

# Data Justice in Achieving SDG#16

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# Sustainable Development Goals

*“... targets for global development adopted in September 2015, set to be achieved by 2030. All countries of the world have agreed to work towards achieving these goals.”*



# Data is essential to both delivery and measurement of the SDGs

The 17 Sustainable Development Goals are defined in a list of 169 SDG Targets. Progress towards these Targets is agreed to be tracked by 232 unique Indicators.

Our World in Data

GOVERNMENT OF OXFORD

GOVERNMENT OF OXFORD

GOVERNMENT OF OXFORD

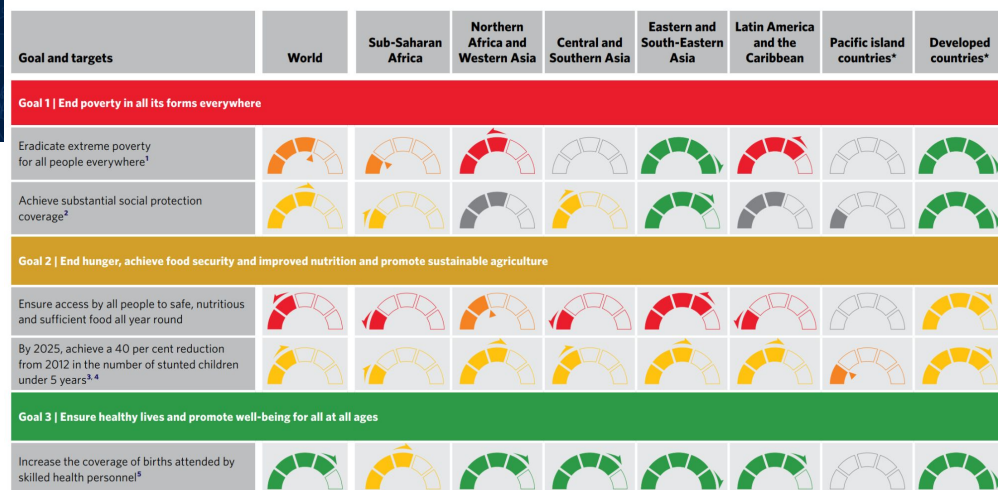
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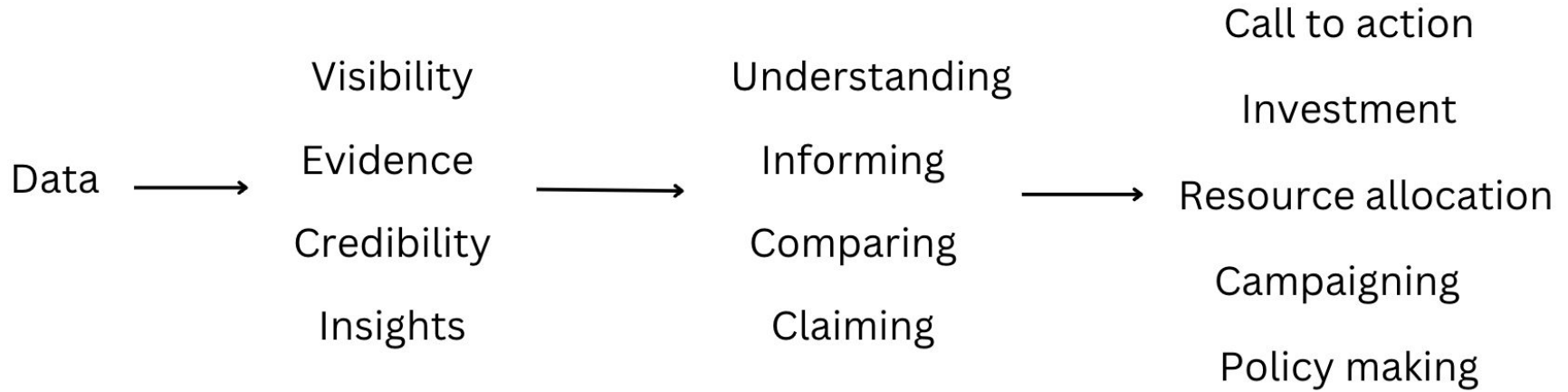
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# SDG #16

Goals

# 16

**Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**

# Indicators

- 16.1** Significantly reduce all forms of violence and related death rates everywhere
- 16.2** End abuse, exploitation, trafficking and all forms of violence against and torture of children
- 16.3** Promote the rule of law at the national and international levels and ensure equal access to justice for all
- 16.4** By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime
- 16.5** Substantially reduce corruption and bribery in all their forms
- 16.6** Develop effective, accountable and transparent institutions at all levels
- 16.7** Ensure responsive, inclusive, participatory and representative decision-making at all levels
- 16.8** Broaden and strengthen the participation of developing countries in the institutions of global governance
- 16.9** By 2030, provide legal identity for all, including birth registration
- 16.10** Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements
- 16.A** Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime
- 16.B** Promote and enforce non-discriminatory laws and policies for sustainable development

# Justice Data for SDG#16

## PLEAS FOR GLOBAL PEACE GROW LOUDER

WORLD IS WITNESSING LARGEST  
NUMBER OF VIOLENT CONFLICTS

SINCE 1946

AND

A QUARTER OF THE  
GLOBAL POPULATION

LIVES IN CONFLICT-AFFECTED

COUNTRIES (END 2020)

A RECORD  
100 MILLION PEOPLE

HAD BEEN FORCIBLY DISPLACED WORLDWIDE

(MAY 2022)

