GEO Post-2025: next steps for the GEO Work Programme

PB-24: 6-7 September 2022
Recap: PB-23

**ACTIONS**
- Integrate along EO value chain
- Co-design
- Indigenous and youth
- Identify cross-GEO pilots

**NEEDS**
- Use integration to leverage GEO’s convening power
- Flexible and non-onerous
- Bottom-up
- Deep engagement and users to lead
- Communications

**OPPORTUNITIES**
- Articulate value
- Youth engagement
- GEO: place where EO meets user communities
- Align to policy frameworks
- EO funding in LMICs
Recap: most imp. characteristics of a future GEO

Openness, collaborative, transparency, user driven, inclusive, operational delivery, essential variables.
2023-2025 GWP review

• Bilateral engagements → opportunities for collaboration

• Implementation Plans → analysis of GWP activities: outputs, users, capacity-building, resources

• Results orientation → monitoring and evaluation

• Internal process → redesigned communications
The approach

GEO Work Programme 2023-25

Continued coordination and integration

Post-2025 incubators

Learn, replicate, scale

Post-2025 GEO Work Programme
Coordination workshops 2022/23

Information-sharing  Collaborations  Integration
EuroGEO and e-shape: tools for integration and incubation

Prof. Thierry RANCHIN
Mines Paris - PSL – France
24th GEO Programme Board: September, 7th 2022
EuroGEO in a nutshell

• **Delivering an integrated European contribution to GEO** and increasing GEO benefits for Europe

• **Acting as an incubator to produce and test EO services and applications in cooperation**

• **Delivering** specific EO applications benefiting from integrating global datasets made available through GEOSS with Copernicus/European countries/organizations

• **Promoting, scaling up and developing EO applications in association with users**

• Building on Copernicus Data & Information Access Services (DIAS) + Horizon 2020/Horizon Europe resources/GEO

• **Supporting the implementation of the Green Deal and GEO engagement priorities**
e-shape
Fast Facts for You

- 68 partners
- 7 showcases
- 37 pilots
- 4 years grant

agriculture  health  renewable energy  ecosystem  water  disaster  climate
e-shape: tools for integrated implementation of GWP
Co-design for the EO context

Issues to be addressed

1. Growing an ecosystem in a long-term perspective
2. Blocking points not only at the end user’s level

Co-design method

EO context particularly challenging → specific method developed, tested and validated
Co-design built in e-shape

Co-design to grow an ecosystem of efficient EO-based service designers

Co-design approach in two phases: “diagnosis” phase + “action” phase

#1 Diagnosis process to identify blocking points in the ecosystem’s growth

Representation of each pilot’s ecosystem (“value-information-data” framework)  Identification of blocking points (i.e. co-design needs)

#2 Implementation of co-design actions to unlock blocking points

One pattern for each type of co-design: building resilient fits with stakeholders
**User» communities**

- Researchers in energy and urban planning
- Citizens
- PV panel installers
- Grid operators
- Collectivities & urban planners

**Value-embedding usage (V)**

- Variability in space and in time of the electricity energy load and the yield production of PV, for planning, nowcast and forecast at individual scale

**e-shape pilot**

- Variability assessment and forecast of SSI
- Characterisation of existing PV and potential roof zones (+orientation and shading masks)
- Shaded surface irradiance
- SSI variability
- PV yield simulation

**Data sources (X)**

- Atmospheric optical state (CAMS)
- Surface solar radiation (CAMS)
- Cloud structures (CAMS)
- Satellite-based decametric DEM
- Airborne/Satellite-based submetric DSM
- Building cadastral 2D plans
- Others for PV yield simulation or electric loads
- In-situ measurements
- Sentinels 1,2: NDVI (Vegetation), NDBI (Built) NDWI (Water)
- Satellite-based global urban footprint imperviousness data

**Tech: GIS tool**

- Operations: TSV
- Business: TSV

**ARMINES**

- Penetration of rooftop PV in urban areas
- Support for the installation & efficient use of their PV systems
- Effective installation
- Urban classification

**InSunWeTrust**

- Grid operators for energy trading
- Aggregators for energy trading

**EWE NETZ**

- Urban energy system modelling of distribution grids

**TSV**

- Urban classification
- Limited to low calculation times

**Specific for low calculation times**
Co-design types: design issues that might occur all along the service development process

Engaged users

- Usefulness or relationship not clearly established
  - Favorable relationship
  - Problematic relationship

- Usefulness and relationship clearly established
  - Towards operations
  - Towards long-term strategy

Service provider

- Status of usefulness and usability of the service?
- Status of the relationship with the user?

