66 SESSIONS WEB

# Data visualisation for understanding and decision-making

Víctor Pascual
(data visualisation expert)

Thursday 3 November 2022
From 9 to 9.30 a.m.
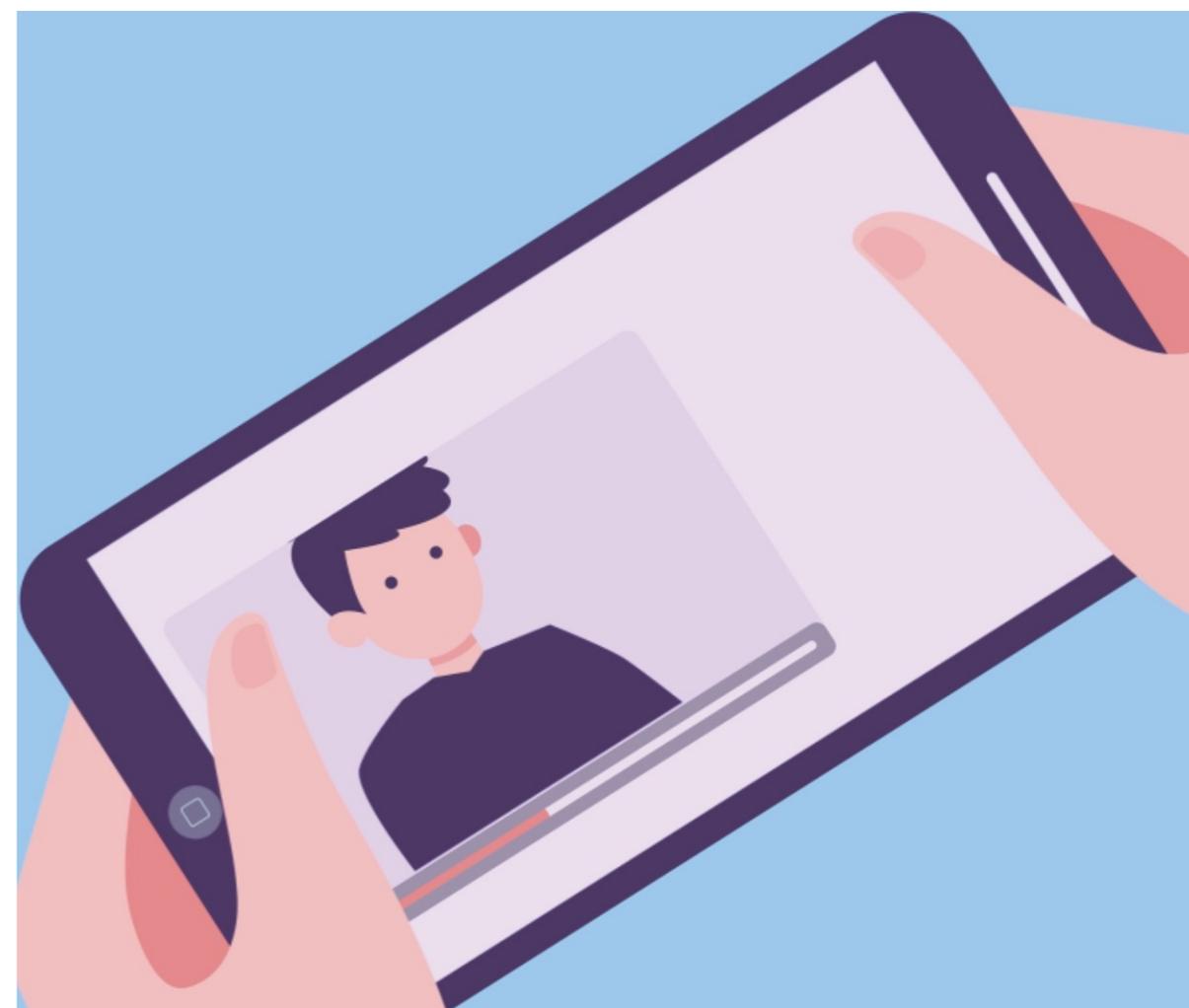
What is data visualisation?

Data visualisation is the discipline that uses graphics to make data easier to understand.

Date	Open	High	Low	Close	
Jan 13, 2011	345.16	346.64	343.85	345.68	
Jan 12, 2011	343.25	344.43	342.00	344.42	
Jan 11, 2011	344.88	344.96	339.47	341.64	
Jan 10, 2011	338.83	343.23	337.17	342.45	
Jan 7, 2011	333.99	336.35	331.90	336.12	
Jan 6, 2011	334.72	335.25	332.90	333.73	
Jan 5, 2011	329.55	334.34	329.50	334.00	
Jan 4, 2011	332.44	332.50	328.15	331.29	
Jan 3, 2011	325.64	330.26	324.84	329.57	
Dec 31, 2010	322.95	323.48	321.31	322.56	
Dec 30, 2010	325.48	325.51	323.05	323.66	
Dec 29, 2010	326.22	326.45	325.10	325.29	
Dec 28, 2010	325.91	326.66	325.06	325.47	
Dec 27, 2010	322.85	325.44	321.52	324.68	
Dec 23, 2010	325.00	325.15	323.17	323.60	
Dec 22, 2010	324.36	325.72	323.55	325.16	
Dec 21, 2010	323.00	324.39	322.05	324.20	
Dec 20, 2010	321.60	323.25	318.23	322.21	
Dec 17, 2010	321.63	321.79	320.23	321.21	
Dec 17, 2010	321.09	322.61	320.10	320.19	

Apple APPL stock exchange listing

Apple's share price on NASDAQ

Apple's share price on NASDAQ

In 2012, Apple's share price was
12 times lower than it is today

# What is data visualisation?

When we visualise, the most important thing is to see trends and patterns, not numbers
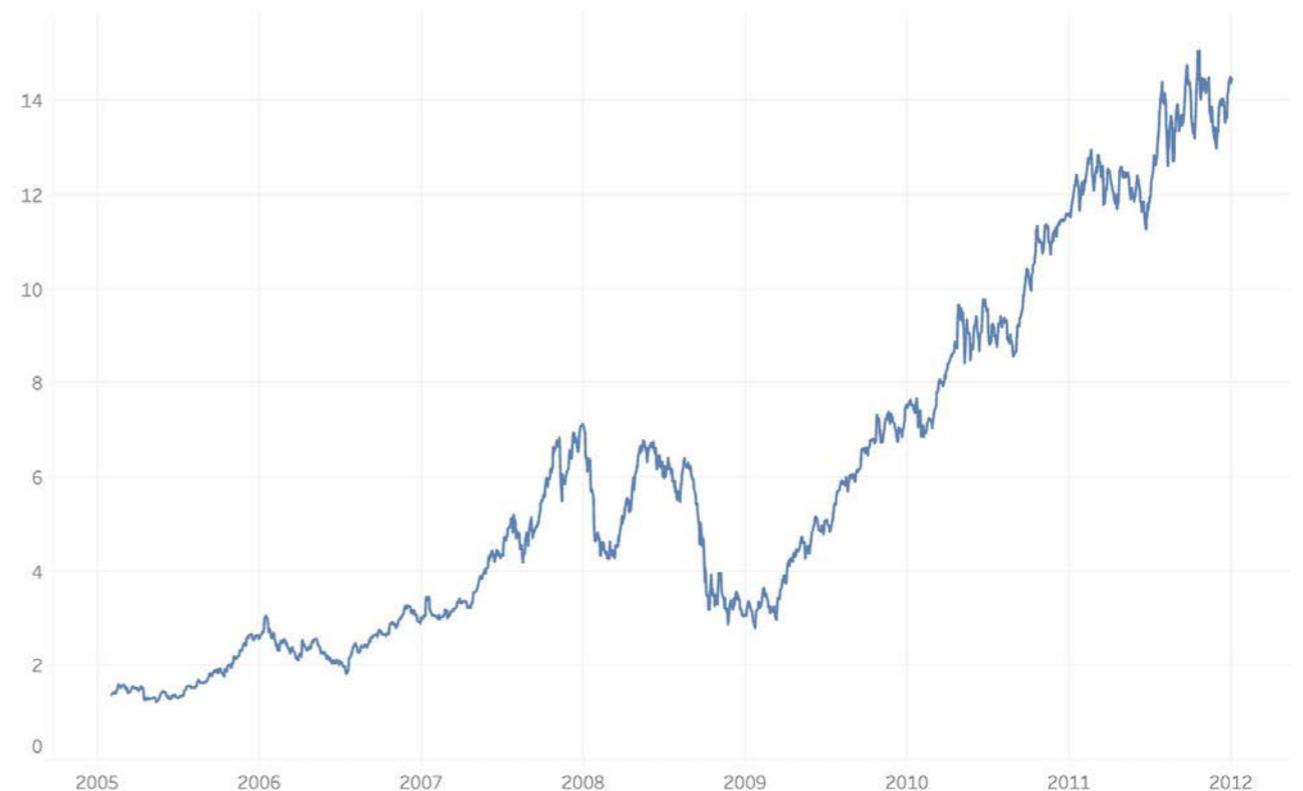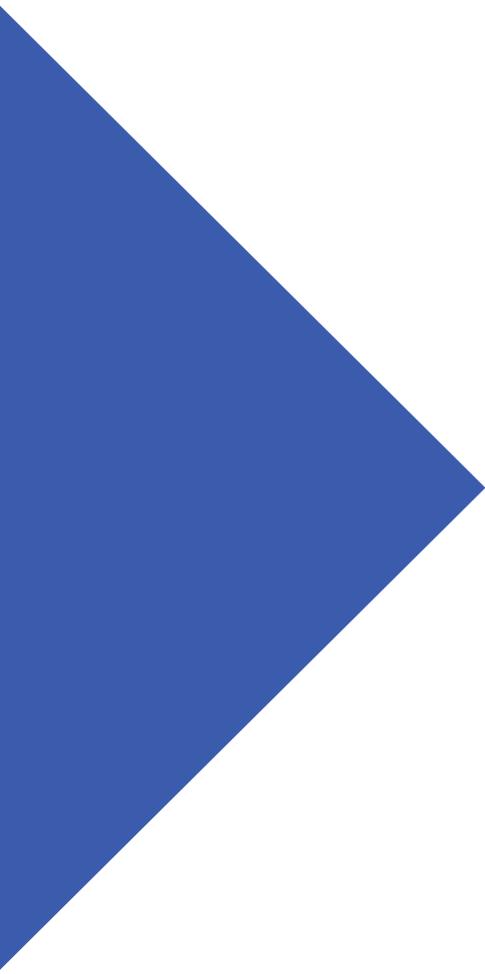
Data visualisation in public administration
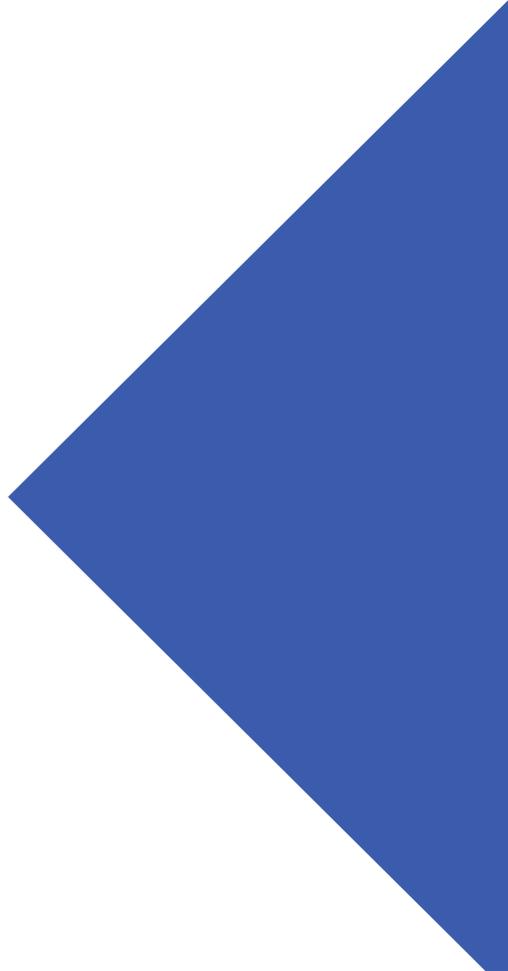
Data visualisation in the public administration

