EOSC-ARENA

An Open, Agentic GenAI Ecosystem Integrated with the European Open Science Cloud

***F. Alibabaei*[1]*, *L. Berberi*[1], *V. Kozlov*[1], *A. Delipalta*[2], *Á. López García*[3], *G. Moltó*[4], *F. Psomopoulos*[5], *V. Tran*[6], *M. Płóciennik*[7]**

*Contact: khadijeh.alibabaei@kit.edu | [1]KIT, DE; [2]RDA, UK; [3]IFCA (CSIC-UC), ES; [4]I3M-CSIC/UPV, ES; [5]CERTH, GR; [6]IISAS, SK; [7]IBCh PAS - PSNC, PL

MOTIVATION & PROBLEM

Typical barriers in GenAI Research

- 🔒 Proprietary AI ecosystems
- 🔁 Non-reproducible GenAI workflows
- 📋 Limited provenance & traceability
- 🌍 Fragmented EOSC/HPC access
- ⚖️ EU AI Act/GDPR compliance
- 🤖 Lack of trustworthy scientific AI

EOSC-ARENA builds an open, federated GenAI ecosystem for responsible, FAIR, and reproducible AI-enabled research.

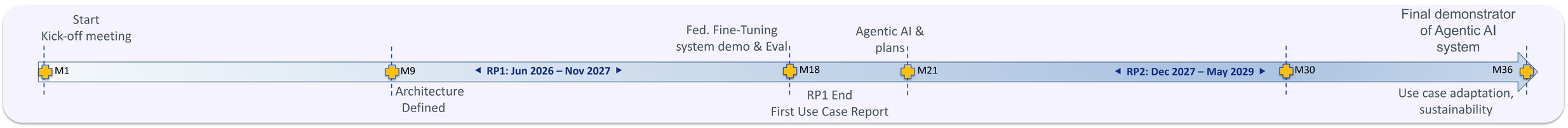
PROJECT AT A GLANCE

18 Partners	**9+** Countries 	**12** Use Cases	**3 yr** Duration
Coordinator	**6** AI4 / EOSC Partners	**€7.5M** Budget	**35** Deliverables

CONSORTIUM PARTNERS

PCSS · Instituto de Investigación Sanitaria La Fe · Ghent University · CSIC · predictia · DANS · Università di Padova · RDA · CERTH · Max Rubner Institut · STU FIIT · Institute of Informatics Slovak Academy of Sciences · UAB · CSC · KIT · GMAT · Universitat Politècnica de València · PREMOTEC

PROJECT ROADMAP



SPECIFIC OBJECTIVES (SO)

SO1 — Multi-Agent GenAI Framework

KEY KPIs
- **10+** GenAI tools
- **15+** services
- **16** demonstrators

SO2 — EU Model, Data & Platform Sovereignty

KEY KPIs
- **12** improved models
- **40+** synthetic datasets
- **16+** infrastructures

SO3 — Human-Centered AI Design

KEY KPIs
- **75%** FAIRness improvement
- **80%** skills satisfaction
- **35+** training outreach

SO4 — Responsible AI Guidelines

KEY KPIs
- **4+** guidelines/policies
- **5+** provenance mechanisms
- **1** policy white paper

