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Citizen science



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What is citizen science?

Citizen science covers various ways in which volunteers participate in science

Main characteristics:

1. Citizens are actively involved in research, in partnership or collaboration with scientists or professionals
2. Genuine scientific outcome, such as new knowledge, conservation action or policy change



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Purpose

- Contribute to the generation of new knowledge or understanding
- Monitor the state of the environment
- Raise awareness and inform the general public
- Encourage activities with schools, volunteers, public bodies, NGOs
- Engage society and stakeholders for a policy change



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Level of involvement

Crowdsourcing: collecting data or participation in distributed computing

Distributed intelligence: classifying, interpreting and analysing data

Participatory science: participation in problem definition and designing of research; co-production of knowledge



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Environmental citizen science

Fields of application

Air, water and soil quality



Weather and climate

Biodiversity, invasive species

Plants, birds



Odour pollution

Marine litter

Mapping





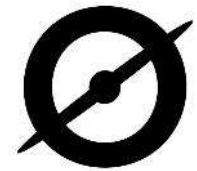
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Citizen science portals

Zooniverse

<https://www.zooniverse.org>



Scistarter

<https://scistarter.org>



scistarter

EU-citizen.science

<https://eu-citizen.science>



Globe Observer

<https://observer.globe.gov>



Is training required?

Basic requirement: common knowledge



- Instruction is needed when we learn about a new process or install an application or equipment
 - Use of specific technology or apps, laboratory kits etc.
 - Installation of equipment for measuring air/noise pollution
- Training is needed when data collection involves several steps or requires specific skills
- Classification of identification is necessary when we make observations
 - Recognizing birds - field books but also training and experience
 - Marine litter - identification by material type and size



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Methods

- Observation: identifying, counting, weighing, measuring, etc.
- Description and reporting
- Photography
- Geographical positioning
- Collecting samples



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Reporting

How does your data reach the scientific community?

Applications for mobile devices and internet platforms



Record



Share data



Process &
analyse



Use
information



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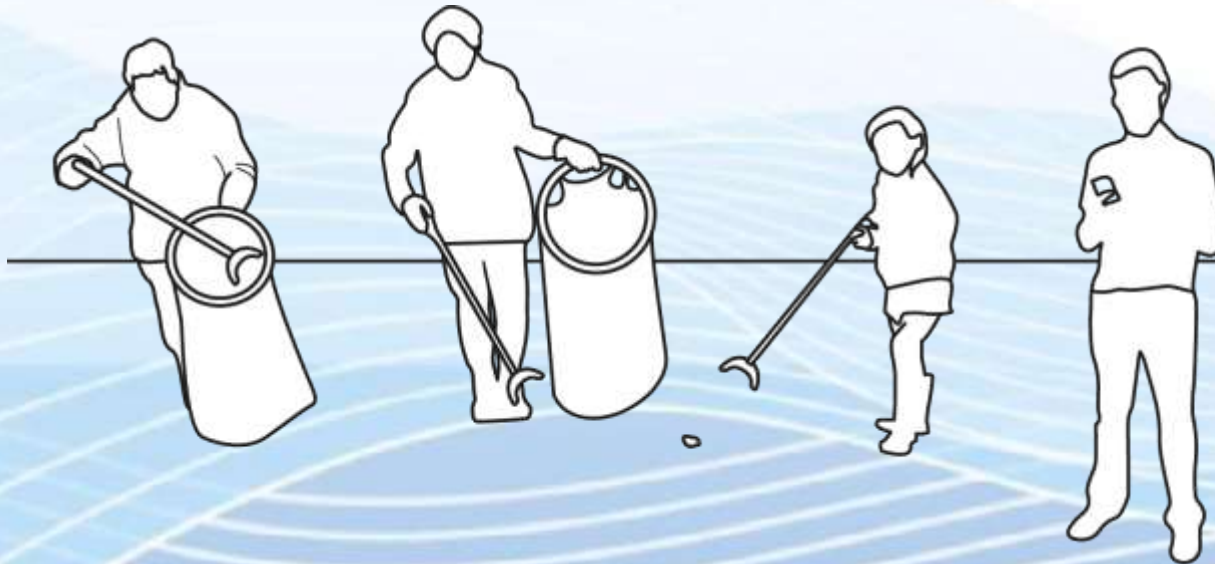


Marine LitterWatch

A citizen science system

What is it?

