



ExCiteS

Extreme
Citizen
Science

A photograph showing three individuals in a lush, green forest setting. On the left, a woman wearing a purple headscarf and an orange garment looks towards the center. In the middle, a man in a colorful patterned shirt is pointing at a smartphone held by a young boy on the right. The boy is wearing a white t-shirt and holding a piece of wood or bark. The scene suggests a collaborative activity, likely related to citizen science.

Citizen Science: Doing excellent research with citizen science – opportunities and challenges

Muki Haklay, Extreme Citizen Science group
Department of Geography, UCL

Twitter: @mhaklay / @ucl_excites



Overview

- Spectrum of activities in citizen science
- Example from Frontier Research (ERC) – ECSAnVis
- European policy support for citizen science
- Citizens interest in science – Eurobarometer 516



Citizen Science

Long running
Citizen Science

Citizen
Cyberscience

Community
Science

Ecology &
biodiversity

Meteorology

Archaeology

Volunteer
computing

Volunteer
thinking

Passive
Sensing

Participatory
sensing

DIY Science

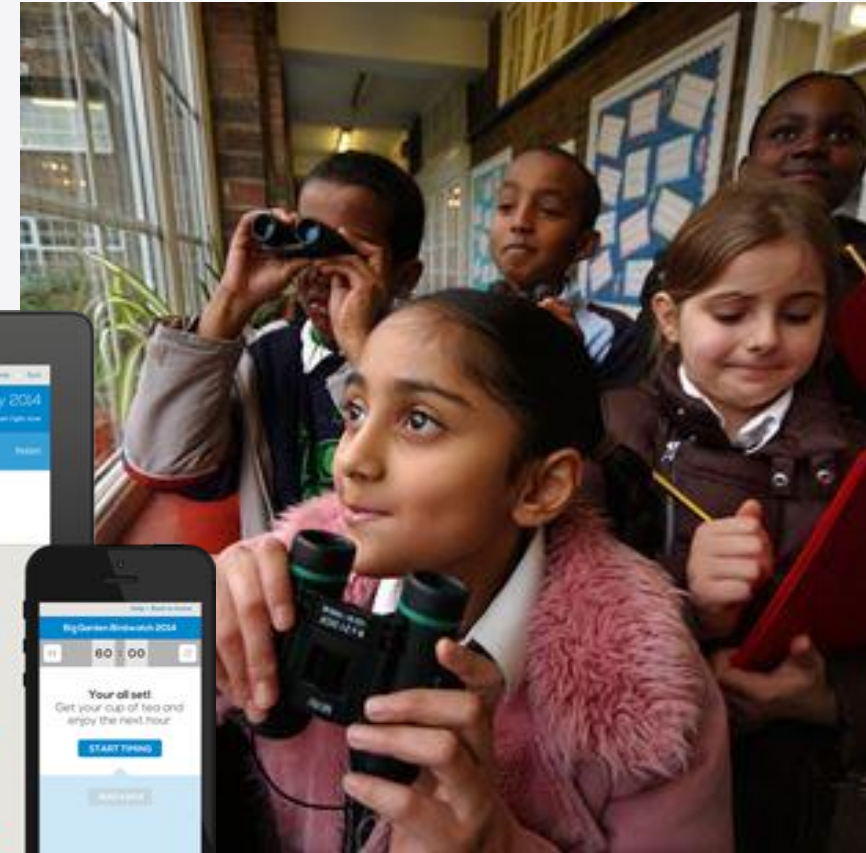
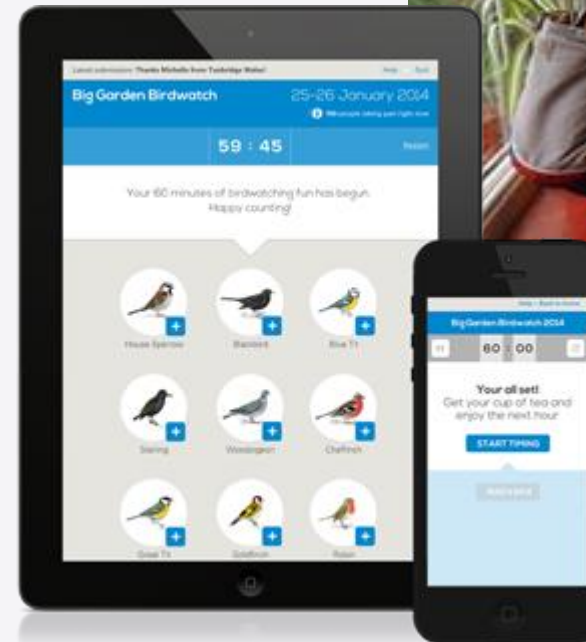
Civic Science



Biodiversity/Ecology/Biological recording

- Ecological observations of plants and animals (esp. birds), continue to be popular
- A review in 2012 identified 234 projects in the UK
- Big Garden Birdwatch – 1 hour, end of January, structured reporting, and over million participants in 2021

Participating in Big Garden Birdwatch (source: RSPB)





Volunteer computing

climateprediction.net
the world's largest climate modelling experiment for the 21st century

Home About People Join Projects **weather@home** Climate science Publications Education

weather@home · 2015 December Extreme weather in the UK

In this section

2015 December Extreme weather in the UK

Observational Analysis

2015 December Extreme weather in the UK

Applying three independent methodologies of extreme event attribution, we show that temperatures and precipitation in the UK in December 2015 were extremely unlikely even in a warming world with observed SST patterns, including El Niño, as an additional driver. This indicates that random weather noise played a very large role in December's weather. At the same time, the event was much less likely in the representations of a climate without human influence, showing that climate change greatly affected the odds of such a month occurring.

The observed temperature anomaly is so far outside the expected distribution that the odds are difficult to determine. We find that anthropogenic climate change approximately doubled the occurrence probability of the event for lower return times. Analysis of the historical link between the observed CET dataset and El Niño shows no discernible influence on the CET in winter. This is confirmed by a coupled model analysis that only shows a weak connection. The weather@home simulations including all ocean temperatures are warmer than the Climatology ensemble. This includes El Niño, but also the warm subtropical Atlantic Ocean, which was the source region of the mild air flowing to Britain in December 2015.

Similarly all three methods show an increase in the likelihood of high precipitation in Northern English winters due to human-induced climate change. The connection with the El Niño signal is weak in December, but the weather@home simulations reveal an increase in the likelihood of very wet Decembers due to the ocean temperatures observed in December 2015.

What happened with the weather in December 2015?

BBC This globe shows your climate model running
Model date and time: 19/10/1952 00:30

Atmos Model Time - 00:30
Atmos Model Date - 19/10/1952
Hours Elapsed - 0685:15:50 (2.99 s/TS)
Timestep - 826417 of 4147560
Progress - 19.93 %

created by **climateprediction.net**

bbc.co.uk/climatechange

DreamLab Volunteer Foundation

You're supporting
3D Genome

My Contribution

You have powered DreamLab for

30 05 42
DAYS HOURS MINUTES

Lifetime calculations I've crunched
3,935

Currently powering

Imperial College London
Corona-AI (Phase 1)



Volunteer thinking



Welcome to Galaxy Zoo, where you can help astronomers explore the Universe

Galaxy Zoo: Hubble uses gorgeous imagery of hundreds of thousands of galaxies drawn from NASA's Hubble Space Telescope archive. To understand how these galaxies, and our own, formed we need your help to classify them according to their shapes — a task at which your brain is better than even the most advanced computer. If you're quick, you may even be the first person in history to see each of the galaxies you're asked to classify.

More than 250,000 people have taken part in Galaxy Zoo so far, producing a wealth of valuable data and sending telescopes on Earth and in space chasing after their discoveries. The images used in Galaxy Zoo: Hubble are more detailed and beautiful than ever, and will allow us to look deeper into the Universe than ever before. To begin exploring, click the 'How To Take Part' link above, or read The Story So Far to find out what Galaxy Zoo has achieved to date.

Thanks for your help, and happy classifying.

The Galaxy Zoo team.

Classifier Log In

[Click here to log in](#)

- [Register](#)
- [Forgotten Password?](#)

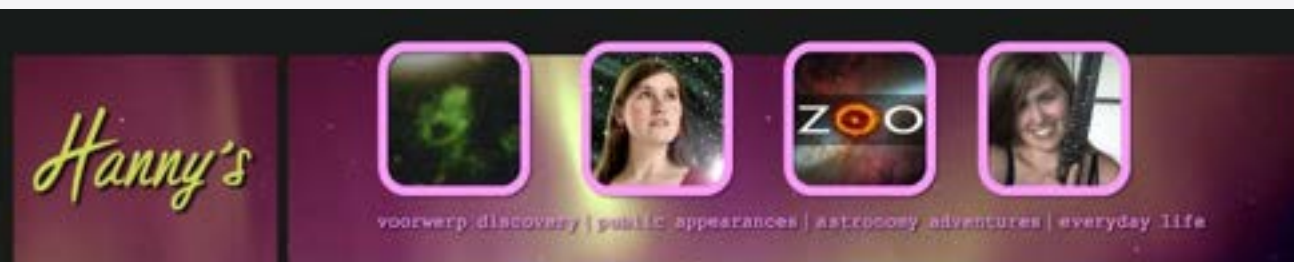
Latest News

Galaxy Zoo gets highlighted by the 2010 Decadal Survey

by [David](#) - 14 Aug 2010

Every decade, the US astronomy community gets its leaders together to write up a report on the state of the field.

- Win a signed Comic Book
- Galaxy Zoo gets highlighted by the 2010 Decadal Survey
- Zoo 1 data set free
- Happy birthday to us.



04 | VOORWERP

[IN THE PICTURES](#)

[THE STORY BEHIND](#)

[WHAT IS IT](#)



Credit: William Keel, Anna Manning, 3.5-m WFFM Telescope

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Archives

▼ 2010

Hanny van Arkel. “The Dutch schoolteacher and Queen admirer who discovered Hanny’s Voorwerp”.



DIY Science



Imane Baiz, CRI Paris



Finally back in Ljubljana Urs, Oll and Aurelio gave a workshop on how to build your own wild OpenPCR at BioTehna Lab.



<http://www.hackteria.org/wordpress/projects/biotehna/biotehna/>

The participants, all with solid biotech background, learned about resistive heaters, thermoelectric cooling using peltier elements and thermo sensors. After 4 hours and heavy soldering actions we had 2 complete PCR machines up and running. The next days the participants kind of took over the workshop and the mentors had to undergo strict instructions on lab practice and pipetting. The evening program with a science café was already in course when the first results of the electrophoresis gel came in. The reference machine (also DIY) and one of the newly build device showed amplification while no lines where to be seen on the tests for the second device. We assume that this is due to the not so well applied heated lid, as we saw quite some evaporation during the runs. This should be easy to fix with building a proper case.



Modes of Citizen Science



Mode 4 'Extreme'

- Collaborative Science – problem definition, data collection and analysis



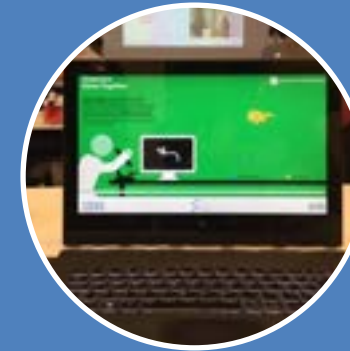
Mode 3 'Participatory science'

- Participation in problem definition and data collection



Mode 2 'Distributed Intelligence'

- Citizens as basic interpreters



Mode 1 'Crowdsourcing'

- Citizens as sensors





PART II EXTREME CITIZEN SCIENCE: ANALYSIS AND VISUALISATION (ECSANVIS)



This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (Grant agreement No. 694767)



Extreme Citizen Science

Extreme Citizen Science (ExCiteS) is a situated, bottom-up practice that takes into account local needs, practices and culture and works with broad networks of people to design and build new devices and knowledge creation processes that can transform the world.

