

Data as a Commons Open Data

a course for the phd students of GSSI - Gran Sasso Science Institute

Maurizio Napolitano
<napolitano@fbk.eu>

Course Introduction

The course aims to explore the concept of **data as a common resource** that can be shared, reused, and collaboratively managed for the **benefit of all**.

It is designed students in the **fields** of **computer** science, **social** sciences, and related areas, with the aim of creating **cross-disciplinary** contamination and uniting knowledge.

[more information here](#)

<https://www.qssi.it/seminars/seminars-and-events-2023/item/22282-data-as-commons>



Learning Outcomes

Understand the concept of **data as a commons** and its significance in contemporary society

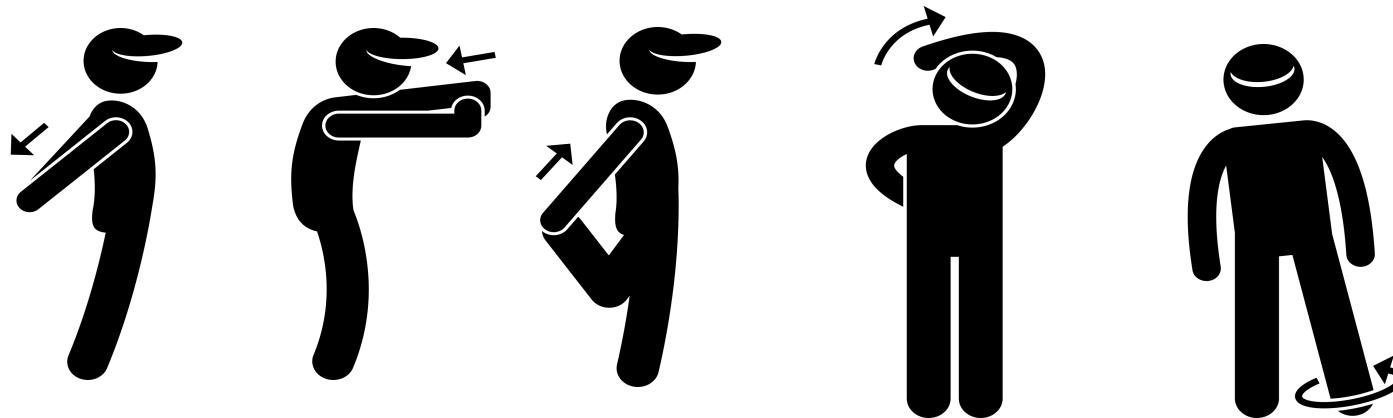
Recognize the benefits and challenges of the **data economy** and the impact on the society

Appreciate the role of **open data** initiatives, **dataspace**, and **civic hacking** in promoting **transparency**, accountability, and **innovation**

Learn **data visualization** techniques and tools to create meaningful insights from data.



Warming-up



Some questions before to begin ...

Tell me a little about yourselves



During the lesson, students filled out a quick survey to orient the lesson

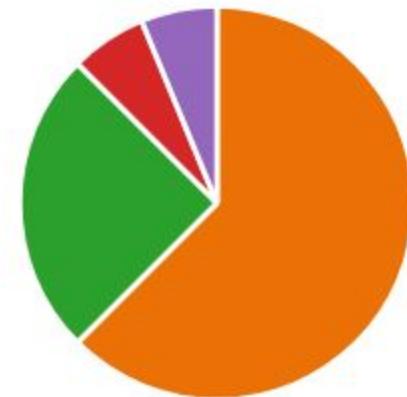


The following slides present the results

1. data as a commons

[More Details](#)

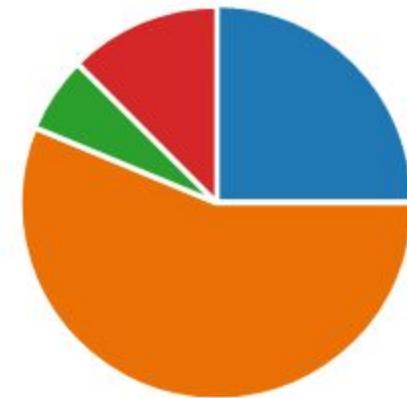
- the teacher misspelled: it should... 0
- commons is the cultural and nat... 10
- data is in common use in today'... 4
- open science 1
- Other 1



2. if I say open data, your first thought is?

[More Details](#)

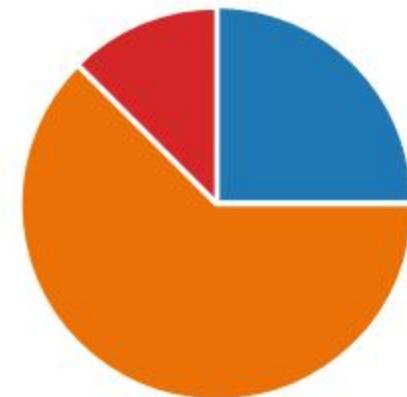
- data from the public administration 4
- transparency 9
- I am here to learn 1
- useless data that you find online 2



3. in your work you make use of data to ...

[More Details](#)

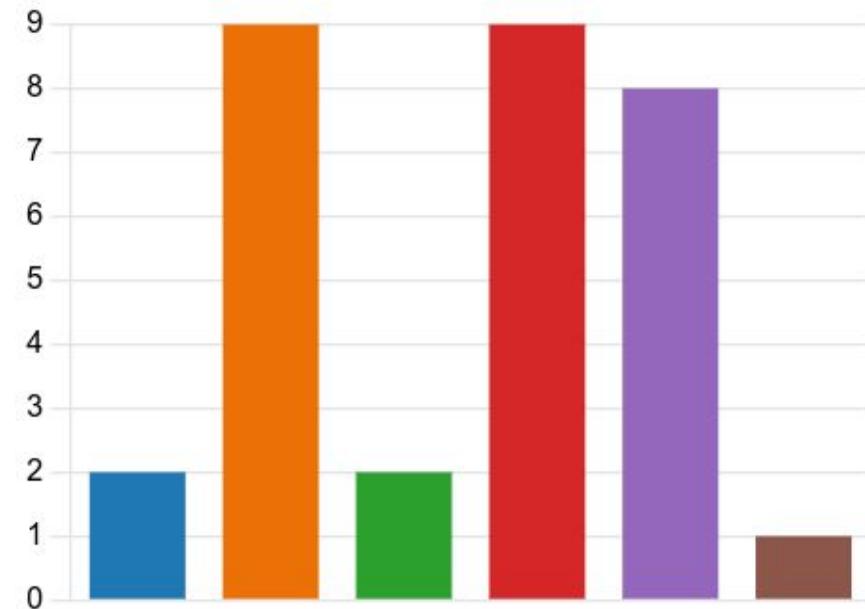
- make decisions 4
- analyse a phenomenon 10
- create digital services 0
- Other 2



4. if I find a dataset

[More Details](#)

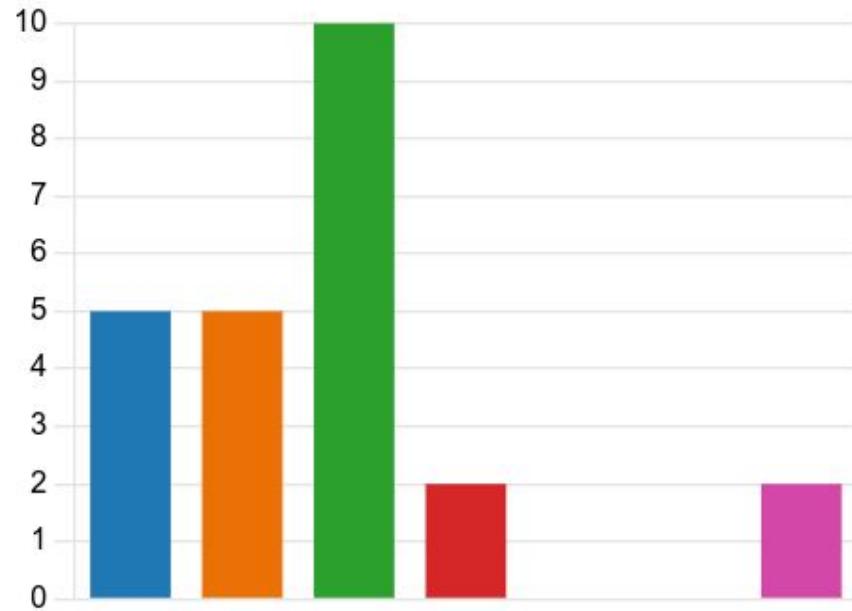
- I return it to the owner 2
- I wonder how I can display it 9
- looking for information on reus... 2
- I am looking for a description of... 9
- I proceed with an exploratory a... 8
- Other 1



5. my favourite tool for analysing data is

[More Details](#)

● software like MS Excel	5
● R	5
● Python/Pandas	10
● Julia	2
● Tableau and similar tools	0
● whatever happens	0
● Other	2



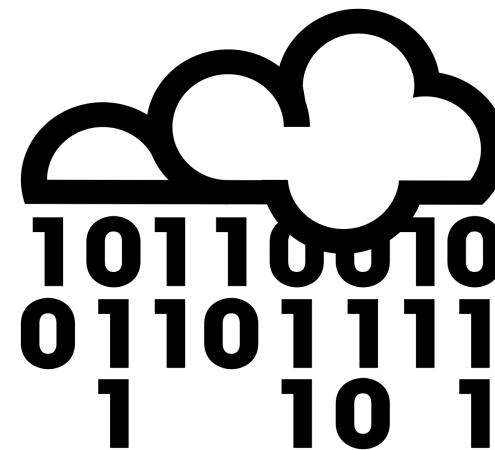
describe with a keywords what you mean with data

Decision information of any thing raw information
Source da **Informations** Resource
 Basis for information
Data is information Knowledge Structured information

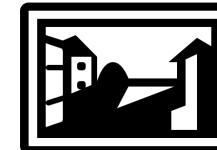
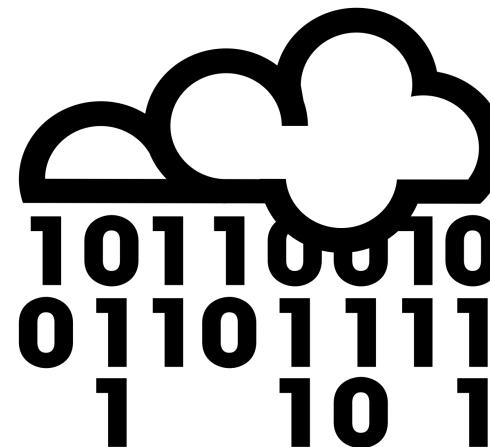
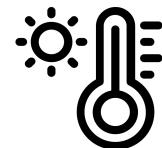
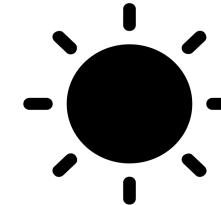
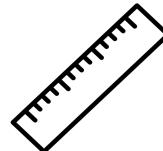
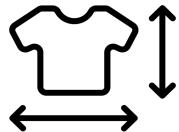
No
interviews **Documents** Everyday life
storage Statistics
Currency Transparency Kwonledge

Essential
Bias No word Word
Analysis accessibility

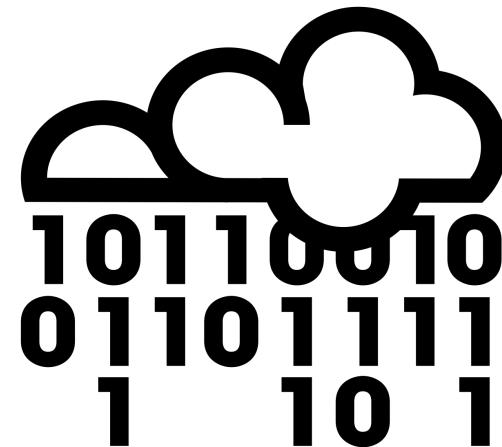
What do we mean by data?



What do we mean by data?



Facts



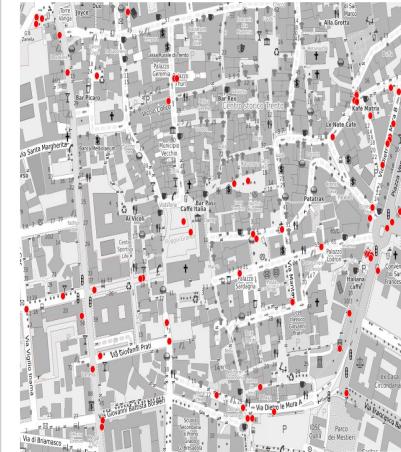
Digital

Data is used to take decisions

DATA

```
1 type,name,lon,lat
2 segnalazione,...,Abbandono natalizi,11.1125099,46.074794
3 segnalazione,...,Abbandono abusivo rifiuti voluminosi,11.181438,46.131315
4 segnalazione,...,Abbandono cerchione bici legato,11.118635,46.07842
5 segnalazione,...,Abbandono di rifiuti,11.115988,46.081763
6 segnalazione,...,Abbandono rifiuti,11.121338,46.06985
7 segnalazione,...,Abbandono rifiuti,11.091782,46.120259
8 segnalazione,...,Abbandono rifiuti,11.121338,46.06985
9 segnalazione,...,Abbandono rifiuti,11.121338,46.120259
10 segnalazione,...,ABANDONO RIFIUTI,11.131452,46.036941
11 segnalazione,...,Abbandono rifiuti,11.121338,46.069851
12 segnalazione,...,Abbandono rifiuti,11.121338,46.069851
13 segnalazione,...,Abbandono rifiuti,11.139817,46.069441
14 segnalazione,...,Abbandono rifiuti,11.108138,46.059206
15 segnalazione,...,abbandono rifiuti,11.108138,46.059206
16 segnalazione,...,abbandono rifiuti e cavalloccio comunale abbandonato,11.139847,46
17 segnalazione,...,Abbandono rifiuti e degrado,11.116882,46.084837
18 segnalazione,...,abbandono rifiuti,mini discarica al Ponte S.Lorenzo",11.116769
19 segnalazione,...,abbandono,ingombraente,11.115106,46.057397
20 segnalazione,...,ABANDONO SACCO RIFIUTI IN AREA PRIVATA,11.121338,46.069851
21 reclamo,...,ACCESO ALLO SPATTO SALONE EX CENAC,11.121338,46.069851
22 segnalazione,...,Accesso ai docce pubbliche privi correttamente installati ci
23 segnalazione,...,Accesso area per sali autorizzati al cinturone,11.118921,46.063361
24 segnalazione,...,Accesso centro raccolta rifiuti,11.110547,46.059348
25 segnalazione,...,Accesso di macchine non autorizzate,11.121338,46.069851
26 segnalazione,...,"Accumulo foglie secche, loc. Candriai - parco pubblico",11.0817
27 segnalazione,...,accumulo rifiuti e resti di bici,11.126608,46.06880
28 segnalamento,...,acqua che scola a forte intensità sul marciapiede,11.118353,46.0
29 segnalazione,...,Acqua che scola a forte intensità sul marciapiede,11.118353,46.0
30 segnalazione,...,adeguamento marciapiede,11.121338,46.069851
31 segnalazione,...,adeguamento marciapiede,11.150208,46.073499
32 segnalazione,...,Aghi di siringhe e sangue su di una panchina,11.126777,46.072744
33 segnalazione,...,Allanto su bordo strada,11.126305,46.080664
34 suggerimento,...,Aiutola,11.11338,46.107268
35 segnalazione,...,Alzare la curva,11.120494,46.062181
36 reclamo,...,IN VIA MAGNACONI IN COMPLETO ABANDONO ..,11.121338,46.069851
37 suggerimento,...,Aiuta poco curata,11.120274,46.080620
38 segnalazione,...,Alberatura Corso 3 Novembre Trento,11.121338,46.069851
```