1/3 OF THE WORLD'S POPULATION

MOSTLY WOMEN

FEAR WALKING ALONE IN  
THEIR NEIGHBOURHOODS AT NIGHT

GLOBAL HOMICIDE RATE DECLINED

5.2% BETWEEN  
2015 AND 2020

FALLS SHORT  
OF THE "SIGNIFICANT REDUCTION"  
BY 2030 TARGETED IN THE SDGs

CORRUPTION IS FOUND IN EVERY REGION

ALMOST 1 IN 6 BUSINESSES HAVE RECEIVED BRIBE REQUESTS  
FROM PUBLIC OFFICIALS



Facts and figures

Goal 16 targets

Links

- As of May 2022, the number of people forced to flee conflict, violence, human rights violations and persecution had surpassed 100 million.
- In 2021 alone, 320 fatal attacks against human rights defenders, journalists and trade unionists were recorded in 35 countries.
- At least 13,842 deaths were associated with 12 of the world's deadliest armed conflicts in 2021, including 11,075 civilians. However, civilian deaths dropped by 17 per cent from 2020, and by 69 per cent from 2015.
- Over the last decade, the world has spent \$349 billion on peacekeeping, humanitarian relief and refugee support.
- Between 2016 and 2020, 28 per cent of seized weapons were reported as successfully traced. From 2018 to 2019, national authorities destroyed 48 per cent of weapons seized, found or surrendered.
- Between 2015 and 2020, the global homicide rate declined by 5.2 per cent – from 5.9 to 5.6 homicides per 100,000 people. Globally, 8 out of 10 recorded homicide victims are male.
- Women and girls comprise about 60 per cent of all homicide victims killed by intimate partners or family members.
- By 2030, the global homicide rate is projected to decrease by 19 per cent from the 2015 level, to around 4.8 per 100,000 people, but still short of the "significant reduction" targeted in the SDGs.
- Globally, almost 1 in 6 businesses face requests for bribe payments by public officials. Source: The Sustainable Development Goals Report 2022

Source: [The Sustainable Development Goals Report 2022](#)

# Various Data Initiatives

## SDG16 data initiative

### The SDG16 Data Initiative

The Sustainable Development Goals (SDGs) were adopted unanimously by the 193 United Nations Member States in September 2015 to guide global and national development policies to 2030.

SDG16 commits all countries to:

**“Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels”**

Achieving SDG16 – and all 17 goals – will require unprecedented problem solving and mobilization of governments, businesses, and civil society. The SDG16 Data Initiative is a collective project to compile existing global data that can help track progress towards the achievement of SDG16. The recommended UN official indicators along with proposed complementary indicators are listed for each target. We have included a variety of respected data providers and sought to highlight gaps and useful alternative data sources in SDG16 target areas.

Explore, compare and share!

GET STARTED



About

## Open SDG

An open source, free-to-reuse platform for managing and publishing data and statistics related to the UN Sustainable Development Goals (SDGs).

 Get started



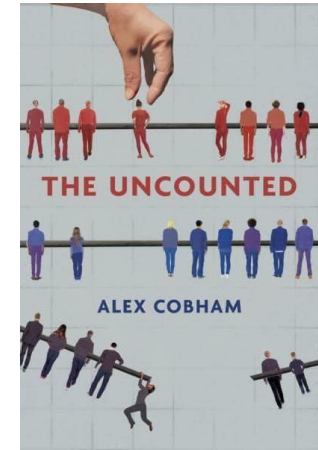
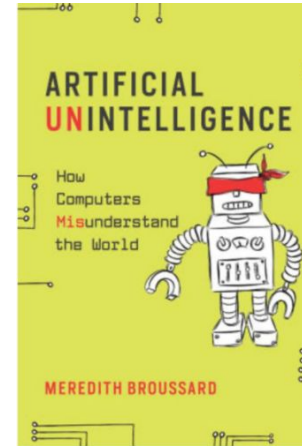
# Data ≠ Neutral or Objective

*“What counts as data depends on who uses them, how, and for which purposes. ... Data are product of any activity that is collected, stored, and disseminated in order to be used as **evidence for knowledge claims**”*

S. Leonelli, Data-Centric Biology: A Philosophical Study (2016)

*“At its core, all data is dirty. This is true because not all factors being input can be properly quantified, data is often missing, and even existing **data is socially constructed**”*

Meredith Broussard, Artificial Unintelligence: How Computers Misunderstand the World (2019)



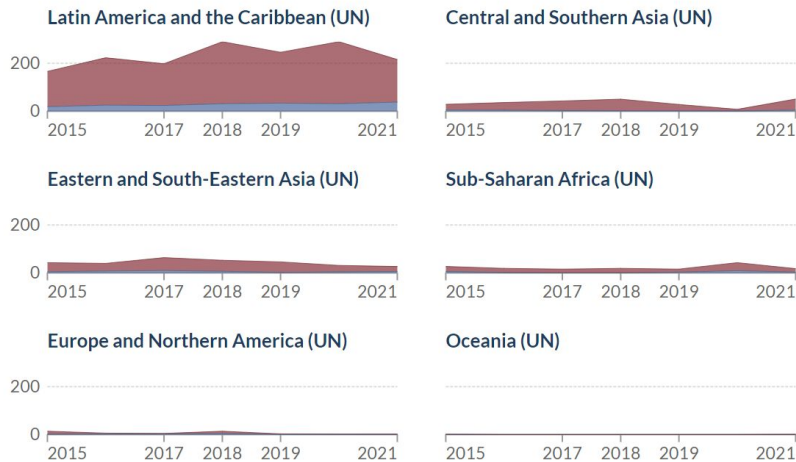
# Data ≠ Neutral or Objective

Number of cases of killed human rights defenders, journalists and trade unionists, 2015 to 2021



