The European Citizen Science Association

Citizen science: a participative approach to science

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what is citizen science?

citizen science

Citizen science is any activity that involves the public in scientific research and thus has the potential to bring together science, policy makers, and society as a whole in an impactful way.

EU-Citizen.Science

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the many names

community science, crowd science, crowd-sourced science, civic science, participatory monitoring, or volunteer monitoring

science and society

Ph: Simona Cerrato

science today is

contextualised / applied
transdisciplinary
diffused
unknown
uncertain
ambiguous

science as authority

PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA.

Autore *J. S. NEWTON, Trin. Coll. Cantab. Soc.* Matheseos
Professore *Lucasiano*, & Societatis Regalis Sodali.

IMPRIMATUR.
S. PEPYS, *Reg. Soc.* PRÆSES.
Julii 5. 1686.

LONDINI,
Jussu *Societatis Regiæ* ac Typis *Josephi Streater*. Prostat apud
plures Bibliopolas. *Anno* MDCLXXXVII.

Sir Isaac Newton, *Philosophiæ Naturalis Principia Mathematica*

colours of
cooperation

the publics

Access to science and its beneficial impacts is still restricted to an elite: this is a crucial aspect, often ignored or underestimated.

Gallup Wellcome Global Monitor

science and society

The public has the right and the duty to contribute to the debate over science and technology