INFORMATION

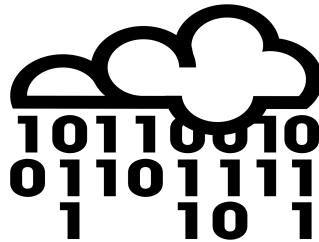


KNOWLEDGE

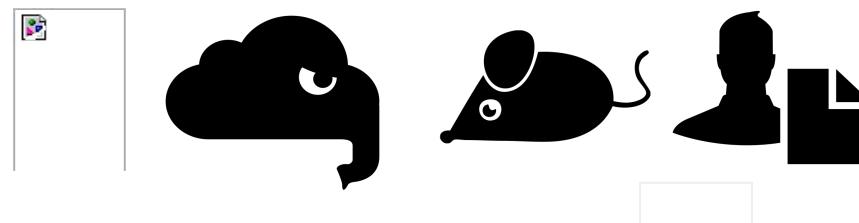


ACTION

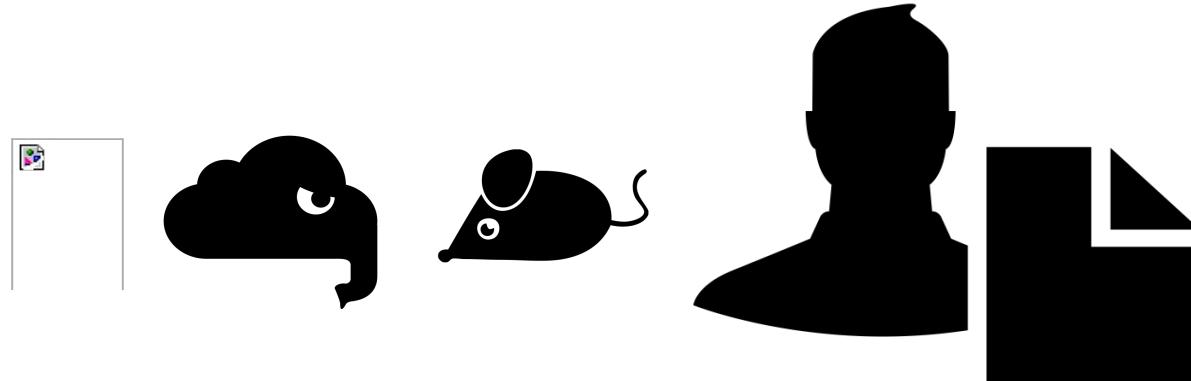
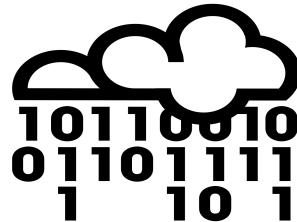
Definition of new areas to be monitored and related pathways



Kind of data

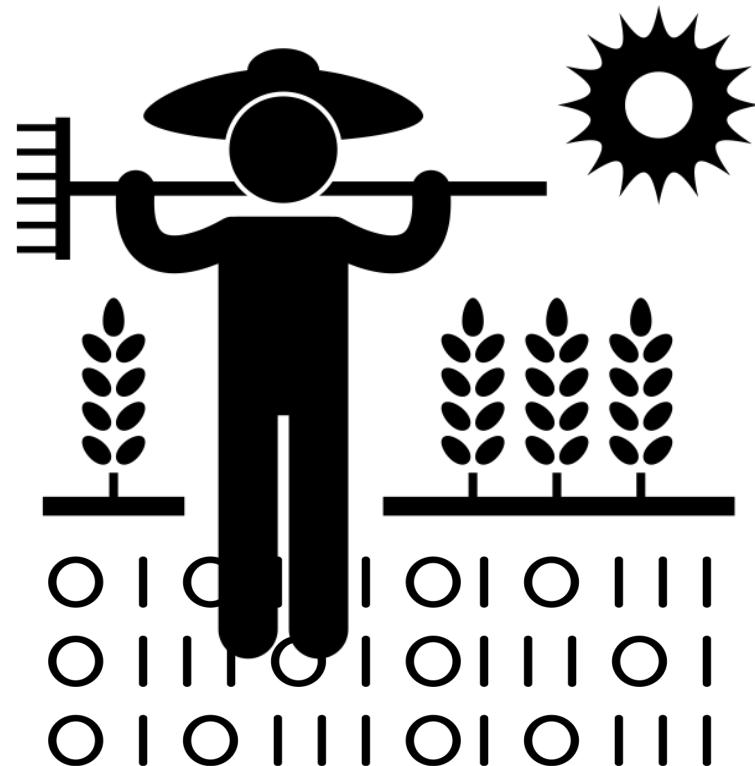


Personal Data



Information about individuals

the digital sharecropper



Customer Data: Designing for Transparency and Trust

by Timothy Morey, Theodore "Theo" Forbath, and Allison Schoop

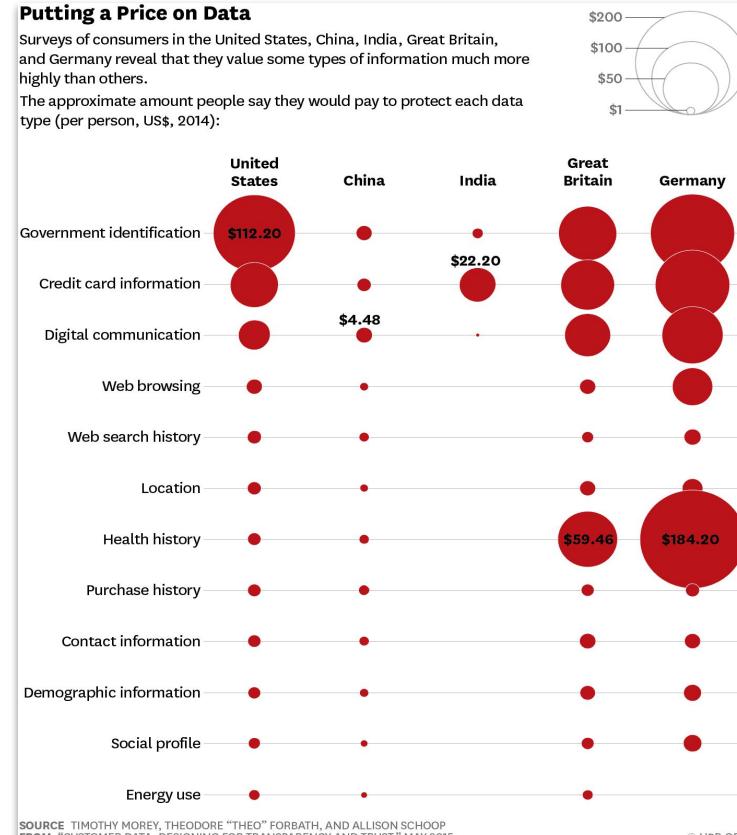
FROM THE MAY 2015 ISSUE



Putting a Price on Data

Surveys of consumers in the United States, China, India, Great Britain, and Germany reveal that they value some types of information much more highly than others.

The approximate amount people say they would pay to protect each data type (per person, US\$, 2014):



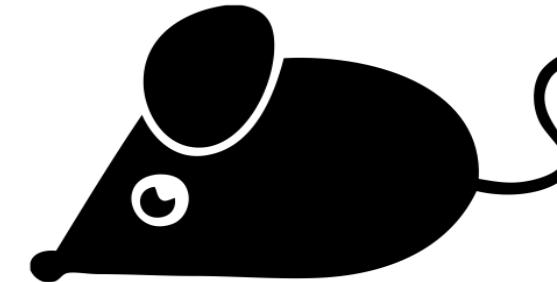
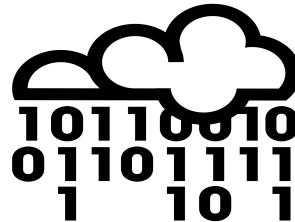
SOURCE TIMOTHY MOREY, THEODORE "THEO" FORBATH, AND ALLISON SCHOOP
FROM "CUSTOMER DATA: DESIGNING FOR TRANSPARENCY AND TRUST," MAY 2015

© HBR.ORG

<https://hbr.org/2015/05/customer-data-designing-for-transparency-and-trust>

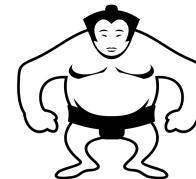
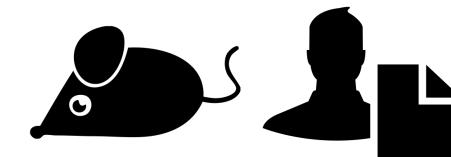
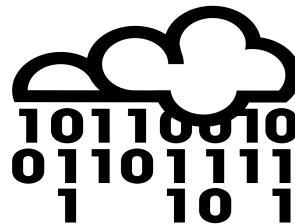
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Small Data



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Big Data





 **DevOps Borat**
@DEVOPS_BORAT



Big Data is any thing which is crash Excel.

 Visualizza traduzione

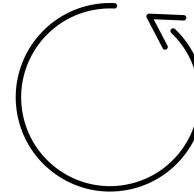
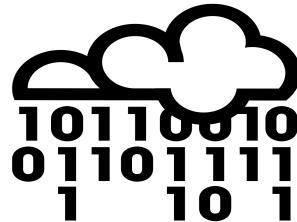
   ...

RETWEET	PREFERITI
2.134	549



18:25 - 8 gen 2013

Open Data





il welcome desk dell'Open Data Institute

Today: Open Data

Brief History

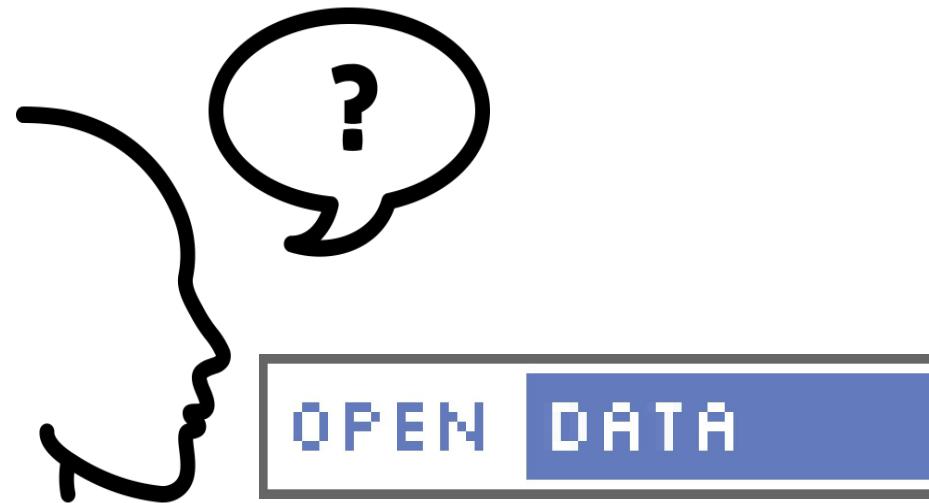
Open Government

Technical and legal issues

Social Impacts

The state of the art





Past

Freedom of information

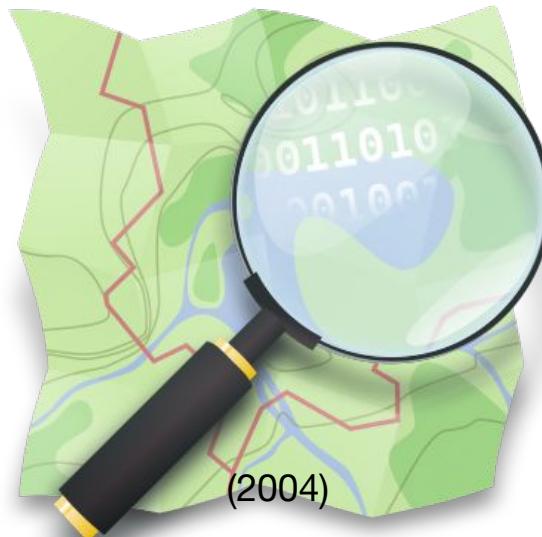
The need of Open Data



125 years ago!

[...] I could have certainly done more, especially regarding the statistical aspects, however, in our country both private and non-profit organizations show reluctance relying on public domain for data, information and content [...] - Cesare Battisti

From the "Preface" of *Il Trentino*,
Giovanni Zippel Editore, Trento, 1898)

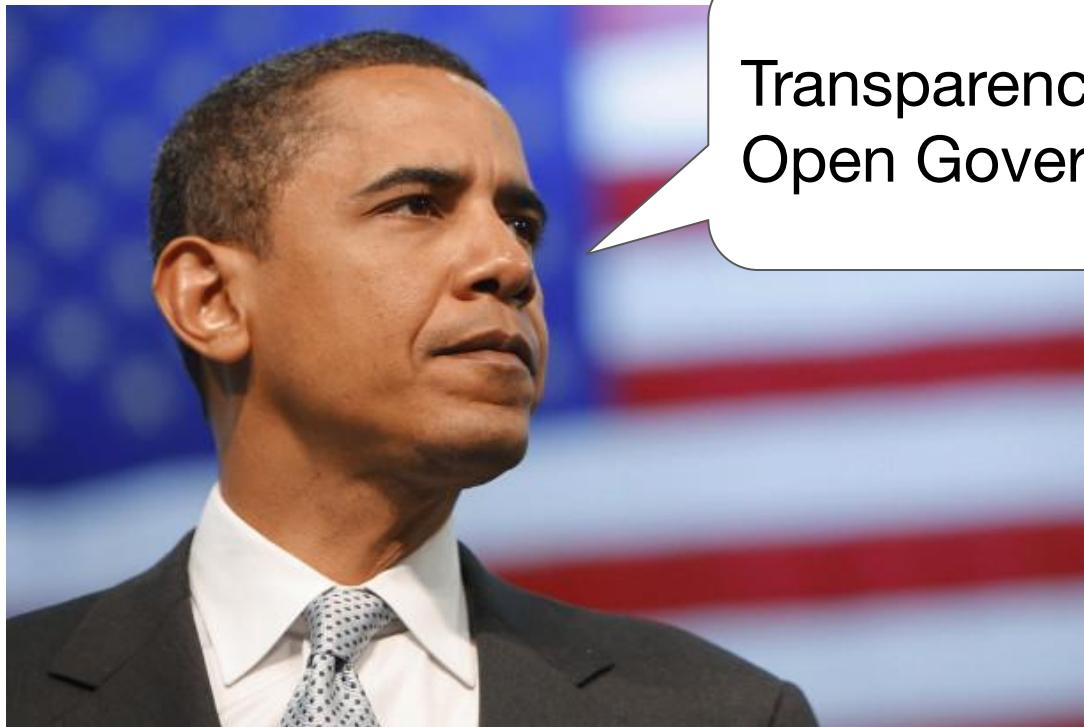


won't you give me the data?
Let's collect them together

Begin 2009

Open Government

In 2009 this guy ...

