EOSC-Synergy: Integrating Capacities & Building Capabilities

Jorge Gomes (LIP/INCD) on behalf of the EOSC-Synergy consortium
Implementing EOSC at national level

Promoting EOSC High Quality Services
Software quality as a service, FAIRness evaluation and quality certification badges.

Thematic Services Integration
10 thematic services addressing 4 scientific areas (Earth Observation, Environment, Biomedicine and Astrophysics).

Skills development
Environment for tutorials with a dedicated MOOC platform, courses methodology and a Hackaton as a service platform.

Capacity Expansion at the Infrastructure level
Integration of services and resources from the RIs of the consortium partners.

Alignment at the Policy Level
Collaboration with regional projects on landscaping activities, gap analysis and contribution to EOSC policies.
Project partners

EOSC-synergy coordination structure is based on IBERGRID:
www.ibergrid.eu

Project management and legal coordination resides on CSIC (Spanish coordinator of IBERGRID)

Spain, Portugal, UK, Czech Republic, Germany, Slovakia, Poland and the Netherlands
Fostering Service Integration and Adoption

Quality based approach for service integration to promote EOSC adoption
Virtuous cycle

1-Developers/Integrators
Increase software quality
Adhere to software development best practices

2-Providers/Operators
Increase service quality
Adhere to service delivery best practices

3-Users/Researchers
More aware of EOSC services quality
Build trust and increase adoption

Increasing Adoption

Improved Software Quality

Improved Services Quality

Increased Usage
SQAAaaS Platform

Quality Baselines
Good Practices

Source Code Repository

SQAAaaS Platform leverages CI/CD & DevOps

Software Classification

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Quality Process for Software

Mapping of QC to Badges

Source Code Repository

Badges to Reward Quality
Tools for FAIR assessment

FAIR EVA
- Assess FAIR compliance of research data
- Implements the RDA indicators
- Modular architecture supporting multiple types of data repositories

Integration with the SQAaaS
- FAIR validation in Quality Assurance
- Supporting assessment tools in CI/CD pipelines (FAIR EVA and F-UJI)
- Support for FAIR badging

https://github.com/EOSC-synergy/FAIR_eva
Thematic Services in Earth Observation

**WORSICA**  
Water Monitoring Sentinel Cloud Platform  
A service for the detection of water using satellites, Unmanned Aerial Vehicles & in-situ data. WORSICA can be used for coastline detection, inland water bodies detection and water leaks detection on irrigation networks.

**SAPS**  
Surface Energy Balance Automated Processing Service  
Used to estimate Evapotranspiration and other environmental data that can be applied, for example, on water management and the analysis of the evolution of forest masses and crops.

**GCore**  
Acquisition, cataloguing and processing EOS data  
G-Core is a production-ready technology used as a service at ESA’s and national programs that provides a Data Manager for spatial and non-spatial purposes and a framework for third-party processors.
Thematic Services in Biomedicine & Astrophysics

SCIPION
CryoEM data processing for Structural Biology
ScipionCloud service will allow users from Instruct to deploy a dynamic cluster in the cloud to keep processing the data acquired at the facility.

OpenEBench
ELIXIR benchmarking and technical monitoring platform
Used to evaluate bioinformatics tools, OpenEBench is an observatory for SW quality based on the automated monitoring of FAIR for research software metrics and indicators.

LAGO
Latin American Giant cosmic ray Observatory
LAGO is a cosmic ray observatory made of a network of water-Cherenkov detectors (WCD) spanning over different altitudes and latitudes making research on High Energy Physics, Space weather, etc.
Thematic Services in Environment

UMSA
Untargeted Mass-Spectrometry Analysis
UMSA aims at processing data to correlating the whole spectra with other data to work with more complex hypotheses on the impact of environment in human health.

MSWSS
Water Supply Systems modeling and analysis
MSWSS integrates the analysis and simulation of toxics in drinking water supply networks to allow operators and researchers to analyse hazardous events.

O3AS
Ozone Analysis Service
The O3AS service shall provide an invaluable tool to extract $O_3$ trends from large climate prediction model data to produce figures of stratospheric ozone trends.

SDS-WAS
A Service related to the mineral dust forecast
SDS-WAS aims to support institutional entities to warn about possible dust events and to foster the study of dust-related phenomena.
Increasing users and usage

Over last year:
- More than 4.7 Million CPU core hours
- More than 3,400 VMs
- 90 registered users in VO
Infrastructure for thematic services
Integrate computing and storage infrastructure

https://handbook.eosc-synergy.eu/
Policy related activities

Recommendations for the alignment of national policies related to EOSC.

Aimed at policy makers, EOSC Bodies, research funders, research performing organisations

https://www.eosc-synergy.eu/policy-harmonization/
Expanding training and education capabilities through an innovative online platform

Guidance for creating good quality tutorials
  • Best practices and training related materials

Set of EOSC ecosystem tutorials and training materials
  • Basic tutorials on EOSC
  • Advanced tutorials regarding the EOSC-Synergy tools
  • Domain specific tutorials regarding thematic services

Learn@Synergy and HaaS platforms
  • Online platform for content creation/hosting of training material
  • Service for running hackathons

Interaction with national education programmes
  • Courses developed to be suitable for education programmes
  • Had 10 different practical use cases of using the EOSC-Synergy platform or training materials during the activities of those institutions' educational processes in different countries.
Learn@Synergy platform

An innovative online platform focussing on open tools

Modular set of tools for preparing and conducting tutorials
https://learn.eosc-synergy.eu/

- **MOOC**: customised Moodle
- **Videoconference**: based on eduMEET
- **Interactive computing**: based on Jupyter Notebook
- **Shared drive**: based on NextCloud
- **Infrastructure Manager** to create virtual machines and training accounts
- **Training material catalogue**
- **Hackathon-as-a-service** to facilitate the organisation of hackathons on the EOSC infrastructure and accessible through the EOSC Portal
Results

www.eosc-synergy.eu