Engagement: Free, Prior Informed Consent (FPIC)



Participatory software design

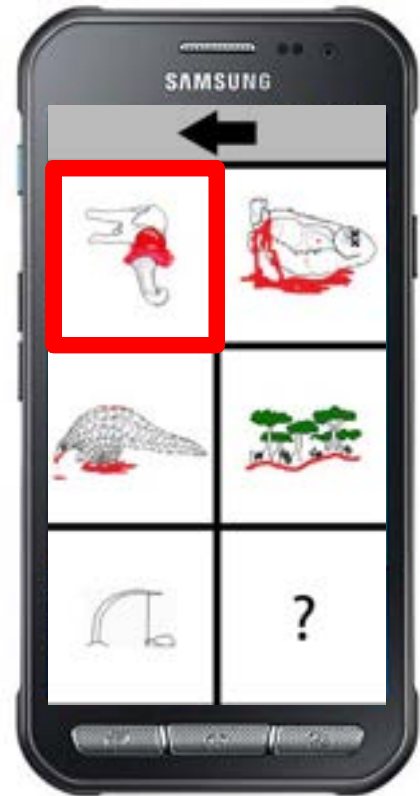
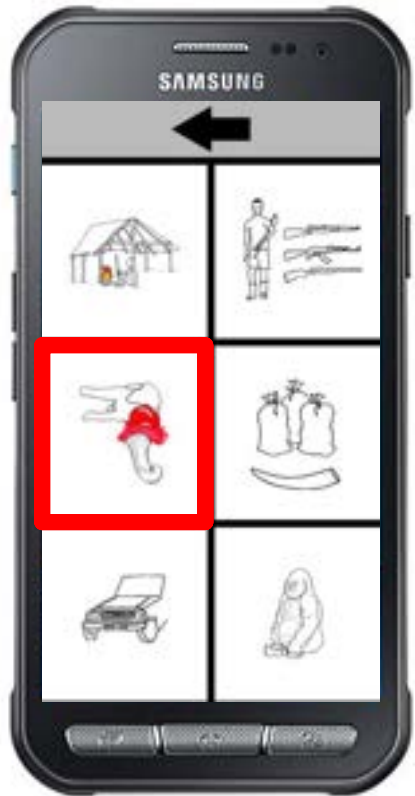




Sapelli is an open-source project that facilitates data collection across language or literacy barriers through highly configurable icon-driven user interfaces. We encourage people to download the app from the [Google Play store](#), or from our [GitHub repository](#) and deploy it for their own purposes.

The sequence of interfaces that will be presented to the user in the project is described in the project's XML file. The transmission of complete records is handled autonomously by the Sapelli platform, which periodically checks for connectivity and determines the most appropriate means by which to transmit the compressed data to another phone or a [GeoKey](#) web server.

This website should help to get started with creating bespoke data collection apps that meet individual requirements.





Training and support

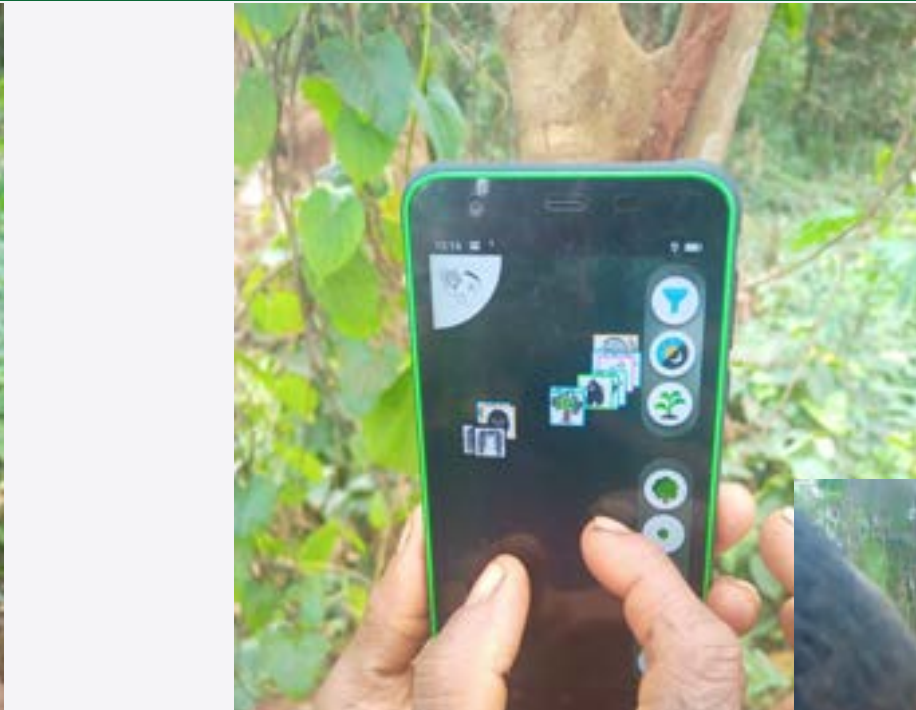


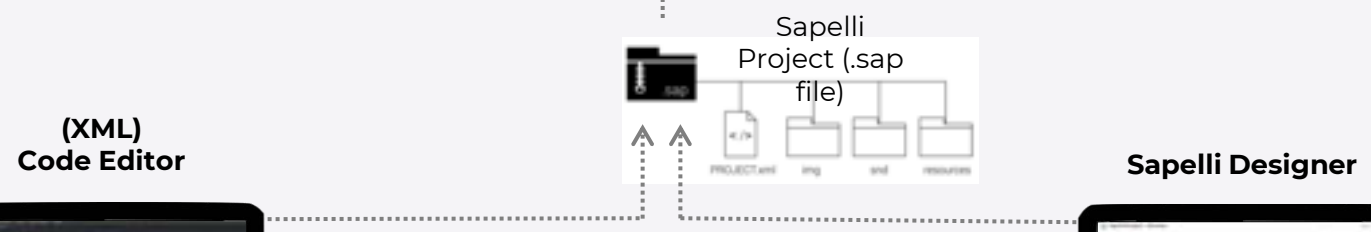
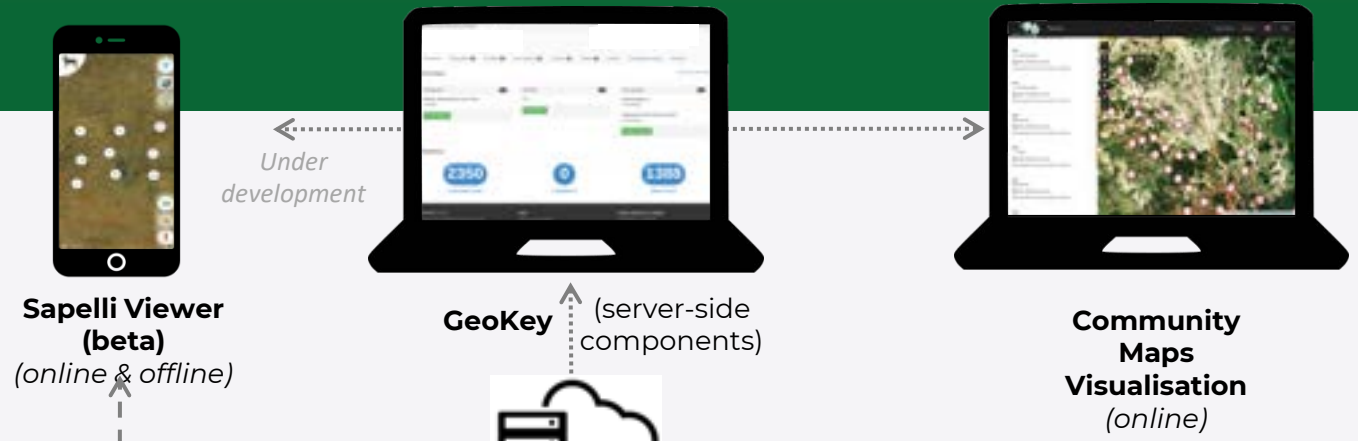
Data collection





Sapelli Viewer







Methodologies and tools

UCL ECSAHS Project

Extreme Citizen Science

THE PROCESS OF SETTING UP A SAPELLI PROJECT

We're now going to describe 4 steps we take in ExCiteS projects when we collaborate with local and indigenous people who want to use citizen science to tackle some of the issues they face.

Each of these steps is essential to each project, but we present four different case studies to illustrate these steps below.

Step 1 - Free, Prior and Informed Consent

Working with local and indigenous communities involves ethical considerations. With examples from **Kenyan** case studies with **Maasai** and **small-scale farmers**, we illustrate the implementation of a Free, Prior and Informed Consent process, and the establishment of community protocols to help harmonise and equalize relationships between groups of different power and means ([Levis, 2012](#)).

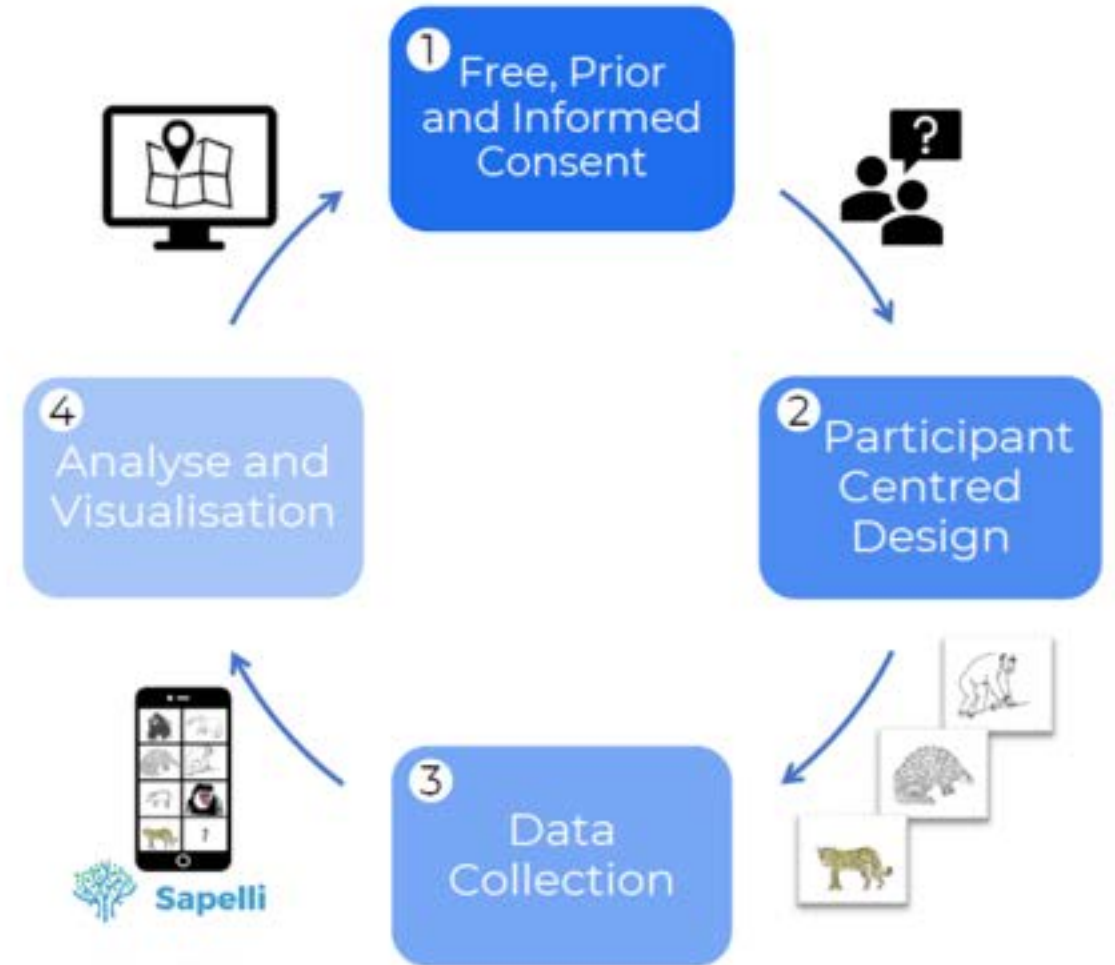
Step 2 - Participant Centred Design

To make Sapelli technology relevant to indigenous users, it is necessary to focus on the participants, their experiences and their concerns to **design a Sapelli project**. To illustrate this process we will move to **Brazil - Amazon** where the **Ashaninka** community monitors poaching and logging.

Step 3 - Data Collection

When technology is adapted to the users, they can collect data according to their definition of the problem and their routines. We will see how **Mbendjele BaYaka Pygmies** collect data about poaching and logging issues in the **Republic of the Congo**.

