Earth Challenge 2020

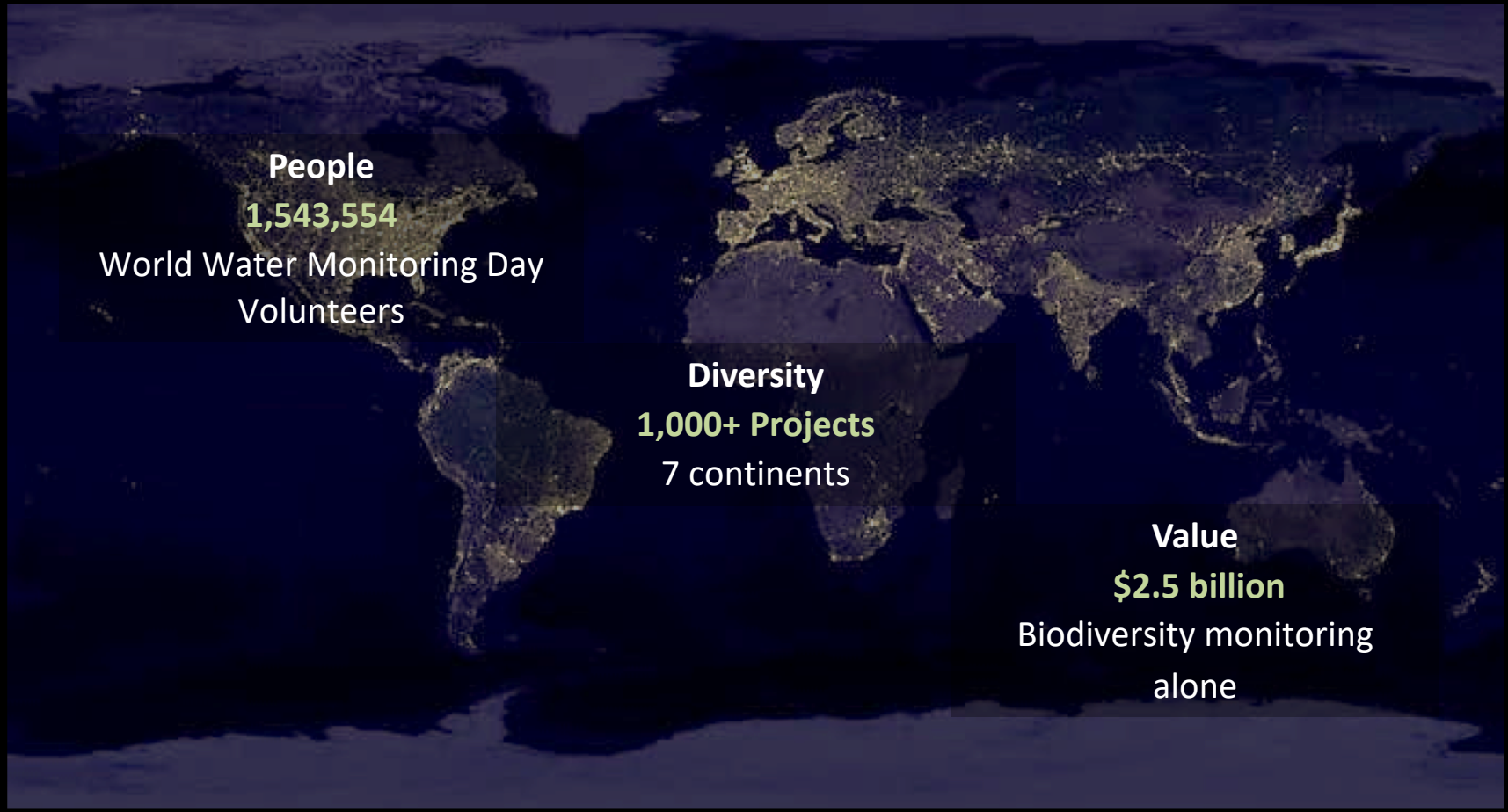
Understanding and Designing for Data Quality at Scale