The public role of scientists becomes more and more important

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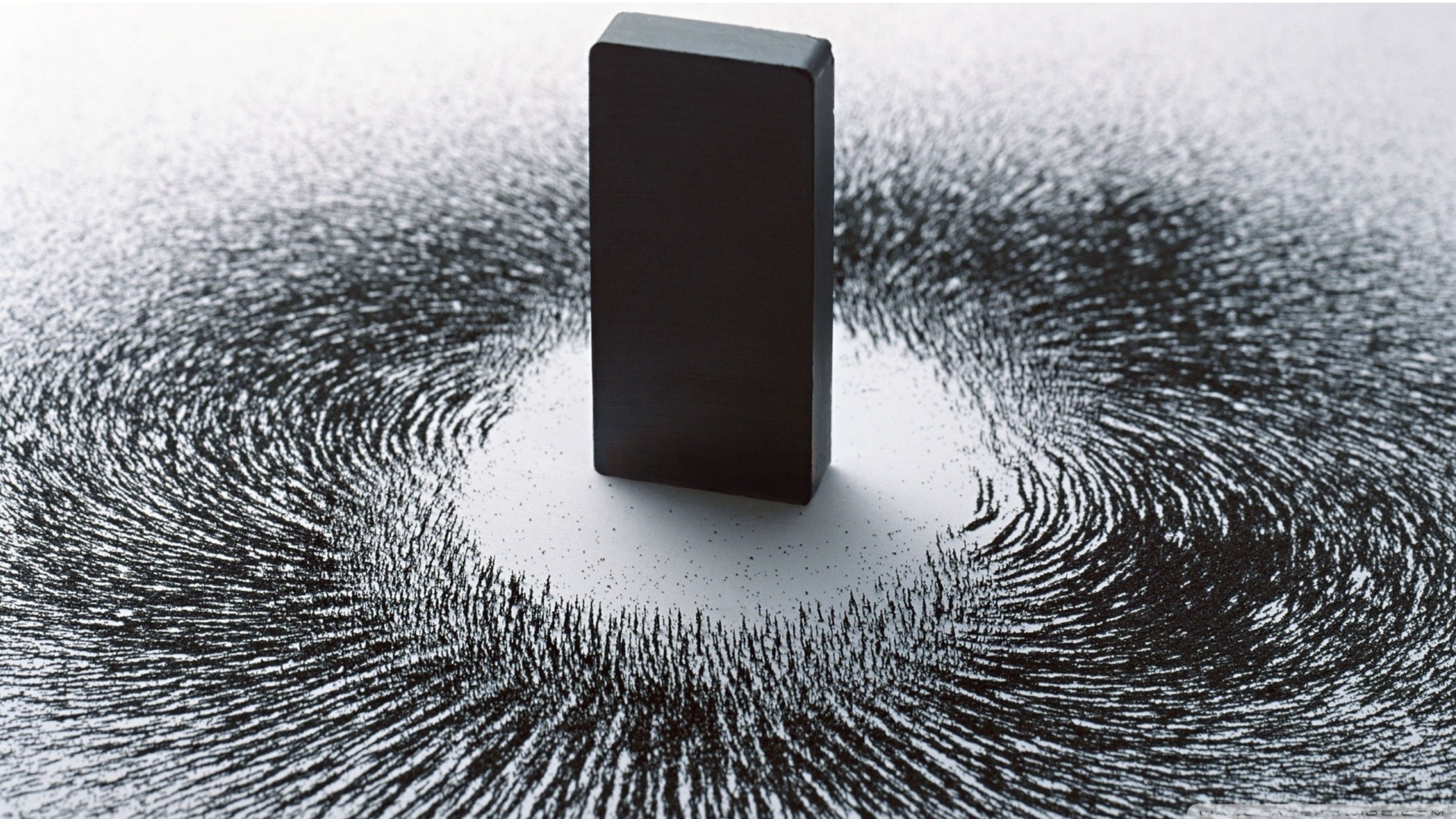