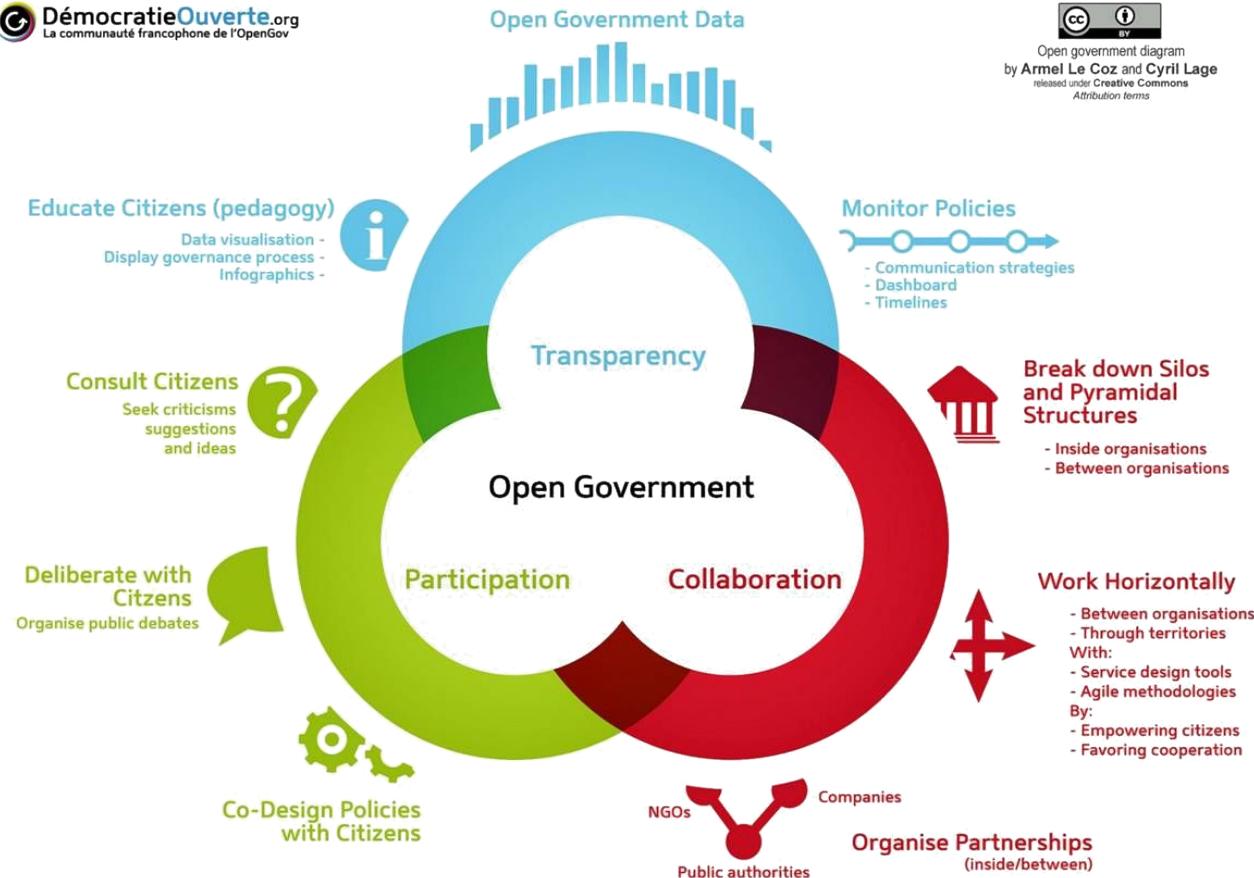


Open Government Partnership



▶ ▶ 🔍 0:01 / 2:41

CC BY HD □ □ □



An official EU website How do you know? ▾

EUR-Lex

EN ?

☰ QUICK SEARCH

[Search tips](#) Need more search options? Use the [Advanced search](#)

Document 32013L0037

Directive 2013/37/UE du Parlement européen et du Conseil du 26 juin 2013 modifiant la directive 2003/98/CE concernant la réutilisation des informations du secteur public Texte présentant de l'intérêt pour l'EEE

OJ L 175, 27.6.2013, p. 1–8 (BG, ES, CS, DA, DE, ET, EL, EN, FR, IT, LV, LT, HU, MT, NL, PL, PT, RO, SK, SL, FI, SV)
Special edition in Croatian: Chapter 16 Volume 004 P. 27 - 34

No longer in force, Date of [Table of contents](#) 32019L1024

Data as a Commons - Maurizio Napolitano

Open Definition

Open means **anyone** can **freely access, use, modify, and share** for any **purpose** (subject, at most, to requirements that preserve provenance and openness)



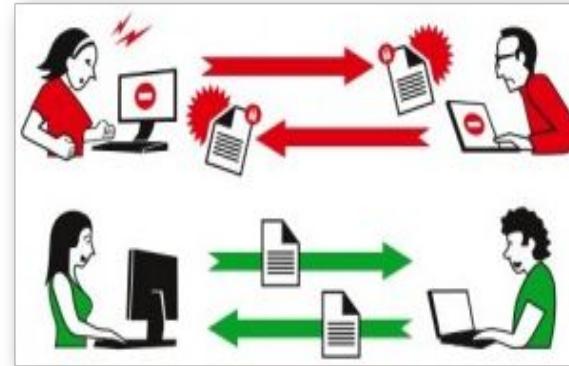
<http://opendefinition.org/>

Summary

legal aspects



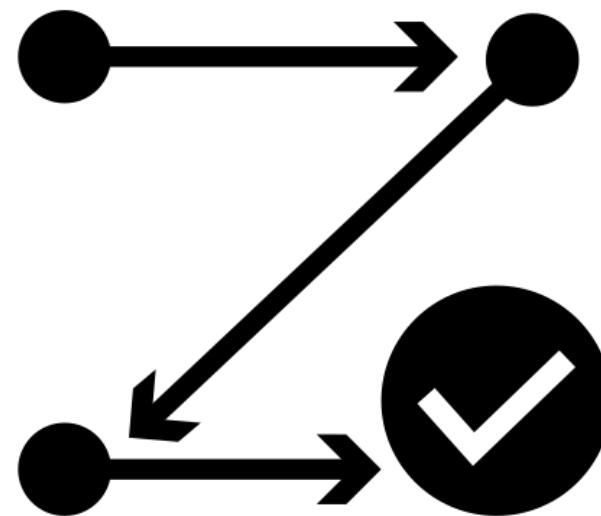
technological neutrality



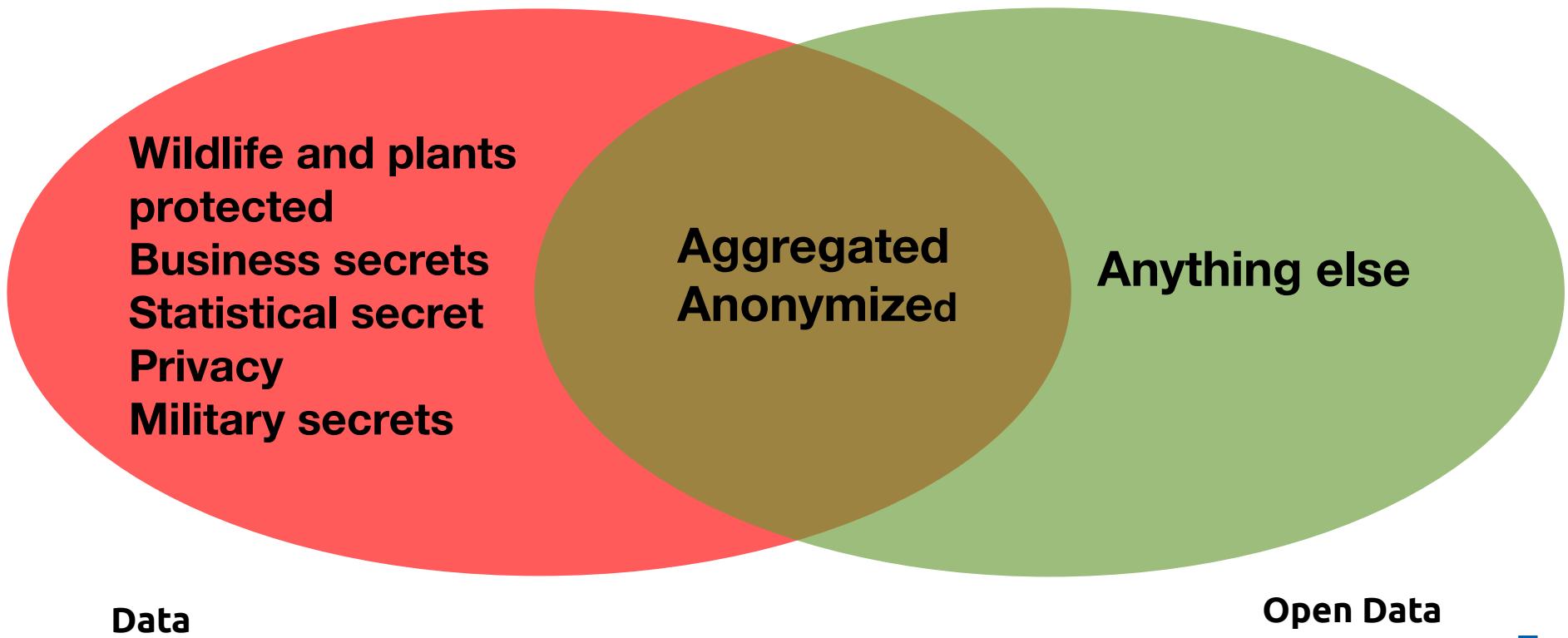
improve the reuse



HOW TO



DATA and OPEN DATA



Data

Open Data



HOWTO 1/4

Transform into structured data



Name	Lastname	Address	Height	Age
Maurizio	Napolitano	Via Pietrastreetta 125, Trento	180	40
Francesca	Chiara	L'Aquila	170	nd
Cristian	Consonni	Via Sommarive 2, Trento	172	25
Antonella	Lea	Piazza Pia 12, Cesena	1,73	35
Lihua	Ma	Dalian, China	1.80	45

HOWTO 1/4

Transform into structured data



Name	Lastname	Address	Height	Age
Maurizio	Napolitano	Via Pietrastreetta 125, Trento	180	40
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HOWTO 1/4

Transform into structured data



Name	Lastname	Address	Height	Age
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Antonella	Lea	Piazza Pia 12, Cesena	1,73	35
Lihua	Mo	Dalian, China	1.80	45

CHECK THAT THE DATA CONSISTENCY

HOWTO 1/4

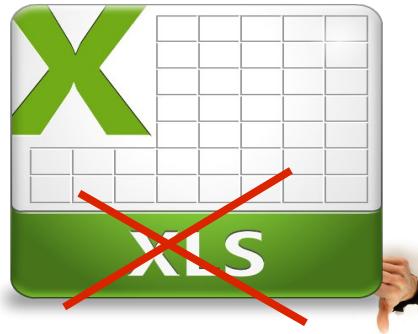
Transform into structured data



Name	Lastname	Address	Height	Age
Maurizio	Napolitano	Via Pietrastreetta 125, Trento	180	40
Francesca	Chiara	Via Francesco Cripi 7, L'Aquila	170	nd
Cristian	Consonni	Via Sommarive 2, Trento	172	25
Antonella	Lea	Piazza Pia 12, Cesena	1,73	35
Lihua	Ma	大连市中山区 邮政编码: 116007	1.80	45

HOWTO 2/4

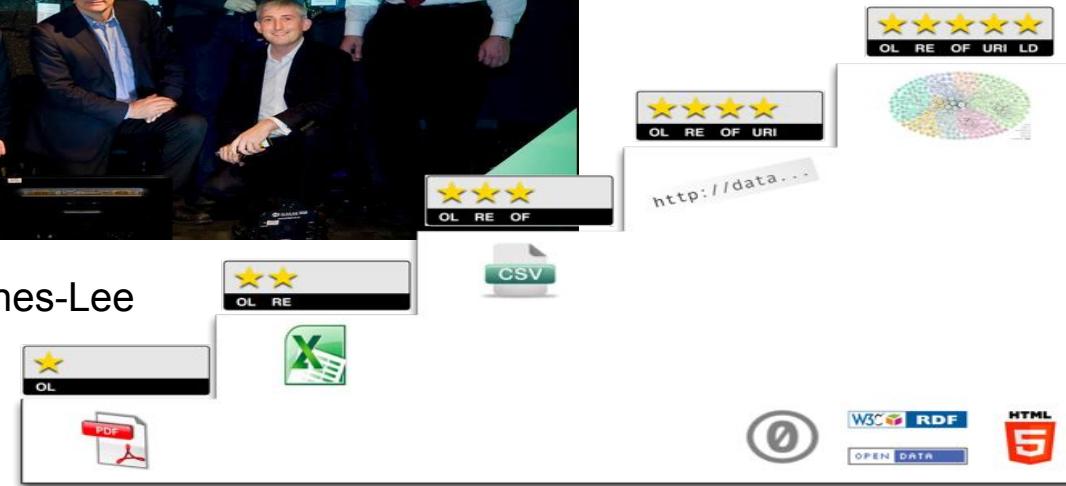
Use an open format



5 ★ Open Data



Tim Berners-Lee



Temperature forecast for Galway, Ireland	
Day	Lowest Temperature (°C)
Saturday, 13 November 2010	2
Sunday, 14 November 2010	4
Monday, 15 November 2010	7

The pdf doesn't offer structured data



A	B
Temperature forecast for Galway, Ireland	
3	
Day	Lowest Temperature (°C)
Saturday, 13 November 2010	2
Sunday, 14 November 2010	4
Monday, 15 November 2010	7

XLS is a proprietary format, then creates technological constraints

CSV is an open format, there are many software able to use it

HOWTO 3/4



Choose a license



Details on the licenses

Public Domain

PERMISSIONS



SHARE



CREATE



ADAPT

CONSTRAINTS



NOTHING

Attribution

PERMISSIONS



SHARE



CREATE



ADAPT

CONSTRAINTS



ATTRIBUTION

CC-BY
ODC-AL
IODL 2.0

Share alike

PERMISSIONS



CREATE



SHARE



ADAPT

CONSTRAINTS



ATTRIBUTION



SHARE ALIKE

CC-BY-SA
ODbL
IODL 1.0

HOWTO 4/4



Publish on a catalog with enough documentation

Agenzia per l'Italia Digitale

dati.gov.it i dati aperti della pubblica amministrazione

Cerca nel sito

Dati ▾ Fare Open Data ▾ Monitoraggio ▾ Sviluppatori ▾ Scrivi alla redazione

Home / Dati / Elenco delle Associazioni di Promozione Sociale

Elenco delle Associazioni di Promozione Sociale

Titolare - Nome*
Regione Lombardia

Titolare - Codice Ipa/P.Iva*
r_lombar

Editore
Regione Lombardia

Editore - Codice Ipa/P.Iva
r_lombar

Descrizione*
Elenco delle Associazioni di Promozione Sociale iscritte nei Registri Regionali e Provinciali suddivise per Provincia e in ordine alfabetico di Comune, comprensivi delle APS a carattere nazionale

URI*
<https://www.datilombardia.it/d/4twa-9aj>

Temi*
[Popolazione e società](#)