➡ Visualisation helps to contextualise and better understand complex datasets

➡ It assists in decision-making (internal use - governance)

➡ Transparency does not mean that the data is public

▶ The Administration should explain in an easily understandable way the policies and decisions being implemented and show their results

➡ We need to understand when it is necessary to tell a story and when we want to allow exploration of the data to answer questions

Data visualisation in the public administration

PAM
Pla d'Acció Municipal

El Pla d'Acció Municipal (PAM) està constituït per un conjunt d'accions que, després d'un procés participatiu obert a la ciutadania, el govern municipal prioritza per portar-les a terme durant un mandat.

En aquesta pàgina podeu trobar la següent informació sobre les accions del PAM del present mandat 2020-2023:

Accions del PAM

El PAM 2020-2023 incorpora un total de **302 accions** que responen a **75 objectius** i que es classifiquen en els següents **6 eixos temàtics**.

Ciutats i comunitats sostenibles
93

Reducció de les desigualtats
79

Igualtat de gèneres
36

Aliances per assolir els objectius
36

Educació de qualitat
33

Acció climàtica
25

⊕ Explora les accions

Grau d'avenç

Entre 2020 i 2021, es comptabilitzen un **18% d'accions implementades**, un **67% en marxa**, un **12% ajornades** i un **3% descartades**.
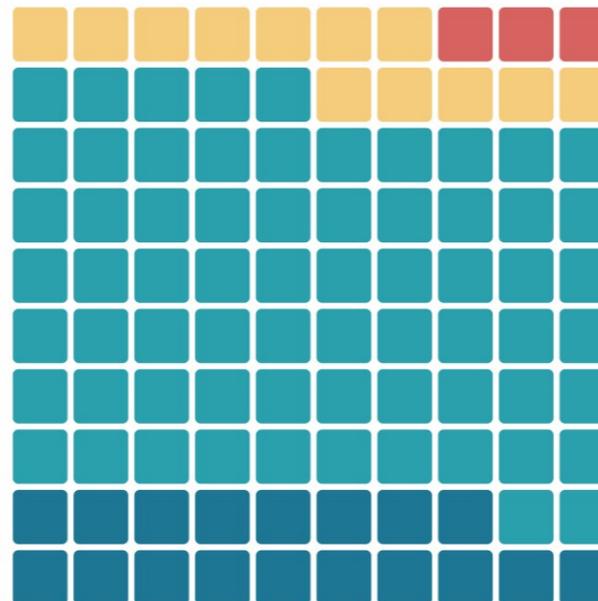
⊕ Explora el grau d'avenç

Impacte covid-19

En un **35% de les accions l'impacte ha estat alt o molt alt**, en un 31% ha estat mig, i en un 34% de les accions l'impacte ha estat baix o inexistent.

⊕ Explora l'impacte de la covid-19

Informe en PDF

L'informe en PDF ofereix un anàlisi detallat dels eixos d'actuació i el grau d'avenç del PAM. Feu click al botó per descarregar-lo.

Descarrega l'informe en PDF

Santa Coloma Municipal Action Plan

Data visualisation in the public administration

Within an administration that is moving towards digitalisation, it is vital to strengthen skills related to working with and using data.

Within these skills, visualisation is crucial. If we fail on the last leg, that of communication, the work done with the data "will be of no use".

Bad data that is well visualised will have a much bigger impact than good data that is poorly communicated.

GASTO SOCIAL

EDUCACIÓN, SANIDAD Y PROTECCIÓN SOCIAL

- 2011: 180.104 MILL.€
- 2012: 182.605 MILL.€
- 2013: 184.293 MILL.€
- 2014: 183.443 MILL.€
- 2015: 184.227 MILL.€
- 2016: 187.211 MILL.€
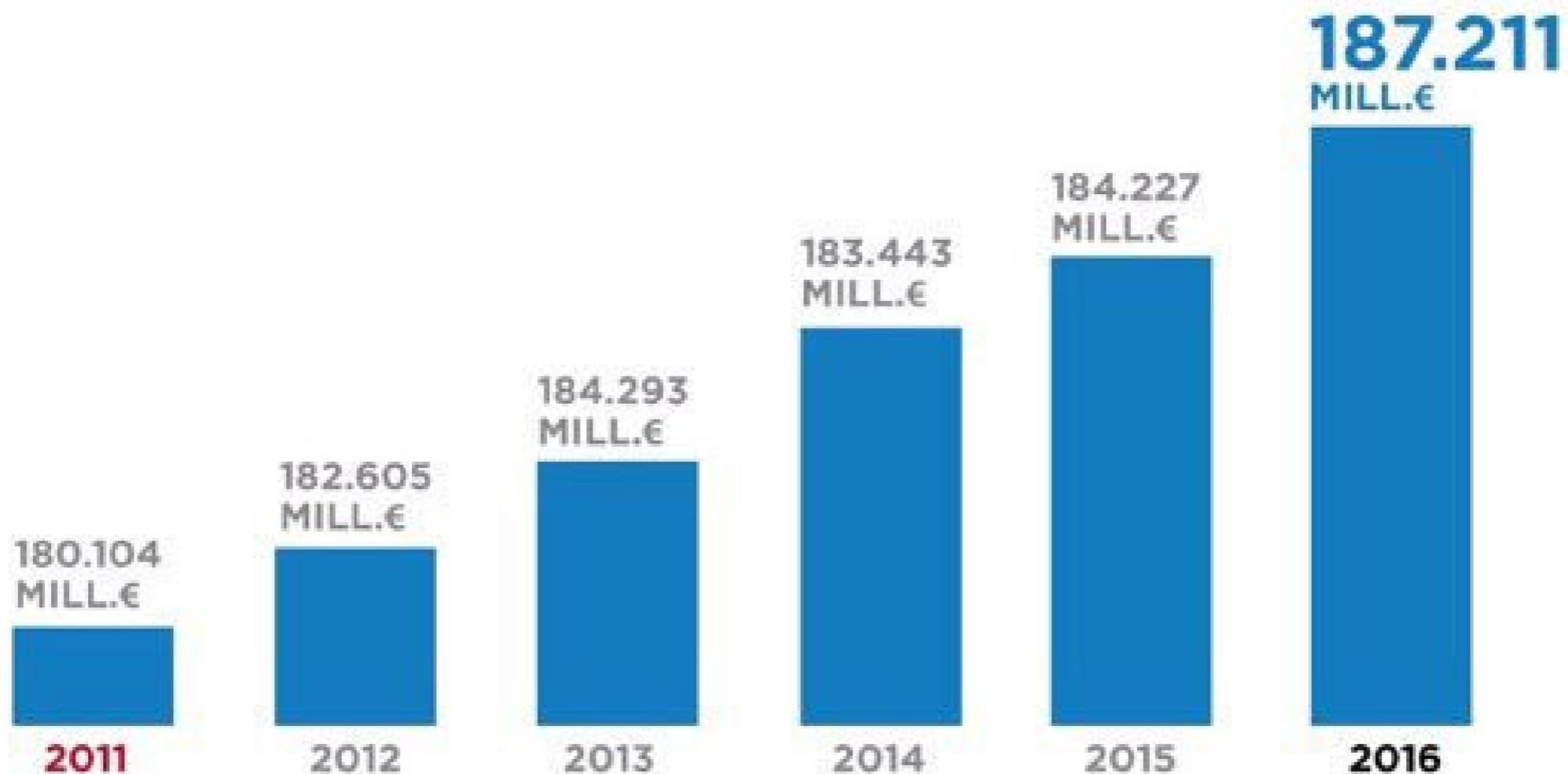
La Sexta: "Pablo Casado boasts of the Rajoy government's increase in social spending with a manipulated graph"