+ Add region Split by region  Relative  Align axis scales

Male Female



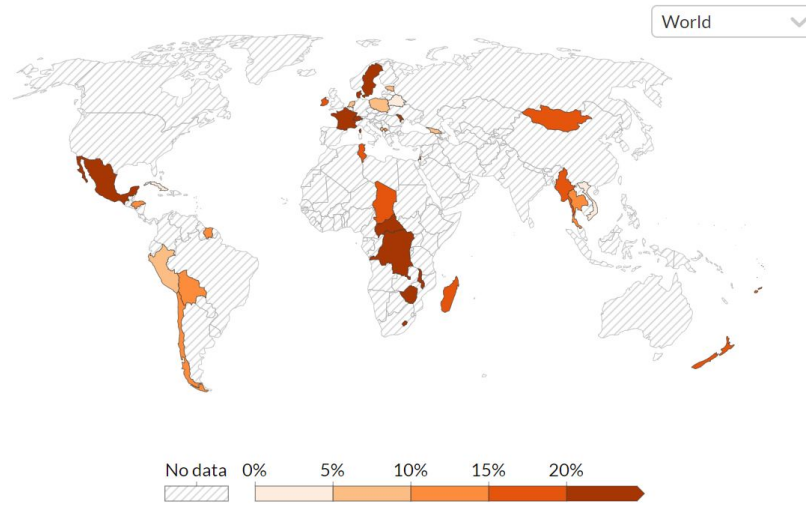
Source: Office of the High Commissioner for Human Rights OurWorldInData.org/human-rights • CC BY



Share of the population reporting having felt discriminated against, 2021



The proportion of the adult population who self-reporting that they personally experienced discrimination or harassment during the last year based on grounds prohibited by international human rights law.



Source: Data from multiple sources compiled by the UN OurWorldInData.org/human-rights • CC BY



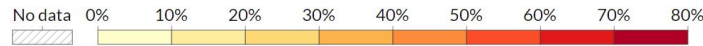
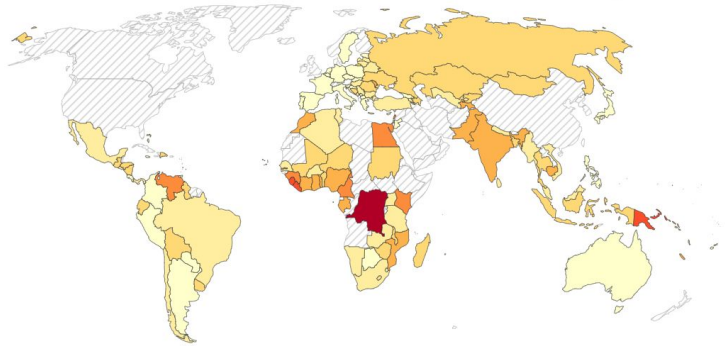
# Data ≠ Neutral or Objective

## Bribery prevalence, 2020

Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by public officials, during the previous 12 months.

Our World  
in Data

World



Source: Data from multiple sources compiled by the UN

OurWorldInData.org/trust • CC BY

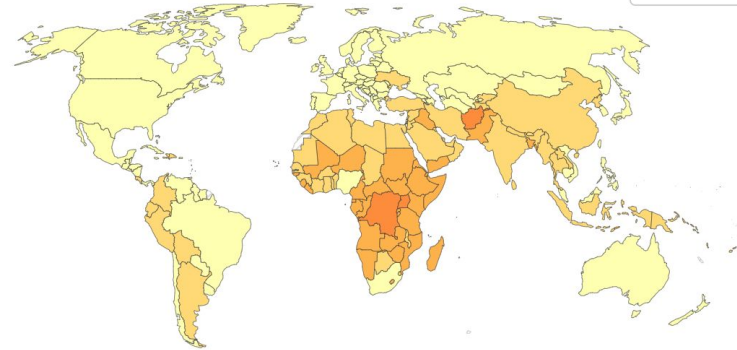


## Women who experienced violence by an intimate partner, 2017

Women aged 15 and older who experienced physical or sexual violence from an intimate partner in the past year.

Our World  
in Data

World



Source: Institute of Health Metrics & Evaluation (IHME)

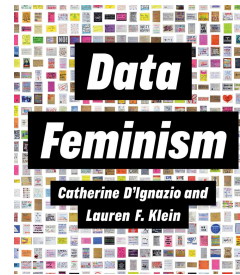
OurWorldInData.org/human-rights • CC BY

Note: To allow comparisons between countries and over time this metric is age-standardized.



# Acknowledging what goes missing between data & reality

- Access issues for hardware and internet
- Human right violations in digital spaces
- Extractive data collection
- Inaccurate categorization and misrepresentation
- Infrastructural and procedural issues
- Data governance problems
- Nontransparent data processing
- Social and political context



# Data Justice as a critical lens

“Fairness in the way people are made visible, represented and treated as a result of their production of digital data.”

Taylor, L. (2017), What is data justice? The case for connecting digital rights and freedoms globally

Five dimensions of data justice:

- 1- Procedural: fairness in the way in which data is handled.
- 2- Instrumental: fairness in the results of data being used.
- 3- Rights-based: adherence to basic data rights such as representation, privacy, access and ownership.
- 4- Structural: the degree to which the interests and power in wider society support fair outcomes in other forms of data justice.
- 5-Distributive: an overarching dimension relating to the (in)equality of data-related outcomes that can be applied to each of the other dimensions of data justice.