Frequenza di aggiornamento*
ANNUALE

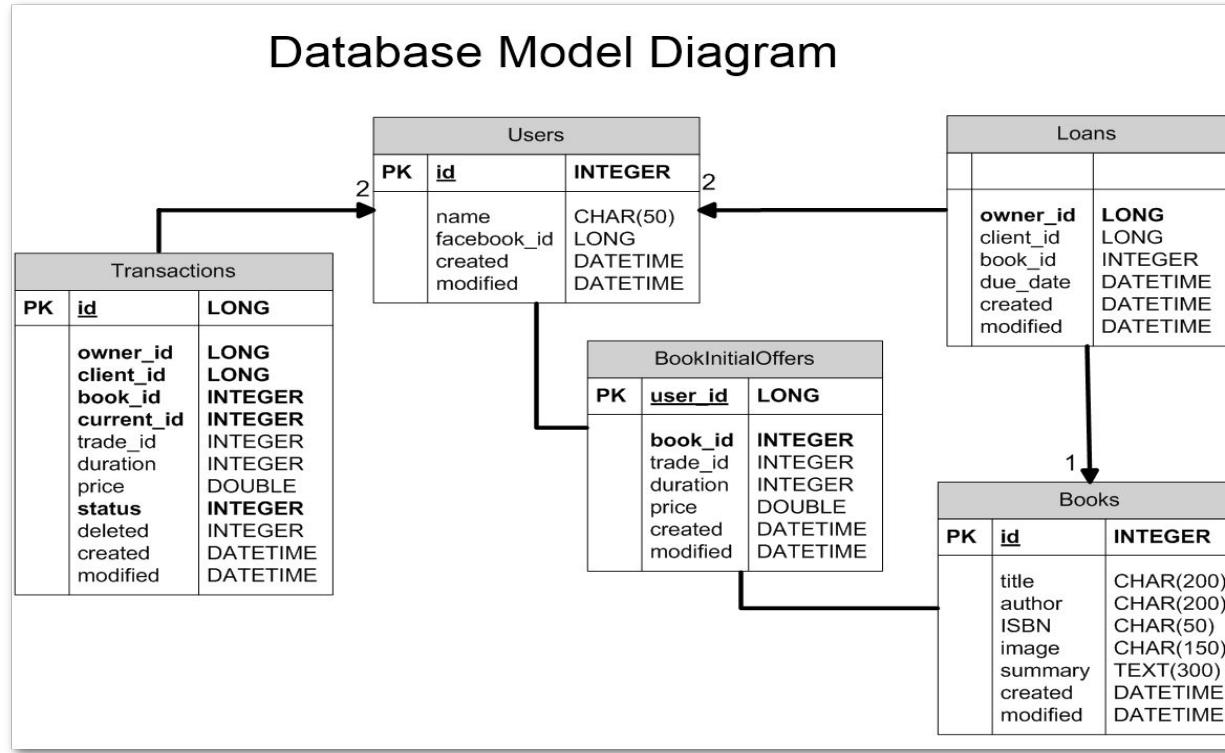
Data di ultima modifica*
2020-12-31

PUNTO DI CONTATTO

Nome

Email

Metadata - the data needed to understand the data



Metadata - the data needed to find the data



Metadata - the data needed to find the data



The screenshot shows a web page from joinup. At the top, there is a blue header bar with the joinup logo on the left and a search icon on the right. Below the header, there is an orange box containing the text "DCAT-AP FOR DATA PORTALS IN EUROPE". The main title of the page is "DCAT Application Profile for data portals in Europe". Below the title, there is a "SEMIC Support Centre" link, a "Topics: Standardisation" section, and a "Downloads: 4701" statistic. There are two buttons at the bottom: "Subscribe to this solution" and "Download releases". Below these buttons, there is a navigation menu with links to "Overview", "Members", "About", and "EIF Perspective". A section titled "DCAT-AP 2.1.1" is shown, with a "Latest release" button next to it. It also indicates that the page was last updated "9 months ago". A descriptive text block states: "This page describes version 2.1.1 of the DCAT-AP, which is the latest release of the DCAT Application Profile for data portals in Europe (DCAT-AP)."

Ontologies - shared vocabularies



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Open Data

Home Catalogo Sviluppatori Supporto

Ricerca avanzata

The image shows two side-by-side screenshots of open data portals. On the left is the "Open Data Lombardia" website, featuring a green header with the text "Benvenuti in Open Data" and "Il portale dei dati aperti del territorio lombardo con oltre 100 dataset". It includes sections for "Catalogo", "Mappe", "DataLens", and "Dataset". On the right is the "Agenzia per l'Italia Digitale" (dati.gov.it) portal, which has a blue header with the text "Agenzia per l'Italia Digitale", "dati.gov.it i dati aperti della pubblica amministrazione", "Avanzamento digitale", and "Geodati". It features a search bar, a sidebar with categories like "Istruzione, cultura e sport", "Salute", "Tematiche internazionali", "Popolazione e società", and "Scienza e tecnologia", and a main content area showing datasets such as "CITTÀ METROPOLITANA MILANO - Parchi Locali di interesse sovracomunale" and "CITTÀ METROPOLITANA MILANO - Parchi Locali di interesse sovracomunale". Both sites include standard navigation elements like "Cerca", "Fare Open Data", "Monitoraggio", "Sviluppatori", and "Scrivi alla redazione".

GRAN SASSO SCIENCE INSTITUTE

Benvenuti in Open Data Lombardia

Il portale dei dati aperti del territorio lombardo con oltre 5 000 dataset

Cerca

Catalogo

Mappe

Storie

Agenzia per l'Italia Digitale

Avanzamento digitale Geodati

dati.gov.it i dati aperti della pubblica amministrazione

Dati Fare Open Data Monitoraggio Sviluppatori Scrivi alla redazione

Cerca nel sito

European Commission

data.europa.eu - The official portal for European data

Home Dati Documentation Publications data.europa academy Notizie ed eventi Contatto

Home > Set di dati

Set di dati

Filtra per posizione

CITTÀ METROPOLITANA MILANO - Parchi Locali di interesse sovracomunale

Set di dati trovati per (733 431)

CITTÀ METROPOLITANA MILANO - Parchi Locali di interesse sovracomunale

I PLIS sono parchi locali di interesse sovracomunale nati su iniziativa dei comuni. Alcuni di essi sono interamente compresi nel territorio della Città Metropolitana di Milano, altri sono interprovinciali

Sort by: Rilevanza

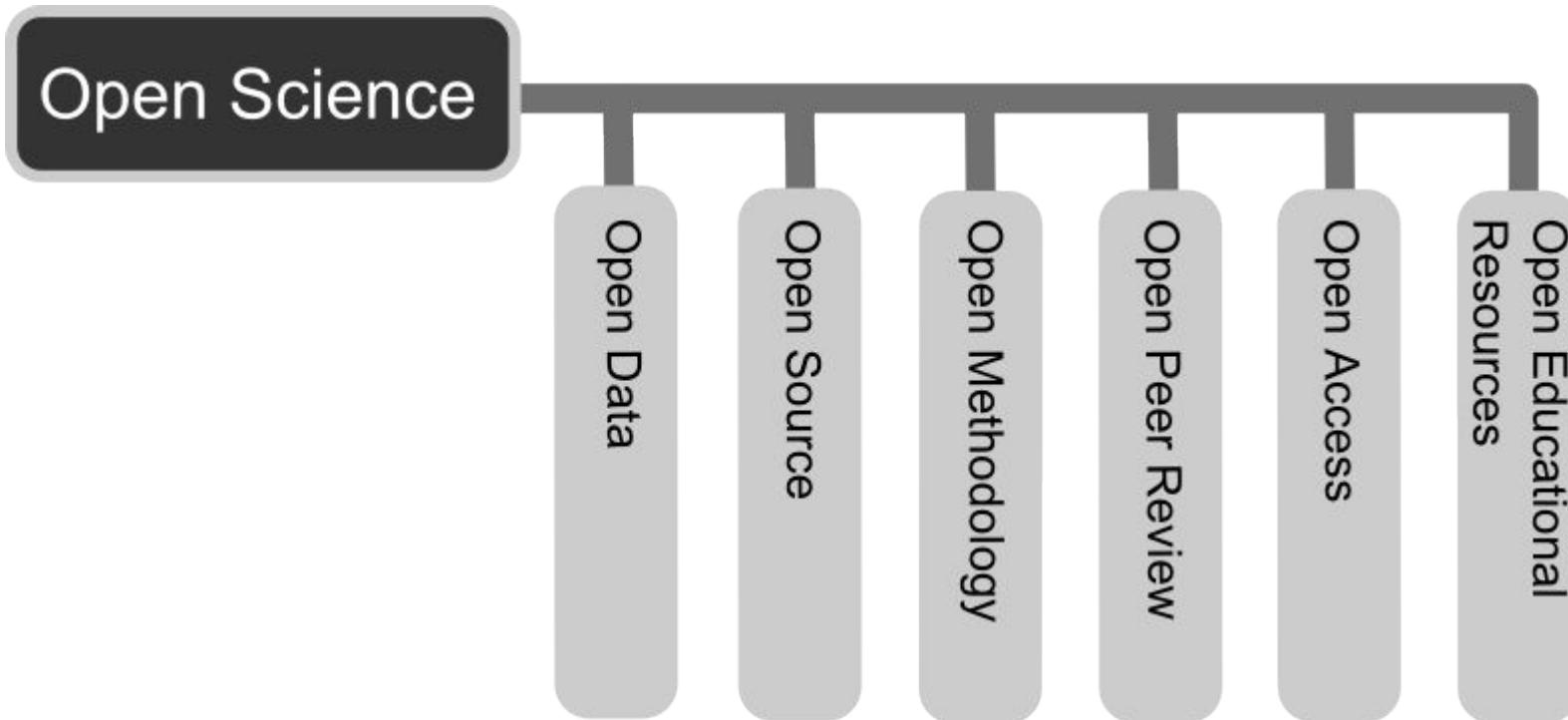
Editorie

XML RDF CSV JSON TSV

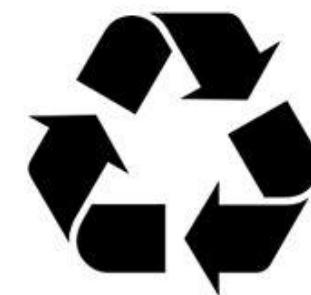
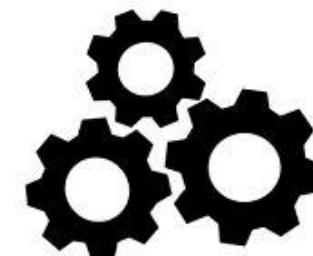
dati.gov.it

Ricerca

Set di dati



Findable Accessible Interoperable Reusable



The Open Data Charter - not only open government



1.

Open By Default



2.

Timely and Comprehensive



3.

Accessible and Usable



4.

Comparable and Interoperable



5.

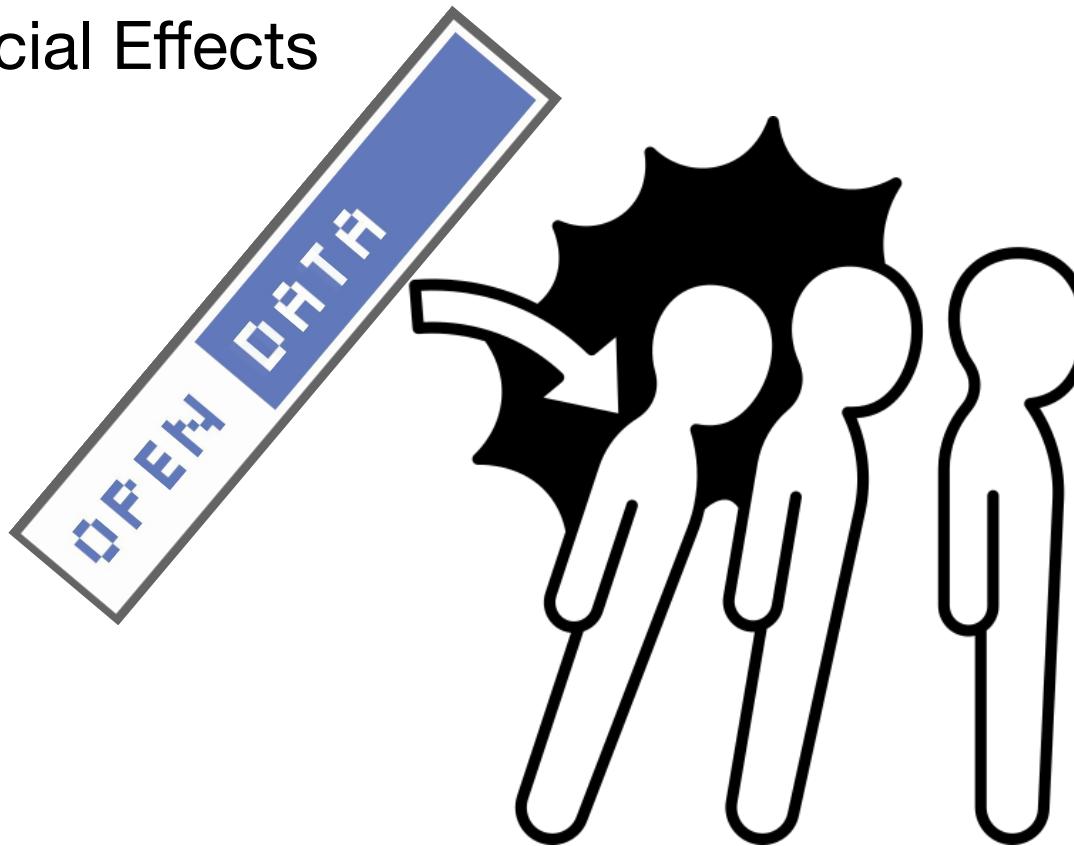
For Improved Governance & Citizen Engagement



6.

For Inclusive Development and Innovation

Social Effects



The role of data in society



DATA



INFORMATION

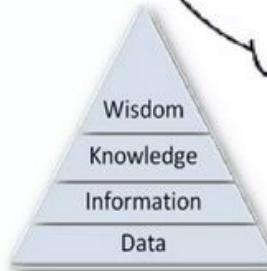
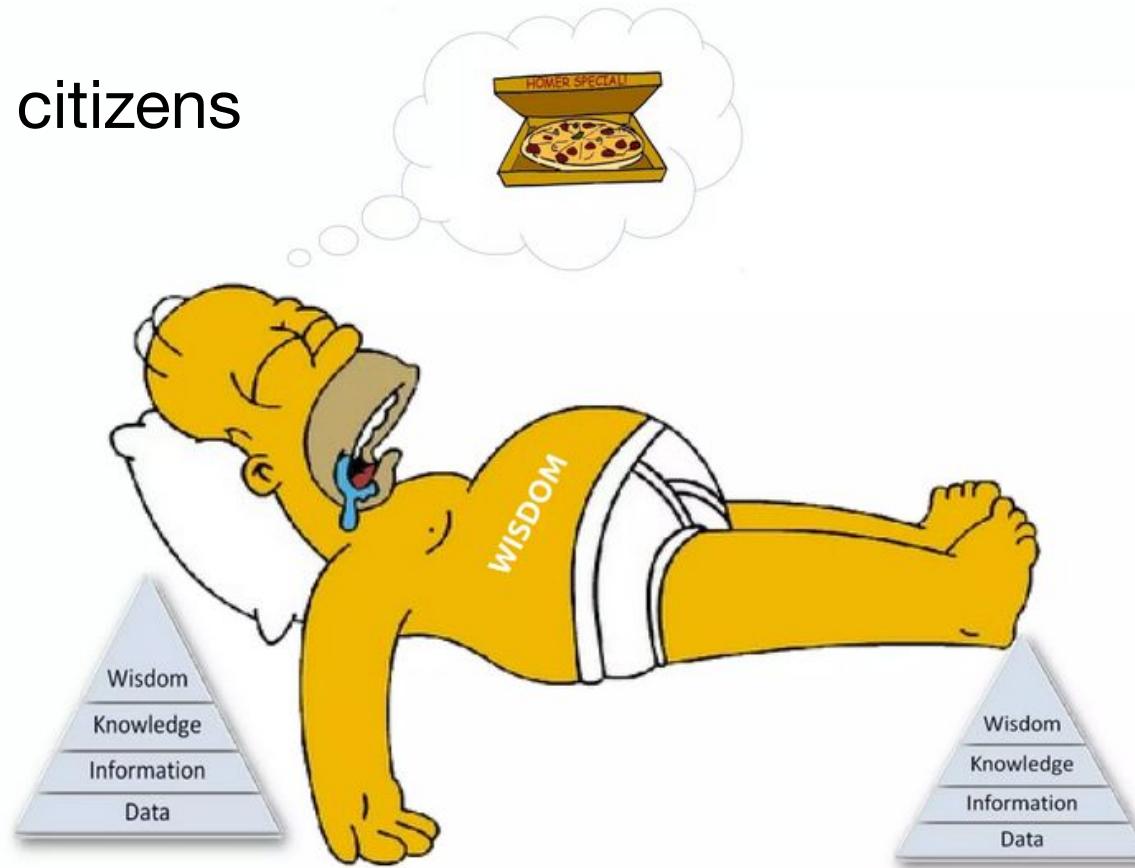