Data visualisation should be done in teams. It requires knowledge of:

➡ Data analysis
➡ Design
➡ User experience
➡ Technical skills (programming, visualisation tools)

Methodology

Methodology
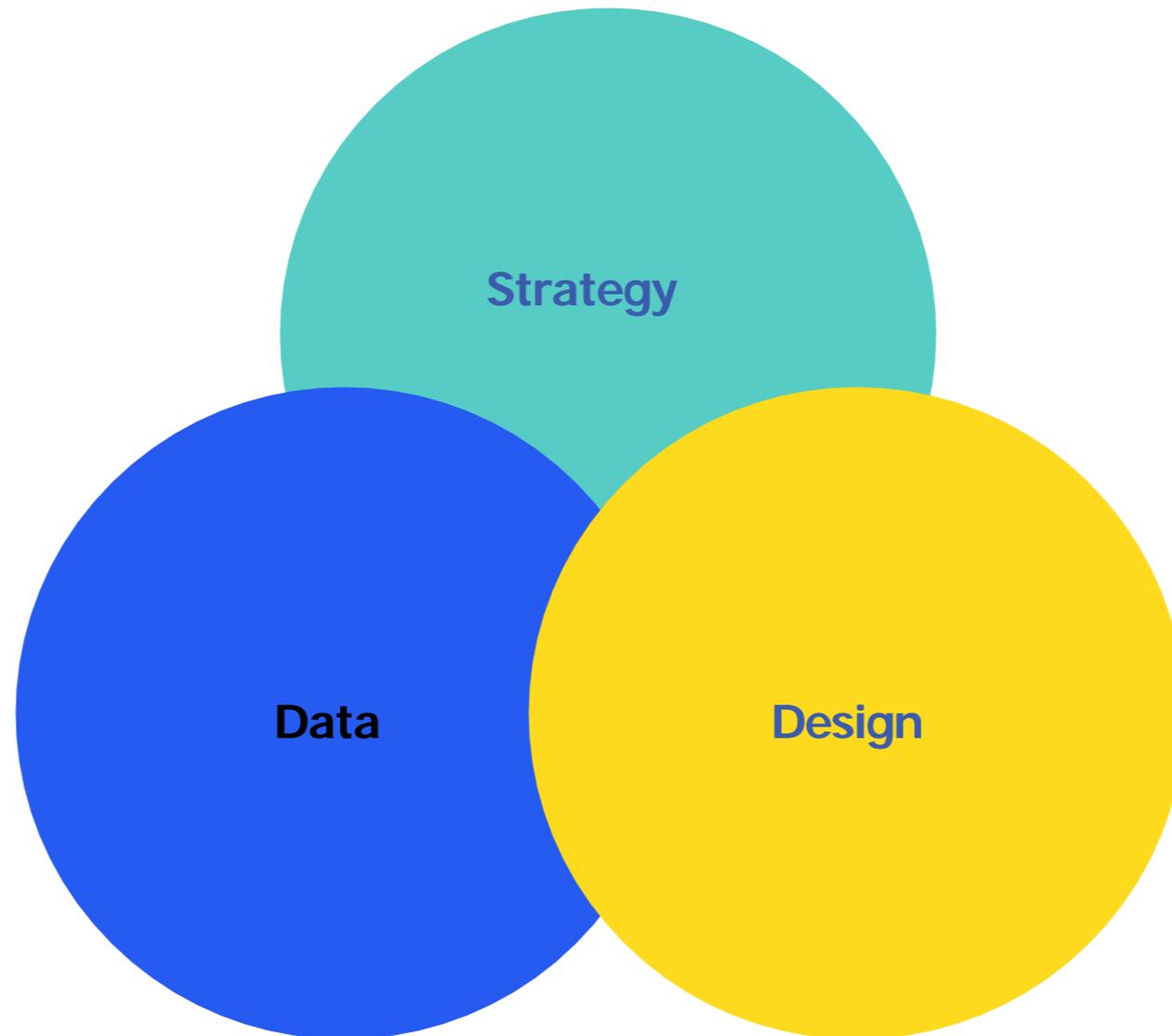
Strategy

Data

Design

Methodology - Strategy

Strategy
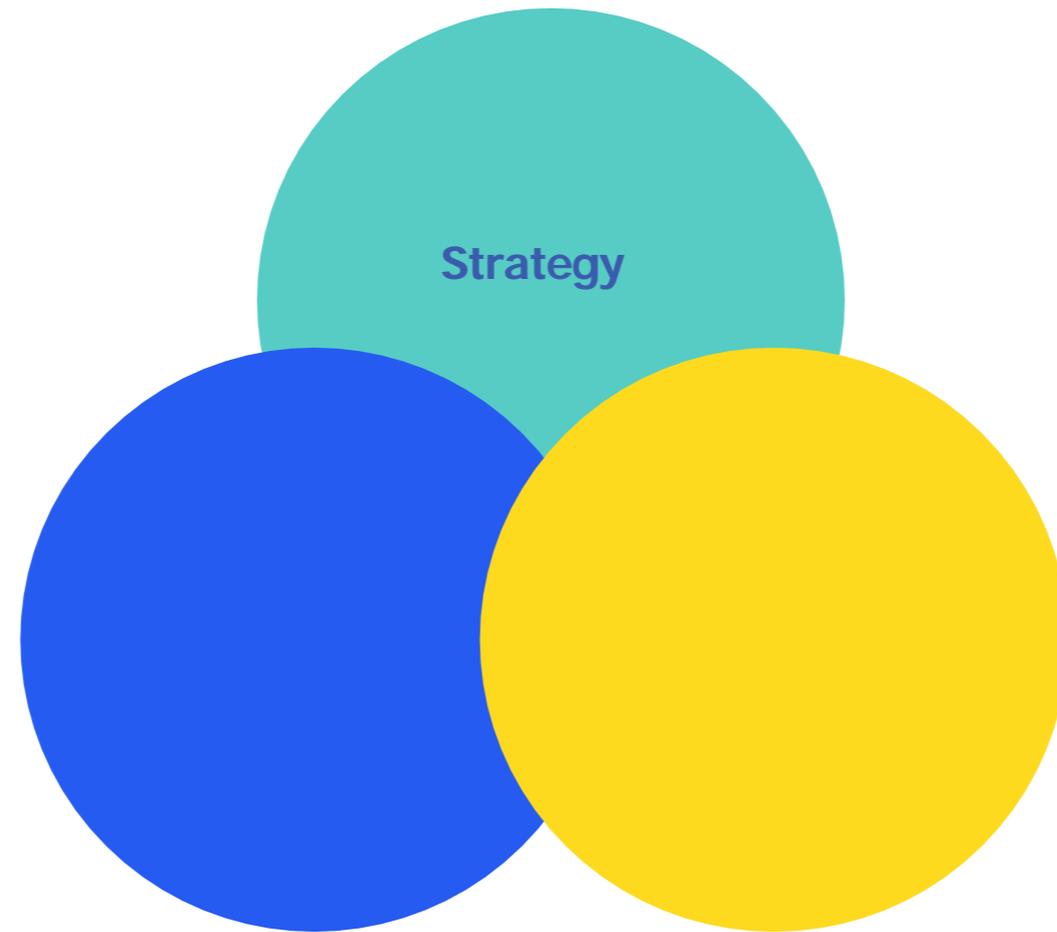
▸ Questions to answer

▸ Indicators and segments

▸ Audience (profile, device, etc.)

▸ Objective (explore, analyse, communicate)

