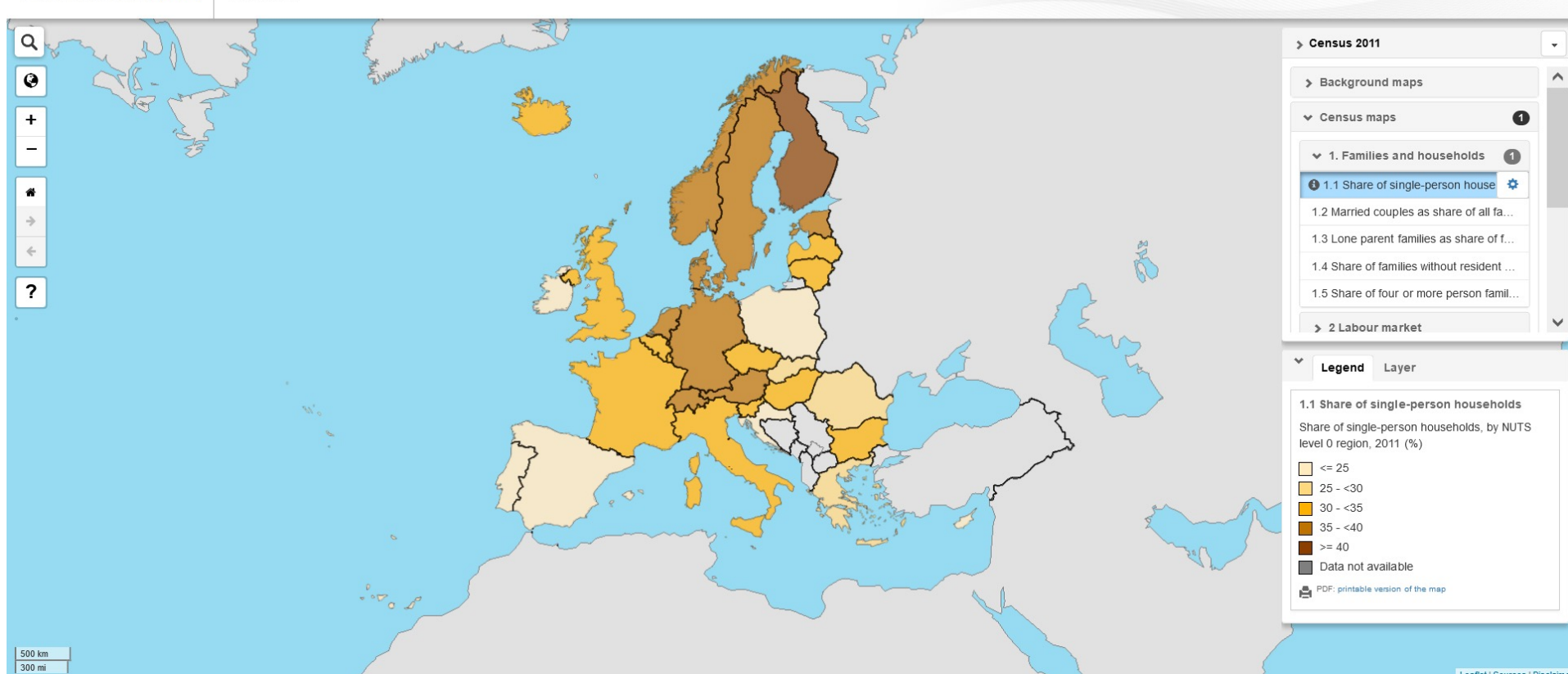
When is it appropriate to use cartography?

Before creating/using maps for visualization the question to answer is: with another type of visualization, is it easier or faster to give the information at a glance?

If the answer is yes, perhaps maps are not the best visualization for you. If it's no, then keep in mind that maps offer added value because the data is placed in a real-life context