Heeks & Shekar (2019), Datafication, development and marginalised urban communities: an applied data justice framework

# What does it mean in practice?

We need to recognize that factors such as

- how and why data are collected
- what are its gaps and limitations
- how identity and representation is fractured and flattened
- embedded assumptions and biases

have profound impacts on how we perceive information and how we shape our actions in decision-making.

From [Context-Aware Systems](#) by [Civic Software Foundation](#)

- ▶ Motivation
- ▶ Composition
- ▶ Key Resources and Collection Process
- ▶ Resource pre-processing/cleaning/labeling
- ▶ Access and Use
- ▶ Distribution and Impact
- ▶ Maintenance
- ▶ User/ Constituent engagement
- ▶ Accountability

*This outline is Informed by [Data Sheets for Datasets](#) & [Data Feminism](#)*

# Why does it matter?

## UNDERSTANDING BIAS

### Socio-technical causes of bias

- Data generation
- Data collection
- Institutional bias

### Bias manifestation in data

- Sensitive features & causal inferences
  - Data representativeness
  - Data modalities

### Fairness definition

- Similarity-based
- Causal reasoning
- Predicted outcome
- Predicted & actual outcome
- Predicted probabilities & actual outcome

## LEGAL ISSUES

### Regulations provisions

- Data accuracy (GDPR)
- Equality, prohibition of discrimination (CFR-EU)

## MITIGATING BIAS

### Pre-processing

- Instance class modification
  - Instance selection
  - Instance weighting

### In-processing

- Classification model adaptation
- Regularization / Loss function s.t. constraints
  - Latent fair classes

### Post-processing

- Confidence/probability score corrections
- Promoting/demoting boundary decisions
- Wrapping a fair classifier on top of a black-box baselearner

### Are data modifications legal?

- Intellectual Property issues
- Legal basis for data/model modification

## ACCOUNTING FOR BIAS

### Bias-aware data collection

- Bias elicitation: individual assessors, mathematical pooling, group elicitation, consensus building
  - Crowdsourcing

### Describing and modelling bias

- Description and causal logics
- Ontological formalisms and reasoning

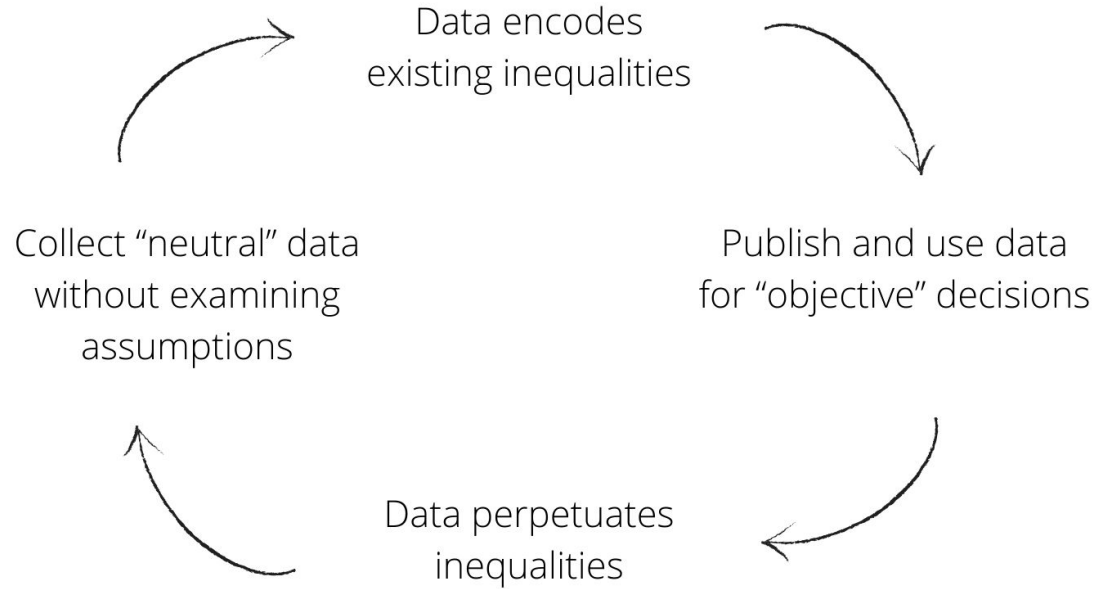
### Explaining AI decisions

- Model explanation by approximation
- Inherently interpretable models
- Local behaviour explanation

### Application of existing rules

- Applicability to algorithmic decision-making
- Limited scope of anti-discrimination law. Indirect discrimination

# Why does it matter?





# Young Justice Leaders - Call to Action

We call for critical examination of data's role, and commit to investigating its gaps and limitations, building accountability in data collection and use, and promoting data justice within SDG#16.

## FOCUS AREAS



Mainstream  
People-Centered  
Justice



Increase Access to  
Justice Data and  
Promote Data Justice



Increase Financing for  
People-Centered Justice



Reimagine Youth  
Justice



Engage with Dispute  
Resolution and  
Informal Justice

# Key Questions and Discussion

- How can we create a critical discourse around the role of digital technologies in creating peaceful and inclusive societies?
- How can the limitations of existing datasets be acknowledged and communicated?
- How can data justice become a key highlight in discussions around SDG#16?
- How can we consider data justice as an integral part of technology development (especially innovation around justice systems)?