Methodology - Data
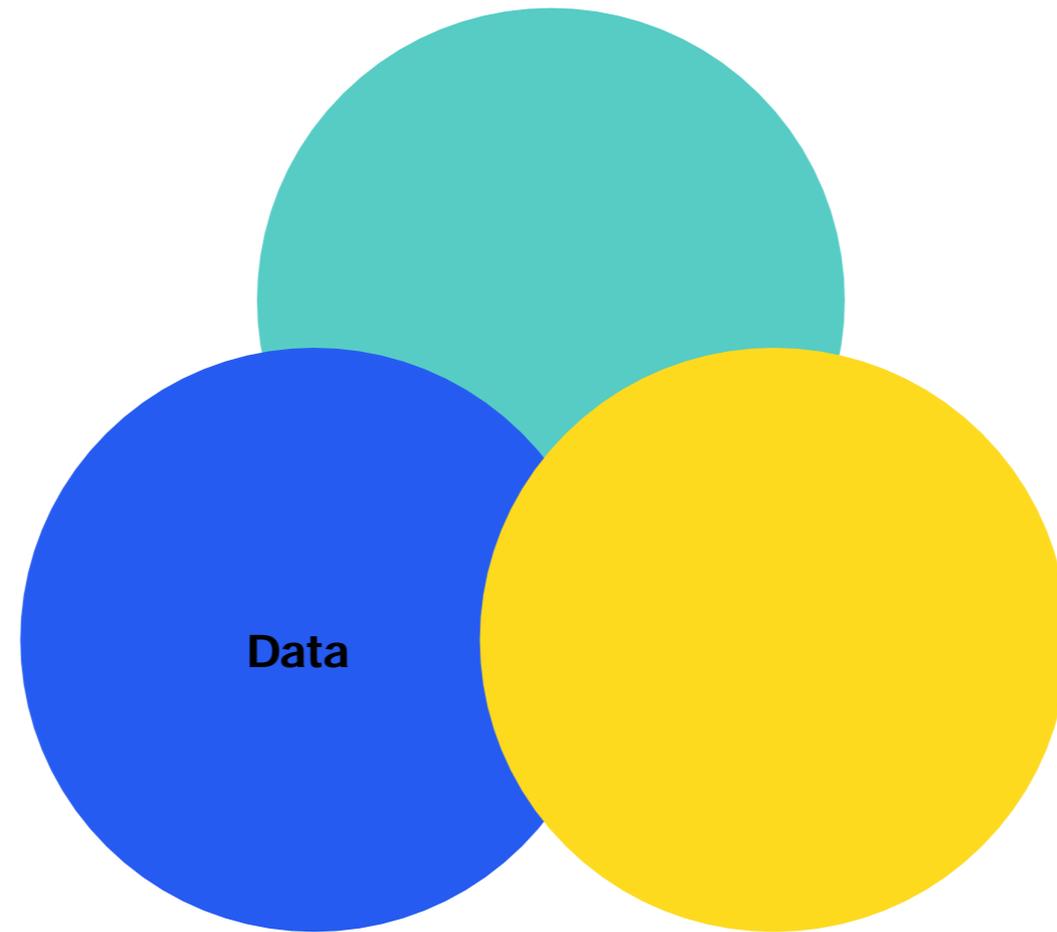
Data

▸ Obtain

▸ Prepare: the data needs to be in formats suitable for its consumption

▸ Process

Methodology - Design

Design
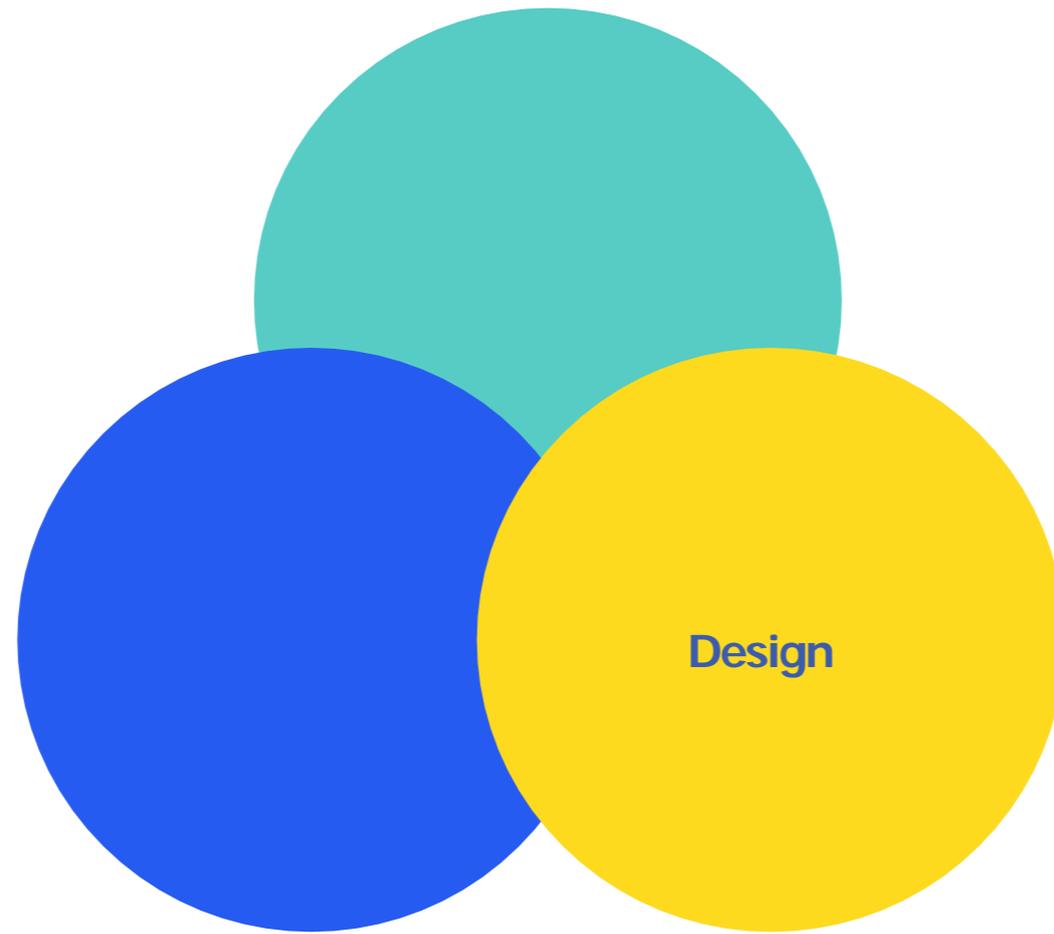
- Outline
- Prototyping
- Finalise

# Methodology - Outline
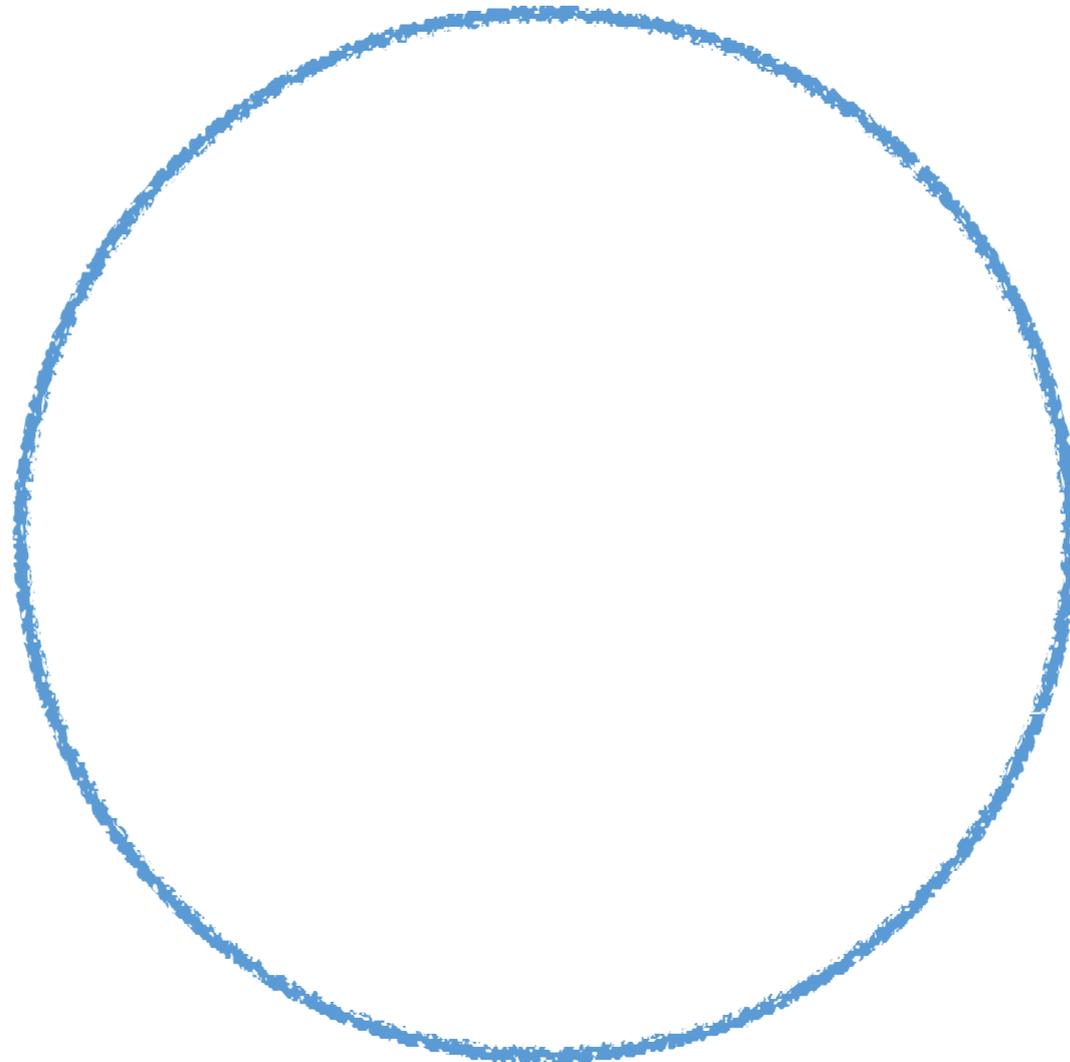
Universe of possible solutions to our problem

Universe of possible solutions to our problem
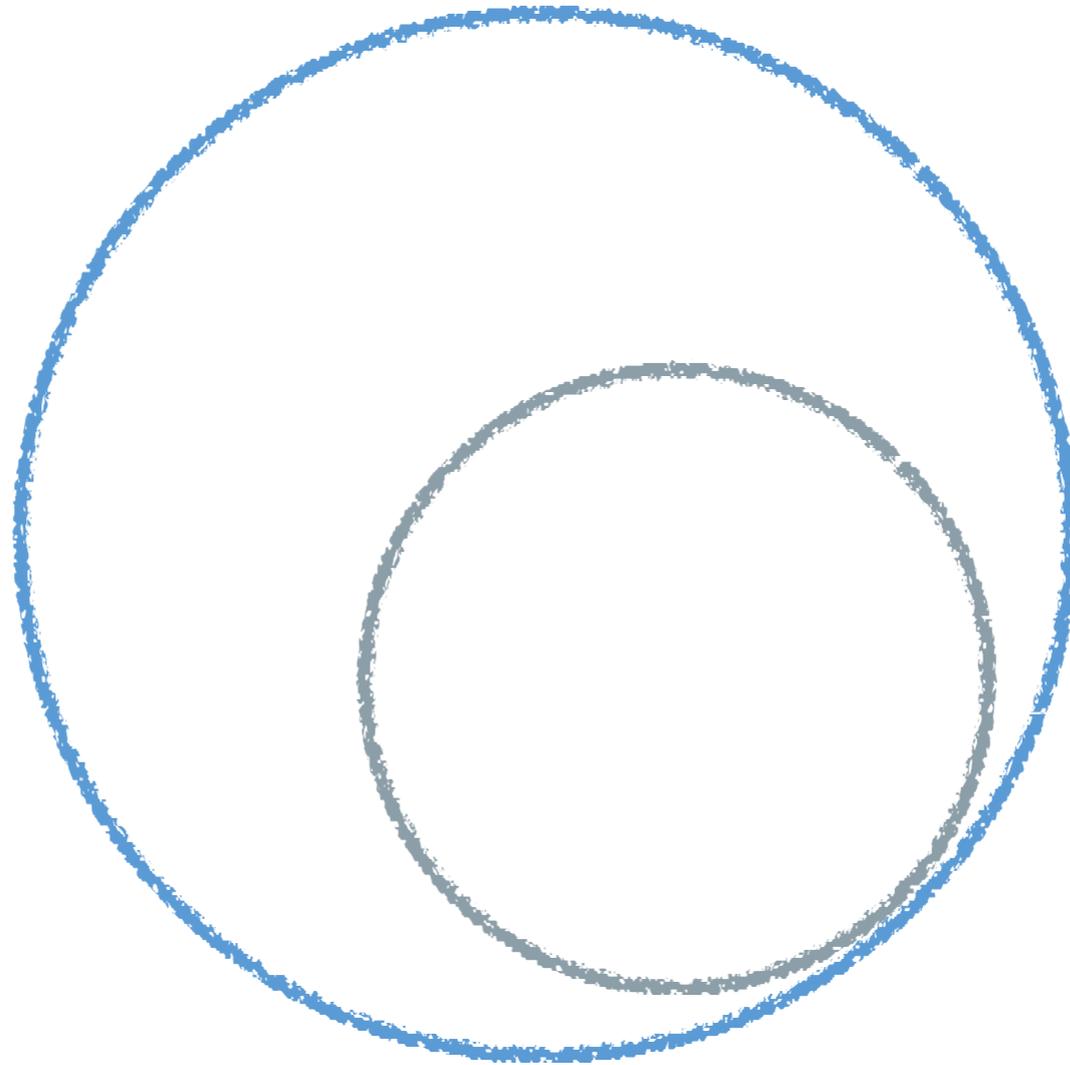
Universe of possible solutions that our tool allows