PRESENTATION

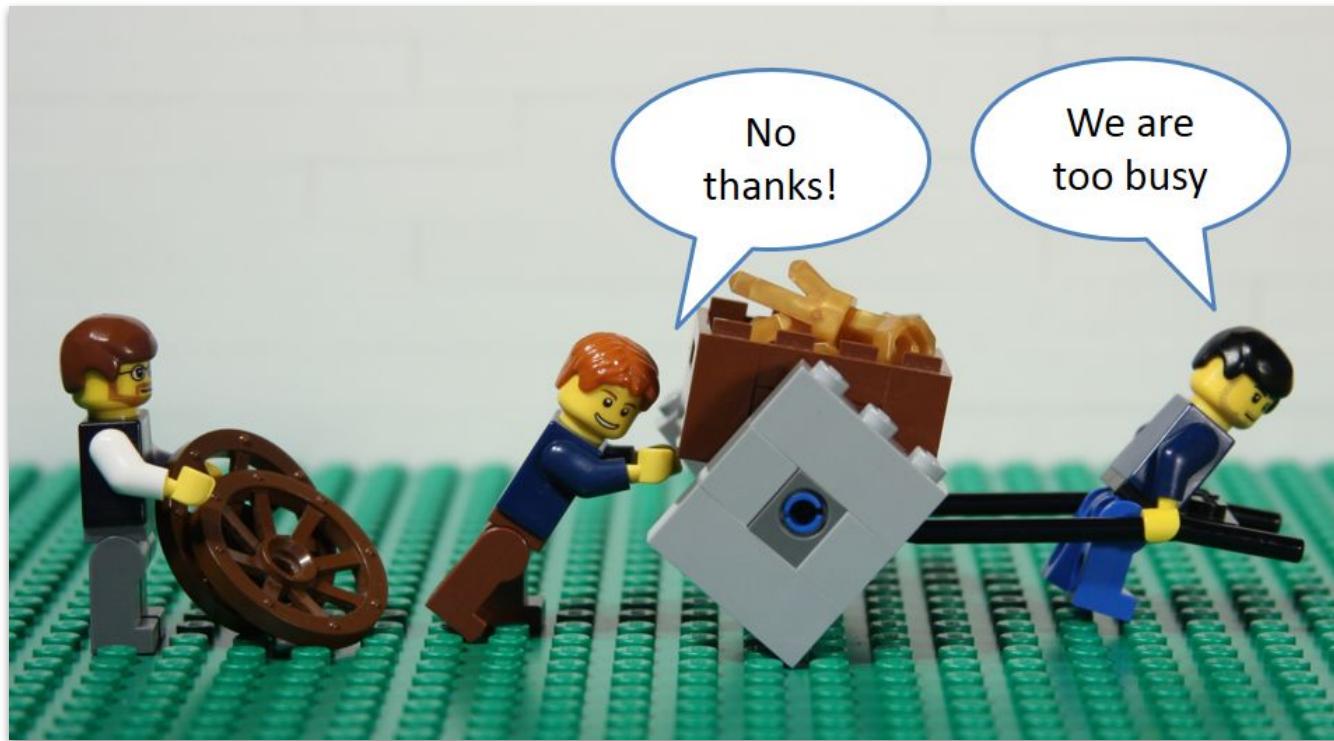


KNOWLEDGE

but most citizens

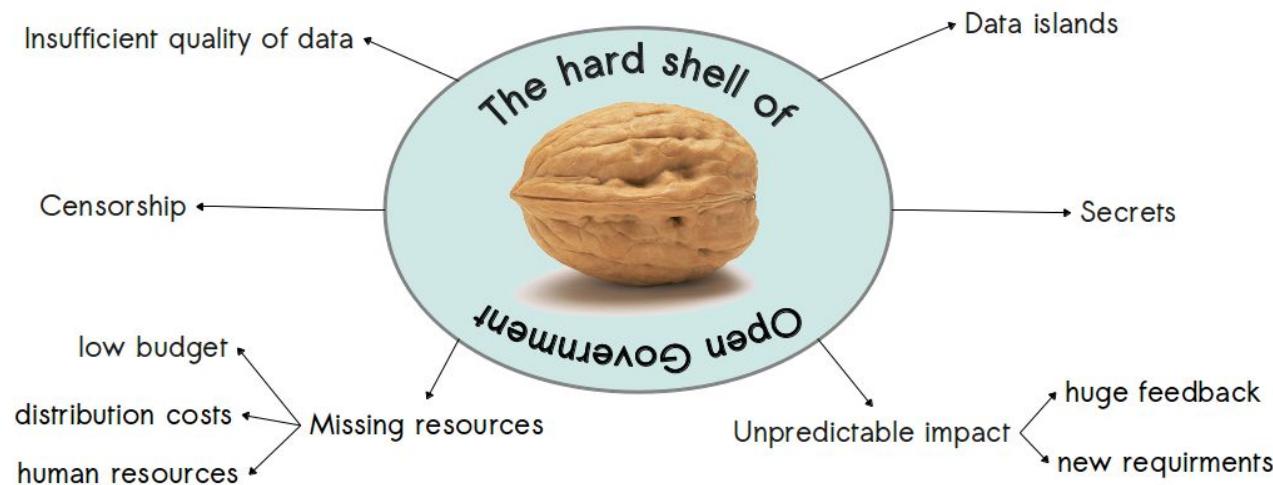


Open data means impact on processes



The revolution starts from inside

Barriers for implementation of OGD



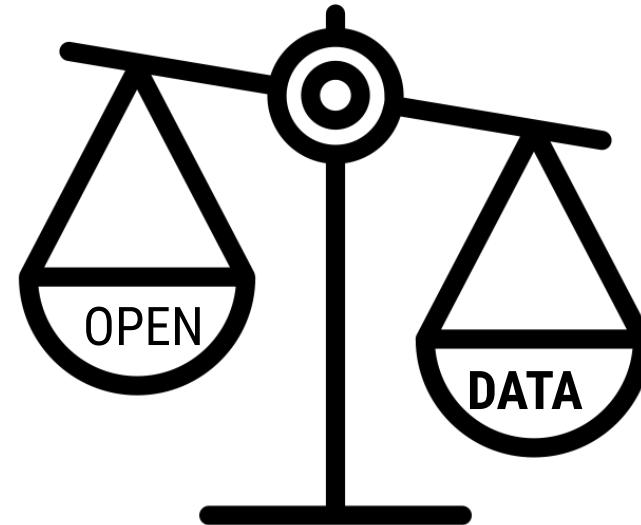
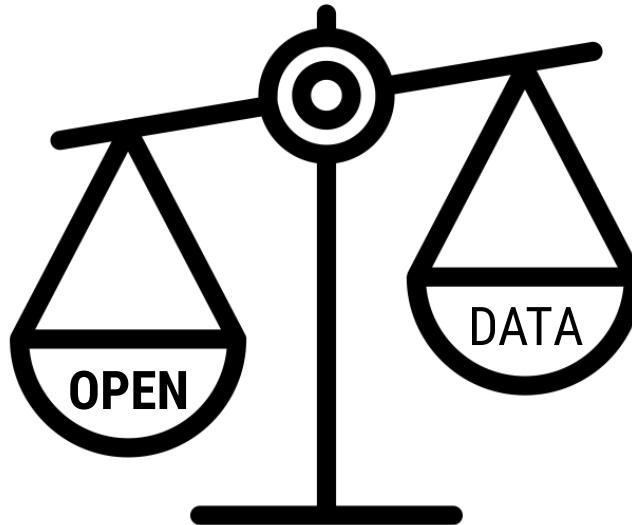
The hard shell of Open Government (B. Lutz, 2012) - Barriers for implementation of OGD in Austrian public administrations

from 2009 the word opendata is also known to politicians and domain experts

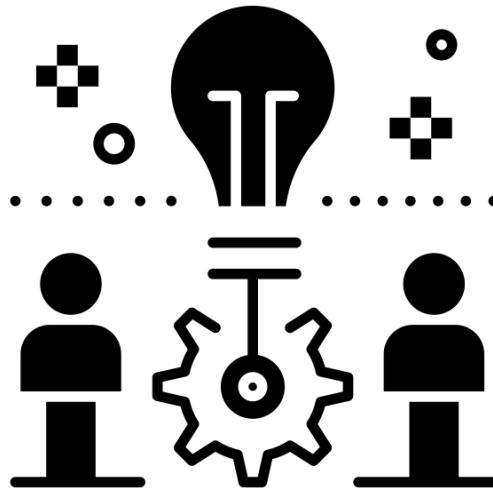




DATA is the subject
OPEN is an attribute



THE JUNK DATA PRODUCTION



THE OPEN DATA TEAM



GOAL:
Publishing of CSV online



THE RESULT



Governments still treat open data as a side project:

The Barometer results show that governments are still treating open data as isolated initiatives. Governments must prioritise and invest in open data governance to support the substantial changes needed to embed an open approach across agencies and departments.



Open Data

a means to an end

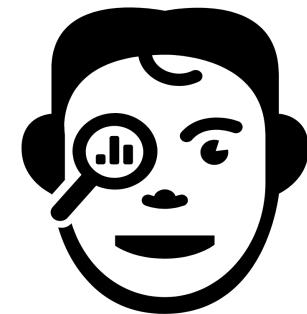
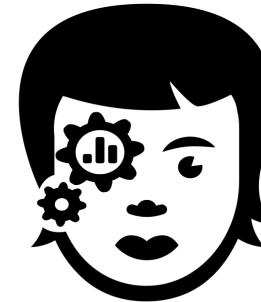
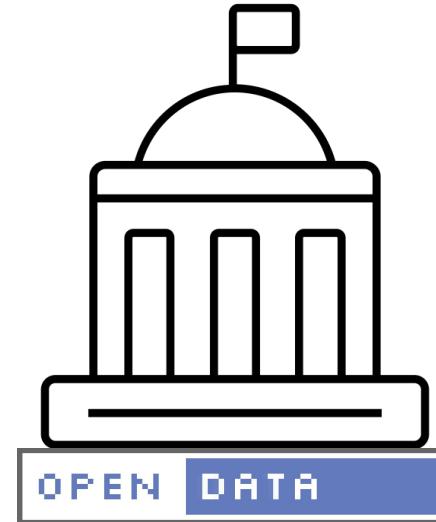
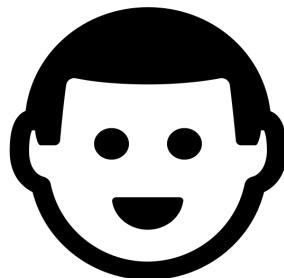
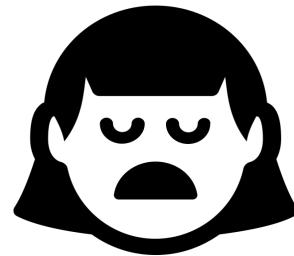


not an end in
itself

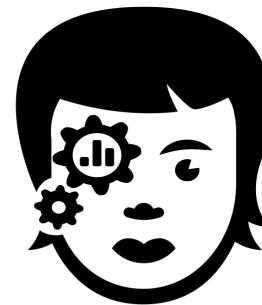
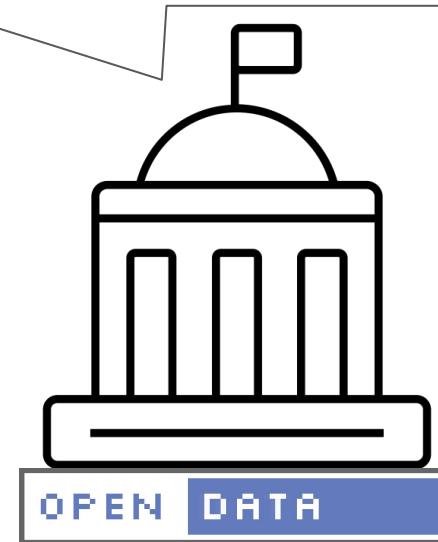
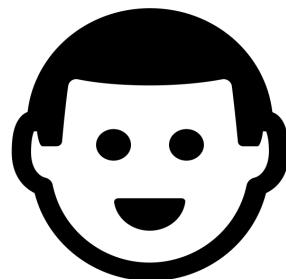
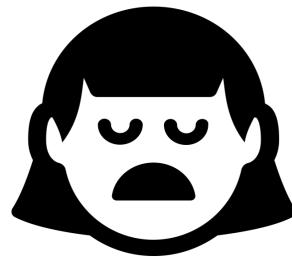


AFTER ~15 YEARS OF OPEN DATA

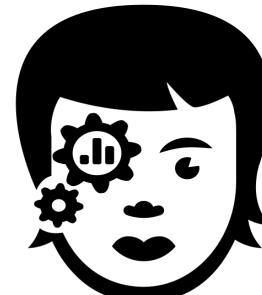
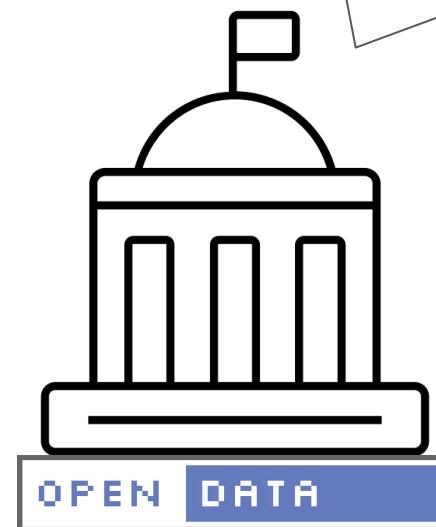
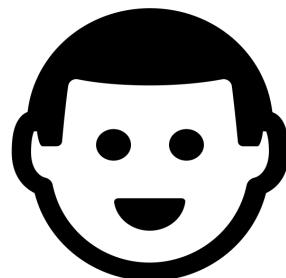
A CHANGE OF MINDSET IN THE GOVERNMENT



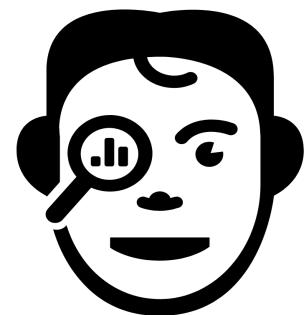
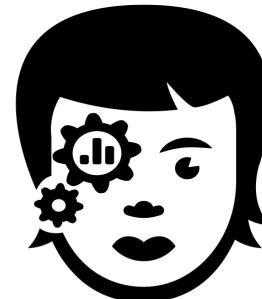
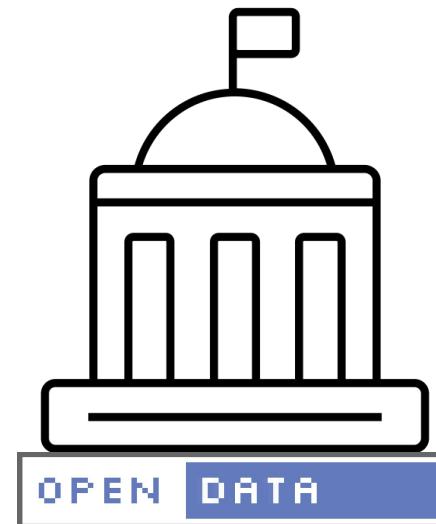
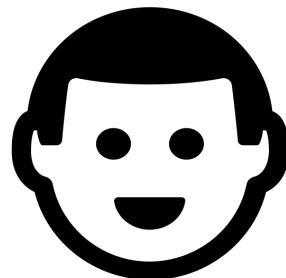
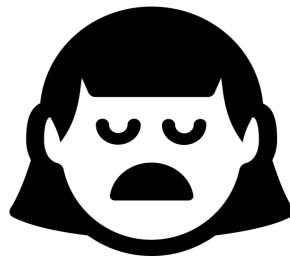
open data has been a transformation
of public officials' attitude toward data



Without the open data movement the conversation would have been controlled by vendors and third parties



For governments, a decade
is often a relatively short
period of time.



