

From **data** to **decision-making** under conditions of uncertainty

August 26th to 28th, 2025



Risk Institute
Université Grenoble Alpes

DECODE Project

Decode stands for: DEvelop CompeTences DEvoted to the management of uncertainty with creativity and drama tools



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Data Integrity and Power Dynamics in Knowledge Production

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Aims & learning outcomes

What does data integrity mean and why does it matter in citizen science?

Power dynamics: who defines problems, methods, and meaning?

Drawing on real-life experiences and from not-for-profit organization and the government-led agency

Data in citizen science projects

- Citizen science projects... combine **web-based social networks** with **community-based** information systems to harness *collective intelligence* and apply it to specific scientific **problems** (Hunter et al 2013: 454).
- **Citizen science constitutes a process of active participation and citizen empowerment, with outputs directed toward generating collective benefits for society.**

Social media
platforms

facebook

Meta

Crowdsourced
navigation &
mapping



E-commerce &
Review
platforms

amazon



Gig economy
platforms



Citizen
science for R
&D



Arnstein, Sherry R. (1969) 'A Ladder of Citizen Participation,' *Journal of the American Institute of Planners*, 35 (4): 216-224.

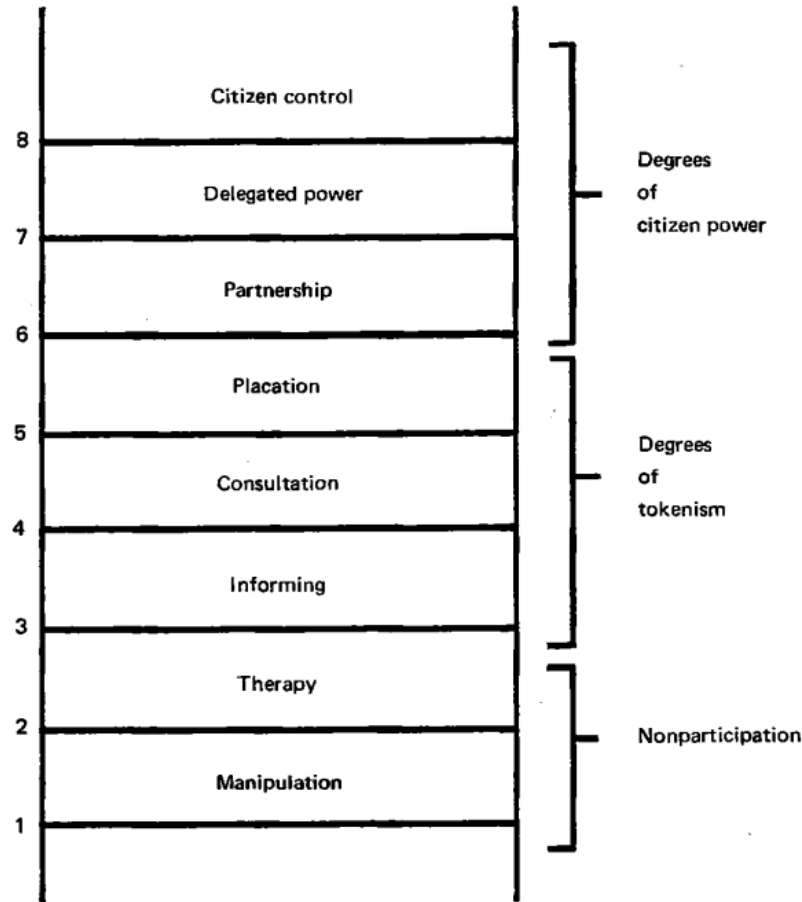
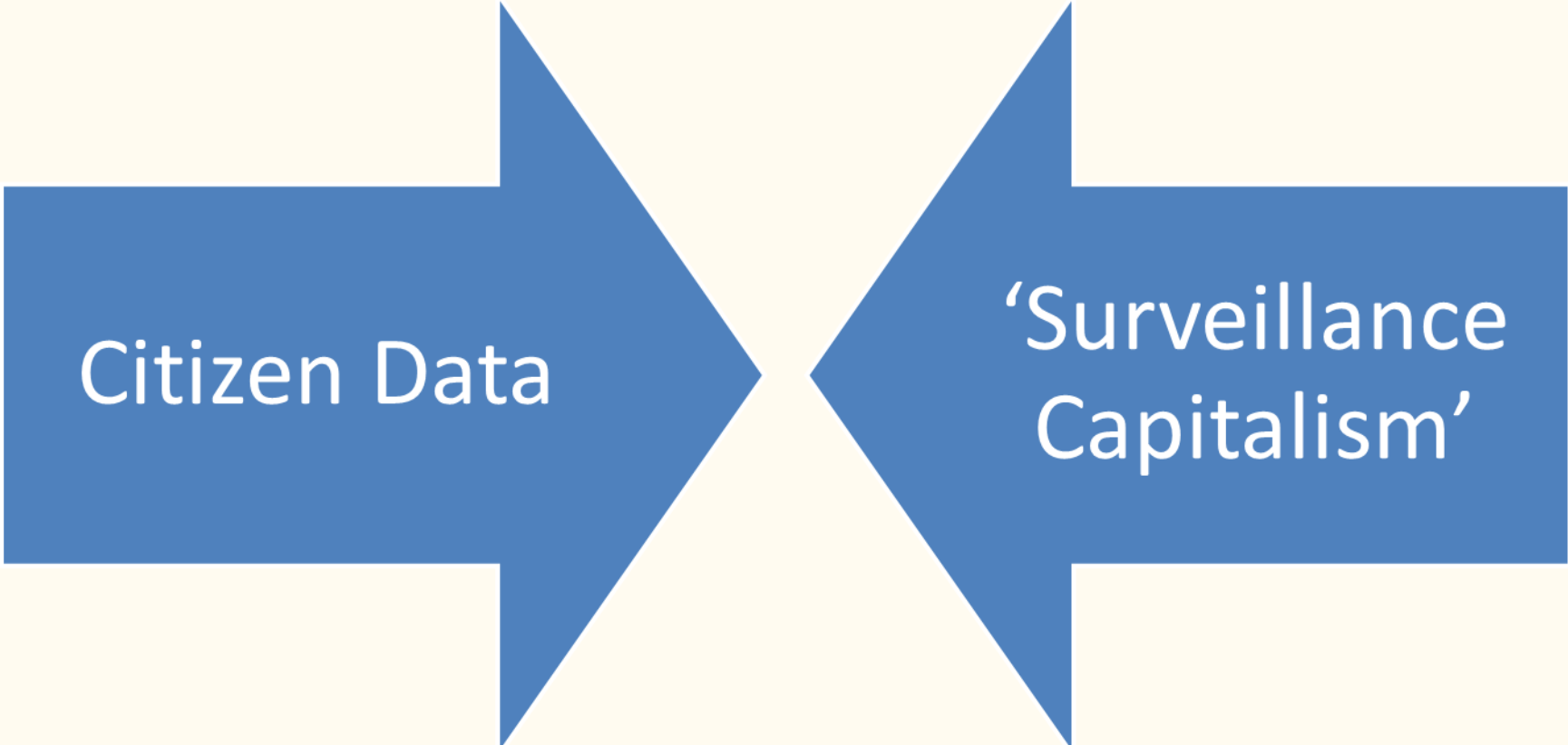


FIGURE 2 *Eight Rungs on a Ladder of Citizen Participation*



The diagram consists of two large, blue, stylized arrows pointing towards each other, meeting at a central point. The left arrow points right and contains the text 'Citizen Data'. The right arrow points left and contains the text 'Surveillance Capitalism'. The arrows are thick and have a slight 3D effect with a lighter blue shadow on the right side of each arrow's body.