Mobile application by the European
Environment Agency



2 million
items collected

over 3000
beach clean-up
events



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How does it work?

1. Install the app
2. Register or join community
3. Choose a beach
4. Create event: monitoring or clean-up
5. Implement your event and do the survey on paper or directly in your mobile device
6. Report

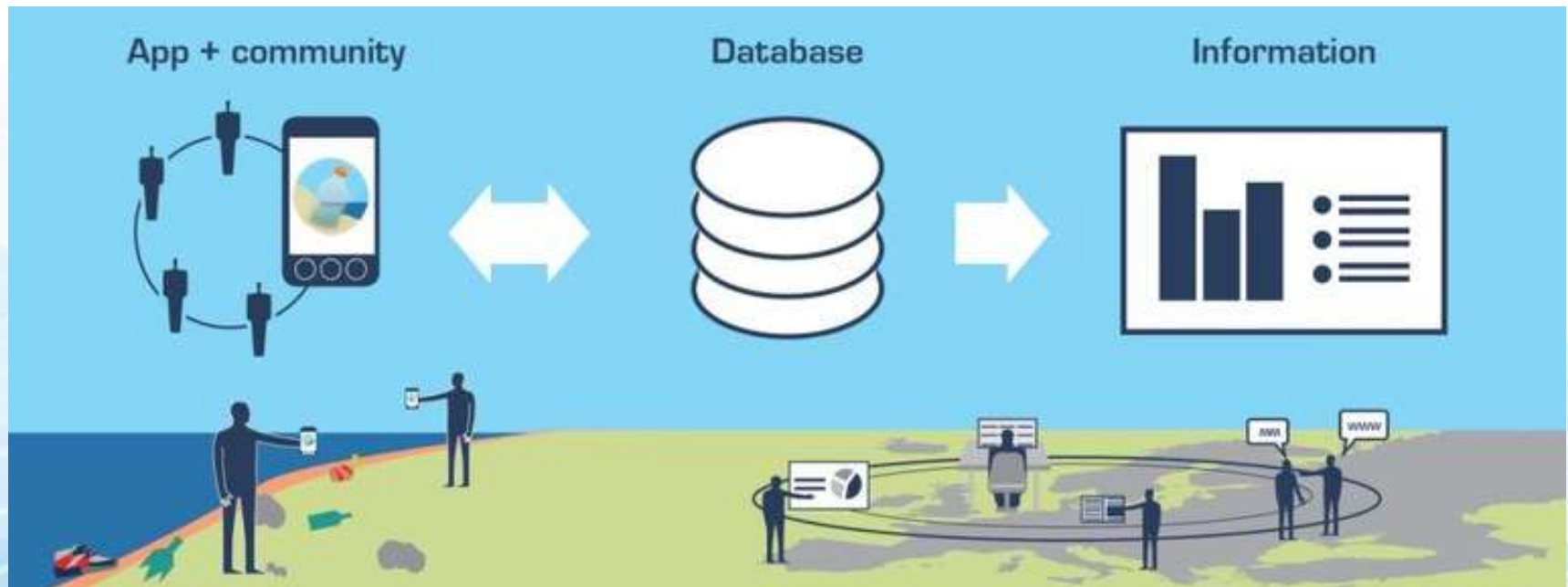


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From registration to information



Extracting data

- Check data for your community
- Check data for a certain period
- Download data for a certain geographical area and period
- Observe short-term or long-term results
- Prepare your own report or analysis



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Citizen science results reliability

How reliable is citizen science compared to professional research?

Quality: When well prepared and implemented, results are on a scientific level

Scale: enough volunteer observers can make a valuable contribution to science and to the understanding of the processes and changes in the environment



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