# Share your thoughts on the topic & get in touch!

<https://tinyurl.com/datajustice16>



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# Data Justice in participatory projects

Gefion Thuermer

MyData Conference, Helsinki, 31<sup>st</sup> May 2023

1

Those who contribute data rarely get sufficient recognition or benefit from that contribution.



2

If we want to change how benefits from data are distributed, we need to change how we work with data.

3

We need to plan benefits from data alongside the entire data lifecycle early on to help benefits for data contributors materialise.

data-pitch

INNOVATION PROGRAMME

SCIFI



Smart City Innovation

Interreg 

UNION EUROPÉENNE

2 Seas Mers Zeeën


European Regional Development Fund







**IMPETUS**



# Data Justice Plan

---

*Data that is collected by and with citizens should benefit the community that they come from.*

*Think about how you can ensure that this happens for your project data.*

- Who will contribute data to your project, and why?
- How will they benefit from what you plan to do with the data?
- How will this benefit materialize?
- Who will be responsible for making this happen?
- What will happen if the project does not go to plan – what can participating communities benefit from partial results, or what additional results might become available?
- Who else will benefit from the data and how?

# Thank you

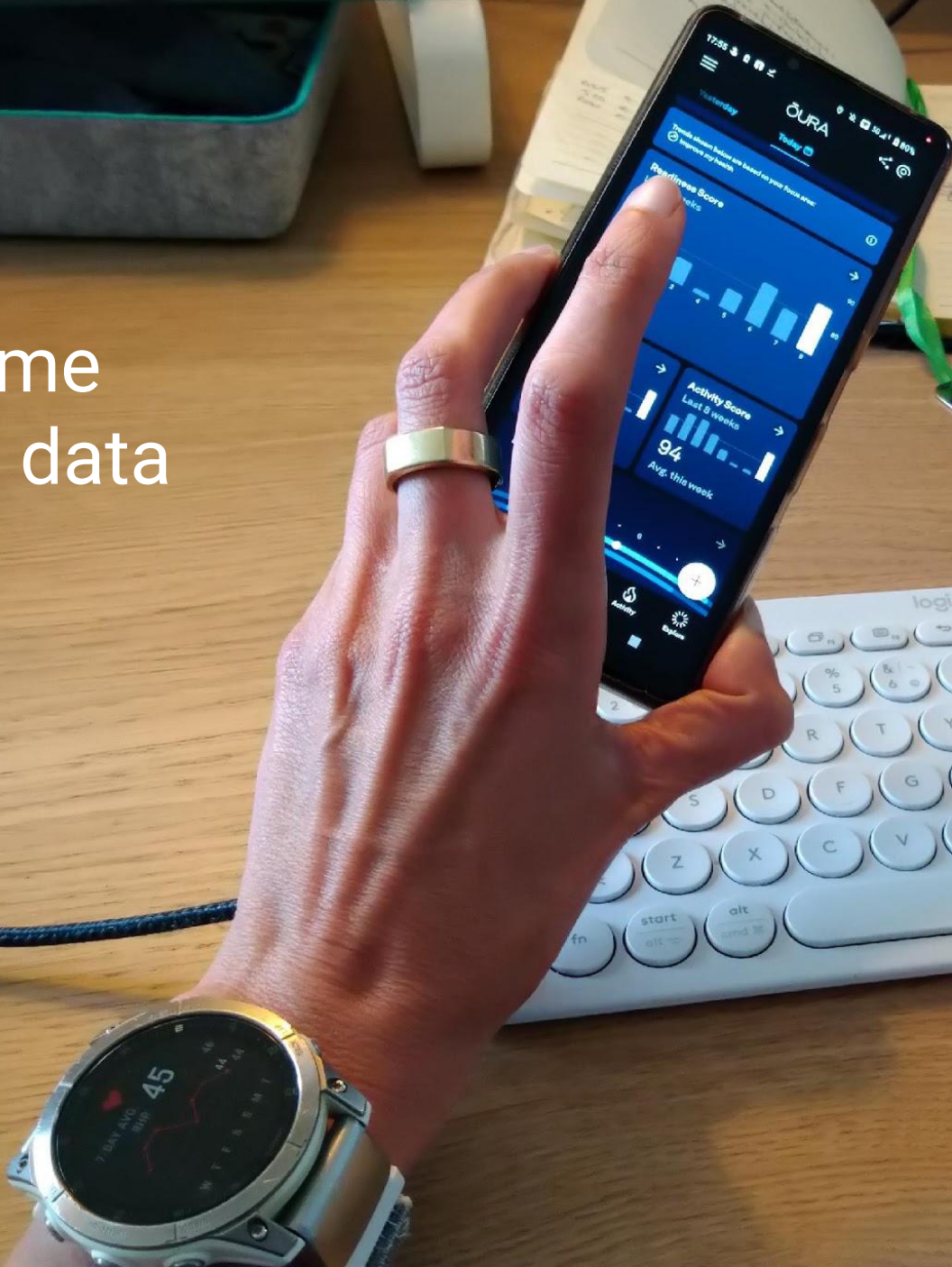
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# Data Justice in Participatory Projects

Julia Palma  
Innovation Manager  
[julia.palma@ucd.ie](mailto:julia.palma@ucd.ie)



This is me  
and my data



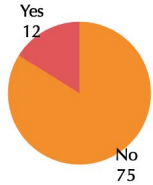
# Justice means...