Methodology - Outline

Universe of possible solutions to our problem
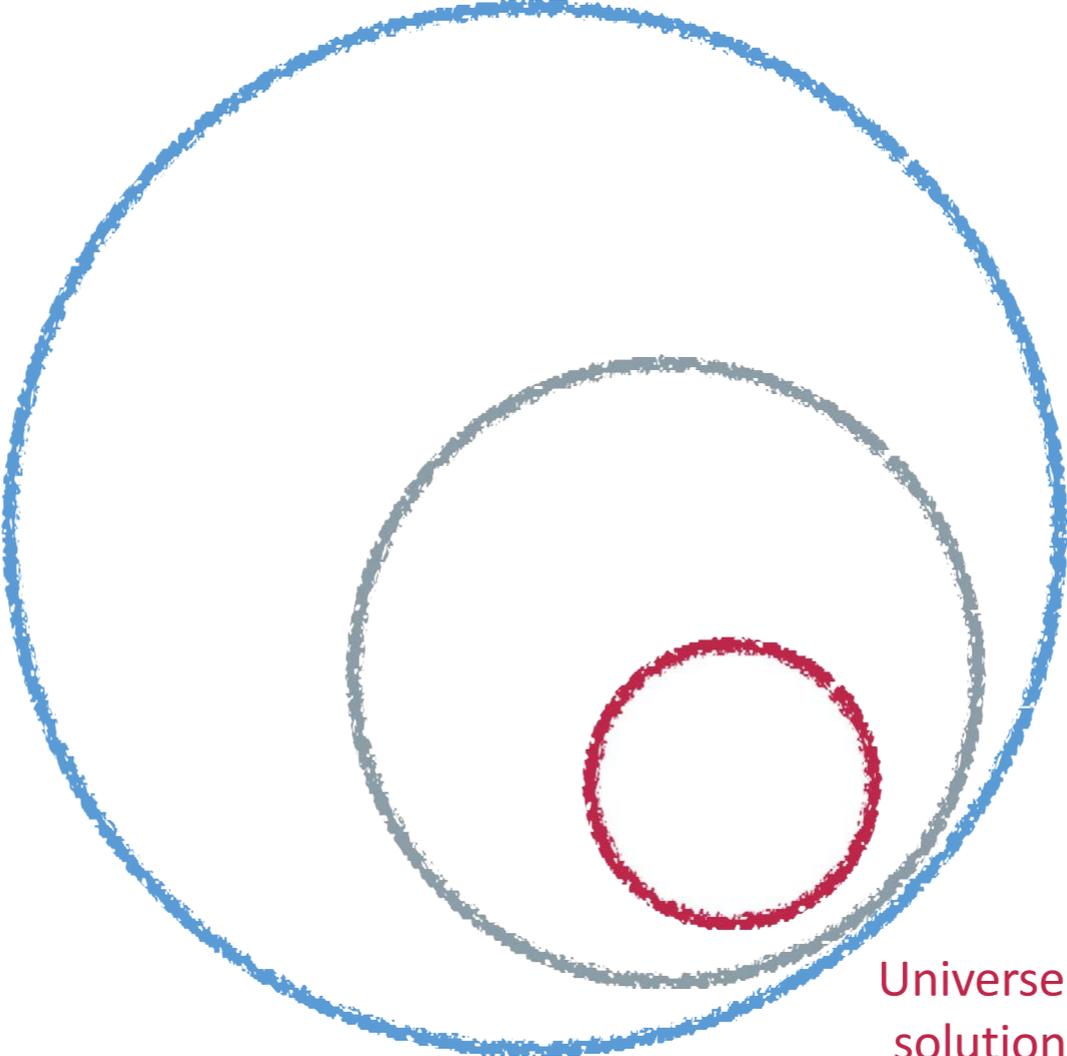
Universe of possible solutions that our tool allows

Universe of possible solutions we know how to implement with our tool

Methodology

Tools such as PowerBI and similar ones are very useful internally.

Resources need to be dedicated to implementing the use of web technologies for visualisations that make better use of the digital medium

[Ministry of Territory: Residential land uses](#)
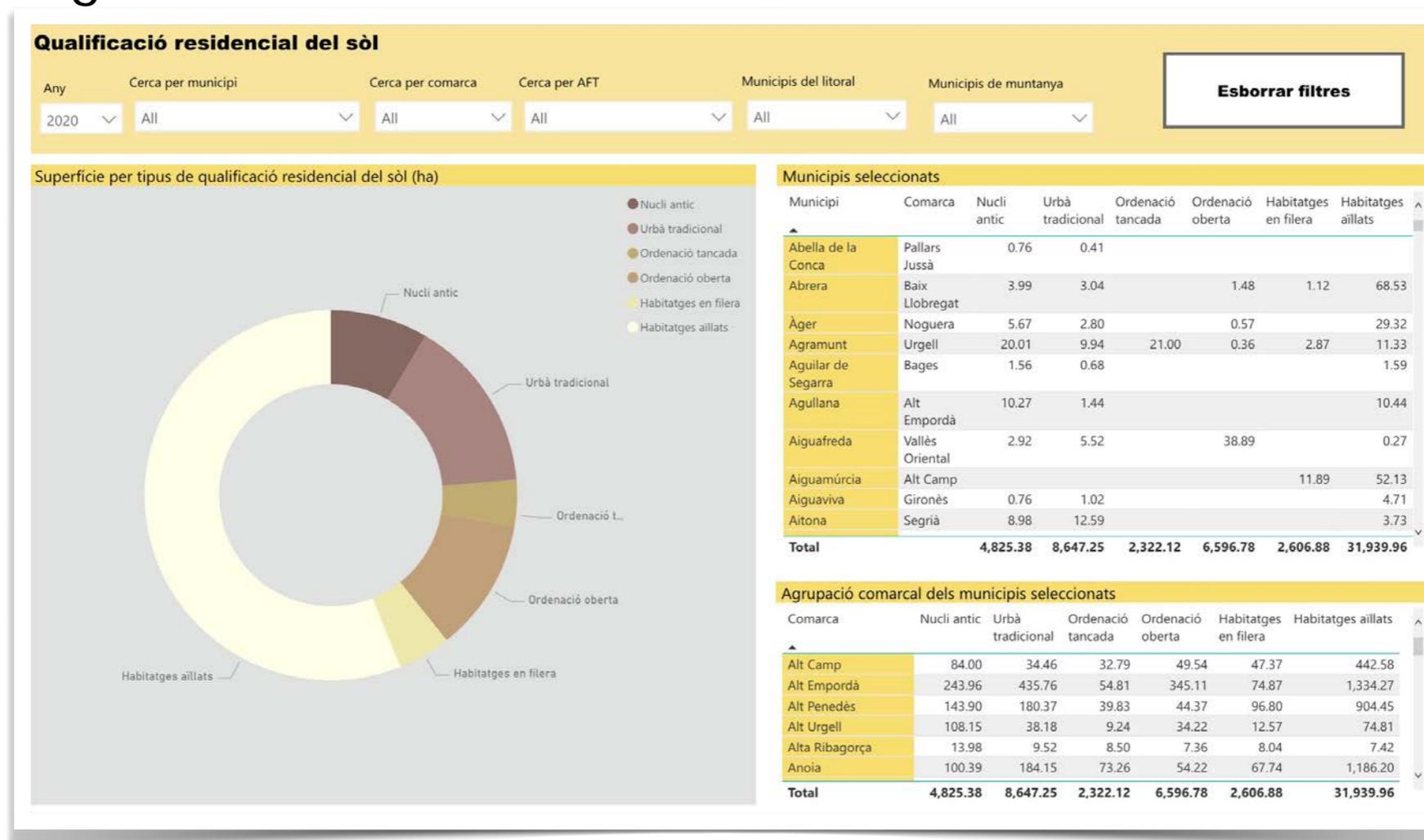
# Requirements for good visualisations in public administration