Citizen Data

'Surveillance
Capitalism'



Flood Warnings



0

Severe Flood
Warnings

0

Flood
Warnings

0

Flood Alerts

Last Warning issued
Mon, 4 Aug
2025 15:56:43[Home](#) > [Flooding](#)

Flooding

Live flood warnings and river levels

[Check flood warnings](#)[Check river levels, rainfall and sea data](#)[5 day flood risk outlook](#)

Sign up for flood warning messages

[Sign up to receive flood warnings](#)[Update your details or cancel flood warnings](#)

Check flood risk

Citizen data – created by ‘conscious’ user actions (Richter et al. 2011)

Paths in the woods and the ‘Beware! Steep Drop’ sign

OpenStreetMap [Edit](#) [History](#) [Export](#) [GPS Traces](#) [User Diaries](#) [Communities](#) [Copyright](#) [Help](#) [About](#) [Log In](#) [Sign Up](#)

swansea

Node: Swansea
(21063632)

Version #58

added Malayalam language to many cities and towns in UK.

Edited 6 months ago by [Jobigutenburg](#)
Changeset #162606490
Location: 51.6195955, -3.9459248

Tags

is_in	Wales,UK
is_in:country	United Kingdom
is_in:historic_county	Glamorganshire
is_in:preserved_county	West Glamorgan
name	Swansea
name:bn	সোয়ানসি
name:br	Abertawe
name:cy	Abertawe
name:el	Σουάνσν
name:en	Swansea
name:ga	Abertawe
name:gd	Abertawe

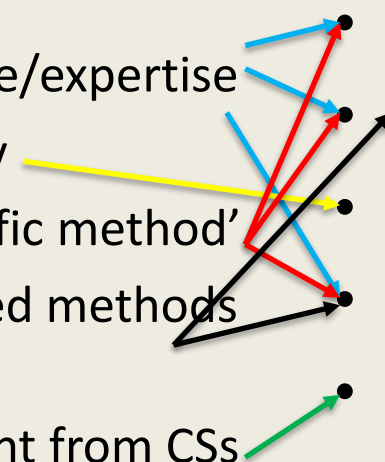
**What does data
'integrity' mean to
you? Let's share our
thoughts**



Table I. A set of data quality dimensions [17].

Dimensions	Definitions
Accessibility	The extent to which information is available, or easily and quickly retrievable.
Appropriate amount of information	The extent to which the volume of the information is appropriate for the task at hand.
Believability	The extent to which the information is regarded as true and credible.
Completeness	The extent to which the information is not missing and is of sufficient breadth and depth for the task at hand.
Concise representation	The extent to which the information is compactly represented.
Consistent representation	The extent to which the information is presented in the same format.
Ease of manipulation	The extent to which the information is easy to manipulate and apply to different tasks.
Free-of-error	The extent to which information is correct and reliable.
Interpretability	The extent to which information is in appropriate languages, symbols, units and the definitions are clear.
Objectivity	The extent to which the information is unbiased, unprejudiced and impartial.
Relevancy	The extent to which the information is applicable and helpful for the task at hand.
Reputation	The extent to which the information is highly regarded in terms of source or content.
Security	The extent to which access to information is restricted appropriately to maintain its security.
Timeliness	The extent to which the information is sufficiently up-to-date for the task at hand.
Understandability	The extent to which the information is easily comprehended.
Value-added	The extent to which the information is beneficial and provides advantages from its use.

Quality: trustworthiness of data

- Limited training/knowledge/expertise
 - Relative anonymity
 - Lack of the 'scientific method'
 - Lack of standardized methods of data collection
 - Lack of commitment from CSs
- 
- The diagram consists of five colored arrows pointing from the left list to the right list:
- A blue arrow from 'Limited training/knowledge/expertise' to 'Inaccurate data'.
 - A blue arrow from 'Limited training/knowledge/expertise' to 'Misleading data'.
 - A yellow arrow from 'Relative anonymity' to 'Malicious data manipulation'.
 - A red arrow from 'Lack of the 'scientific method'' to 'Inaccurate data'.
 - A red arrow from 'Lack of the 'scientific method'' to 'Misleading data'.
 - A black arrow from 'Lack of the 'scientific method'' to 'Incomplete data'.
 - A black arrow from 'Lack of standardized methods of data collection' to 'Incomplete data'.
 - A green arrow from 'Lack of commitment from CSs' to 'Data gaps across time and space'.
- Inaccurate data
 - Misleading data
 - Malicious data manipulation
 - Incomplete data
 - Data gaps across time and space

Improving data quality

- Data cleansing and data quality improvement technologies for data validation;
- Comparing the data sets with alternative sources or historical trends;
- Exploiting social network analysis tools to assess the trustworthiness of the contributor;
- Trust and reputation metrics

Organized biodiversity mapping exercise

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Ben jij geïnteresseerd in planten, insecten en vogels die voorkomen langs de Maas? Wil jij ons helpen met soorten in kaart te brengen tijdens 1 voormiddag? Ben je benieuwd naar een beschermde 'weerd' lang de Maas die nooit werd ontgraven, en veel agrarische grasslanden heeft?