Co-design #1
Usefulness & usability assessment & enhancing

Expected outcomes: richer range of lists of requirements + cooperation modalities

Co-design #2
Usefulness identification

Expected outcomes: List of committed stakeholders with minimal usefulness

Co-design #3
Extensive usefulness & usability realization

Expected outcomes: Engineering for an operational service (platform & relationships)

Co-design #4
Usefulness re-invention

Expected outcomes: Longer-term agenda, exploration of new usages and users
Feedbacks about co-design

“The co-design diagnosis also was very well structured [...] It was very good to have short-term and long-term, this helped us to come back couple of months after and see what we had said for the long-term and what is now time to implement.”
(Alexia Tsouni, NOA, SC & pilot leader)

“The initial co-design workshop proved to be an immense success [...]. The workshop served as a means to formalize relationships and find synergies between workflows and users, propelling us to officially pursue partnering with National Public Health Organization and the Ministry of Energy and the Environment to discuss and share data, and contribute to the development of a national health observatory.”
(Evangelos Gerasopoulos, NOA, pilot leader)

“For me it was really eye opening that we could use it in such a broad way to look at all sort of possibilities rather than trying narrow down what we wanted to do. It was more about broadening out and gathering lots of ideas and inputs.” “The way we ask questions during the workshops – not just in this context but also in our other projects and activities – has changed to be more exploratory and focused on the potential seen by each stakeholder rather than on the willingness to test or buy our services.”
(Merete Badger, DTU, pilot leader)
Implementation

- Cross fertilizing by **sharing knowledge** cross domains
- **Increasing awareness** by
  - Cataloguing the resources with an homogeneous framework and vocabulary,
  - Sharing knowledge on the data,
  - on Cloud Computing (not expertise),
  - on standards baseline, ...
- **Building success stories to showcase the benefits of EO**
- **Building a Big Picture** of current ecosystem of resources to build a vision of a European federation of resources based on standards and interoperability
- **Cooperating** between domains, with end users, with market experts..., **between application and platform providers**,  
- Supporting upscaling, sustainability
Users’ uptake

- User’s uptake survey and identify **primary users communities**
- Creation of a network of secondary connection communities both regionally and at EU level
- Series of users’ uptake events
- Capacity Building Best Practice Guide
- Promoting the use of services at sectorial, national and international level
Sustainability

• Access to knowledge
  • Market, policy, tech and investment trends
  • Guidance on Innovation and Intellectual Property
  • up-to-date understanding of national EO Maturity
  • understanding and promotion of socio-economic value
  • supporting capacity development

• Access to markets
  • opening doors to wider user communities

• Access to capital
  • helping EO actors to navigate the funding landscape
  • onboarding additional pilots with high maturity

• Follow closely the e-shape Sustainability Booster
  https://sustainability.e-shape.eu/
Potential support to integration and incubation from EuroGEO/e-shape

- Share the EuroGEO/e-shape experience with GEO
- Share the public deliverables with GEO
- Share the lessons learned and methods developed in e-shape
- Support the selection of the test case(s) for the road to post2025 (based on our on-boarding experience)
- Support of the e-shape’s co-design team to prototype the integration and incubation processes and a real test case
E.g. Incubators

- Nature-based Solutions: Global Biodiversity Observation System, Integrated Ecosystem Monitoring
- Ocean-Climate: Global Marine Debris Monitoring System
- Food-Water-Biosphere: Integrated Floods Forecasting, Global Wildfire Information System
- Systemic Risk/DRR: Global Integrated Heat and Health Information System
- Climate-Urban-Health:
Thank you