- **Trustworthiness**
- **F**indable, **A**ccessible, **I**nteroperable, **R**eusable **data** and **FAIR** compensation for data owners
- **Responsible data operations** (low environmental footprint)

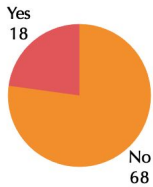


# Data justice in practice: The EUH4 Catalogue

It involves privacy regulations



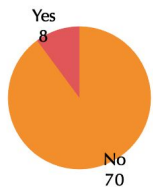
Needs company consent



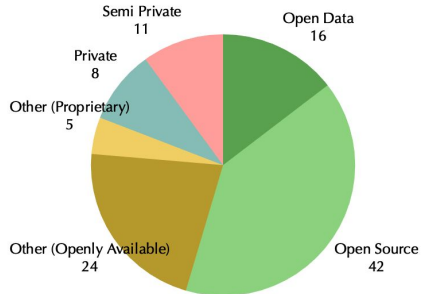
Should be Anonymized?



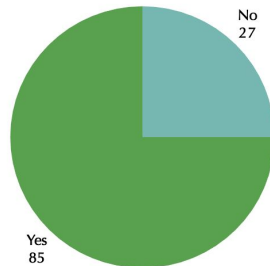
Sensitive dataset



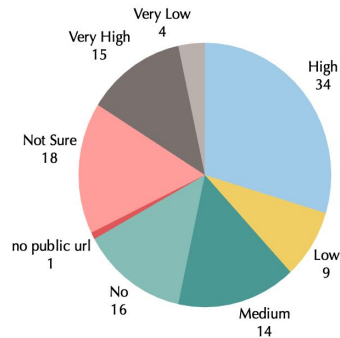
Licensing



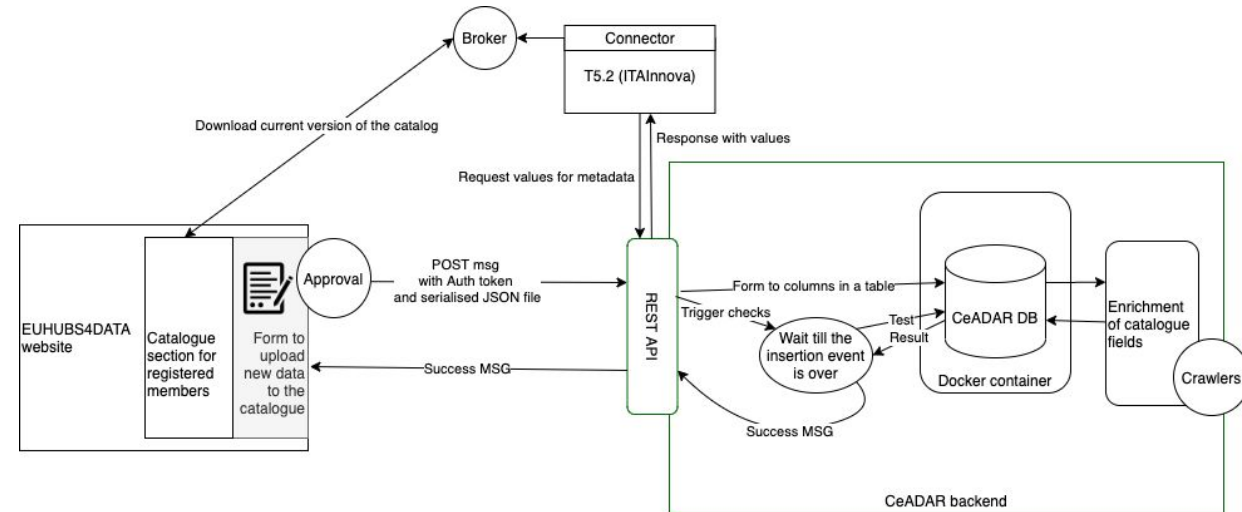
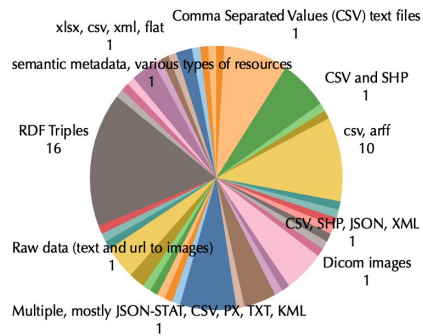
Are these publicly accessible?



Is there metadata available?



Formats



<https://euhubs4data.eu/datasets/>

## UPCAST – Universal Platform Components for Safe Fair Interoperable Data Exchange, Monetisation and Trading

UPCAST provides a set of universal, trustworthy, transparent and user-friendly data market plugins for the automation of data sharing and processing agreements between businesses, public administrations and citizens. Our plugins will enable actors in the common European data spaces to design and deploy data exchange and trading operations guaranteeing:

- (i) automatic negotiation of agreement terms,
- (ii) dynamic fair pricing,
- (ii) improved data-asset discovery,
- (iii) privacy, commercial and administrative confidentiality requirements,
- (iv) low environmental footprint, as well as ensuring compliance with
- (v) relevant legislation and
- (vi) ethical and responsibility guidelines.