Requirements

➡ Follow a coherent and "corporate" design

▸ Users should be able to identify the Generalitat's visualisations

▸ Follow the rules for designing graphics (avoid using too much colour)
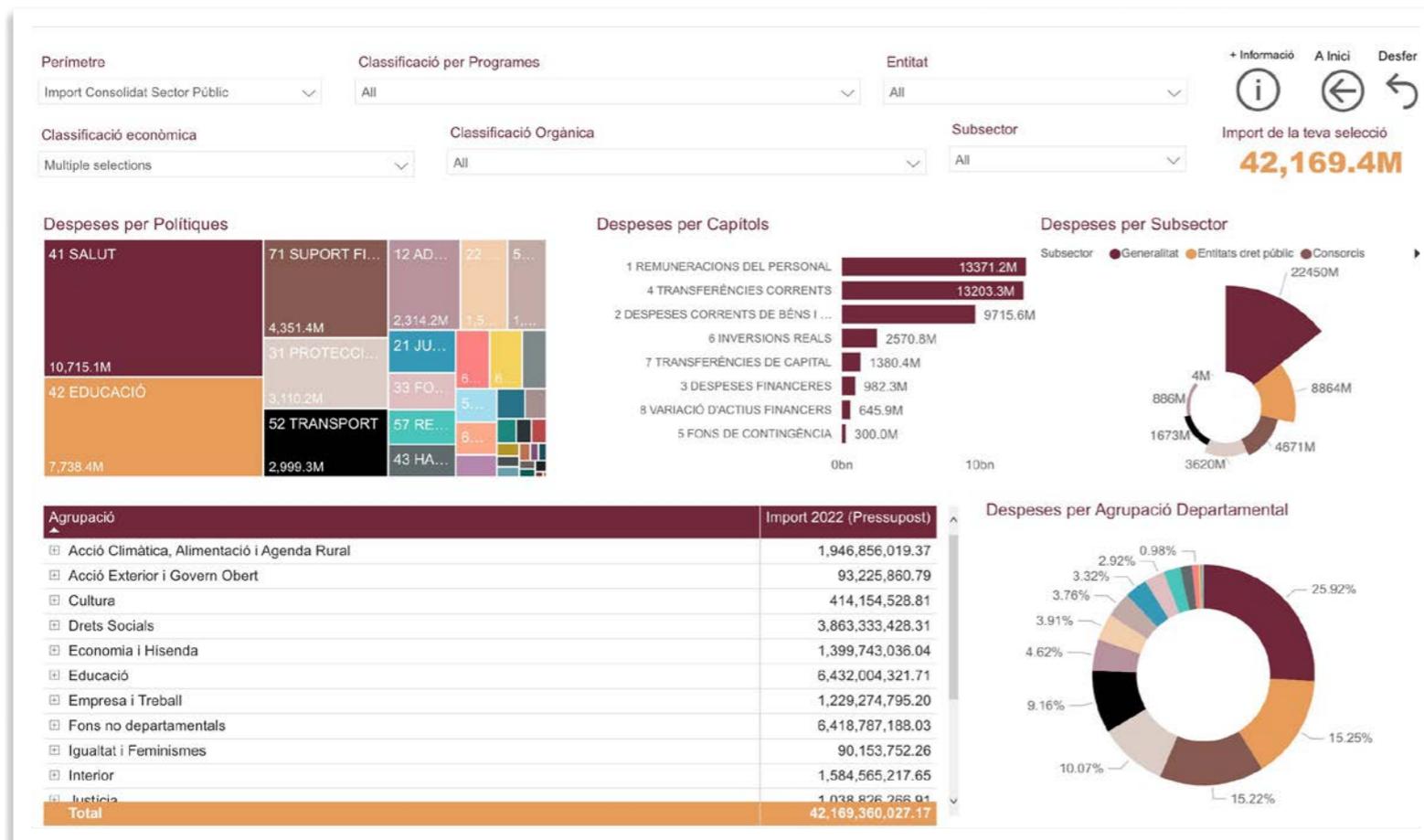
Ministry of Economy and Finance: Interactive budgets
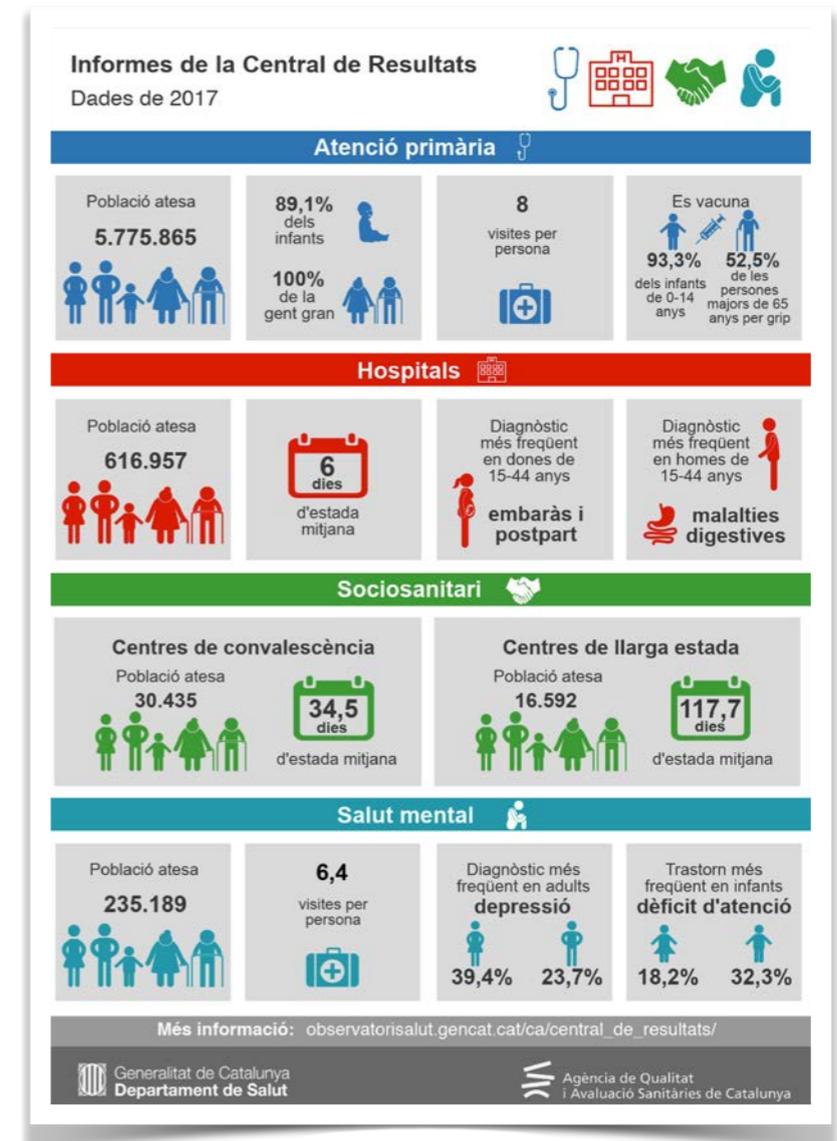
Ministry of Health - Results Centre Infographics

Requirements

➡ There is a need to harness the capabilities of digital media

▸ PDF is an obsolete format (people do not read long reports)