The 5 stars of Open Data Engagement



Be demand driven



Provide context



Support conversation



Build capacity & skills



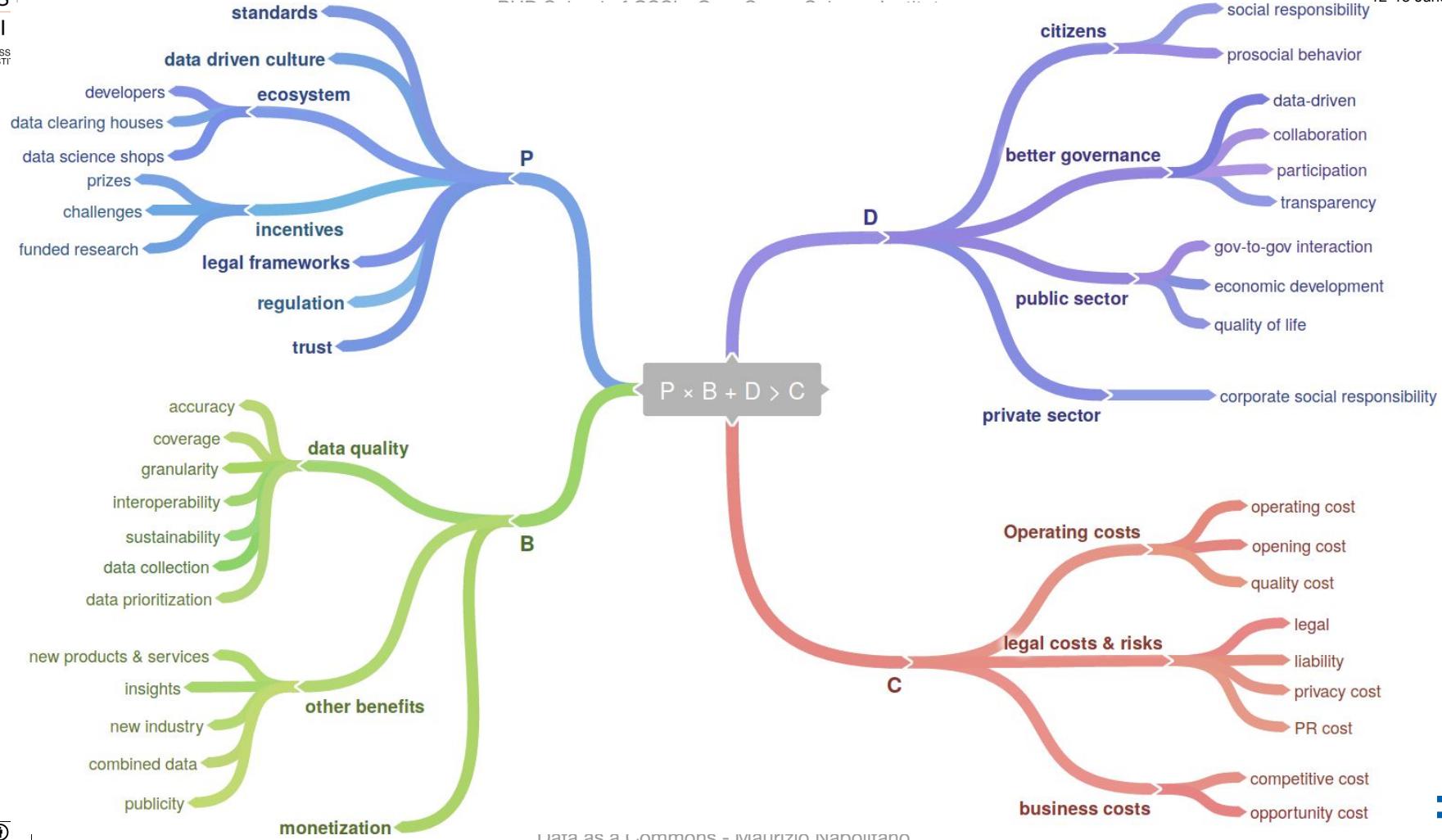
Collaborate with the community

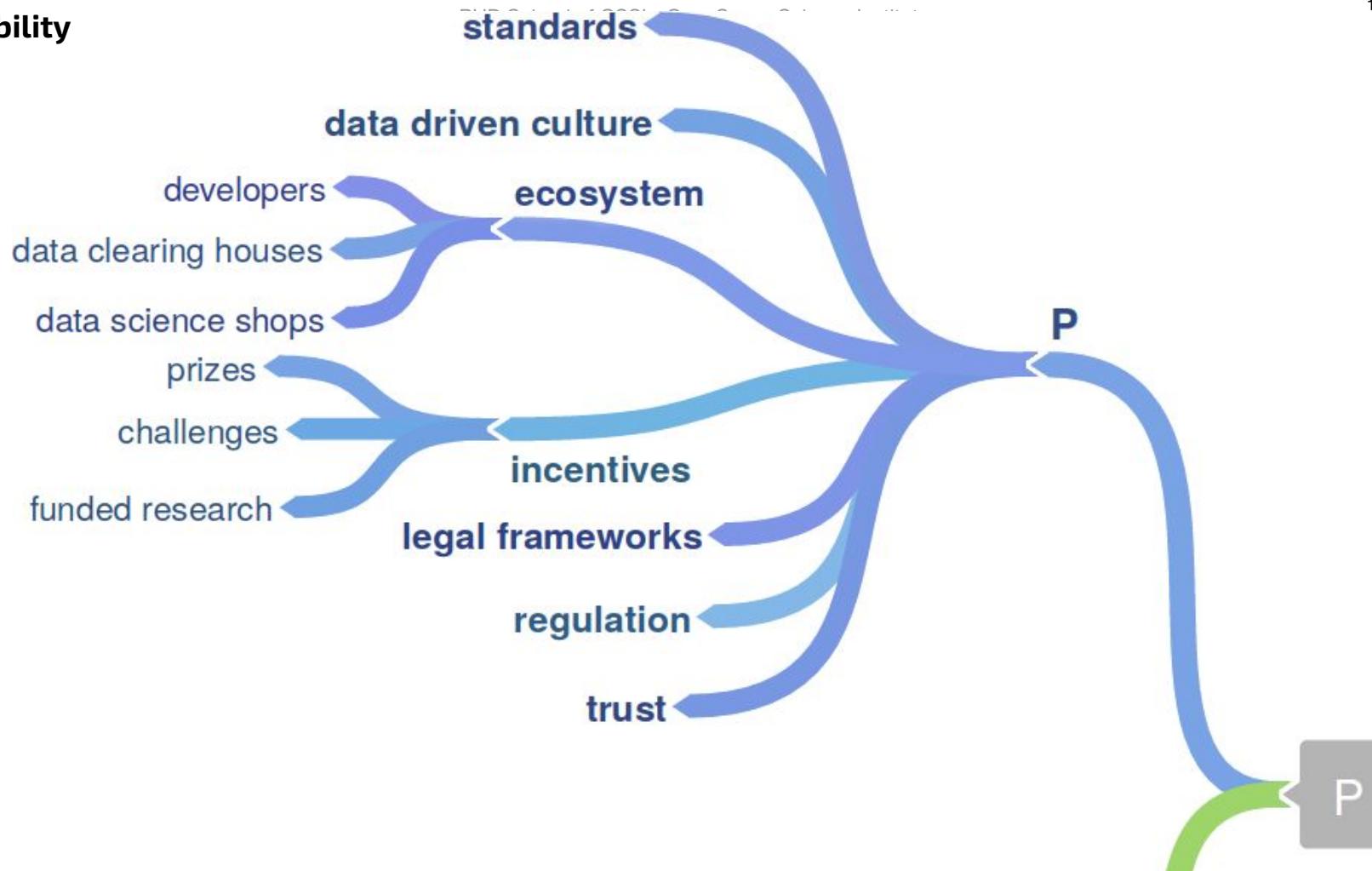
A calculus for open data

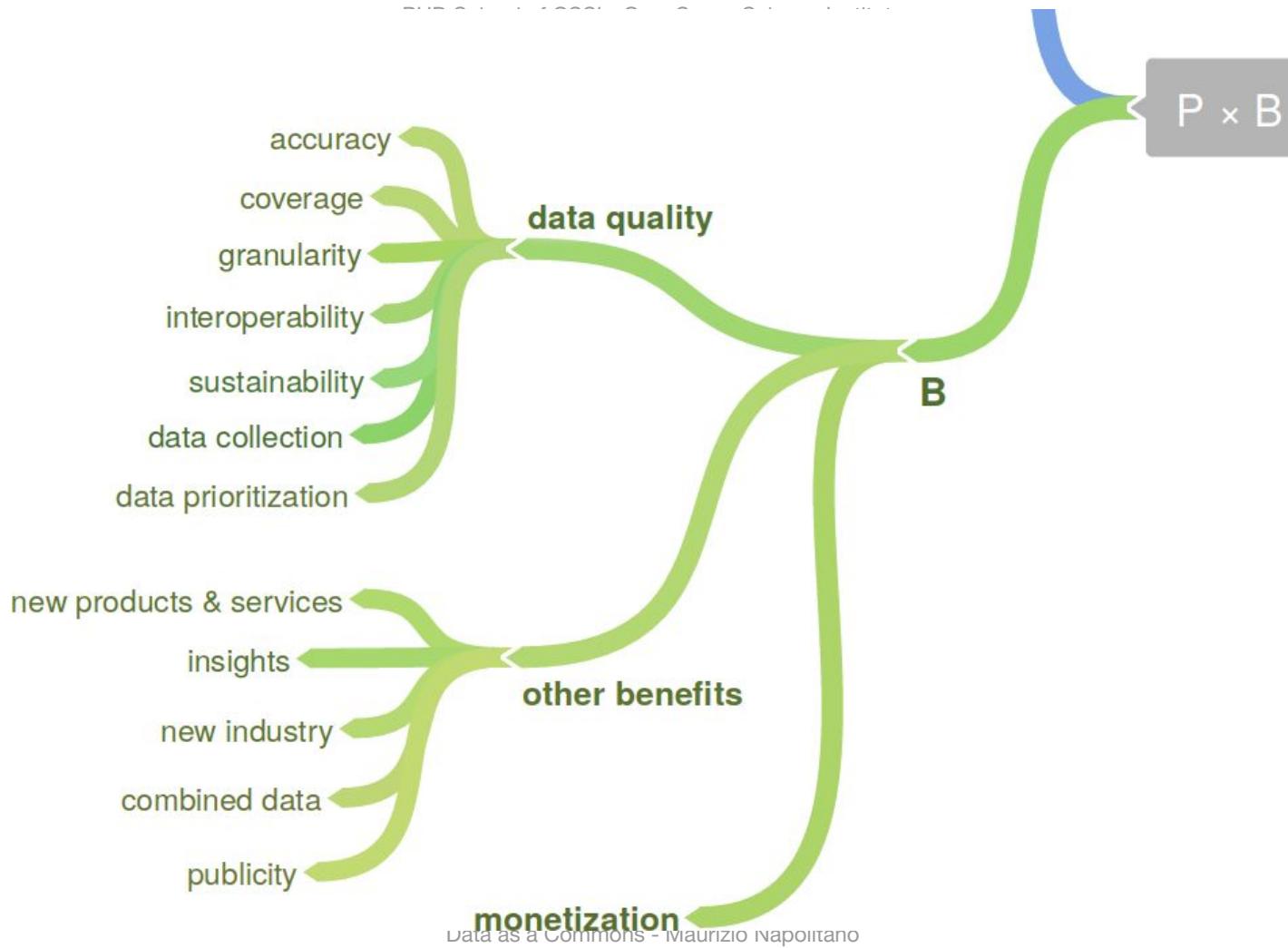
$$P \times B + D > C$$

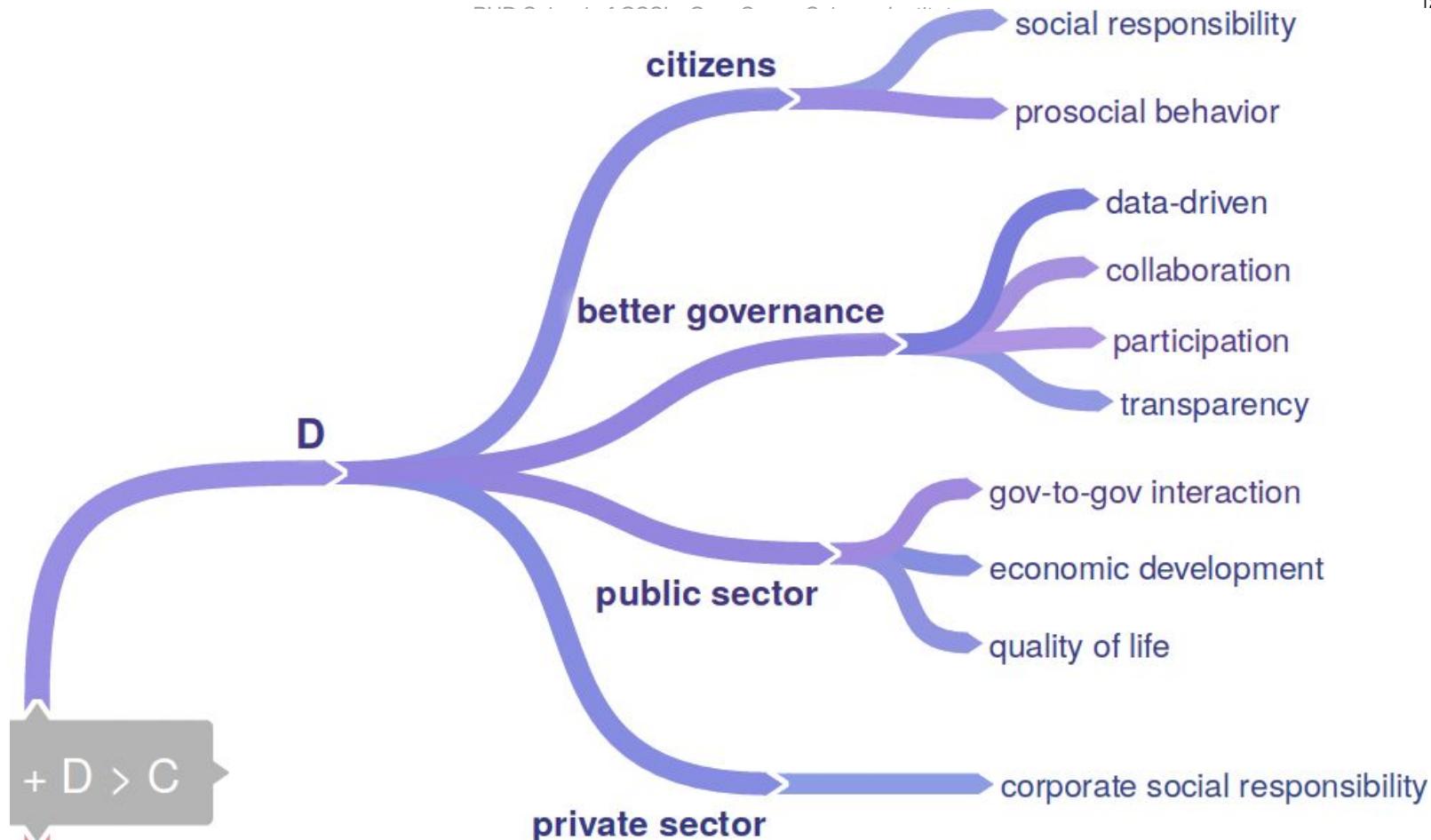
- **P** is the **probability** that opening the data will have some effect,
- **B** is the individual **benefit** of opening the data,
- **D** is the **duty** (= global or ecosystem impact), and
- **C** is the **cost**.