Meld je dan aan voor deze BioBlitz, georganiseerd door het RivierPark Maasvallei / Regionaal Landschap Kempen & Maasland!

Wanneer? Zondag 15 juni van 9u tot 12u30

Waar? In Heppeneert. We gaan op pad langs de oever van de Maas en de Zanderbeek.

We spreken af op de parking achter de kerk (Google Maps: 'parking heiligdom Heppeneert')

Wat? Onder begeleiding van natuurkenners leer je bij over typische en zeldzame soorten. Je neemt foto's en notities en geeft ze in als waarneming.

Are you interested in plants, insects, and birds that occur along the Meuse? Would you like to help us map species during a morning? Are you curious about a protected 'weerd' along the Meuse that has never been excavated and has many agricultural grasslands?

Then sign up for this BioBlitz, organized by the River Park Maasvallei / Regional Landscape Kempen & Maasland!

When? Sunday, June 15 from 9 AM to 12:30 PM

Where? In Heppeneert. We will head out along the banks of the Meuse and the Zanderbeek.

We will meet in the parking lot behind the church (Google Maps: 'parking heiligdom Heppeneert').

What? Under the guidance of nature experts, you will learn about typical and rare species. You will take photos and notes and submit them as observations.

Data validation

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Comments

 **Maico Weites** 2025-08-15 20:57

Dear observer, the validator made the following changes to your observation:

- Life stage: "unknown" -> "imago"

If you disagree with the changes please add another comment.

[Translate](#)

Clarify ownership and licensing from the outset

Benefit-sharing agreements (credit, access, monetary/non-monetary)

Ethical restrictions for sensitive species/places data

Sustainable funding and maintenance for longevity

[Personal information](#)
[Share data](#)
[Privacy](#)
[Memberships](#)
[Delete account](#)

[Save](#)
[Not now](#)

Share observations

☐ do not share my observations
☒ share my observations with trusted projects and partners
☐ share my observations as open data

☒ Share embargo observations with trusted partners

Share photos

CC-BY-NC-ND

Share sounds

CC-BY-NC-ND

[Next step](#)
[Go back](#)

Share your data

Sharing your observations

Sharing your data with scientists, nature conservation organisations and other interested people will help to increase the knowledge about biodiversity.

Creative Commons photos and sounds

With a Creative Commons license, you retain all your rights to your photos and sounds, but you give others permission to use them.

The most commonly used license is cc-by-nc-nd. This license allows your photos and sounds to be used with attribution, but not for commercial purposes or derivative works. Please note that your display name will be used for attribution.

Recognising Contributions & Labour

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Settings for w8ing4sunrise

[Personal information](#) [Share data](#) [Privacy](#) [Memberships](#) [Delete account](#)

☒ Show me in rankings

Show me in public rankings and statistics.

☒ Show time for my observations

☒ Other users are not allowed to copy my observations

☒ Allow photo likes

Disable if you do not want other people to like your photos.

[Next step](#)

[Go back](#)

About privacy

Email notifications

If you have an account on Observation.org, we may have to email you about essential matters. By essential matters we mean your data, your access to the platform and your privacy. In accordance with privacy legislation, we reserve the right to send essential emails to safeguard the proper functioning of Observation.org.

A complaint about an email that you have received from Observation.org can be reported to info@observation.org in accordance with our Privacy Statement.

Show time on sightings

By default, the time of your sighting is also shown, which can be useful for other observers. If you turn this off, others will only see the day of the sighting.

