EO Science for Society
Info Day 2024
Digital Innovation

Guenther Landgraf, Anca Anghelea, Eric Doyle, Patrick Griffiths, Zaynab Guerraou, Claudio Iacopino, Salvatore Pinto
Digital Platform Section
Green Solutions Division
Climate Action, Sustainability & Science Department

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Digital Innovation Strategy

Science

Application R&D

Industry (-alisation)

Climate -Space

GDA

Incubed

DTE

Open Science Environments

Application Propagation Environments

Information Factories

Cloud-based Collaboration, Sharing & Production Environments

Reproducible Open Science

FAIR principles
Science Cluster Support

Application Propagation Environments

Algorithm maturation, upscaling, ad-hoc environments (e.g. RACE, GTIF)

Enable value chain **Accelerate** "last KM"

From Open Science to Open Innovation

Science R&D project

Scientist Research Institute

Application R&D project

Research Institute Space Value Adder

WHAT?

Industrialization R&D project

Space Value Adder

HOW?

Commercialization project

Non-Space System Integrator

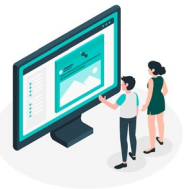
WHO?

Earth Science
Community
Understanding
the Earth

EarthCode
reusable Science
R&D repository
Open Science

APEX
reusable Application
R&D repository
Open Source

Information Factor(ies)
operationally usable
Information Products
Open Innovation



Earth Action
Community
Decision Making
Monitoring

Network of Resources
Interoperable Ecosystem for sharing, collaboration, execution and service provisioning environments
Digital Innovation

Copernicus Data Space Ecosystem
+ National infrastructures

Information Factory Concept

(non-Space)
Information System
Integrator

Domain
Expertise

Green Transition/
Climate Adaptation
Operational
Stakeholder

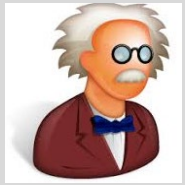
Customized
Actionable
Information

(Domain)
Information-as-a-Service

Regional/
Local Data

(Sub)national
Data Owners

"EXISTING"



Space Value
Adders

Algos

(Space)
Information-as-a-Service

CDSE + National
Infrastructures

Space
Data

Mission Owners

[DI-5.2] Information Factory Pathfinders

National/Regional Information Factory Pathfinder(s) for Climate Adaptation and Green Transition

Explore stakeholder-driven sustainable production chains requiring availability of shared local data
… to supply non-space information system integrators with a commercially operated environment
… to provide actionable information operationally and sustainably
… to support national/regional green transition and adaptation operational implementation entities.

- operational stakeholder driven; target topics: urban resilience, adaptive agriculture, energy transition
- attract non-space data relevant for selected policy-driven high-priority topic; “data spaces”
- hosting 3rd party algo providers to create a sustained service with 24/7 operations support
  (no new application development, only integration of existing applications!!!)
- explore sustainable models supporting nature-based solutions fitting the context of national strategies
  (*involve your delegation to interact with non-space data providers and green transition stakeholders*)

Call for Proposals, Dec’24; award up to 5 contracts for excellent proposals|

~1000K (2 years) per contract,

interested? ➔ zaynab.guerraou@esa.int

[DI-1] Interoperable Building Block Evolution

OGC *Open Science* *Persistent Demonstrator* Pilot	**Information Factory Use Cases**
Contribute to international collaboration on Reproducible and Interoperable Open Science	*Reuse IBB components to implement Information Factory Concept*
- I/F Standardisation - Component development - Science experiment hosting - Pilot demonstrations	- strong national engagement with geo-return critical member states - contribute to Open Source with engagement in openEO, OGC application portability, GAIA-X (tbd) - see previous slide
OGC RFQ, Q4	DN, anytime
~ 500K Total	~500K per use case

interested? ➔ claudio.iacopino@esa.int

[DI-4] EarthCode FAIR Open Science Environment

Infrastructure	FAIR Open Science	Community Management
Integrate primary NoR providers of computing solutions for reproducible science, and to host and expose to the EarthCODE Portal FAIR and Open scientific workflows	Selection of experts and providers of tools, services and guidelines to manage research data and workflows as per FAIR and Open Science principles	*Selection of Community Management Services and Experts*
- Virtual Labs, Catalogue services - Use of standards, e.g. openEO, OGC application package - definition of needed services	- need definition - tool definition/selection - Guidelines and educational resources	- portal content management - news - Outreach to scientists, service providers and academia
Work Stream 1	Work Stream 2	Work Stream 3

Best Practice ITT, 750k EUR, Q2 2024
Bidders can apply for one or several Work Streams

interested? ➔ anca.anghelea@esa.int

[DI-2] Network of Resources

Provider On-boarding	Network Interoperability	Project Sponsoring
Provide operational platform services for R&D activities (science and value adding)	*Make your Algorithm Hosting Service Interoperable*	*Request cloud-based Platform Services for R&D projects*
- provide Information-as-a-service anchor-tenant approach - addressing global market	- support EarthCode & APEx with ESA R&D result hosting	- free-at-point-of-use for R&D - outsourcing best use of IaaS - support FAIR implementation - project-driven selection
Best Practices open Feb'24	DN for onboarded providers (geo-return critical)	https://nor-discover.org/
~2M/year	~100K/year, 5 providers	➔ ~2M/year

interested? ➔ eric.doyle@esa.int

[DI-7] Showcasing & Feedback Exercises

Open Earth Science Pathfinders	Information-as-a-Service Pathfinder(s)
Develop Best Community Practices for scientific reproducibility using existing operational environments	Evolve existing open-source algorithms to cloud-based on-demand services, e.g. SEN4CAP
- based on completed science projects - long-term packaging for science project results - service agreement, licensing	- open-source consolidation - Ready for community maintenance & evolution - modular functionality via client libraries and APIs - datacube-centric refactoring
Open now	Call for Proposals, Q2
~150K/showcase (2-3)	~ 400-600K, one pathfinder

interested? ➔ Patrick.griffith@esa.int