UPCAST will support the deployment of Common European data spaces by consolidating and acting upon mature research in the areas of data management, privacy, monetisation, exchange and automated negotiation, considering efficiency for the environment as well as compliance with EU and national initiatives, AI regulations and ethical procedures. Four real-world pilots across Europe will operationalise a set of working platform plugins for data sharing, monetisation and trading, deployable across a variety of different data marketplaces and platforms, ensuring digital autonomy of data providers, brokers, users and data subjects, and enabling interoperability within European data spaces. UPCAST aims at engaging SMEs, administrations and citizens by providing a transferability framework, best practices and training to endow users in order to deploy the new technologies and maximise impact of the project

# UPCAST Consortium

PROJECT



CENTRE FOR IT & IP LAW



ΕΘΝΙΚΟ ΙΔΡΥΜΑ ΕΡΕΥΝΩΝ  
National Hellenic Research Foundation



# UPCAST PROJECT CeADAR

CeADAR is the *European Digital Innovation Hub for Applied AI in Ireland*. Our mission is to create value, build capability & deliver sustainable competitive advantage to companies through the application and adoption of AI, machine learning and data analytics.

CeADAR is *WP2 leader*, responsible for the *Energy Efficiency Optimisation (Environmental) Module and Transferability and Training*. CeADAR contributes with their expertise in AI to the *Valuation and Smart Contracts* developments.



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<https://ceadar.ie/>



# MyData

CONFERENCE 2023

## Data Justice in participatory projects

**Joana Magalhães, Senior Researcher, Science for Change**

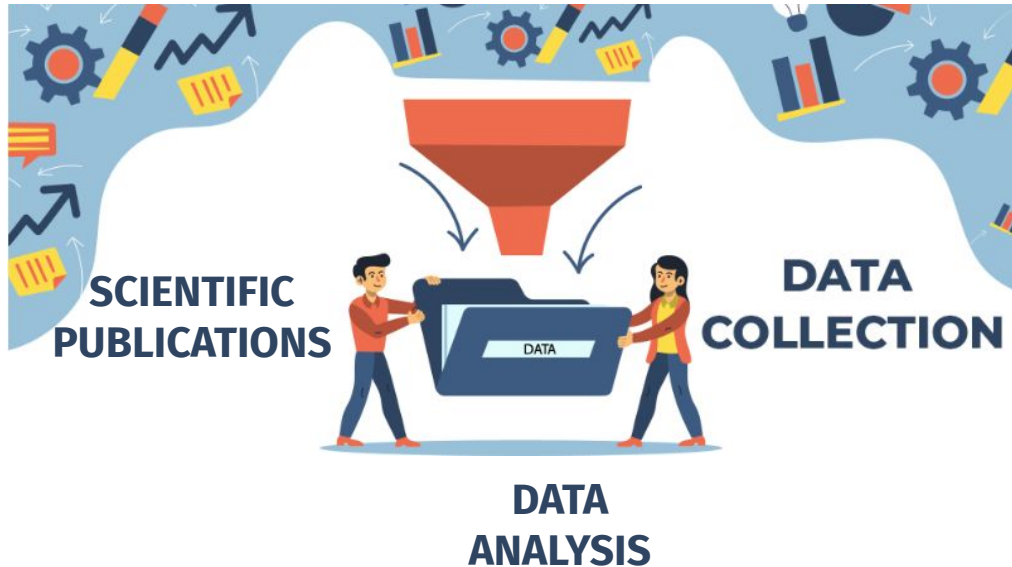
email: [joana.magalhaes@scienceforchange.eu](mailto:joana.magalhaes@scienceforchange.eu)



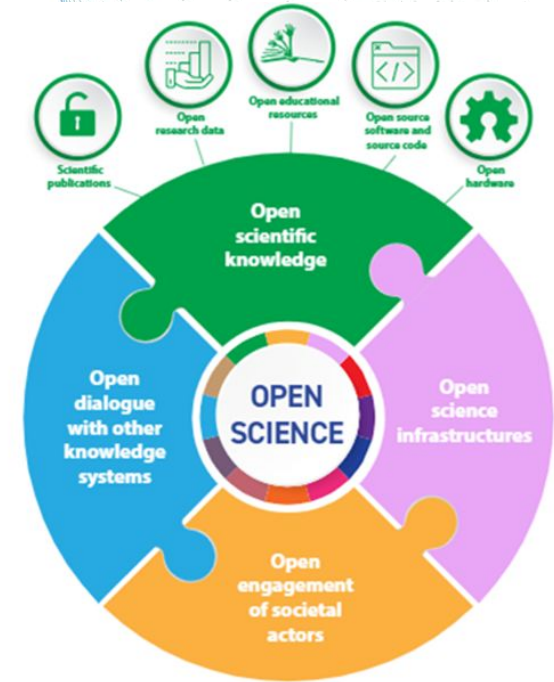
**Science**  
for **Change**

[@sciencefchange](https://twitter.com/sciencefchange)  
[@jomagellan](https://twitter.com/jomagellan)

# Citizens as data collectors and beyond



Source: Geeks for Geeks



Source: UNESCO

# Citizens as primary source of information



# Citizens as tacklers of misinformation

## Tackling misinformation: how to deliver ethically-sound and reliable initiatives



### Adopt good practices

Hold meetings on research results aimed at different audiences

Create specific material for journalists

Use an inclusive language

Facilitate accessibility: publish in open access press, include subtitles, audio description, captions and easy reading

Make explicit the role of the specific groups, including participation lists (prior consent)