Allow validators to modify the observation

This option is only available with existing accounts. If you do see this option and you turn it off, you can never turn it on again.



Sea-holly

Eryngium maritimum L.

Plants Apiaceae Eryngium *Eryngium maritimum* 1 Species

1 flowering indigenous

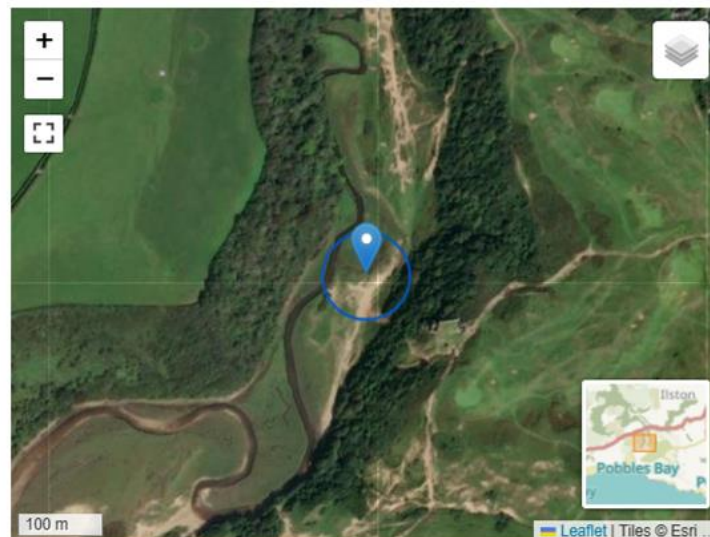
2025-07-27 16:19
w8ing4sunrise
Pennard Community (United Kingdom)
Accepted (automatic validation)

GPS 51.5771, -4.1036
Accuracy 51m
Source Observation

relatively common
native

Options ▾

Directions



Details

Date	2025-07-27 16:19
Number	1
Life stage	flowering
...	...

Photos



Pennard Community United Kingdom

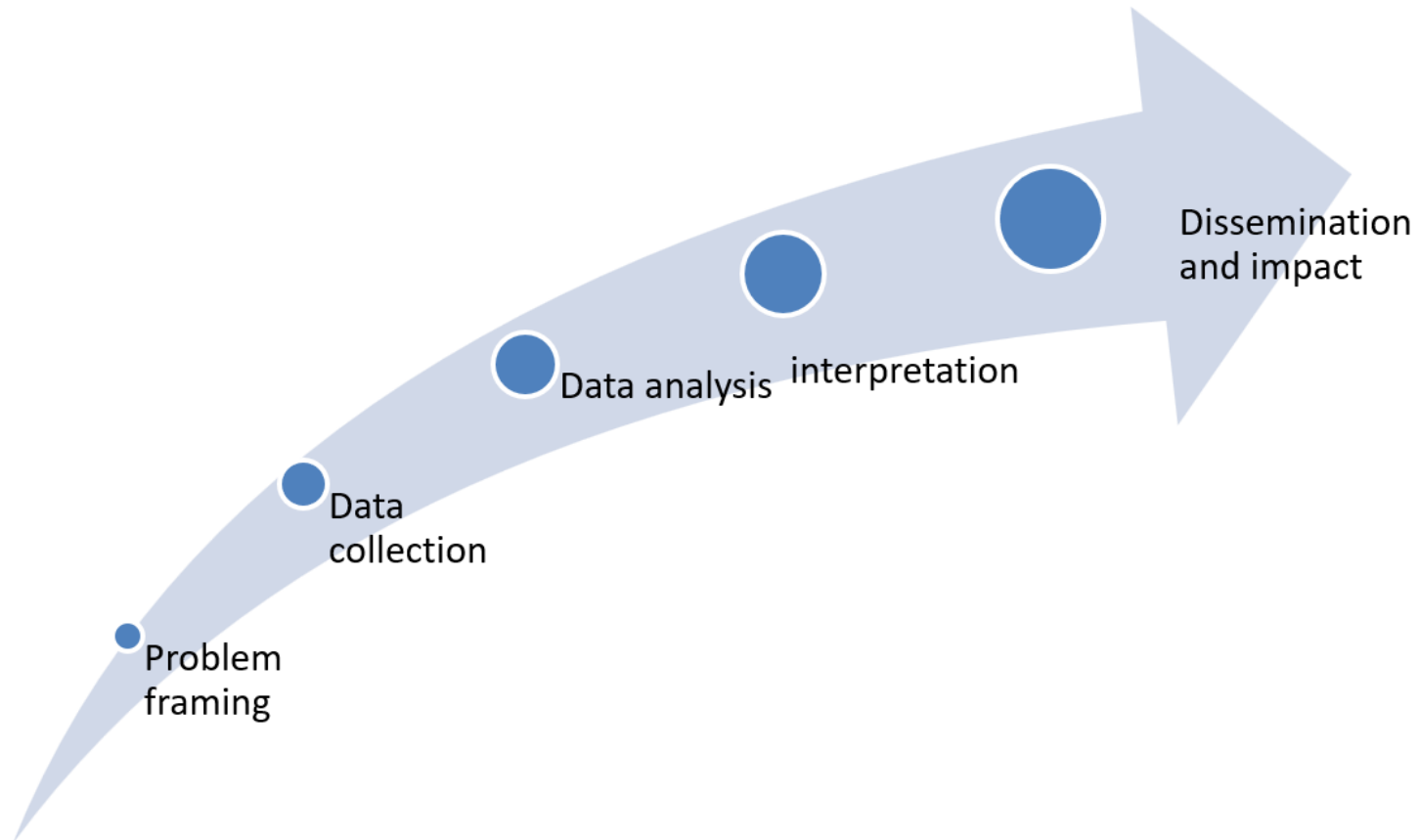
Details Observations Photos Sounds Species seen Ranking observers