Step 4 - Analyse and Visualisation



Articles THIS ARTICLE IS PART OF THE RESEARCH TOPIC Open Citizen Science Data and Methods [View all 28 Articles](#)

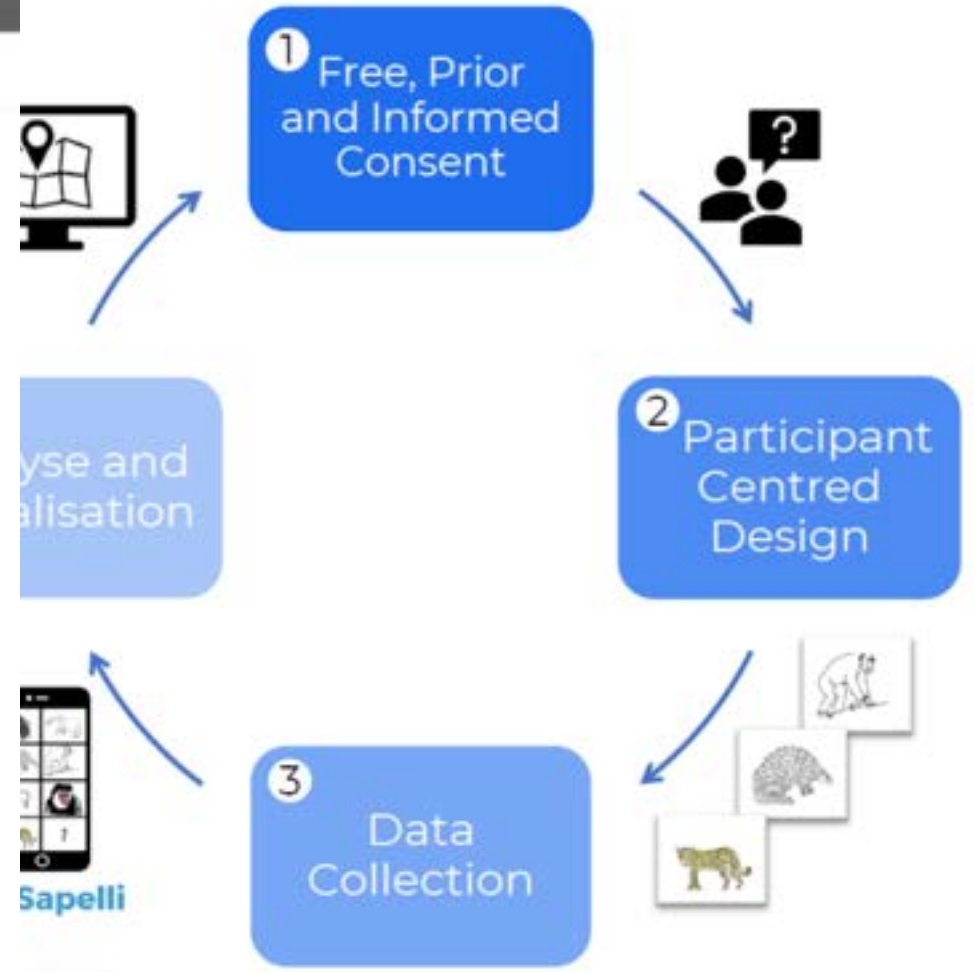
METHODS article
Front. Ecol. Evol., 01 July 2021 | <https://doi.org/10.3389/fevo.2021.638870>

Using Sapelli in the Field: Methods and Data for an Inclusive Citizen Science

Fabien Moustard¹, Muki Haklay¹, Jerome Lewis¹, Alexandra Albert¹, Marcos Moreu¹, Rafael Chiaravalloti^{1,2}, Simon Hoyte¹, Artemis Skarlatidou¹, Alice Vittoria¹, Carolina Comandulli¹, Emmanuel Nyadzi¹, Michalis Vitos¹, Julia Altenbuchner¹, Megan Laws¹, Raffaella Fryer-Moreira¹ and Daniel Artus¹

¹Department of Geography, Department of Anthropology, University College London, London, United Kingdom
²Smithsonian Conservation Biology Institute, Conservation Ecology Center, Washington, DC, United States
³Department of Environmental Science, Wageningen University and Research, Wageningen, Netherlands

The Sapelli smartphone application aims to support any community to engage in citizen science activities to address local concerns and needs. However, Sapelli was designed and developed not as a piece of technology without a context, but as the technical part of a socio-technical approach to establish a participatory science process. This paper provides the methodological framework for implementing and using Sapelli in the field. Specifically, we present the role of Sapelli within the framework of an "Extreme Citizen Science" (ECS) methodology that is based on participatory design. This approach enables Sapelli's users to decide, with the help of professional scientists, which challenges they wish to address, what data to collect, how best to collect and analyse it, and how to use it to address the problems identified. The process depends on the consent of participants and that the project is shaped by their decisions. We argue that leaving ample space for co-design, local leadership and keeping Sapelli deployment open-ended is crucial to give all people, and in particular non-literate people who we have found are often the most ecologically literate, access to the power of the scientific process to document and represent their concerns to outsiders in a way that all can understand, and to develop advocacy strategies that address the problems they identify.



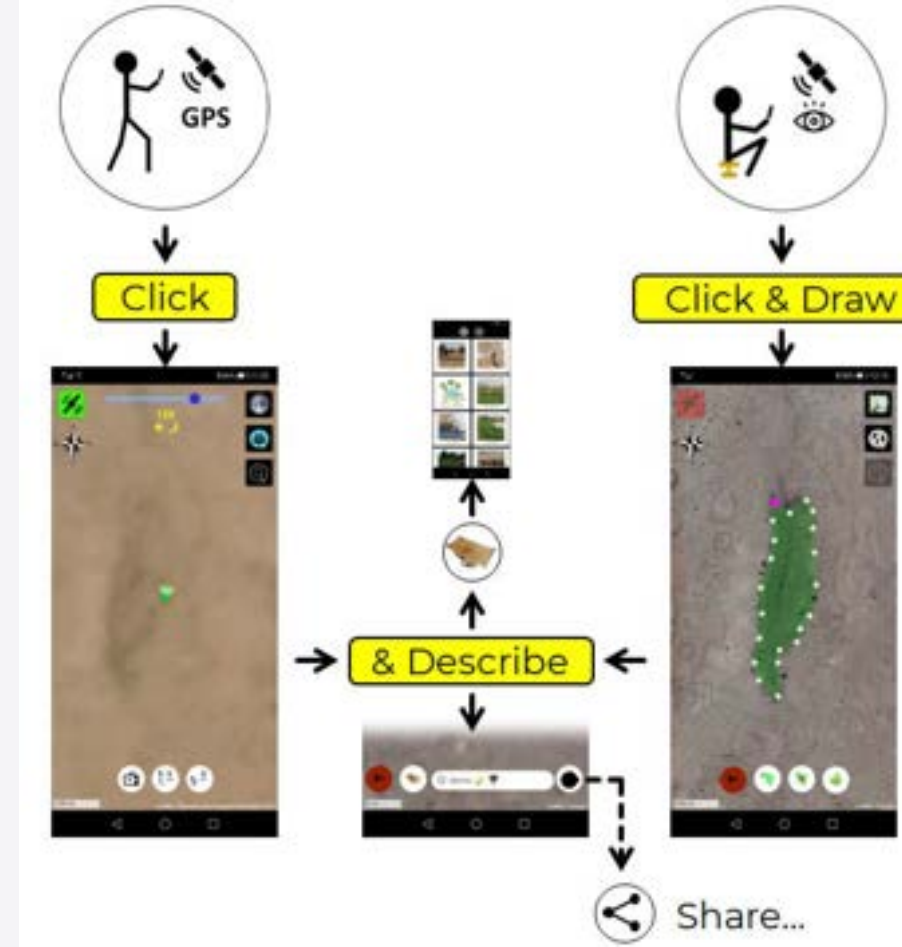
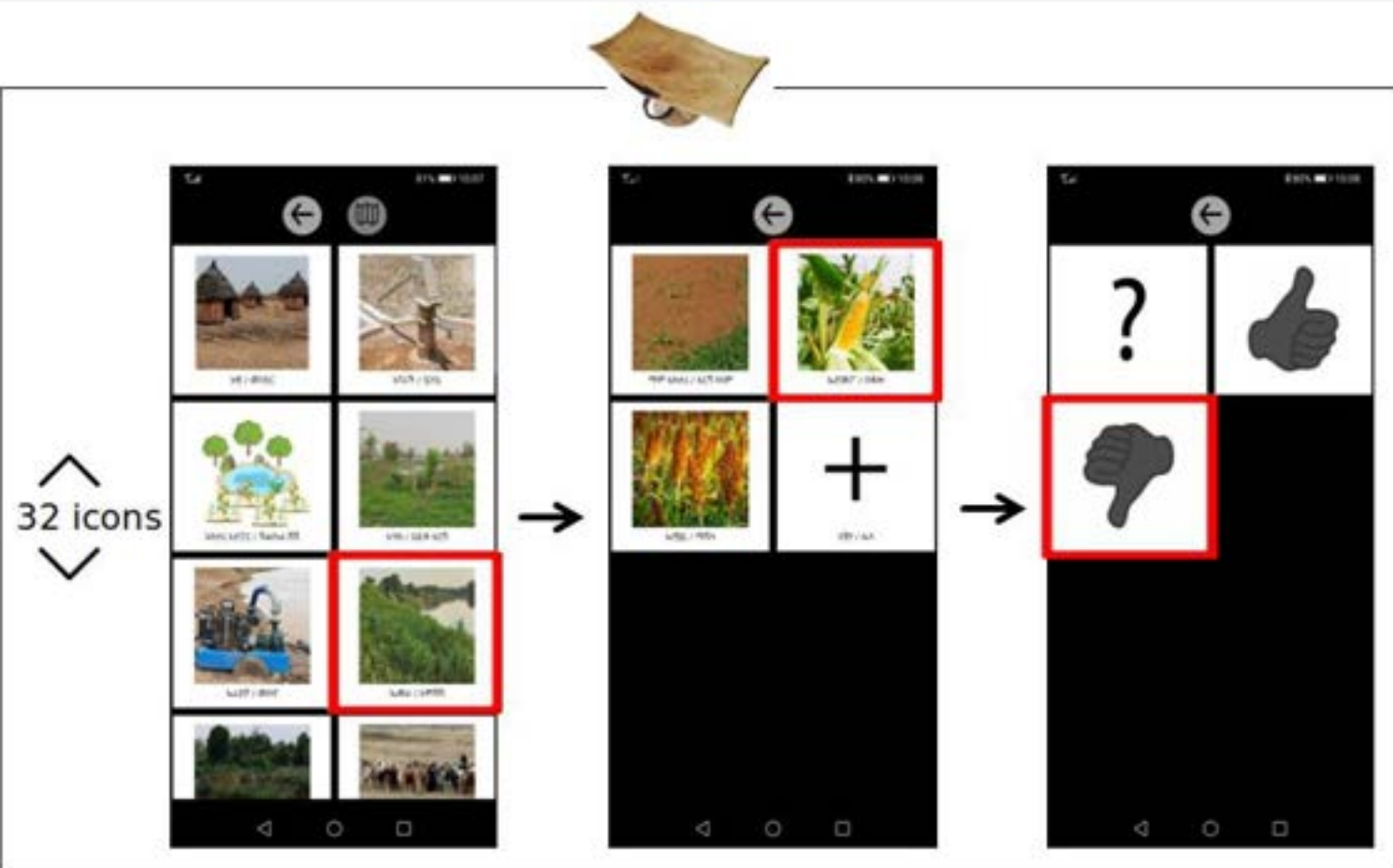


- With appropriate support, anyone can co-create citizen science





- Co-production can include sophisticated and complex data collection



Extreme Citizen Science (ExCiteS) is a situated, bottom-up practice that takes into account local needs, practices and culture and works with broad networks of people to design and build new devices and knowledge creation processes that can transform the world.

Collaborators:

Locacons project, Arba Minch University, British Institute in Eastern Africa, Massey Mara University, University of Eldoret, Procol Kenya, Environmental and Economic Resource Centre, Nyse Nyse Conservancy (NNC), Ju/'hoan Traditional Authority Namibia (JUTA), Nyse Nyse Development Fund Namibia (NNDNF), Association Sangha Baka Buma'a Kpodi (ASBADIUK), World Wild Fund (WWF), The Minister of Forests and Wildlife (MNFOF), London Zoological Society (ZSL), Wageningen University, University for development studies, HydroSense Lab, Indian Institute of Technology Delhi (IITD), Keystone Foundation, National Biodiversity Authority (NBA), Damission, Copenhagen University, Forest & Peoples Organization, Ecology and Action (EcoA), Brazilian agency for protected areas (Icmbio), Brazilian ministry for the environment (Ibama), Kurangué Aty Guasu, Mapping for Change, Congolaise Industrielle des Bois (CIB), PALF-Congo, World Resources Institute, African Parks, Wildlife Conservation Society, Congolese Human Rights Observatory, Ndima-Kali.