Anne Bowser, PhD

Woodrow Wilson International Center for Scholars

8 January 2020

Wilson Center

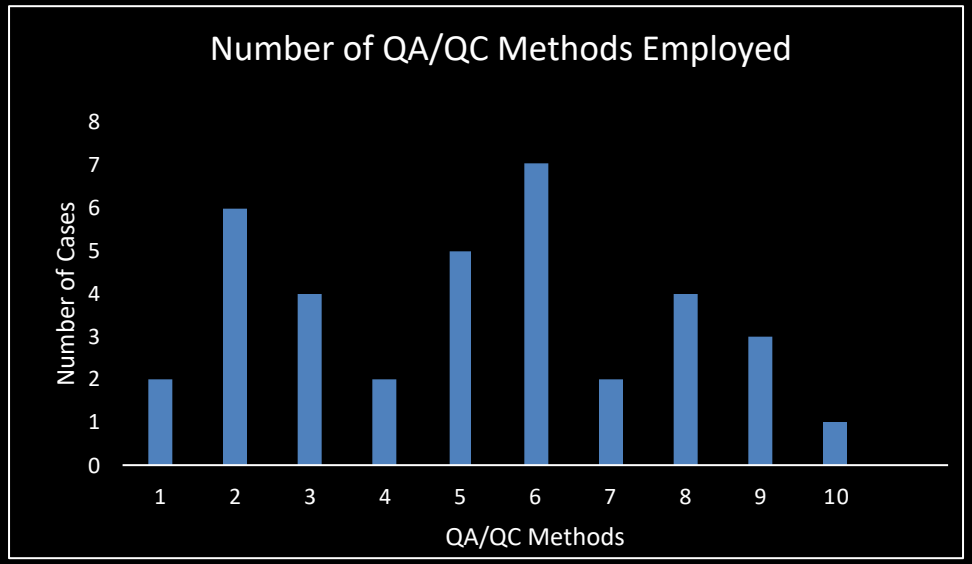

People
1,543,554
World Water Monitoring Day
Volunteers
Diversity
1,000+ Projects
7 continents
Value
$2.5 billion
Biodiversity monitoring
alone

2019

Still in need of norms

Bowser, A., Cooper, C., de Sherbin, A., et al. (2020, submitted). Still in need of norms: The state of the data in citizen science. *Citizen Science: Theory and Practice*.

- Interviews with 36 projects
- *"Projects were generally implementing best practices in regard to data quality, but not implementing , and generally not aware of, best practices with regard to aspects of data management"*



All projects used at least one QA/QC method, while 34 (92%) used more than one method, and 22 (61%) utilized five methods or more

Still in need of norms

Bowser, A., Cooper, C., de Sherbin, A., et al. (2020, submitted). Still in need of norms: The state of the data in citizen science. *Citizen Science: Theory and Practice*.

- Human Aspects
  - Targeted recruitment, volunteer training, volunteer testing
- Instrument control
  - Standardized instrument, calibration
- Data collection
  - Standardized protocol, disciplinary standard, cross-domain standard
- Data verification
  - Voucher collection, expert review, automated review, contacting volunteers, removing bad data, replication or calibration
- Documentation
  - QA/QC plan, other

Practical Application

Earth Challenge 2020

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EARTH DAY NETWORK

Goal 1

Equip and empower people around the world to understand and act on data to build safer, healthier communities

Goal 2

Increase the amount of open, interoperable citizen science data to help answer more complex, global questions

6 Research Areas

From a crowdsourcing call

1 What is in my drinking water?

2 How does air quality vary locally?

3 Is my food supply sustainable?

4 How are insect populations changing?

5 What is the extent of plastics pollution?

6 What are the local impacts of climate change?

For April 2020

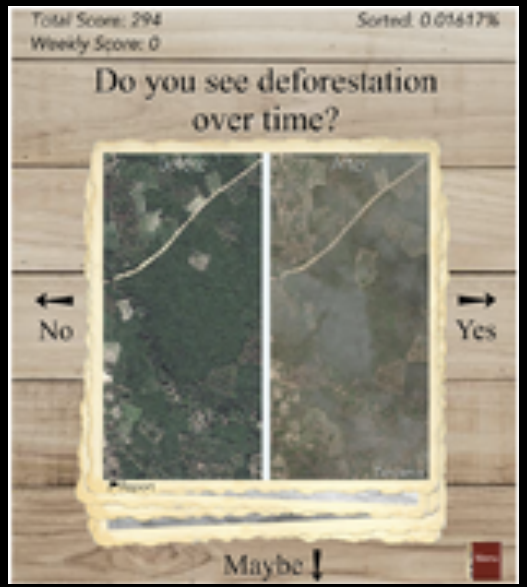
Goal 1

Equip and empower people around the world to understand and act on data to build safer, healthier communities