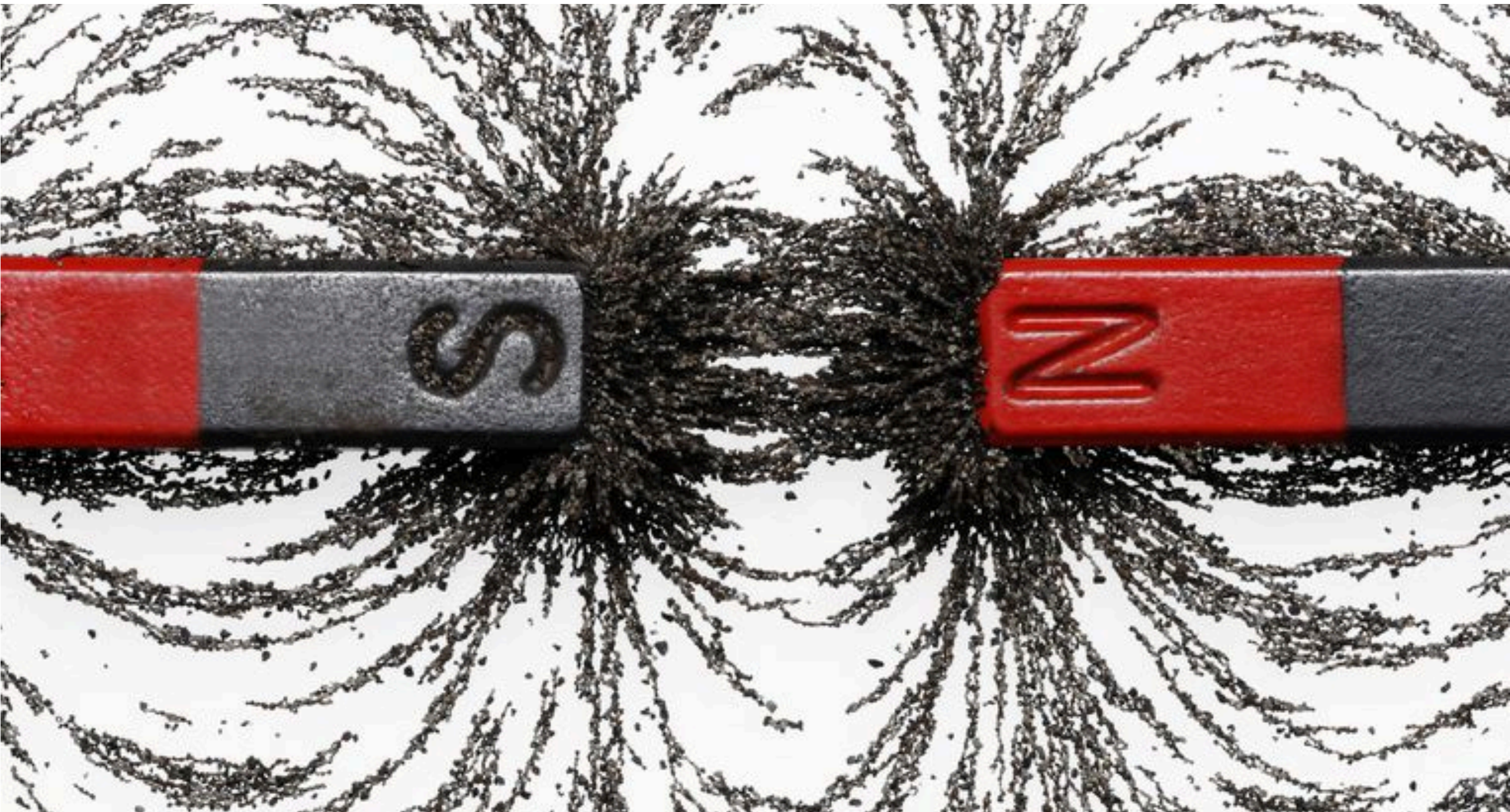
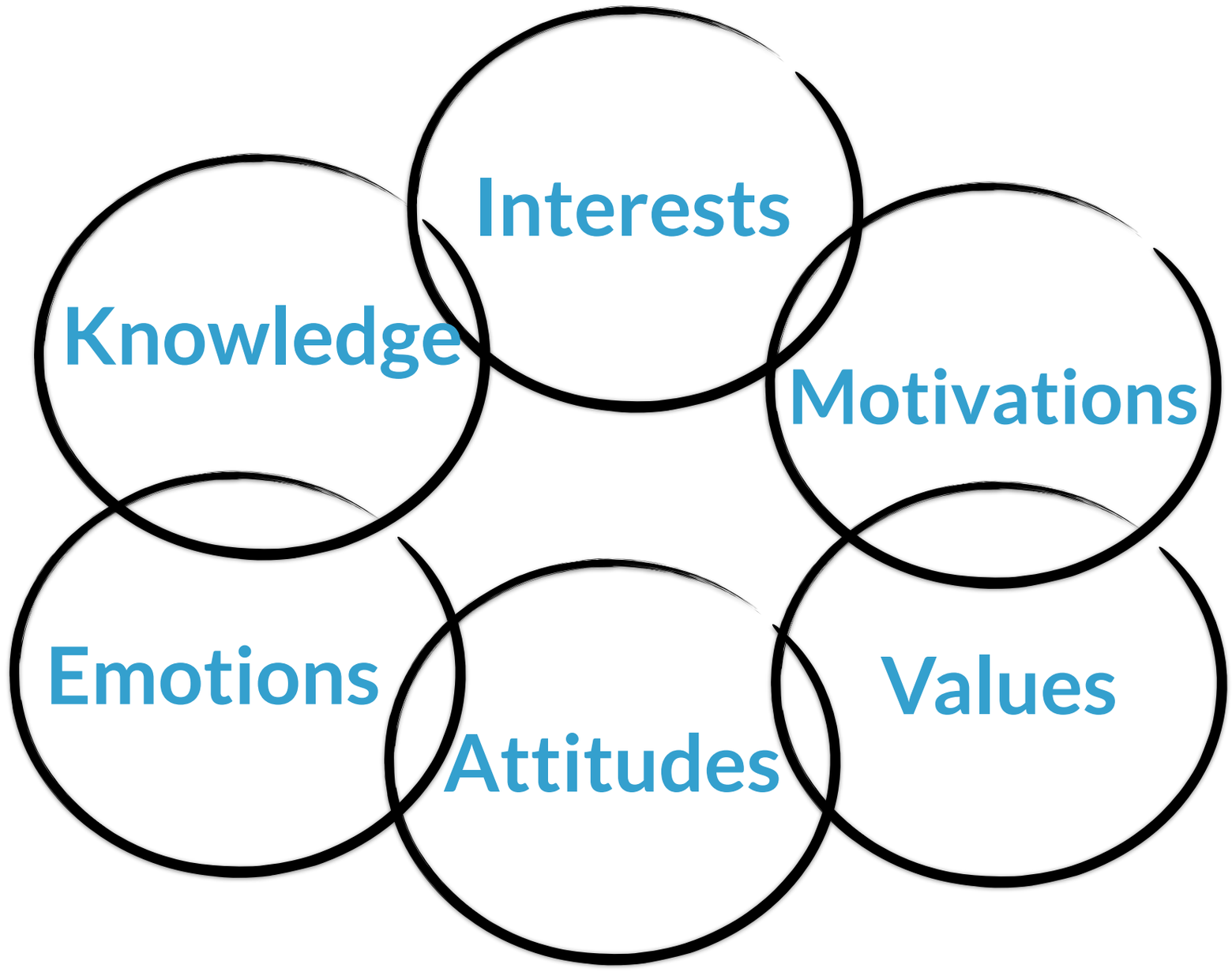
from the deficit model of science communication