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Acknowledgements:

We wish to acknowledge all the community members around the world who collaborate with us. They play a central role in helping to shape the implementation of Sapelli.

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (Grant agreement No. 694767 and ERC-2015-AdG).



Ghana: Combining Indigenous Weather forecasting with Satellite Forecasts Local farmers developed a project to collect indigenous ecological indicators and forecasts towards the development of climate services that combine indigenous and scientific forecasts.
Emmanuel Akoh



Cameroon: Anti-poaching and wildlife monitoring As poaching and exclusion from conservation are key concerns of Baka and Ndzouli and communities, Sapelli projects empower local people to report activities and monitor the forest around them. Jean-Henri



Cameroon: Recognizing Indigenous Territories The Sapelli digital tool supports the recognition of the key role of Baka hunter-gatherers' indigenous people in protecting forests. Pascal Houtart



Central African Republic: Resource protection during logging Baka and Sangha Sangha Indigenous People developed a Sapelli project to protect their key forest and aquatic resources from damage during logging operations. Etienne



Ethiopia: Cattle mapping by affected agro-pastoralists for food security Agro-pastoralists communities in the Lower Omo, co-designed a project to map their natural resources to address issues related to food insecurity, water inaccessibility and conflict. Melaku Minnie Beke



India: Monitoring human-wildlife relations Naysika people together with local environmentalists, are developing a Sapelli project to monitor human-animal conflict, forest resources and landslides and floods-related damage in the forest. Isha Laha & Shree-Harsh



Cambodia: Monitoring illegal logging This Sapelli-inspired forest monitoring tool supports the advocacy of indigenous Kuy and Khmer communities and their efforts to protect their forest and livelihoods (The Phry Lang App). Detha Angre



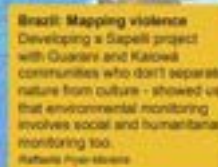
Brazil Amazon: Mapping land invasions on Indigenous Territory Asherinka developed a Sapelli project to record illegal incursions by loggers, drug traffickers and poachers on their territory. Carolina Cavalcanti



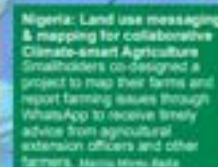
Brazil Pantanal: Mapping fishers' territories Pantanal fishers developed this version of Sapelli to allow them to represent their traditional areas of fishing to claim tenure rights. Talita Chaves



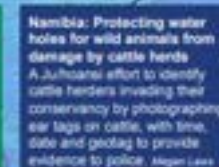
Brazil Pantanal: Mapping restoration areas Pantaneiros are helping to monitor restoration initiatives in the Pantanal. They use their local knowledge to inform about the effectiveness of the restoration activities. Fabian Chaves & Thiago



Nigeria: Mapping violence Developing a Sapelli project with Quorah and Kofor communities who don't separate nature from culture - showed us that environmental monitoring involves social and humanitarian monitoring too. Nabila Faye-Moore



Namibia: Protecting water holes for wild animals from damage by cattle herds A Ju/'hoan effort to identify cattle herders invading their conservancy by photographing ear tags on cattle, with time, date and geotag to provide evidence to police. Megan Lees



Namibia: Monitoring and reporting on the health of wildlife Ju/'hoan rangers using Sapelli to monitor and report on the health of wildlife in the conservancy for the purposes of setting quotas for sustainable hunting. Megan Lees



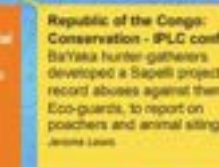
Republic of the Congo: Wildlife conflicts Local communities suffering crop damage caused by elephants, buffalo and apes developed a project to record the damage and report it to the relevant authorities in order to receive compensation. Etienne



Zambia: Mapping urban flooding and supporting rural livelihoods Mapping urban flooding and Chikanda arches to support sustainable livelihoods for women and improve Community Forest management. Melissa Egerton



Republic of the Congo: Conservation - IPLC conflicts Ba'Yaka hunter-gatherers developed a Sapelli project to record abuses against them by Eco-guardia, to report on poachers and animal killings. Jerome Lecoq



Republic of the Congo: Participatory forest management Ba'Yaka hunting and gathering communities designed a Sapelli project to map key forest resources and community areas in an effort to participate in forest management within a logging concession. Aline Vitale



Kenya: Citizen science for sustainable agriculture Smallholder farmers in Western Kenya co-designed a project to map cropping patterns and challenges and share local knowledge about sustainable farming practices. Harriet Minnie Beke



Kenya: Citizen science and botanical knowledge A Maasai pastoralist community co-designed a project to map plant species distributions and the issues associated with each plant to address, among other, the problem of loss of botanical knowledge. Harriet Minnie Beke



PART III – CURRENT POLICY INTEREST IN CITIZEN SCIENCE



This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (Grant agreement No. 694767)



Defining citizen science

Citizen Science is part of Open Science in the EU policy framing.

“citizen science can be described as the voluntary participation of non-professional scientists in research and innovation at different stages of the process and at different levels of engagement, from shaping research agendas and policies, to gathering, processing and analysing data, and assessing the outcomes of research.” (Citizen Science factsheet 2020)



WHAT IS CITIZEN SCIENCE AND WHY IS IT IMPORTANT?

Citizen science can be described as the **voluntary participation of non-professional scientists in research and innovation** at different stages of the process and at different levels of engagement, from shaping research agendas and policies, to gathering, processing and analysing data, and assessing the outcomes of research.

Active engagement with citizens and society has the potential to **improve research and its outcomes and reinforce societal trust in science**. It can increase:

- **relevance and effectiveness** by ensuring that it aligns with needs, expectations and values of society
- **creativity and quality** by enlarging the collective capabilities, the scope of research and the quantity and quality of data
- **transparency, science literacy and confidence of the public in research**

CITIZEN SCIENCE AS PART OF EU POLICY

Citizen engagement is at the core of the Van der Leyn Commission's **New Push for European Democracy** and more participatory decision-making, and an **integral part of the EU's Open Science policy priority** and the **European Research Area**.



Research and Innovation



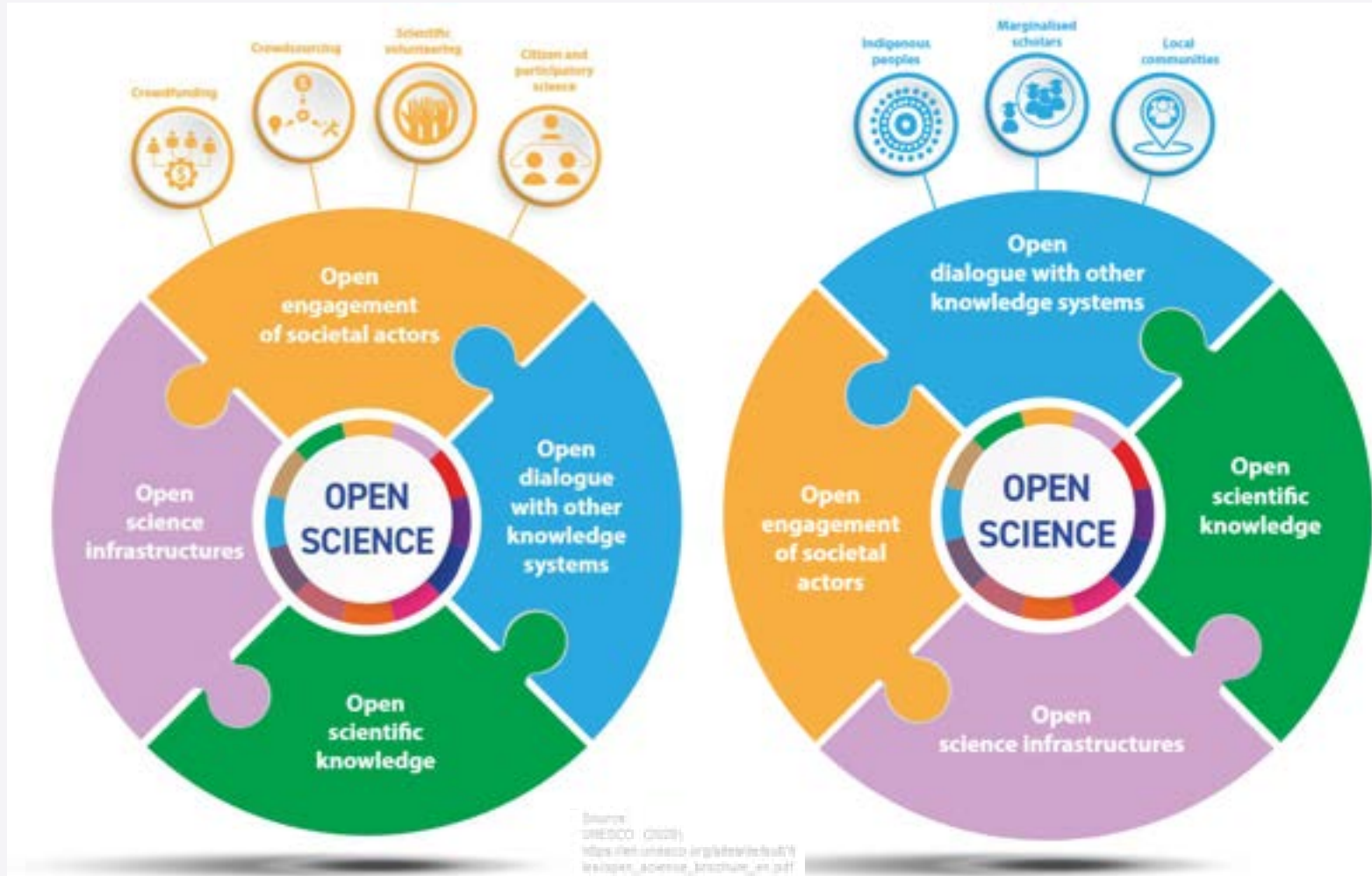
European Commission



UNESCO Recommendation on Open Science



UNESCO Recommendation on Open Science





Home > ... > Policy Support Facility > PSF Challenge/ Mutual Learning Exercises > Mutual Learning Exercise on Citizen Science Initiatives- Policy and Practice

Mutual Learning Exercise on Citizen Science Initiatives- Policy and Practice

An increasing number of citizen science projects and initiatives are being implemented across Europe – mostly taking place at local or national levels, but some also being co-ordinated internationally. This rapidly emerging mode of research and innovation shows substantial potential in terms of achieving greater societal impact and increasing trust in science, by leveraging collective societal capabilities, by enlarging the scope of the R&I, and by increasing relevance, responsiveness and transparency. However, national or regional policies to support and mainstream them, if they exist, are in many countries at an early stage of development. Europe would benefit from greater attention to promoting citizen science within Member States and regions, and from greater cooperation and shared approaches across the European Research Area as a whole.

The MLE thus aims to facilitate an exchange of information, experiences and lessons learned, as well as to identify good practices, policies and programmes in relation to the various approaches at local, regional and national levels, towards supporting and scaling up citizen science. In addition, the objective is to identify citizen science campaigns that have high potential to be implemented in a collaborative way across the European Research Area.

01 DEC 2021	28 FEB 2023
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PSF Geo coverage	Norway	Austria	Belgium
	France	Germany	Hungary
PSF Exercise type	Italy	Portugal	Romania
	Slovenia	Sweden	
	Challenge/ MLEs		

Citizen Science initiatives Policy and Practice

#HorizonEU

PSF CHALLENGE – MUTUAL LEARNING EXERCISE (MLE)

An increasing number of citizen science projects and initiatives are being implemented across Europe. This rapidly emerging mode of research and innovation shows substantial potential in terms of achieving greater societal impact and increasing trust in science, by leveraging collective societal capabilities, by enlarging the scope of the R&I, and by increasing relevance, responsiveness and transparency. The following topics of interest have been identified for the MLE:

- Topic 1: Introduction and overview on citizen science
- Topic 2: Ensuring good practices and impacts
- Topic 3: Maximising the relevance and excellence of citizen science
- Topic 4: Enabling environments and sustaining citizen science
- Topic 5: Scaling up citizen science

Visit the website for more information: <https://ec.europa.eu/research-and-innovation/en/statistics/policy-support-facility>

Participating countries: Austria, Belgium, France, Germany, Hungary, Italy, Norway, Portugal, Romania, Slovenia and Sweden.