Requirements

➡ Responsive

▸ They must be adaptable to all types of devices

Santa Coloma - Municipal Action Plan
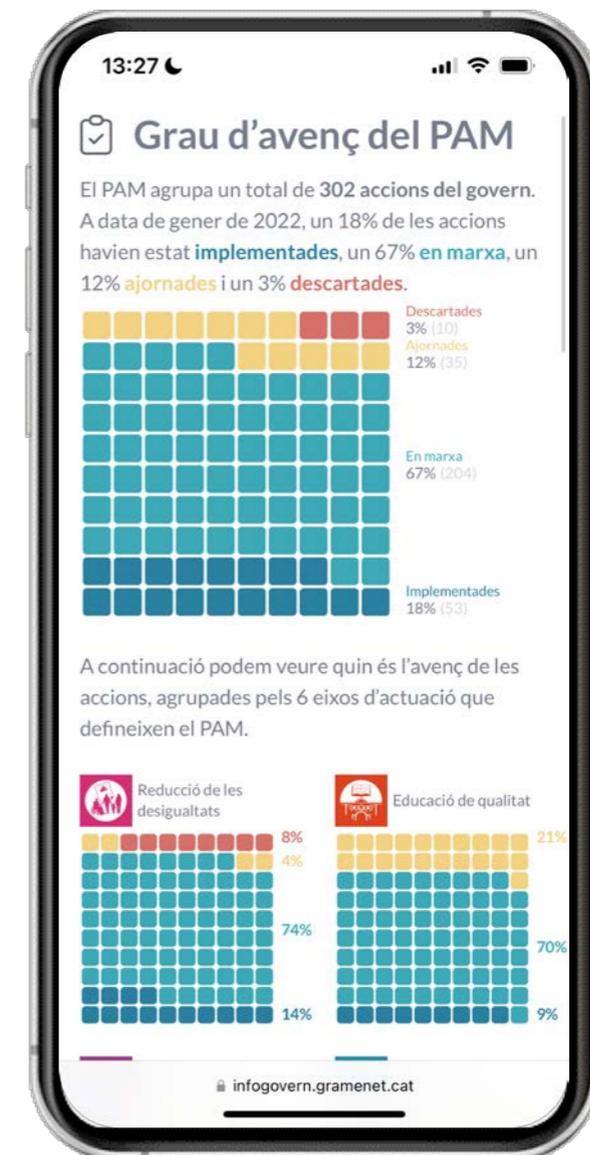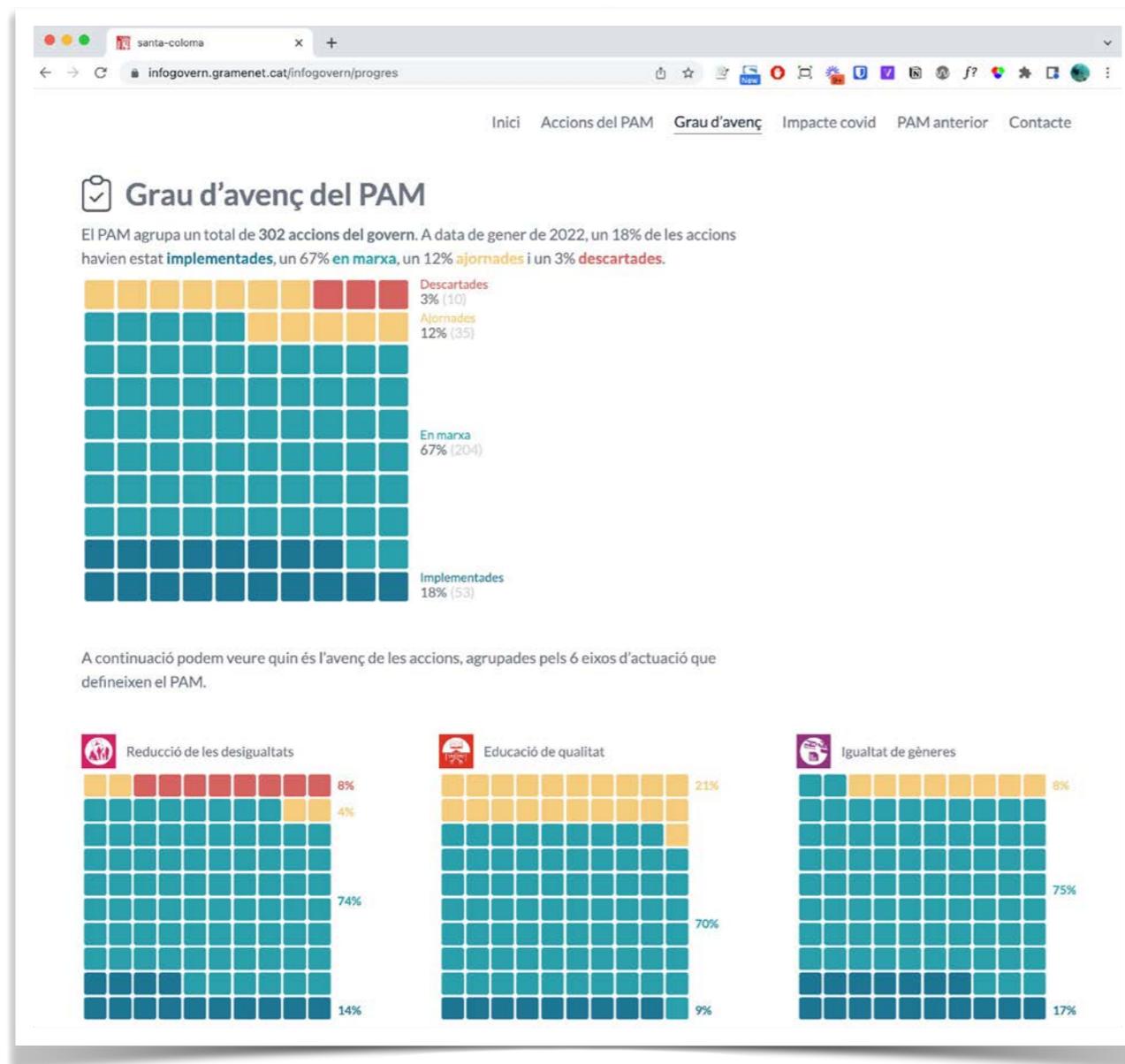
Requirements

➡ Accessible

▸ Care must be taken in the use of colours (do not use too much)

▸ Make it easier for graphics to follow standards and make it easier for screen readers to read graphics

Ministry of Economy and Finance: Interactive budgets
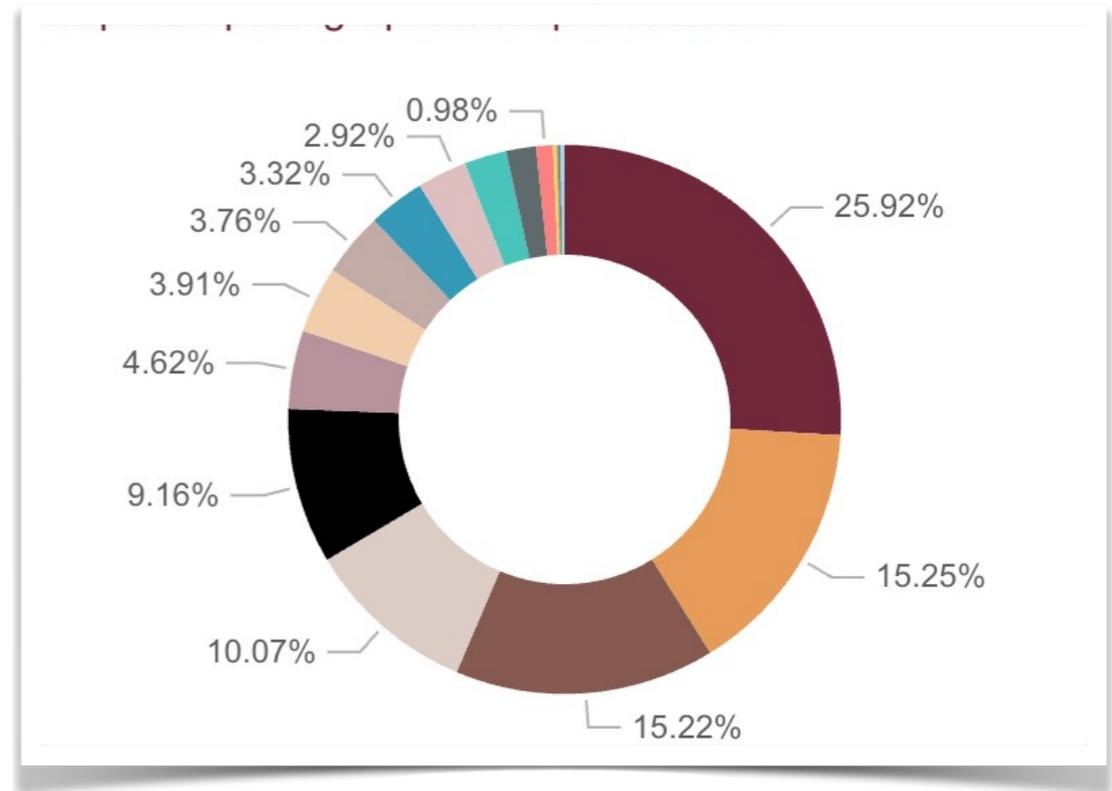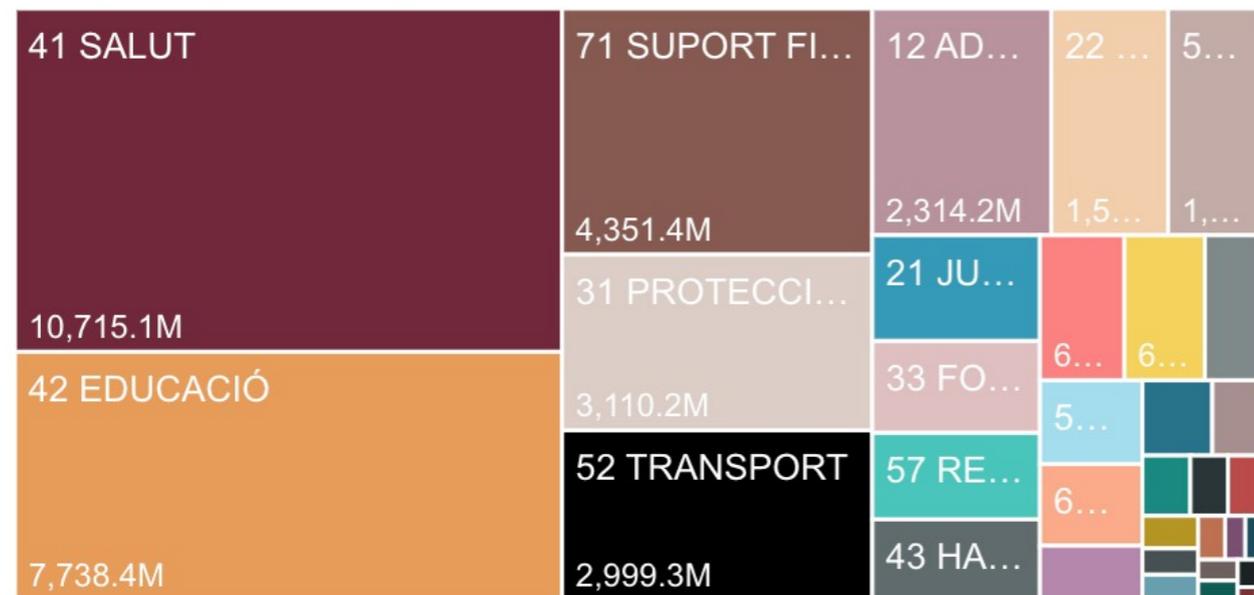
Requirements

For the public (explanatory visualisations):