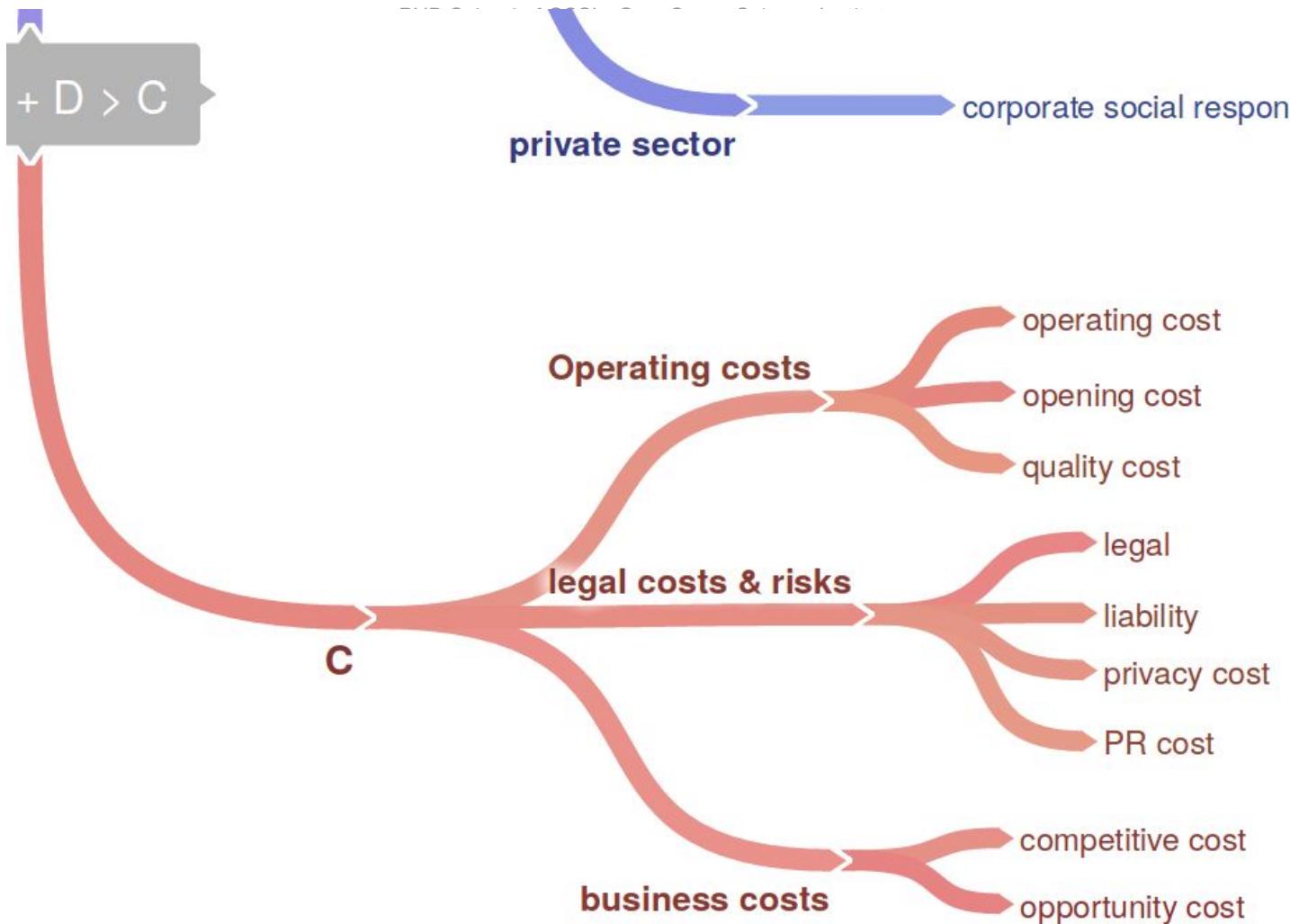
Any *increase* in *P, B or D* and a *decrease* in *C* will make the outcome of opening the data better.

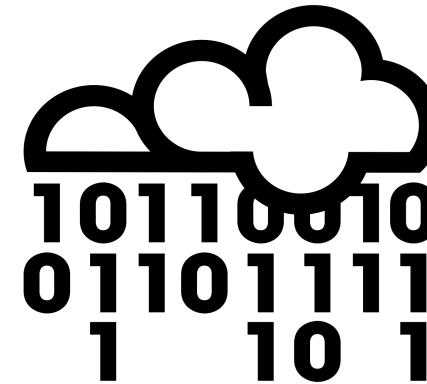
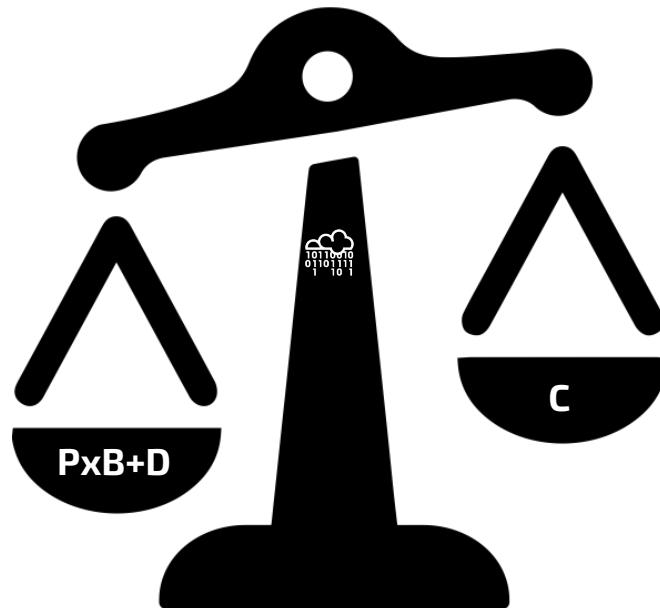