Chair
Alan Irwin

Rapporteur
Margaret Gold (Rapporteur and Expert on Topic 4)

Independent Experts
Muki Haklay (Expert on Topic 1)
Rosa Aries (Expert on Topic 2)
Martina Mazzanetta (Expert on Topic 3)
Antonella Radicchi (Expert on Topic 5)

Ingeborg Mejer (Support Rapporteur and Support Expert on Topic 4)

DG RTD Policy Officer
Annamaria Zorno
(annamaria.zorno@ec.europa.eu)

Scheduled meetings

- January 2022: Topic 1 meeting
- March 2022: Topic 2 meeting
- June and September 2022: Topic 4 meeting
- October 2022: Topic 3 meeting
- November 2022: Topic 5 meeting
- December 2022: Final Meeting
- Early 2023: Dissemination event

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Research and Innovation



Key features for citizen and societal engagement in Horizon Europe

Open science is the *modus operandi* of the entire programme
Societal engagement considered part of the excellence criterion under methodology during **proposal evaluation**

Co-design and co-creation, and engagement of citizens and civil society organisations, are **mainstreamed** across the programme
One of the nine **pathways to impact** (KIP6) starts with citizens and end-users co-creating knowledge and innovations, with the goal of developing solutions and knowledge that are taken up by society

PART IV: CITIZENS INTERACTION WITH SCIENCE



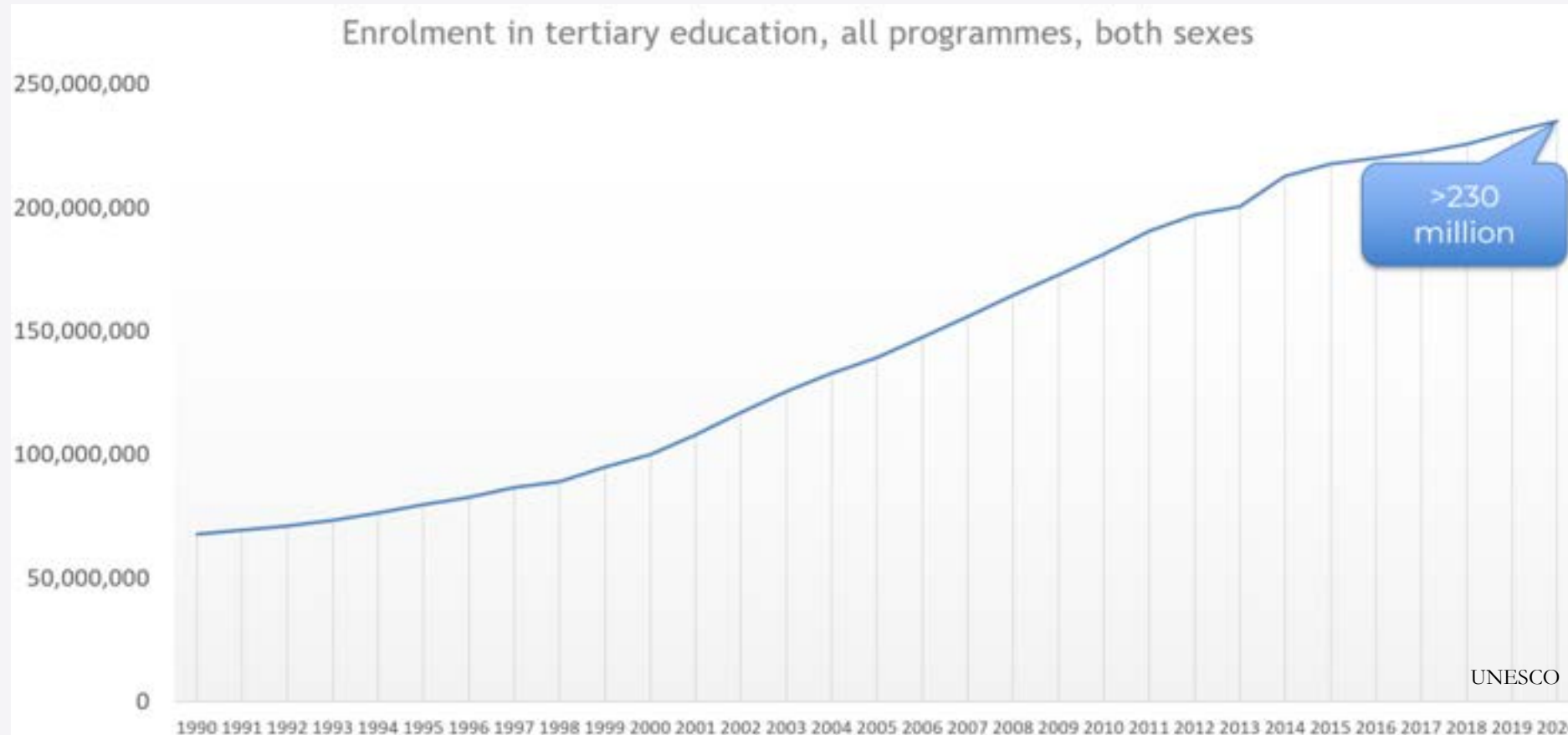


Underlying trends

- Levels of education (esp. rise in higher education)
- Technological developments (Web, mobile phones, broadband)



R Nial Bradshaw



Population aged 25–34 with tertiary educational attainment (ISCED 5–8), 2020

(% of population aged 25-34)

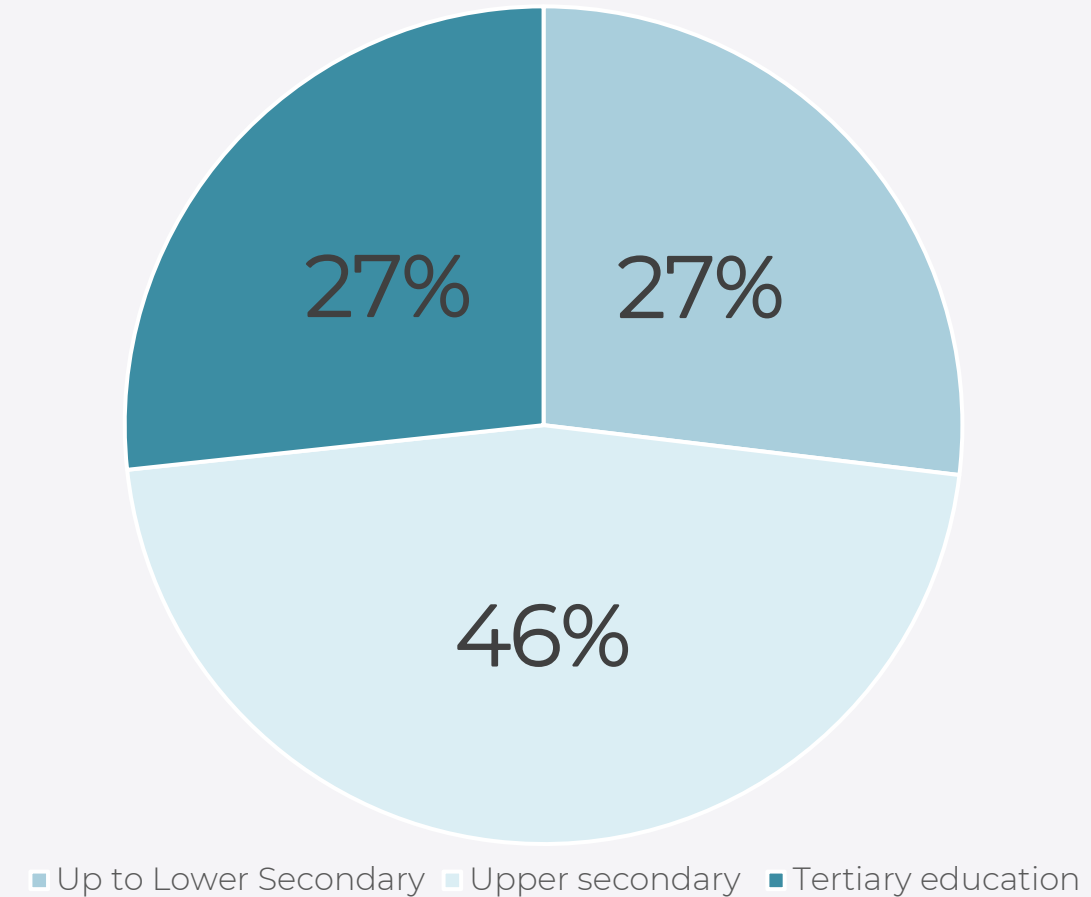
■ 2020 — EU-level target 2030





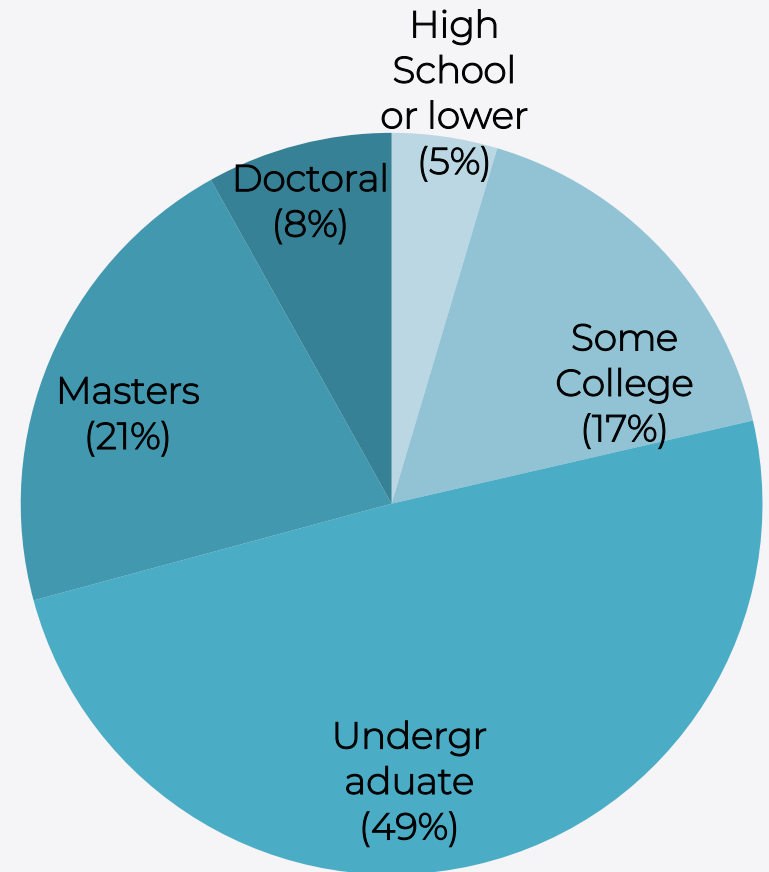
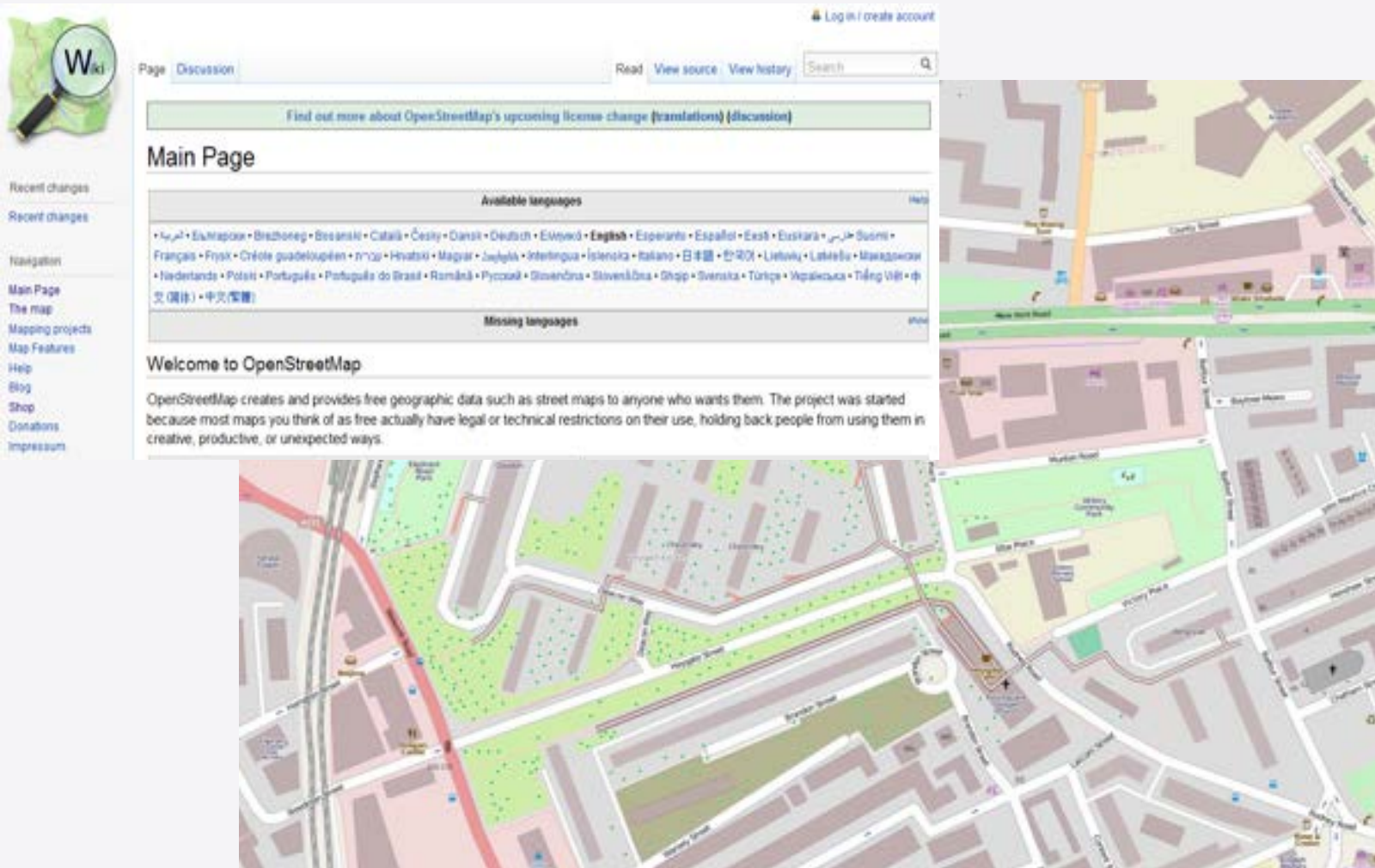
Education Attainment EU 28 (2015)