➡ Use citizen-friendly nomenclature

➡ Accompany the graphics with text explaining what not everyone knows
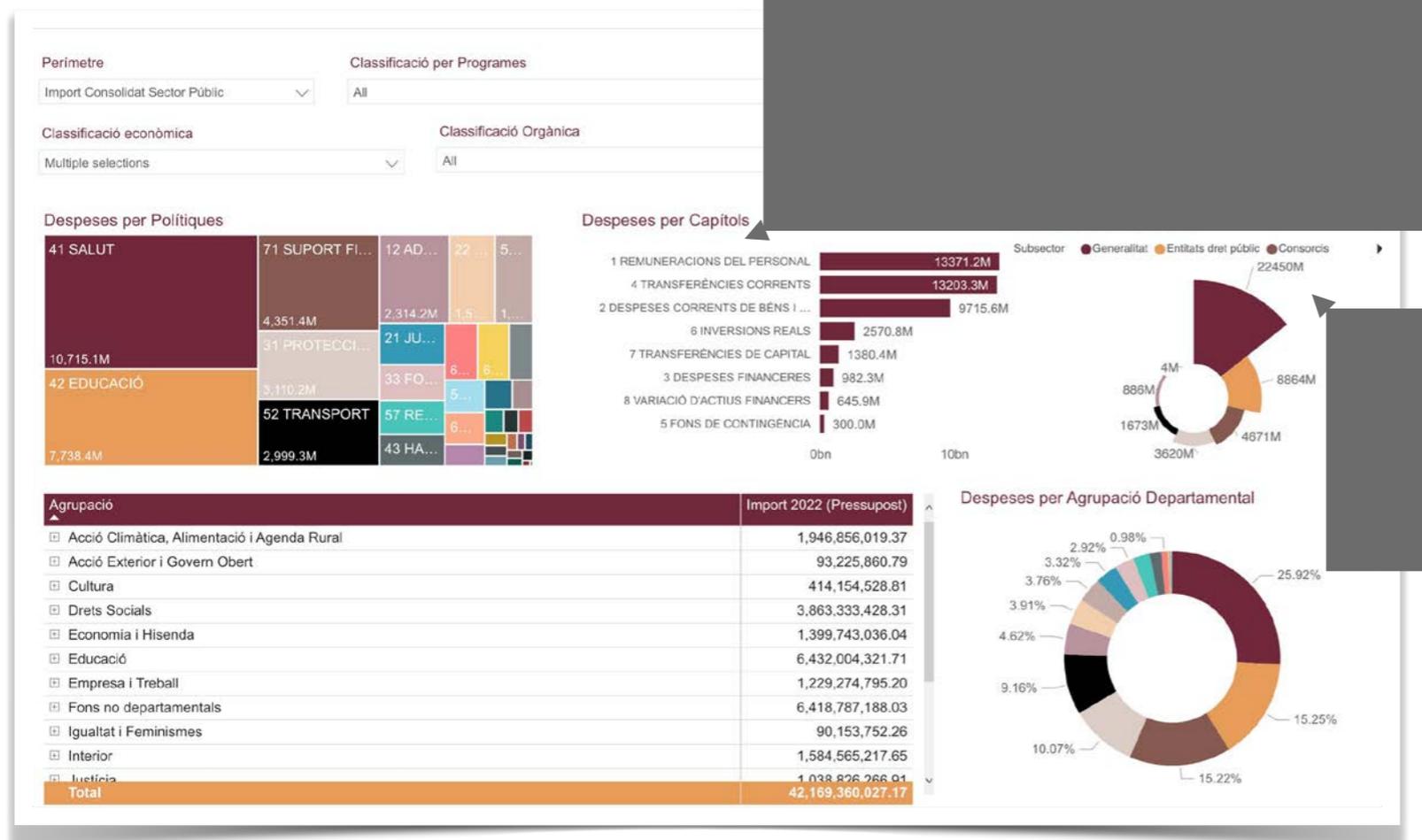
What is a budget chapter?

What is a sub-sector?

The New York Times

See Everything the White House Wanted, and Everything It Got

By Aatish Bhatia, Francesca Paris and Margot Sanger-Katz

Give this article   325

President Biden's Legislative Agenda

Proposed $4,368 billion   Passed $1,451 billion

Show detail

Climate $509

Education $0

Utilities $152

Health Care $129

Manufacturing $93

Transportation $272

Families $0

Buildings $13

Veterans $283

All amounts in billions
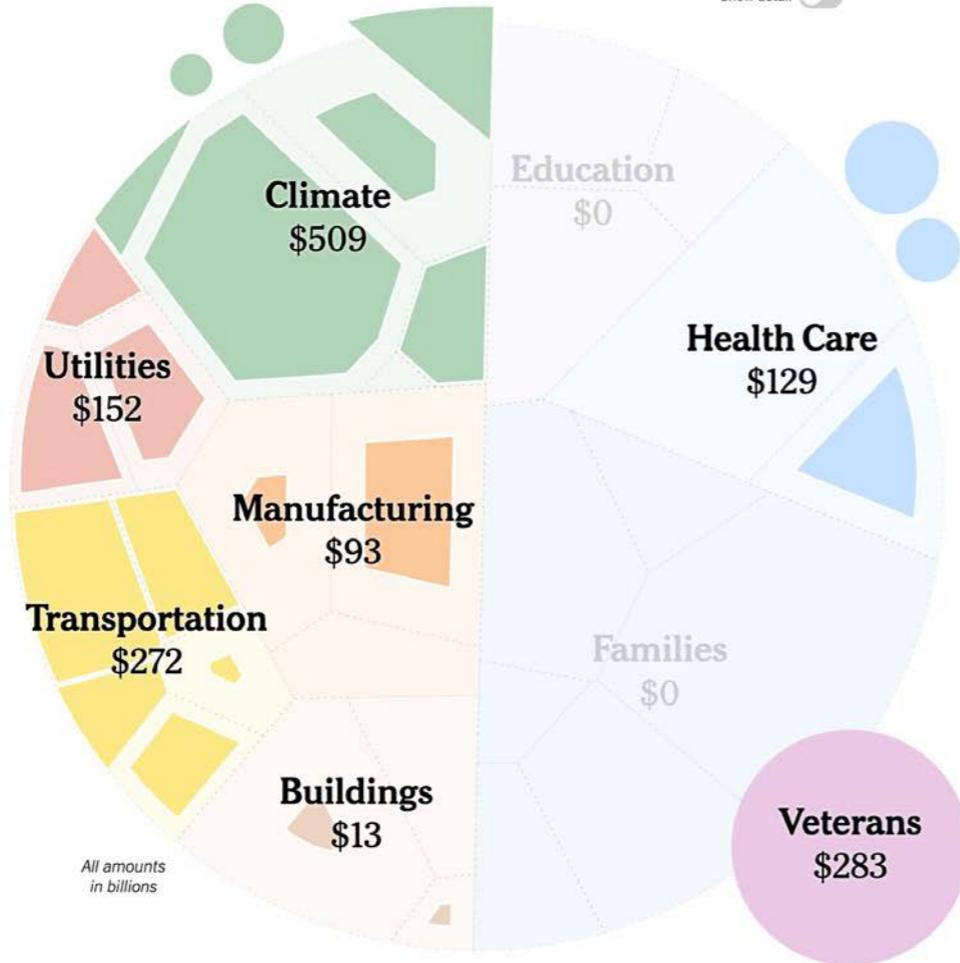
Sources: Office of Management and Budget; Congressional Budget Office; U.S. Senate Committee on Environment and Public Works; and Committee for a Responsible Federal Budget. · Note: Figures combine estimates of direct spending and tax credits.

Climate and Environment

Proposed $722 billion   Passed $509 billion

Agriculture $18

Air pollution $9

Resilience $70

Electric vehicles and clean fuels $47

Clean polluted sites $25

Cleaner energy $281

Manufacturing low-carbon tech $59

Civilian Climate Corps $0
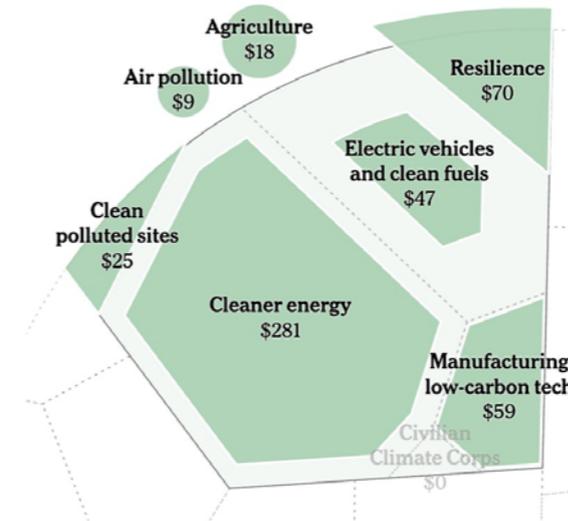
On climate, the Biden administration got much of what it wanted. The bills included substantial spending on climate resilience and incentives to manufacture low-carbon technologies. The majority of the funding came from the Democrats' Inflation Reduction Act, which estimates show will help lower greenhouse gas emissions by about 40 percent below 2005 levels by 2030. But the bipartisan infrastructure bill also included money for electric vehicle charging, low-emission school buses and other climate-related projects.

Transportation and Utilities

Proposed $638 billion   Passed $424 billion

Power $32

Water $55

Broadband $65

Railways $66

Roads and bridges $121

Improve connectivity $4

Airports and ports

New York Times - See Everything the White House Wanted, and Everything It Got
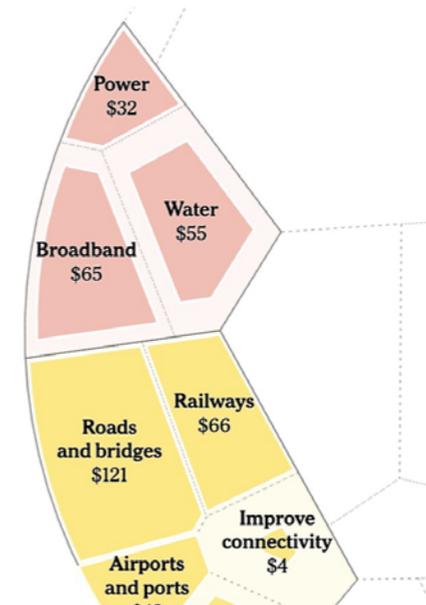
Summary

➡ Data visualisation enables better understanding of the data and better decision-making

➡ Effort and resources need to be devoted to improving:

- ▶ How data is communicated to citizens

- ▶ How data is visualised and explored by decision-makers

➡ Current tools such as PowerBI facilitate visual analysis but:

- ▶ They are not suitable for sending messages to citizens
- ▶ Visualisation skills are necessary to use them

  properly
- ▶ For citizens and decision-makers, web development capabilities need to be exploited

Víctor Pascual

in https://www.linkedin.com/in/vpascual

🐦 @vpascual

✉ victor@onetandem.com

Thank you very much!