Plants All years Filter Clear filters

Ranking	Observer	Species	
1	Niels Jeurink	163	Compare to my list
2	racheldavey	14	Compare to my list
3	Cas Retel	10	Compare to my list
4	Julia68	6	Compare to my list
5	Devon Delsman	3	Compare to my list
	gb	3	Compare to my list
	Aaron Meijer	3	Compare to my list
	Bob East	3	Compare to my list
9	Marcel	2	Compare to my list
	TON van Alphen	2	Compare to my list
	ErikB	2	Compare to my list
	Gary Harper	2	Compare to my list
13	Julian Myers	1	Compare to my list
	Alida Kranenburg	1	Compare to my list
Show all			
	dangel	1	Compare to my list
	ellenvdsteen	1	Compare to my list
13	w8ing4sunrise	1	
	benjicunie	1	Compare to my list
	QueenBeeBCV	1	Compare to my list
	Joris Van der Schoot	1	Compare to my list
	Maxim Hallaert	1	Compare to my list

Data integrity in every stage of citizen Science

Public participation in scientific processes across the knowledge lifecycle



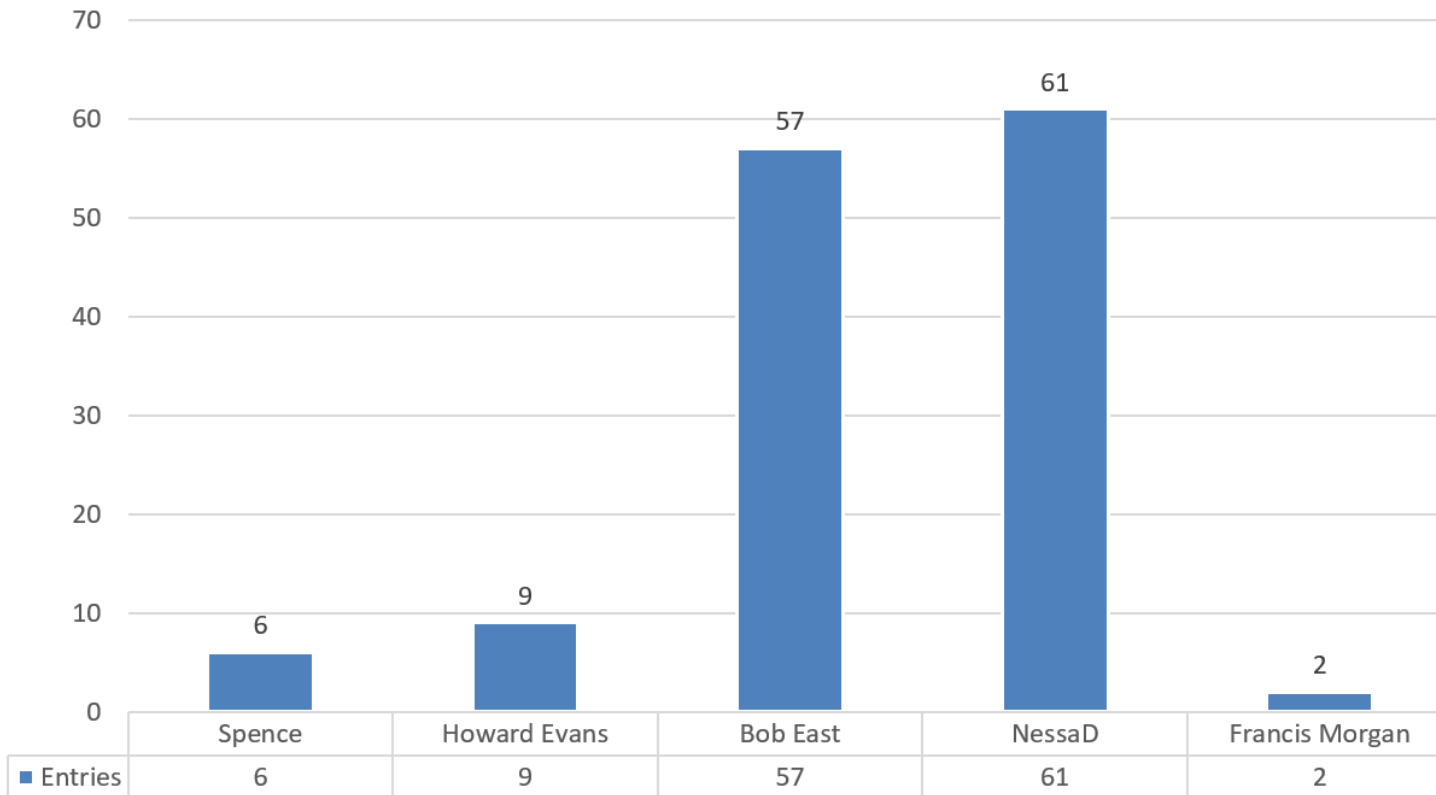
Who are the citizen scientists

- Currently, citizen scientists tend to be whiter, older, well-educated, and more middleclass than broader society (Hobbs and White 2012; Measham and Barnett 2008; Wright et al. 2015);
- Missed opportunity for other demographics such as increased understanding and appreciation of science (Brossard et al. 2005)