- In 2015 among the general population of EU 28, the educational attainment is 27% in tertiary education (university).



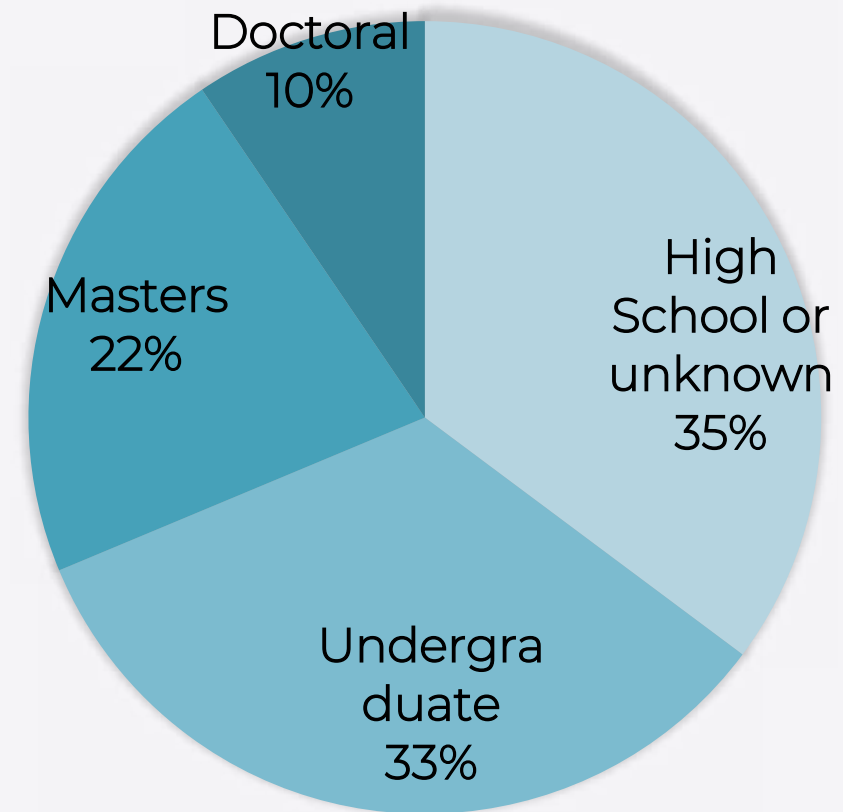


OpenStreetMap (2010)



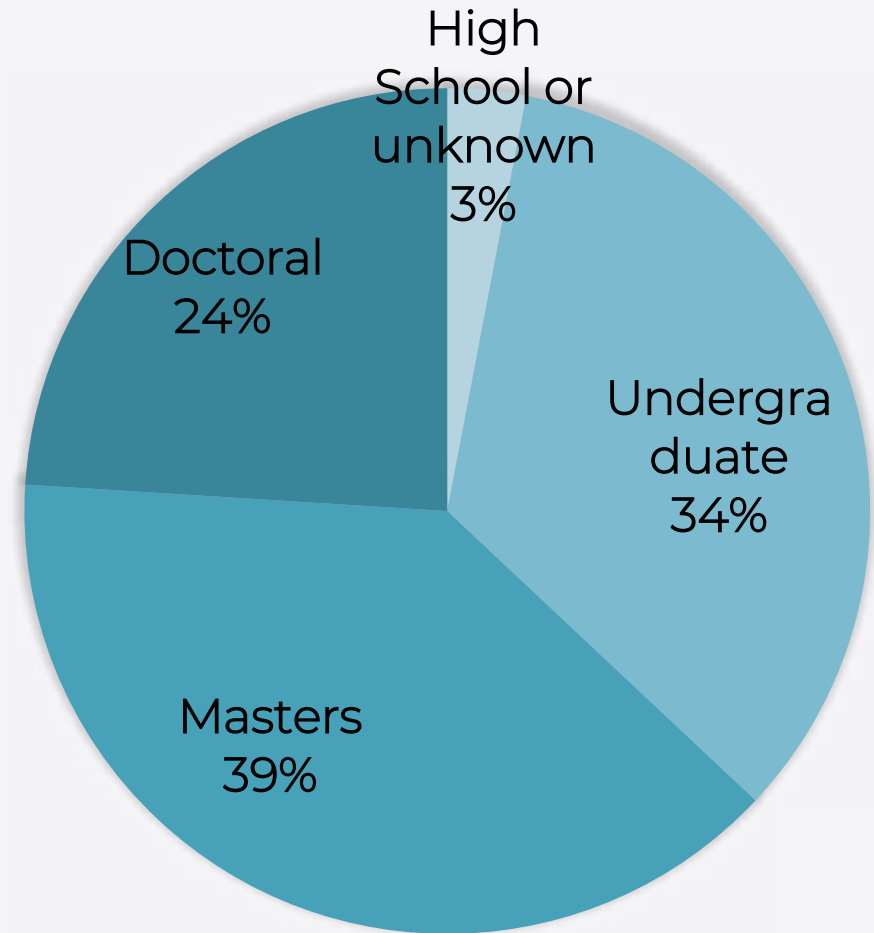


Galaxy Zoo (2013)





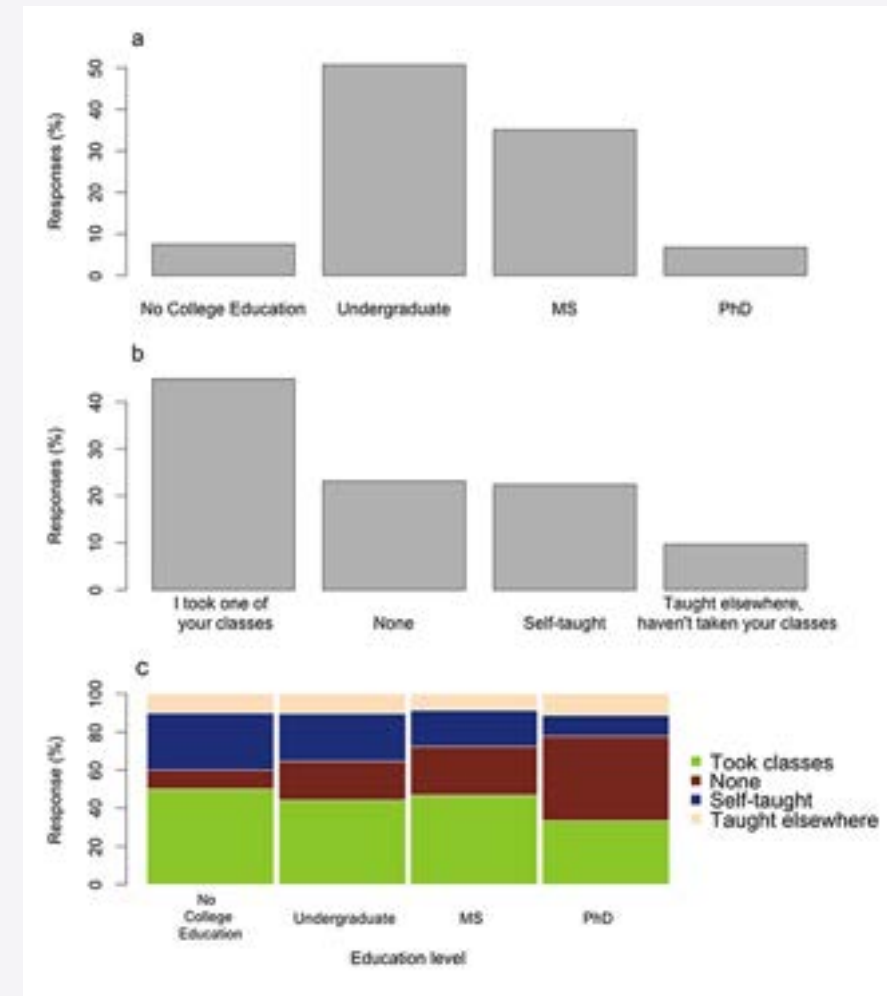
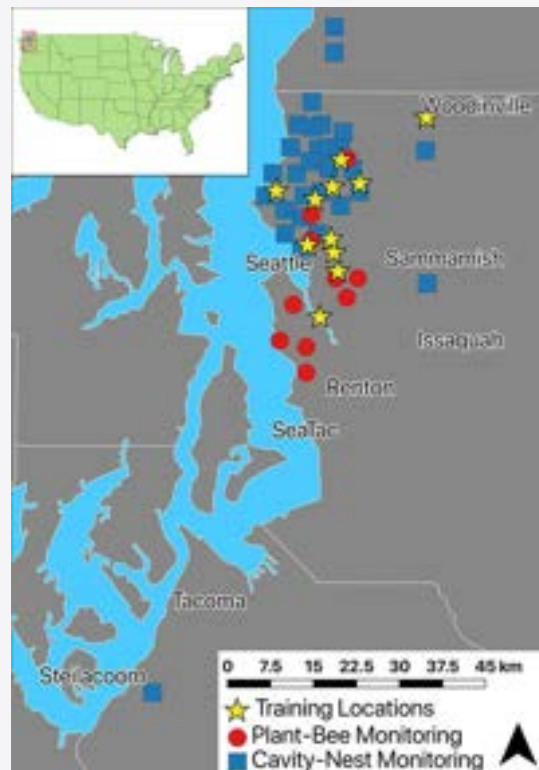
The screenshot shows the Transcribe Bentham website interface. At the top left is the project logo featuring a portrait of Jeremy Bentham. The main navigation bar includes links for 'UCL Home', 'Transcribe Bentham', and 'Transcription Desk'. Below this is a secondary navigation menu with options like 'Home', 'Edit', 'Discussion', 'Uploads', 'History', 'Uncredited', 'More', 'Delete', and 'Refresh'. A central banner highlights a 'Transcribe Bentham wins Award of Distinction in Prix Ars Electronica 2011'. The main content area is titled 'Transcribe Bentham' and includes a 'Welcome to the Transcription Desk' section with a brief description of the project. To the right, there are two yellow boxes: 'Transcribe Bentham Right Now' providing statistics on articles, edits, and users, and 'Discussion Forum Info' listing recent forum posts with their titles, reply/view counts, and timestamps.