App

Equip and empower people around the world to understand and act on data to build safer, healthier communities

App



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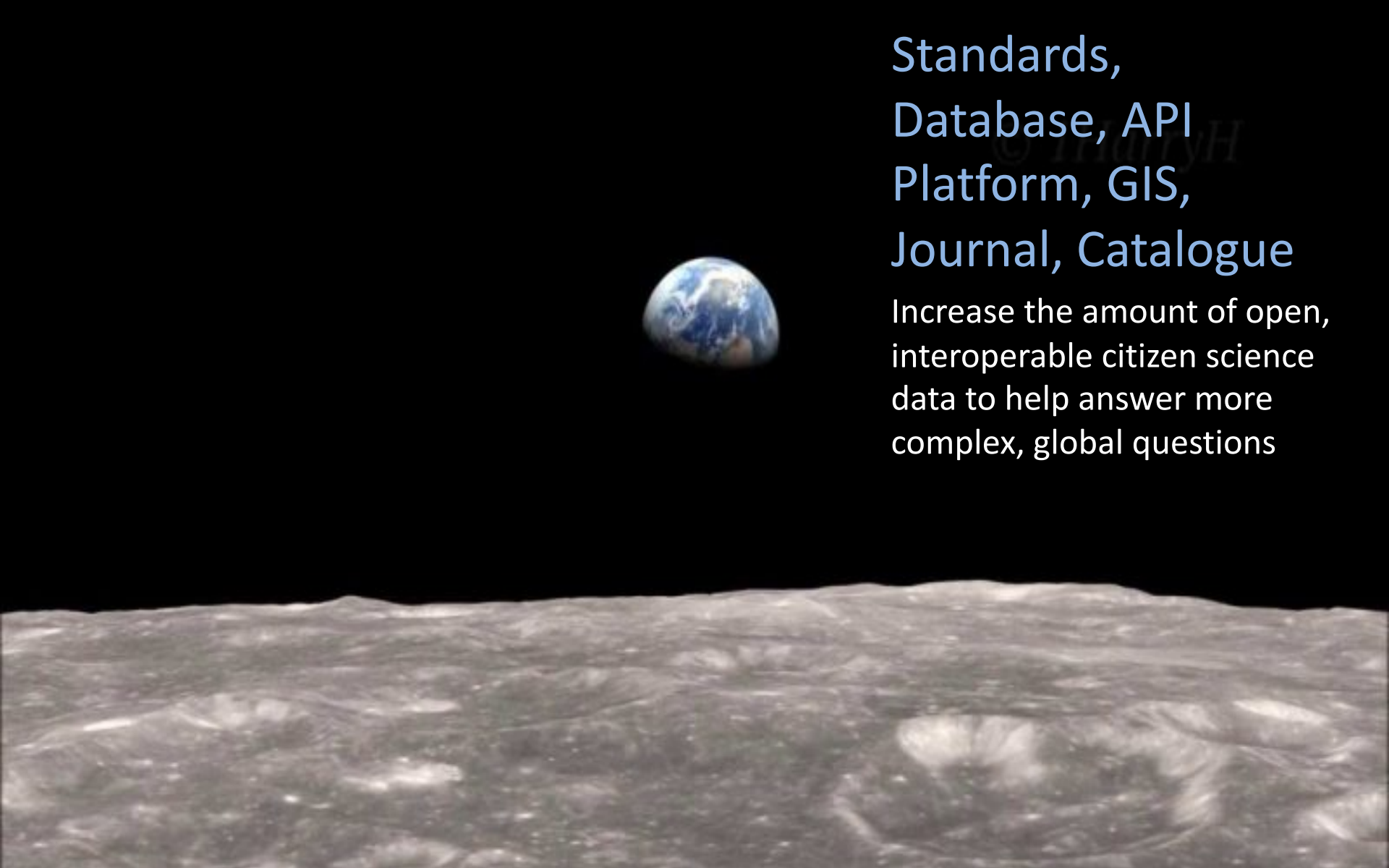
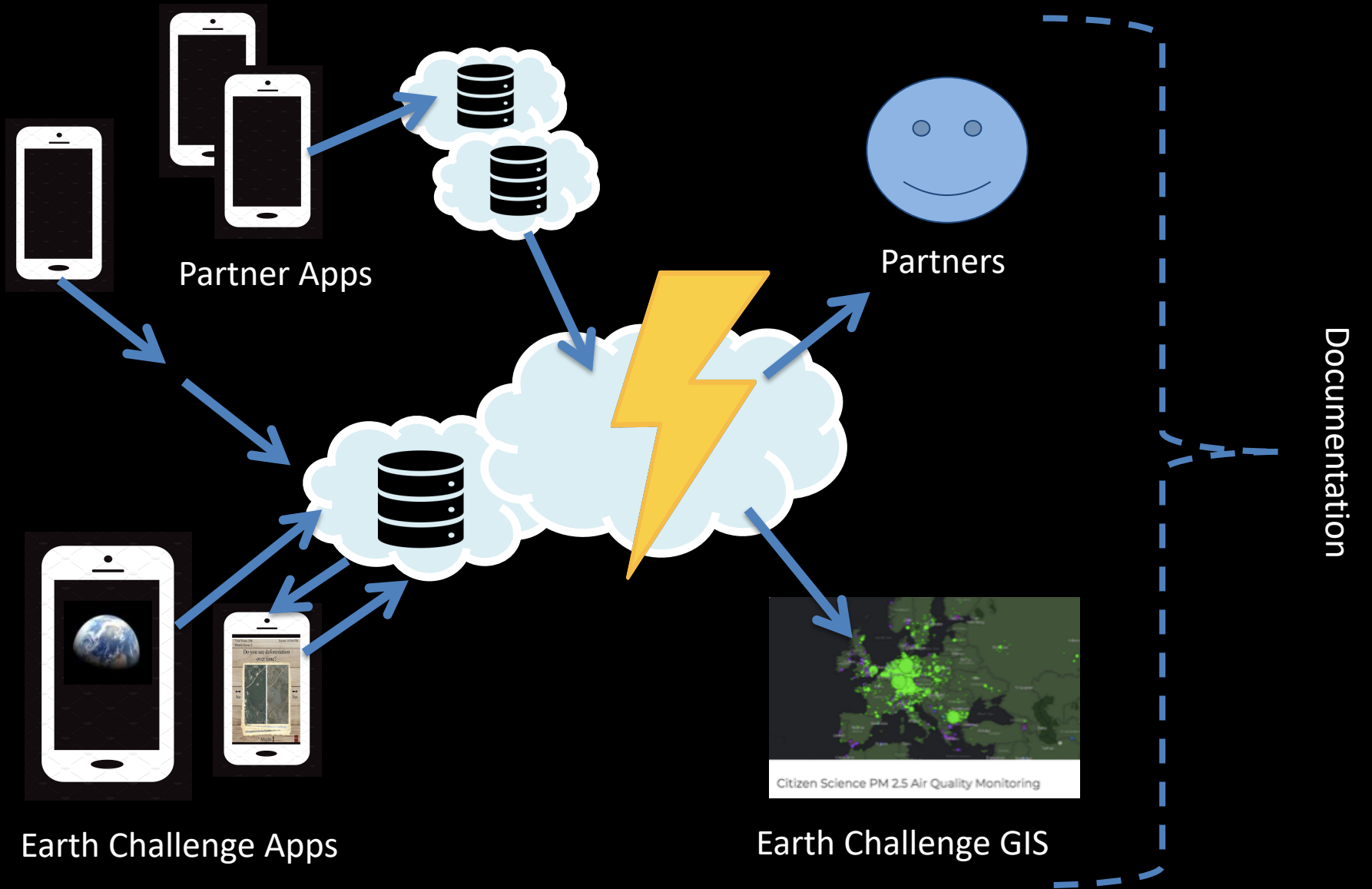
Goal 2