from the deficit model of science communication




Knowledge
Interests
Motivations
Emotions
Attitudes
Values

to the participatory model of science communication

citizen science can be the best approach to participation

from crowd sourcing to co-creation

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not only biodiversity

ecology, astronomy, medicine, computer science, cartography, statistics, psychology, genetics, engineering, neuroscience, biochemistry, air or sea pollution monitoring, high energy physics, mathematics

challenges

reliable measures

ownership and recognition

recruitment and participation

funding

incluvisity

institutional change

reliable measures

background
involvement
age
available time
geographic localisation
customs and traditions

➜ clear initial setup
➜ careful implementation
➜ validation processes

ownership and recognition

if citizens contribute in relevant parts of the research process they should be acknowledged

➜ coauthor publications
➜ informed on future developments
➜ what else?

recruitment and participation

there are many barriers to initial participation in new projects and maintaining interest and engagement.

- ➜ communication
- ➜ training
- ➜ more recognition
- ➜ involvement of the communities
- ➜ introduce citizen science in schools

funding

economic sustainability of citizen science is common to many other similar initiatives and adds to the already often scarce availability of funds for research.

➜ national and international funding programs
➜ networking and associations
➜ what else?

inclusivity

citizen science reflects and replicates the scientific world, that is still pale, male and stale.

➜ despite the effort and the funding, participation and still show an uneven pattern

➜ ideas?

institutional change

academy, research institutions, researchers are still reluctant to adopt citizen science as a research approach.

➜more communication

➜ training

ten principles of citizen science

1. Citizen science projects actively involve citizens in scientific endeavour that generates new knowledge or understanding. Citizens may act as contributors, collaborators, or as project leader and have a meaningful role in the project.

2. Citizen science projects have a genuine science outcome.

3. Both the professional scientists and the citizen scientists benefit from taking part.

4. Citizen scientists may, if they wish, participate in multiple stages of the scientific process.

5. Citizen scientists receive feedback from the project.

6. Citizen science is considered a research approach like any other, with limitations and biases that should be considered and controlled for.

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ten principles of citizen science

7. Citizen science project data and meta-data are made publicly available and where possible, results are published in an open access format.

8. Citizen scientists are acknowledged in project results and publications.

9. Citizen science programmes are evaluated for their scientific output, data quality, participant experience and wider societal or policy impact.

10. The leaders of citizen science projects take into consideration legal and ethical issues surrounding copyright, intellectual property, data sharing agreements, confidentiality, attribution, and the environmental impact of any activities.

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you are not alone

further reading

Vohland et al, *The science of citizen science*, Springer, 2021, link

Green paper on citizen science for Europe:
towards a society of empowered citizens and enhanced research, link

How does the world feel about science and health? (2019),
Gallup Wellcome Global Monitor

Simona Cerrato, *Scientific and civic engagements in citizen science* (2022),
European citizen science blog

Ten principles of citizen science, ECSA

contacts

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