Promote the visibility and fair recognition of participants

### MISINFORMATION RECOMMENDATIONS FOR CITIZEN SCIENCE INITIATIVES

- 1 PUBLISH YOUR METHODOLOGY AND DATA FOLLOWING FAIR PRINCIPLES
- 2 DISCUSS CURRENT EXISTING GAPS IN KNOWLEDGE AND LIMITATIONS OF THE SCIENTIFIC METHODS
- 3 ACT ON THE 3 PHASES OF MISINFORMATION, WITH A HOLISTIC AND TRANSVERSAL APPROACH
- 4 CONSIDER HOW YOU FRAME YOUR DATA TO AVOID MISINTERPRETATION OR MISUSE.
- 5 ANTICIPATE EMERGENCY CRISIS TO LEAD WITH TROLLS.
- 6 BUILD TRUST RELATIONS WITH DIFFERENT STAKEHOLDERS
- 7 BE OPEN AND TRANSPARENT ABOUT YOUR MOTIVATIONS AND CONFLICTS OF INTERESTS
- 8 INCLUDE OTHER SYSTEMS OF KNOWLEDGE IN THE SCIENTIFIC PROCESS
- 9 DIFFERENTIATE BETWEEN DIFFERENT TARGET AUDIENCES.
- 10 PRESENT YOURSELF AS A PRIMARY AND ORIGINAL SOURCE TO ALLOW VERIFICATION

3 phases of misinformation: production, dissemination and consumption

Source: Magalhães, et al., 2023



# Citizen science journalism

Citizen science journalism combines citizen-generated data and engaging methodologies with the narrative power and investigative process of data journalism. This translates into a stronger opportunity to empower new forms of engagement, active participation, and dialogue over the significance of data, the way scientific knowledge is produced and validated, and ultimately the civic and ethical responsibilities of science agents and the choices the whole society makes on the basis of it.

**Cooperating in the definition of citizens' information needs and designing proper sets of data collection in a participatory and transparent way can contribute to the use of those data to empower change for the benefit of local communities and advocate for democracy.**

# Citizen science journalism

## KNOW THE MEDIA SYSTEM



## FRAME YOUR STORY



## DATA BIAS AND VISUALISATION



#DATA4CitSciNews



12. The co-production of a journalistic story is a challenge worthy to be undertaken. Being able not to merely exchange information but to work together in selecting data, the pieces of relevant content, the angle to use, the preferred format and the audience to talk to, might prove a winning strategy to give proper recognition to all the expertise involved and to reinforce the collaboration for further stories to come.

# Citizen science journalism

IL BO  
**LIVE**  
UNIVERSITÀ DI PADOVA

SCIENZA E RICERCA  
**Il grande malato di Roma si chiama Tevere**

di Marco Boscolo

CONDIVIDI

**Livelli E. coli nel Tevere**  
Dati in UFC (Unità Formanti Colonie) per 100 ml

Punto	1	2	3	4	5	6	7	8
marzo 2021	0	0	2.800	1.200	1.900	2.700	2.300	6.400
aprile 2021	0	22.100	2.900	2.100	1.400	1.500	1.700	34.000
maggio 2021	0	18.600	4.000	4.300	3.100	2.000	1.000	2.400
giugno 2021	0	0	1.100	2.500	1.000	3.100	1.500	4.600
luglio 2021	2.000	7.600	100	2.300	400	1.800	700	2.600
settembre 2021	100	6.500	3.100	0	2.100	3.100	2.500	6.400
ottobre 2021	800	11.000	4.500	3.800	1.800	3.200	4.700	44.100
novembre 2021	500	4.100	0	3.000	3.700	1.800	2.900	21.300
dicembre 2021	2.500	4.700	2.900	2.900	3.200	2.500	4.200	39.200
gennaio 2022	1.300	5.300	1.000	700	1.000	1.500	1.400	34.000
febbraio 2022	400	0	1.000	0	2.600	2.400	5.800	31.200

Fino a 100 UFC/ml | 100 - 1.000 UFC/ml | 1.000 - 5.000 UFC/ml | 5.000 - 20.000 UFC/ml | >20.000 UFC/ml

Diari de Barcelona

**El Fòrum quantifica per primer cop la contaminació odorífera a través d'un projecte de ciència ciutadana**

La pudor a fangs i aigües residuals lidera les moltes olors detectades pel veïnat i recollides en temps real a través de l'aplicació OlorarCollect, del projecte O-NOSES

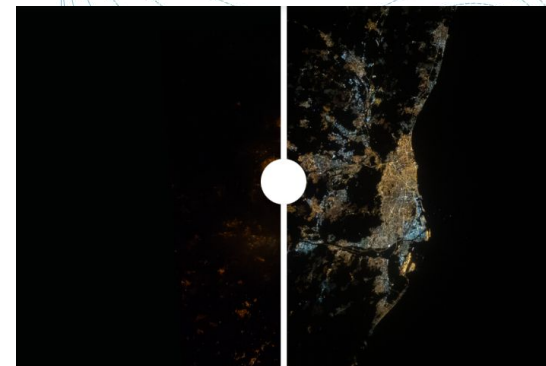
PER STORYDATA  
FOTOS AJUNTAMENT DE BARCELONA

Navegueu pel mapa amb el zoom i feu clic als punts de colors per conèixer les olors registrades.

PUBLICAT EL 26 DE GENER 2023

**La part fosca dels LED**

Check la contaminació lumínica a Barcelona en la darrera alcaldia a causa de la substitució en ferillament públic de llum taronja, menys eficient, per llum blanca, més contaminant.



# Citizen science journalism

## Mapping Makoko Using Drones and Canoes



A floating inner-city slum is in the process of being mapped to make a case for improved public services and land ownership.

Source: Code for Africa/AfricanDRONE/GuardianNG



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