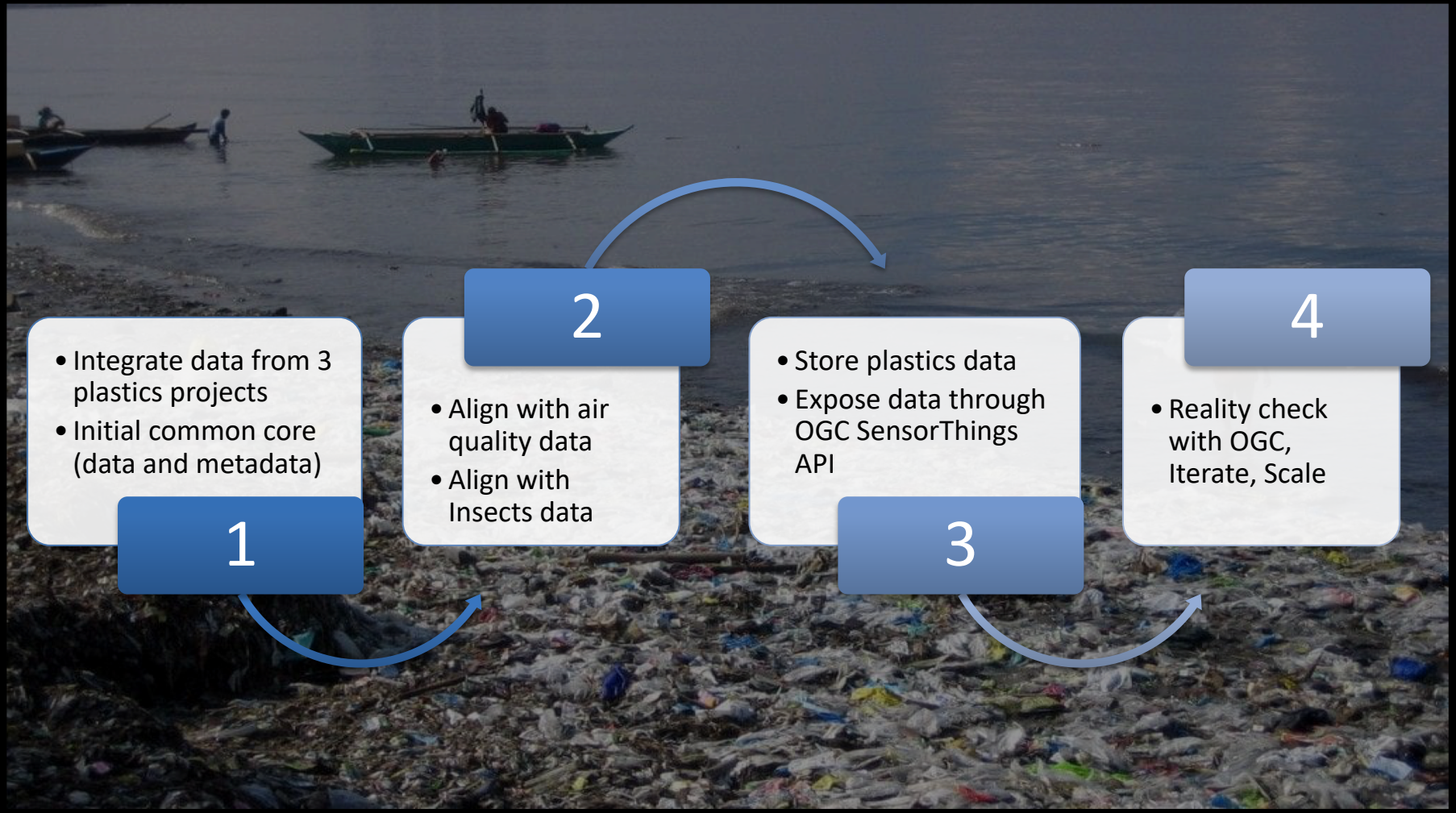
Increase the amount of open, interoperable citizen science data to help answer more complex, global questions