Pollinator monitoring project (2020)

- Bee monitoring project in Washington state US 2015 and 2017
- 128 participants

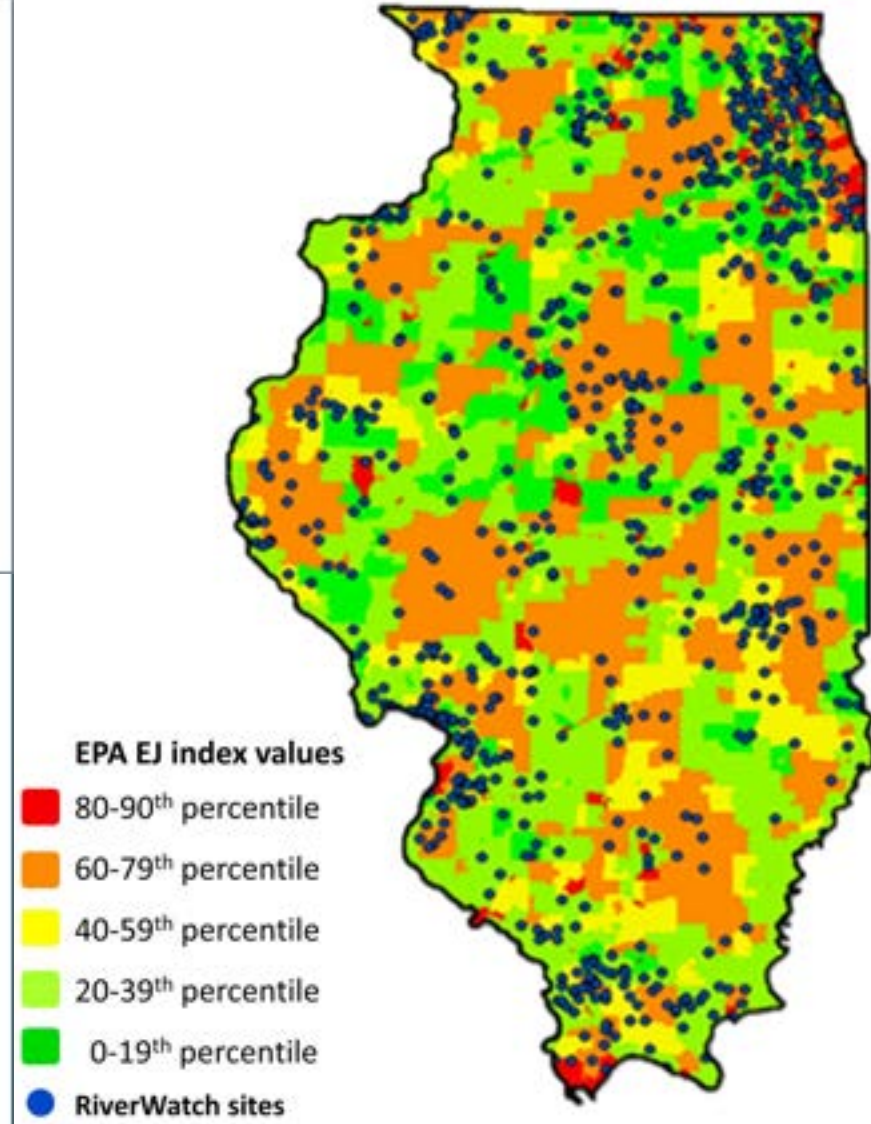
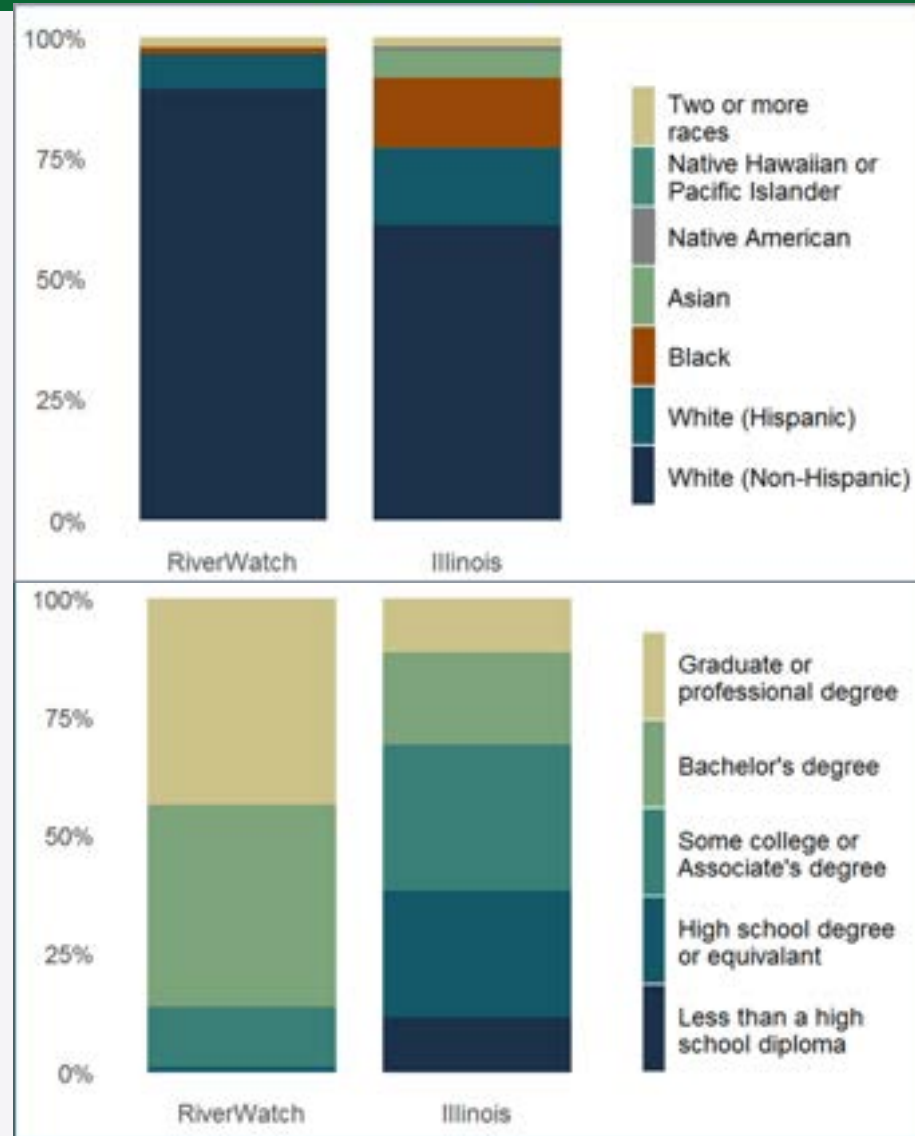




RiverWatch Illinois (2020)



- Volunteer stream monitoring
- Around 70 responses



KNOWLEDGE SOCIETY

- **Citizen science provides a way to capitalise on the societal investment in increasing levels of education to high levels**

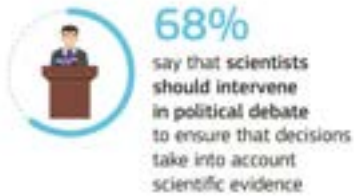


It also provides a way to gain access and engage the high number of people with PhDs who are outside the formal R&D system

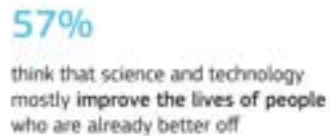


Impact of science and views about science

Opinions on the role of scientists in society

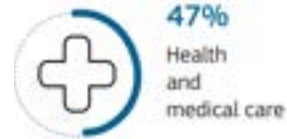


The benefits of science and technology



Views on the impacts of science and technology

Areas where science and technology can make a difference



Respondents think that **health and medical care** and the **fight against climate change** are the areas where science and technology can make the most difference.

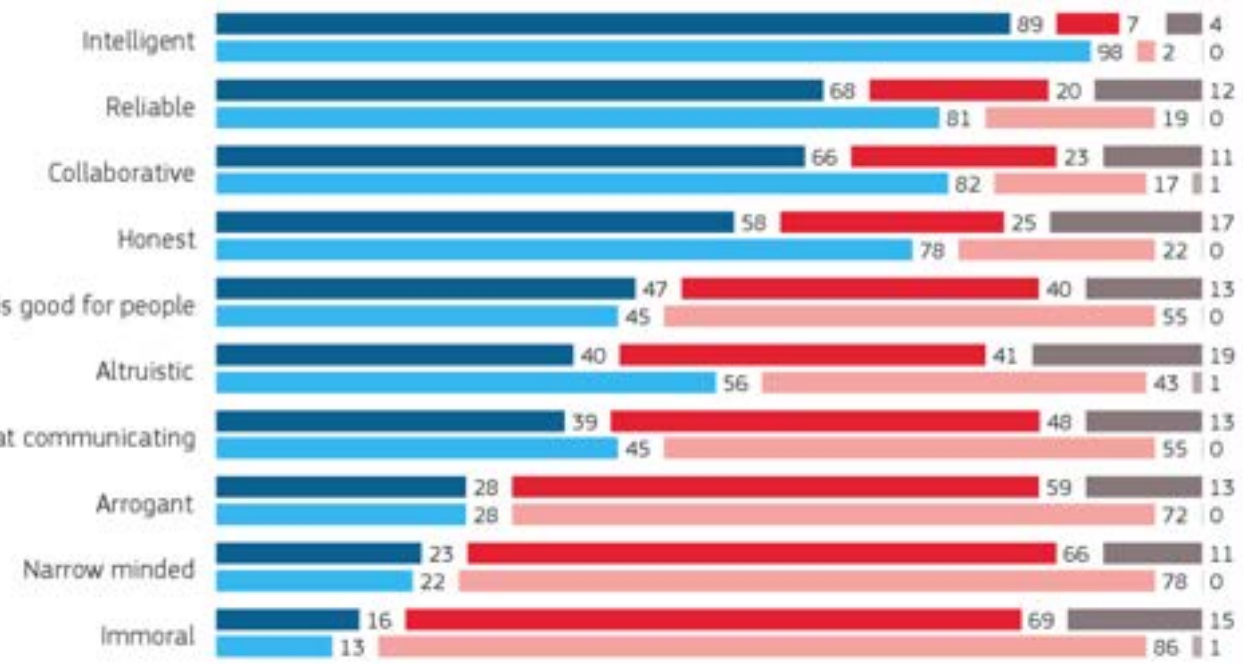




Country profile: Ireland

4. VIEWS OF SCIENTISTS

QA12a The following is a list of characteristics that can be associated with scientists today. For each characteristic, indicate if you think it describes scientists well or describes them badly. (%)