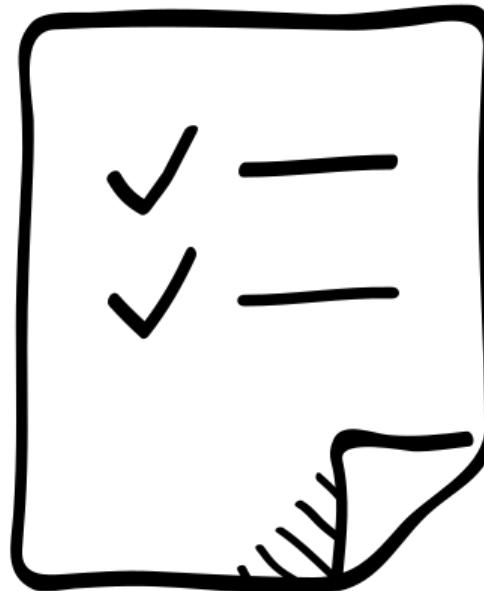




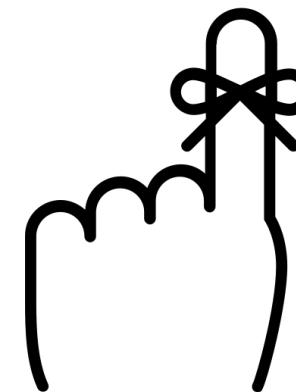


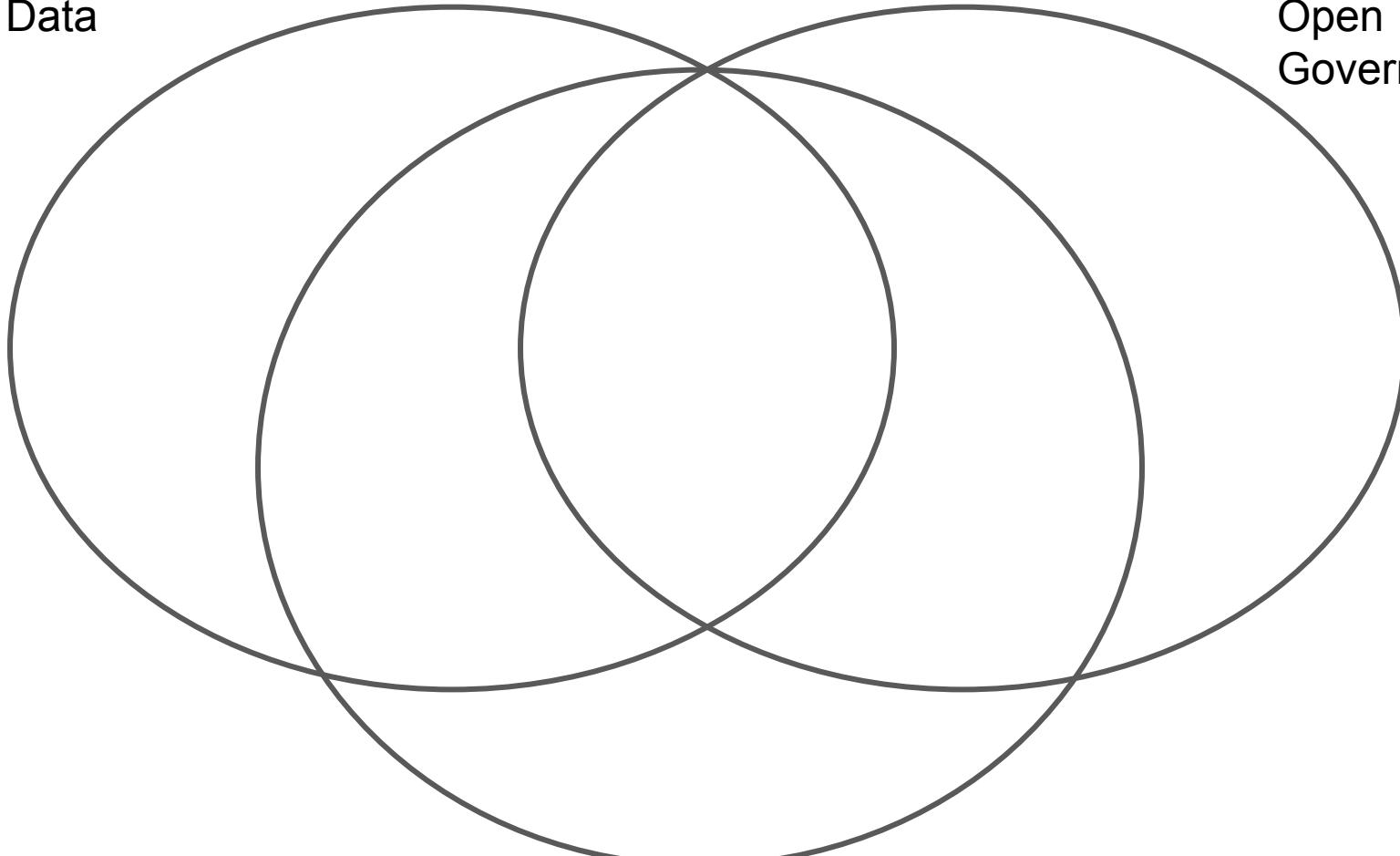


OPEN DATA



Some key
concepts to
remember well



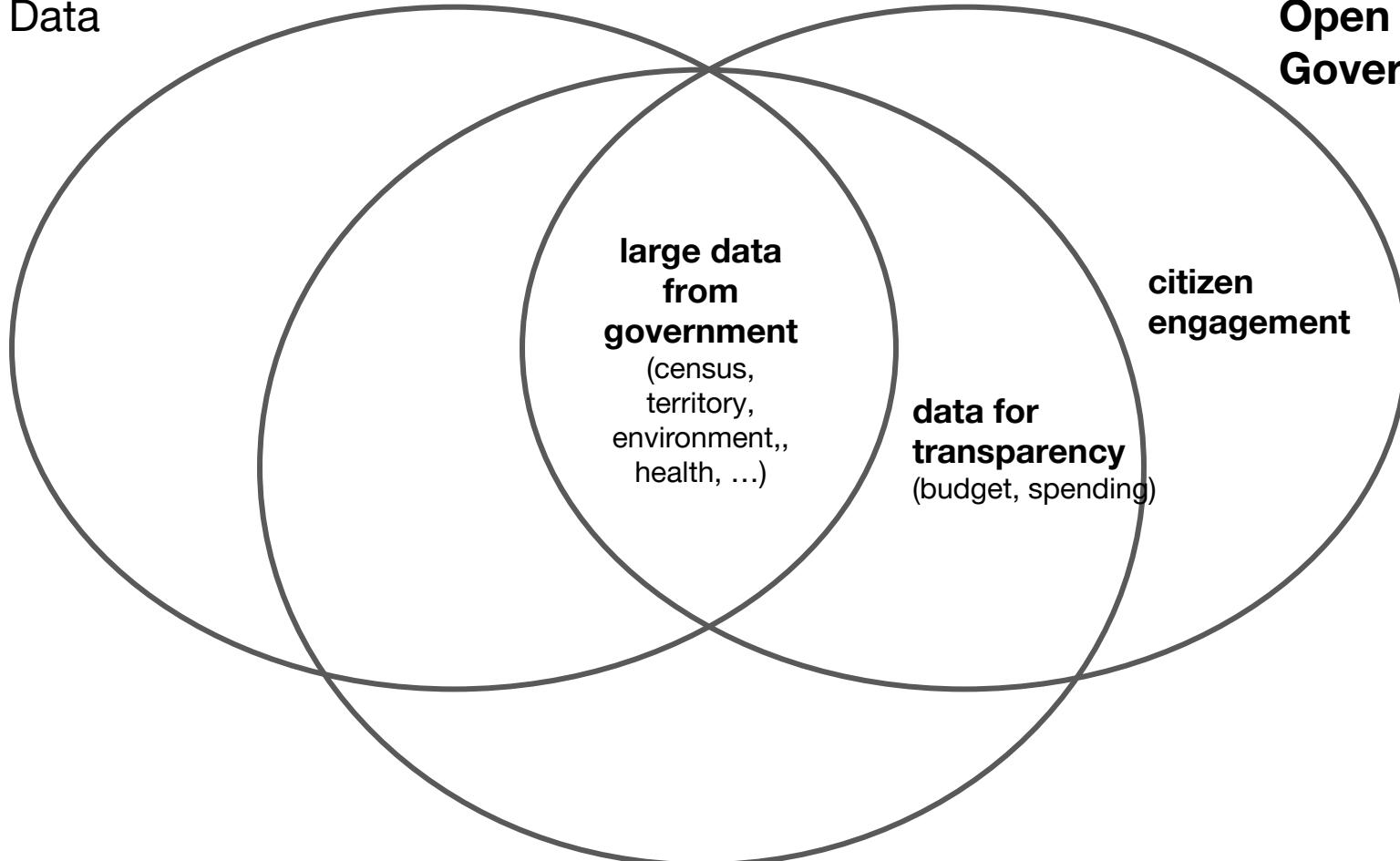


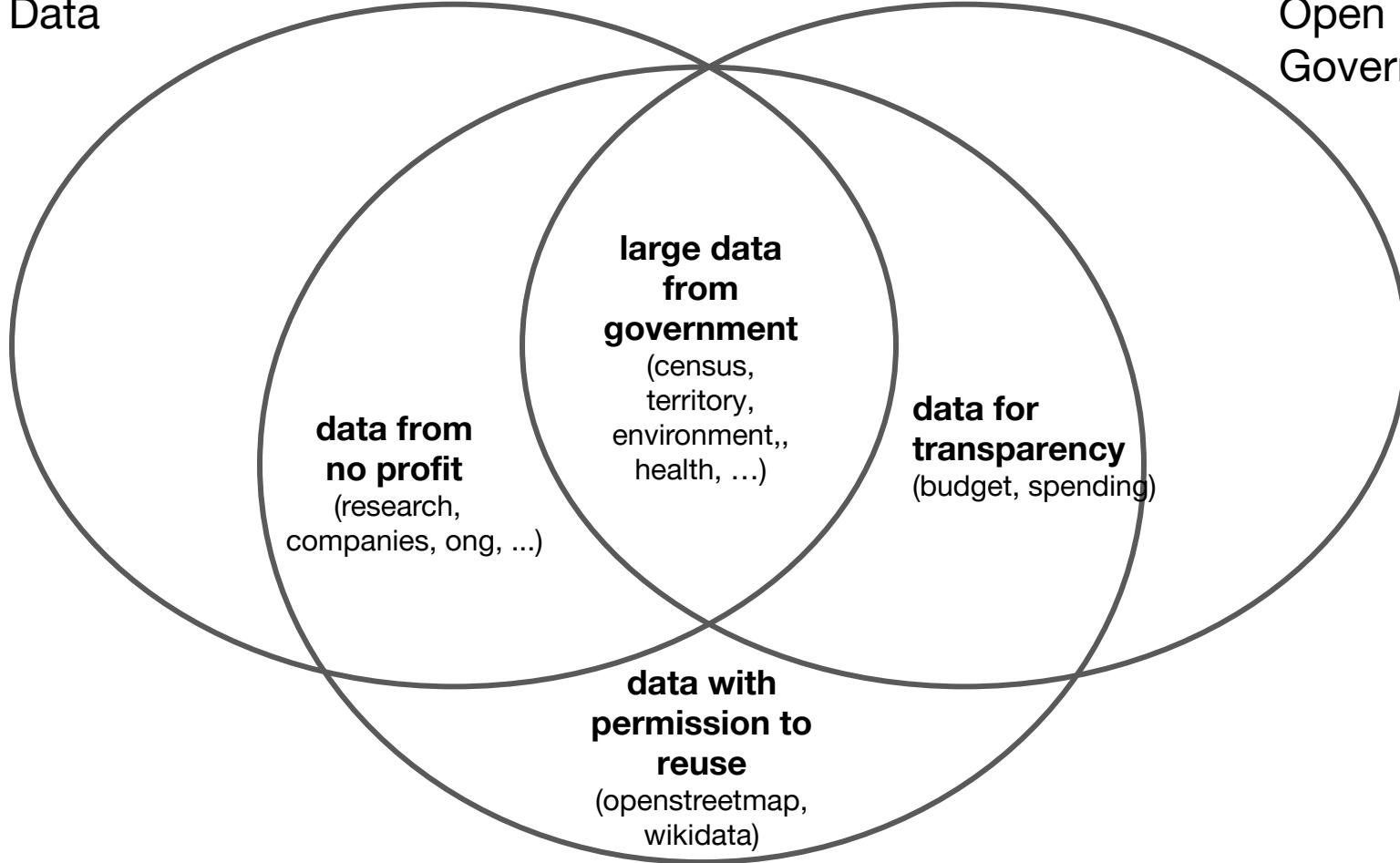
Open Government

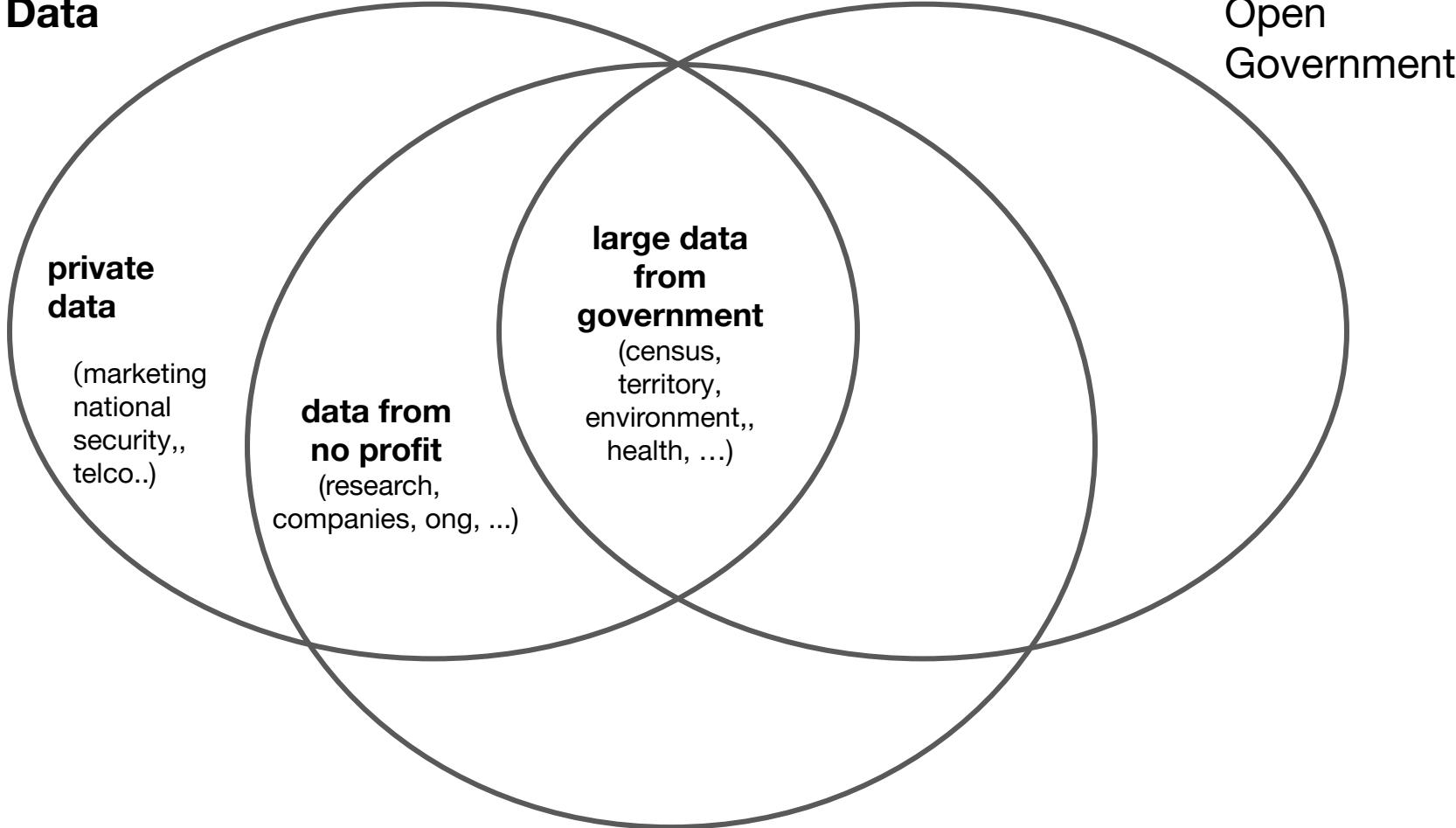
Open Data

Data as a Competitive Advantage

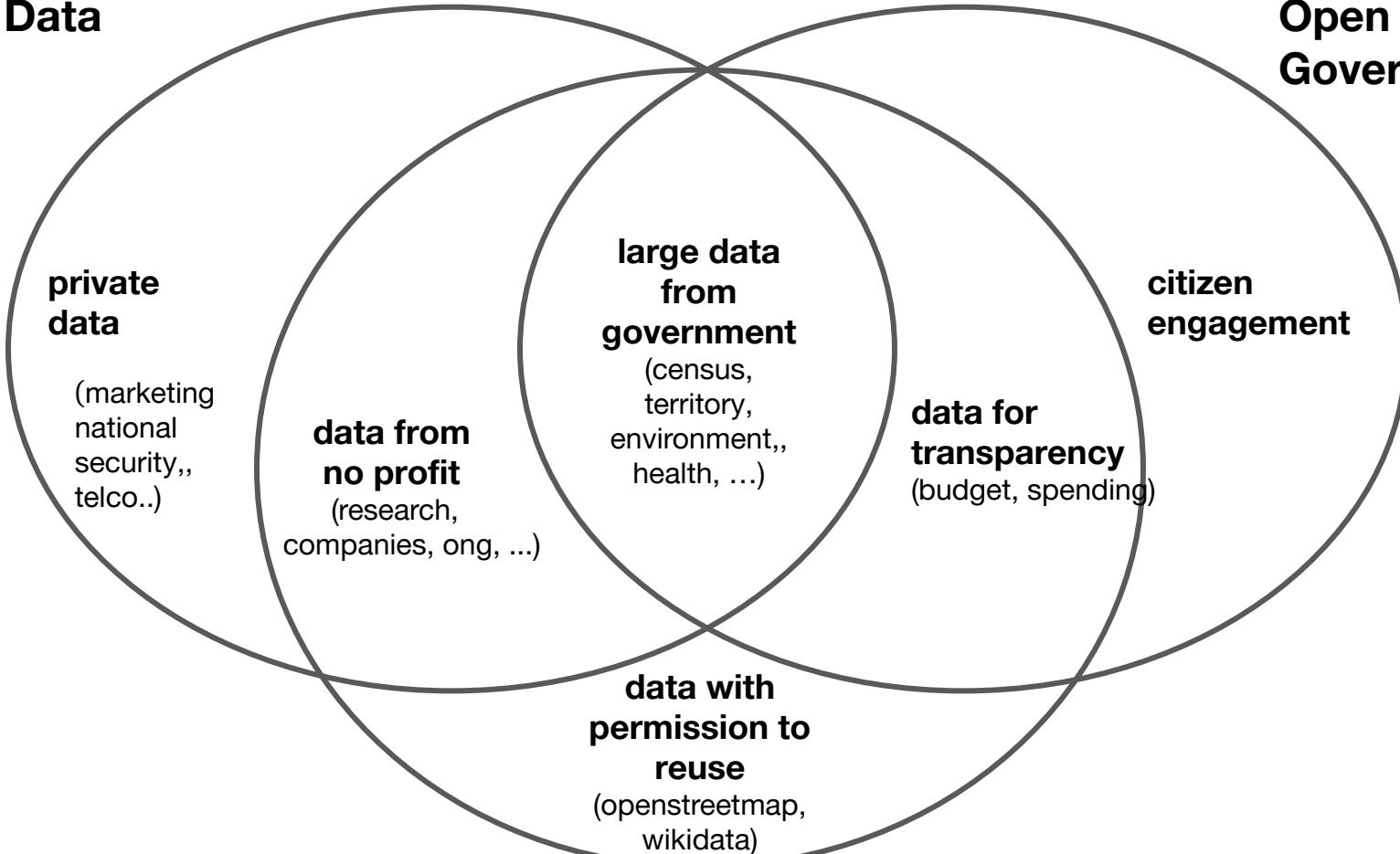
Open Government



Open
Government



Open Government

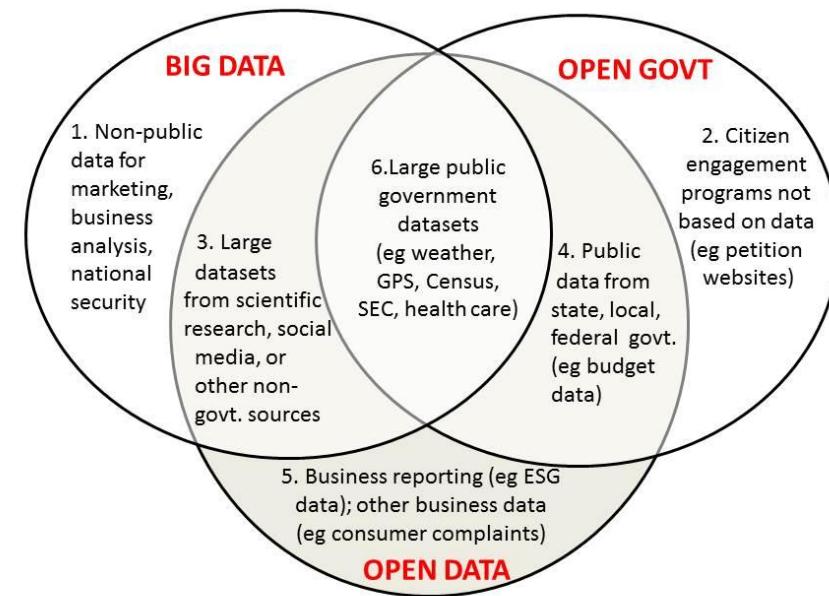


Summary

Open Data => policies to encourage data reuse

Open Government => policies to create dialogue between government and citizens through **transparency**, participation and collaboration

Big Data => data with these characteristics:
volume, speed, variance, veracity...



1

original diagram fro oel Gurin

Gurin, Joel. *Open data now: the secret to hot startups, smart investing, savvy marketing, and fast innovation.* McGraw Hill Professional, 2014.

Future

Re-use of public and private data

The screenshot shows the European Commission's "European data strategy" page. At the top, there are links to Home, Strategy and policy, Priorities, A Europe fit for the digital age, and European data strategy. The main title is "European data strategy" with the subtitle "Making the EU a role model for a society empowered by data". Below this is a large graphic featuring a colorful wave pattern (blue, purple, yellow, orange, red) and a white text box containing the following text:

The European data strategy aims to make the EU a leader in a data-driven society. Creating a single market for data will allow it to flow freely within the EU and across sectors for the benefit of businesses, researchers and public administrations.

Below the graphic is a video player showing a thumbnail of a person wearing glasses with the text "CONSCIOUS ENERGY CONSUMPTION" overlaid. To the right of the video player is a text block and a bulleted list:

Access to data and the ability to use it are essential for innovation and growth. Data-driven innovation can bring major and concrete benefits, such as

- personalised medicine
- improved mobility
- better policymaking
- upgrading public services

Conclusions

- Open Data is a commons and must be preserved
- Implementation in PA has generated a major impact
- It is still an ongoing revolution
- From open government we must look to growth



OPEN DATA



for contacts:
Maurizio Napolitano

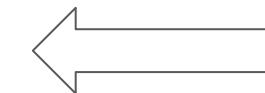


napolitano@fbk.eu



napo

Special thanks
Martina De Sanctis
Francesca De Chiara
Lihua Ma
The Noun Project



The presentation is
here

<https://bit.ly/datacommons01>