Observation.org in Swansea area (activities 10- 20 August 2025)

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Observations made by citizen scientists



Who Holds Power in Knowledge Production?

- Problem framing: whose questions are prioritized?
- Method choice: whose standards and what counts as evidence?
- Interpretation: whose narratives shape meaning and action?
- Gatekeeping: publication, media, and policy influence
- Data governance principles (e.g., [Findable; ; Accessible; Interoperable; Reusable – FAIR principle; Collective benefit.](#))



Inclusion & data Justice

- Avoid empowering some and marginalizing others due to technological or social barriers (Byrne and Pickard 2016)
- Respecting local/Indigenous sovereignty over knowledge and data
- [Authority to control. Responsibility. Ethics - CARE for Indigenous data](#)
- Co-governance and co-ownership models for data and outputs.
- Design for linguistic, cultural, and accessibility needs.

Key Takeaways

Data integrity blends technical rigour
with social legitimacy



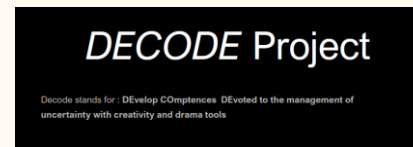
Power dynamics shape what is known
as the issue and what is actionable



Citizen science projects need to be
designed for quality, governance, and
justice

Merci Beaucoup

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