EU27

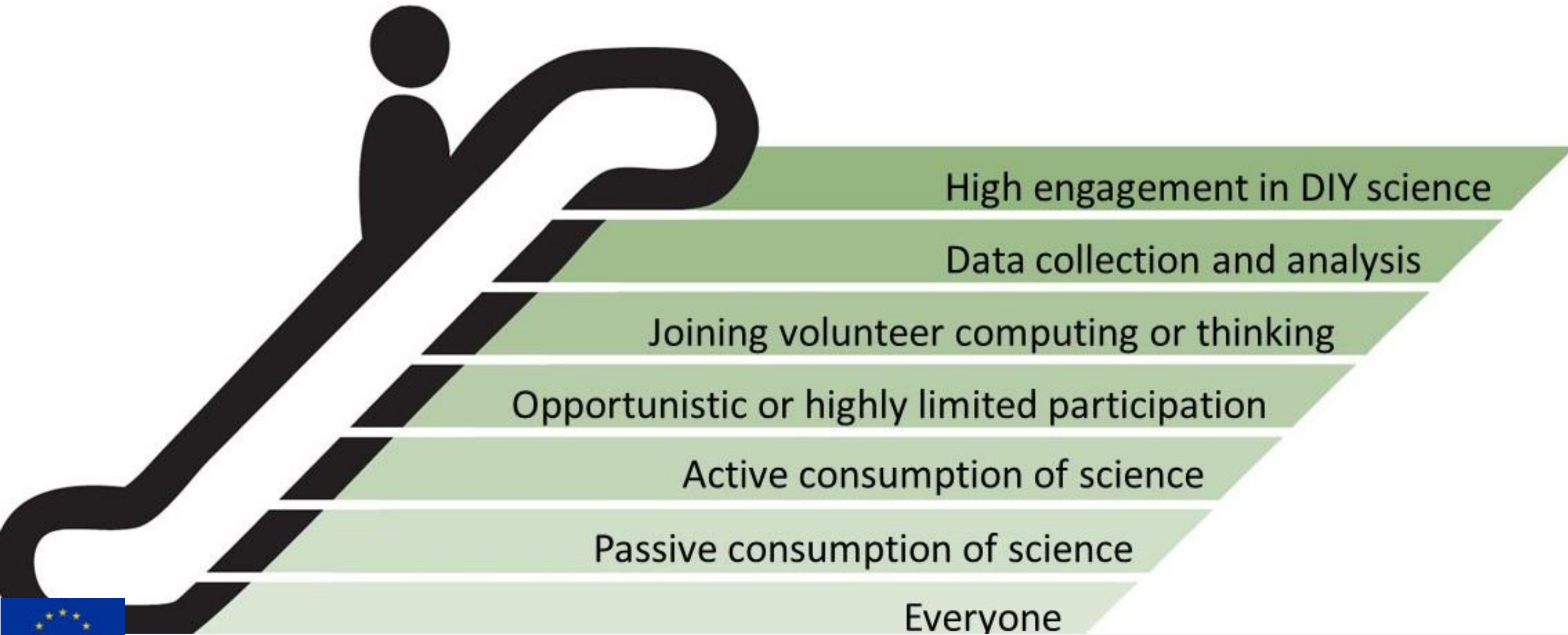
IE

Describes well

Describes badly

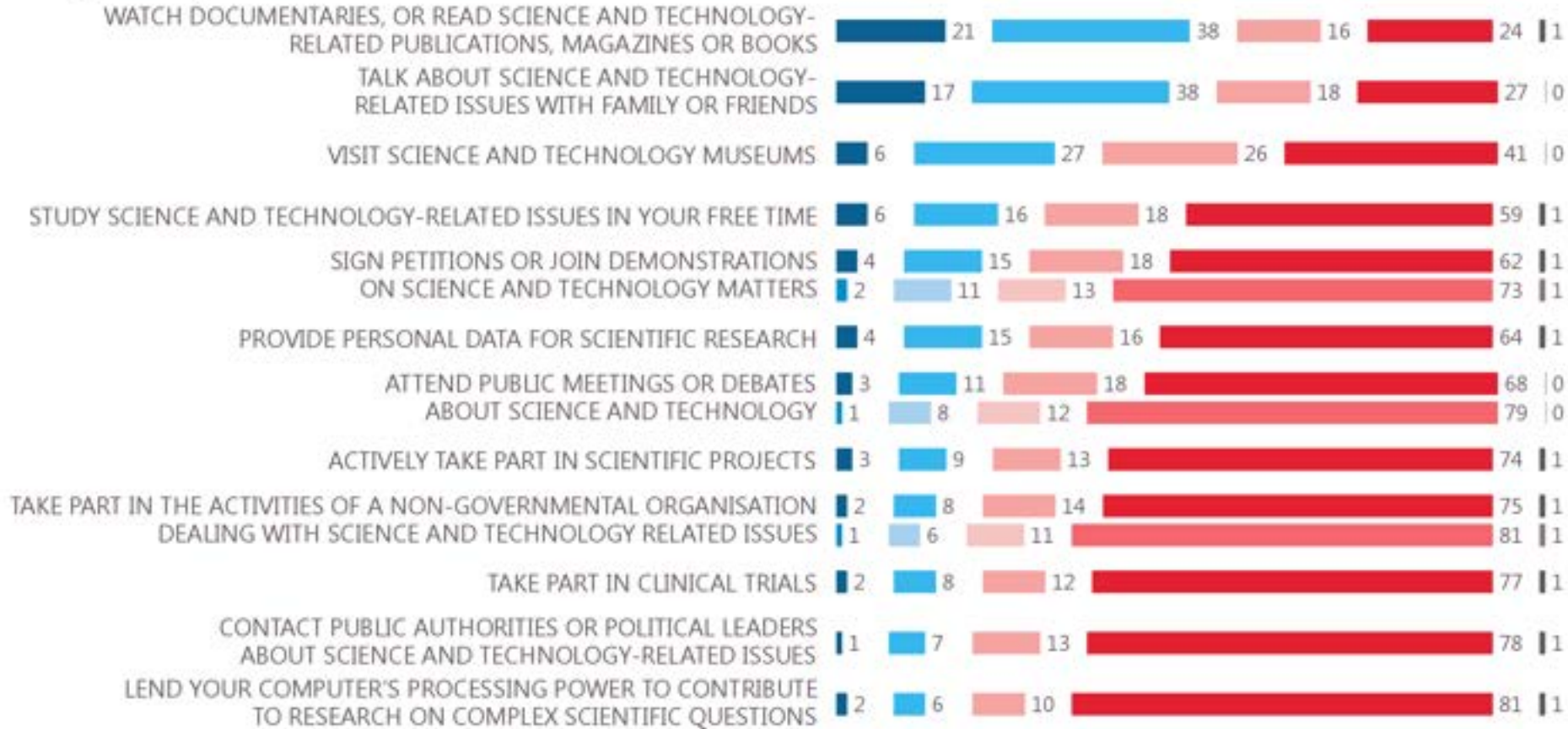
Don't know

Citizen Science with public engagement



Impressive engagement

QA14 And now, a few questions on how you engage with science and technology issues. Do you
(% - EU27)



Apr./May 2021
Jan./Feb. 2010

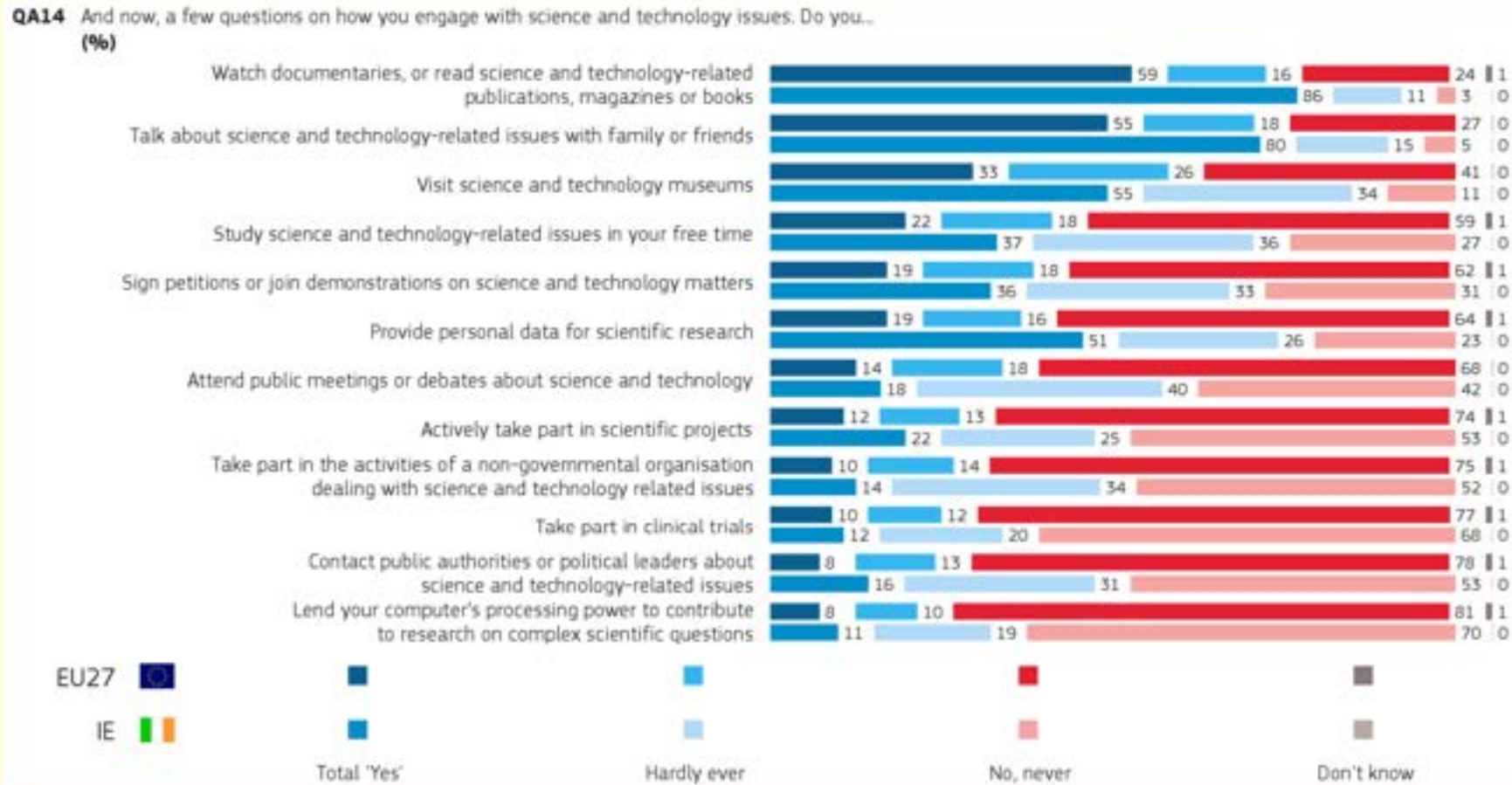


Source: Special Eurobarometer 516 – “European citizens’ knowledge and attitudes towards science and technology”. Fieldwork: April – May 2021, sample: EU27 data (26,827 respondents)

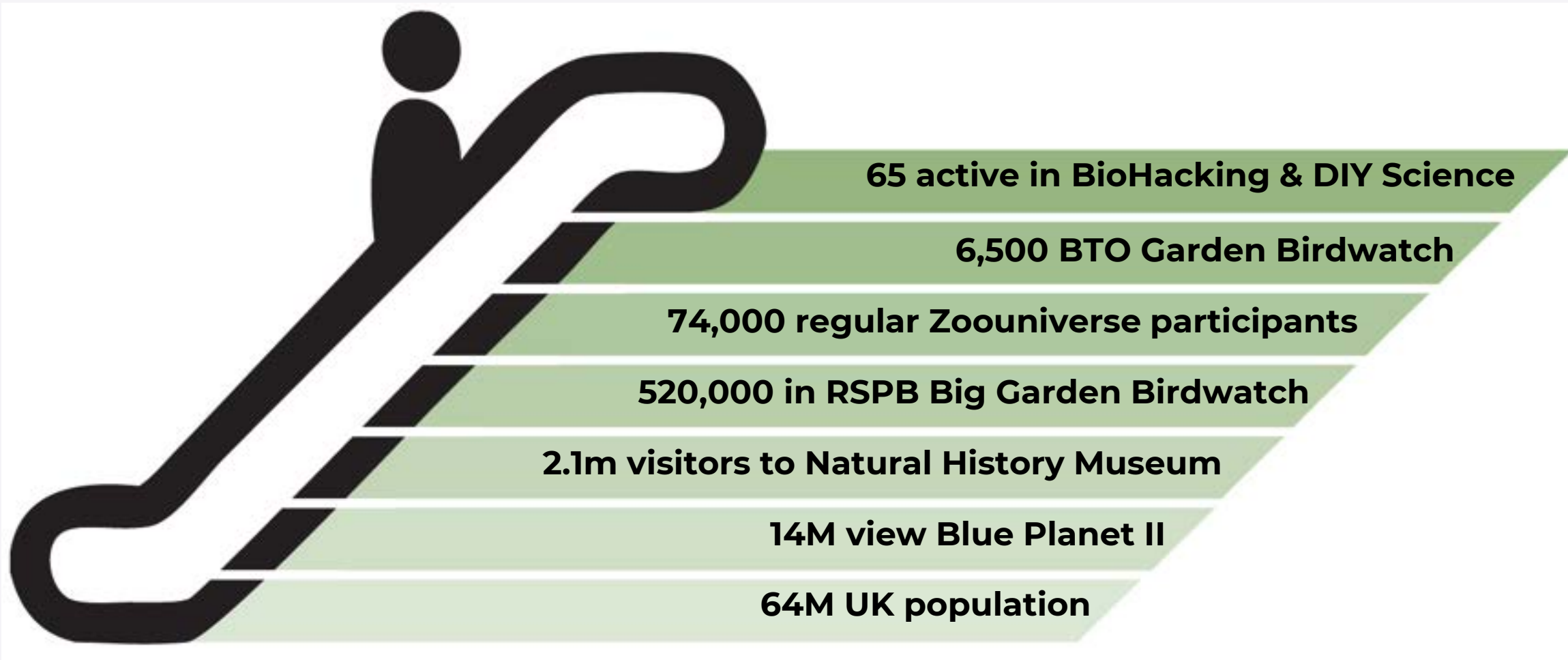


Country profile: Ireland

5. CITIZEN'S ENGAGEMENT IN SCIENCE AND TECHNOLOGY



UK Engagement Escalator





Summary

- Citizen science has a potential at all levels of research – from applied to frontier
- Increasing policy attention and public potential
- Projects like ECSAnVis demonstrate that with appropriate support, any community can engage in citizen science – science is too important to be only for scientists
- As citizen science gains its place within science, we should consider when to use it, how, and ensure that it remains inclusive and open