Standards, Database, API Platform, GIS, Journal, Catalogue

Increase the amount of open, interoperable citizen science data to help answer more complex, global questions


Partner Apps
Partners
Documentation
Citizen Science PM 2.5 Air Quality Monitoring
Earth Challenge Apps
Earth Challenge GIS



Building Blocks: Standards

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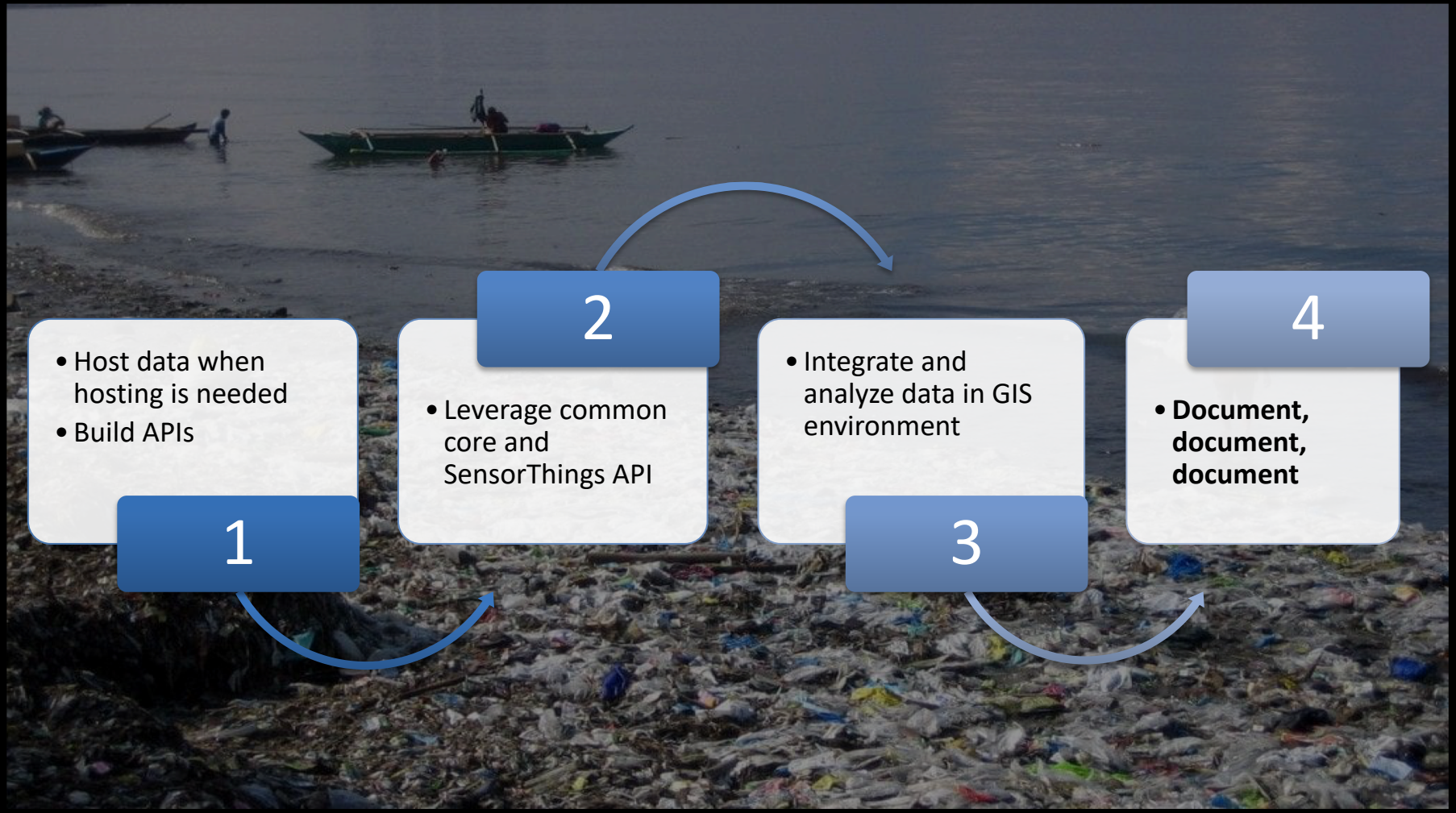
EarthChallenge2020.Plastics.EC2020App



"generally not aware of, best practices with regard to aspects of data management"

Data Journal

Frontiers in Citizen Science publishes comprehensive information on citizen science methods and data sets.

Data Catalogue

Leverages data journal to share standardized information; also facilitates discovery and access of citizen science data

Designed to enable sophisticated documentation of DQ, now and over time

Join Us

- Support work on data standards
- Help enable data openness and access
- ???

- Support the catalogue
- Support the journal– edit or peer review
- Help understand and articulate data and information quality

EARTH DAY NETWORK

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JRC EUROPEAN COMMISSION

Thank You!

anne.bowser@wilsoncenter.org

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