Eurostat - Statistical Atlas

Share of single-person households – Census 2021

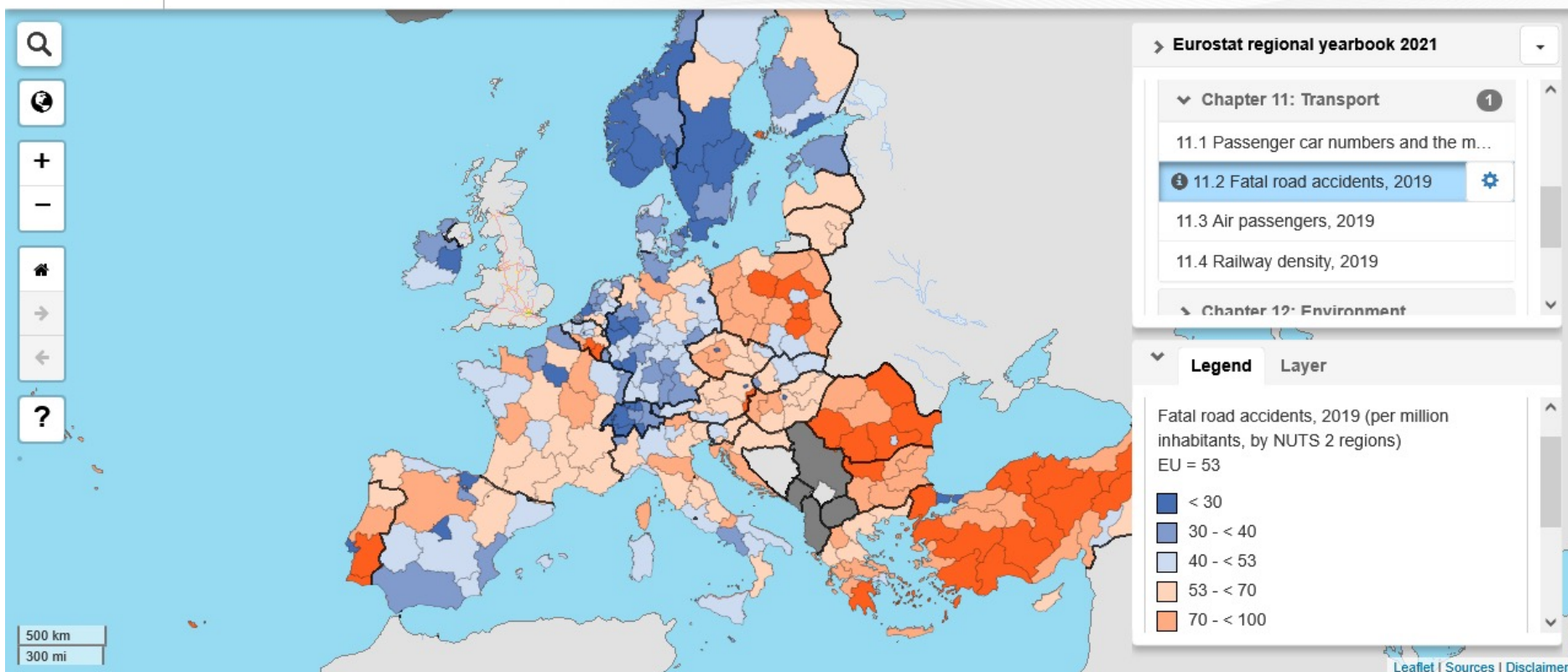


Eurostat - Statistical Atlas

Fatal road accidents - Regional yearbook 2021

eurostat  Eurostat regional yearbook 2021

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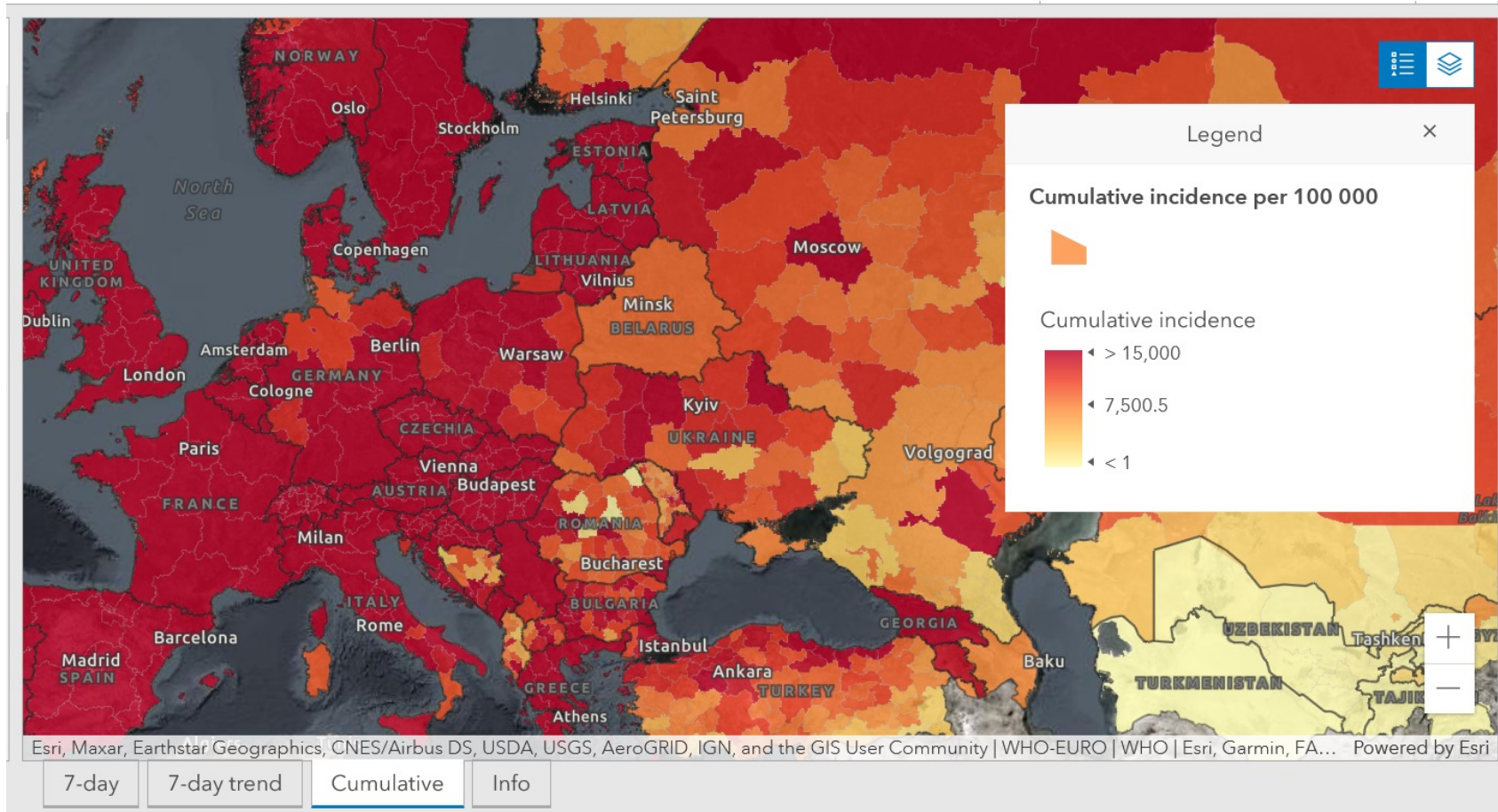


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WHO – Covid 19 Cumulative incidence per 100 000 (Europe)



Main tools to create interactive maps

The main categories of tools for making maps are divided into:

- those that do not require any programming
- others only for developers

Main tools to create interactive maps

Data Visualization tools that **do not require** programming

- RawGraphs
- ChartBlocks
- Tableau
- Power BI
- QlikView
- Datawrapper
- Visme
- Grow
- iCharts
- Infogram
- Visual.ly
- InstantAtlas
- Gephi
- Wolfram|Alpha

Main tools to create interactive maps

Data Visualization tools that **require** programming

- ECharts
- D3.js
- Plot.ly
- Chart.js
- Google Charts
- Ember Charts
- Chartist.js
- Highcharts
- FusionCharts
- ZingChart

Main tools to create interactive maps

Some tools like Tableau are very powerful and it is possible to create a variety of charts with it, some others like Infogram are famous for creating infographics and some more focus on presenting interactive maps like Gephi

Main tools to create interactive maps

Eurostat provides the web tool IMAGE for the production of Choropleth Maps.

- It allows users to quickly produce professional statistical maps that adhere to Eurostat's style guide
- It contains a limited number of predefined templates covering the extent of EU/EFTA/candidate Country maps, as well as a global template

<https://ec.europa.eu/eurostat/web/gisco/gisco-activities/map-generator>

Conclusions and tips

Conclusions

With the ever-increasing amount of data in today's world, it is imperative today to build a **strategy** to make them easy and understandable at a glance

The world is facing a deluge of data:
a visualization well done can tell a story!

What to do

- **To be clean:** accurate, complete, unaltered
- **To be clear:** easily visible, well-defined, more important than aesthetics
- **To be concise:** short, but complete
- **To be captivating:** to attract and maintain attention
- **To use intuitive colors** that make sense to the viewer so they process the information faster

What to avoid

- To misrepresent data
- To use visualizations that don't deliver the message
- Mixing pattern layouts
- To use effects that may obscure the message of the visualization

What to avoid

- Too many colors because they can create a cacophony
- Using a single color or too many shades of one color because this can cause the data to blend
- Using uneven or inconsistent intervals between numbers, text or graphs
- Too much text or a not well organized one

Thanks for the attention!
Any questions?