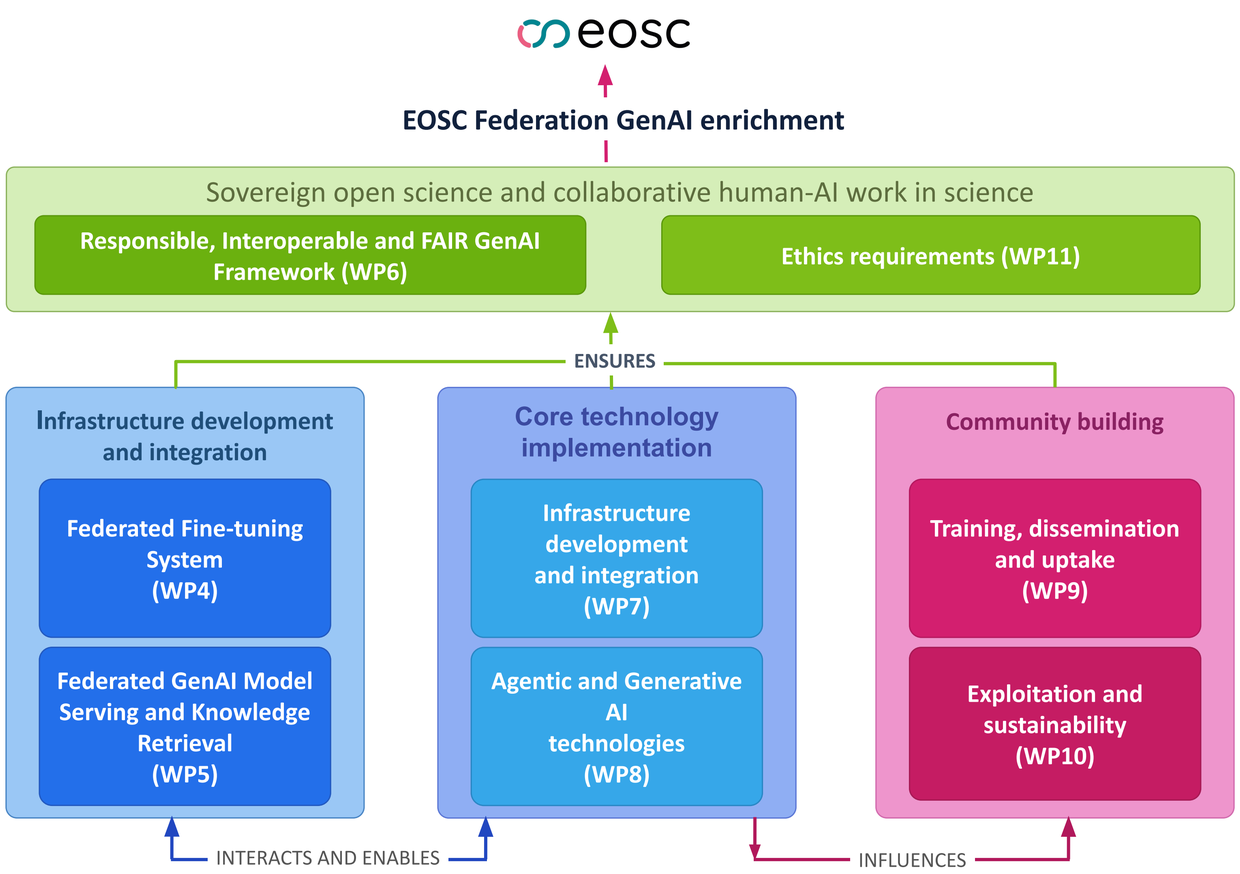
SO5 — Strengthening FAIR EOSC Ecosystem

KEY KPIs
- **30+** research applications
- **10+** training sessions
- **19** exploitation plans

INTERDISCIPLINARY USE CASES

Life Sciences Metagenomics & biodiversity curation (CERTH)	**Climate Science** FAIR metadata via AI agent (CSIC)	**Medical Imaging & Oncology** Synthetic genomic profile (Instituto de Investigación Sanitaria La Fe)	**Cosmology** Multi-agent scientific discovery workflows (CSIC)	**Materials Science** AI-enhanced MRI transformation (KIT)	**Archiving** NER metadata extraction (DANS)
RDA Knowledge Base Automated annotation & linking (RDA)	**Protein Research (DisProt)** AI protein summaries (Università di Padova)	**Research Data Management** GenAI for FAIR repositories (DANS)	**Cross-domain AI** Synthetic data generation for robust AI training (GMAT)	**Food Science** FAIR FoodEx2 tagging (PREMOTEC, Max Rubner Institut)	**Food Science** AI data imputation (PREMOTEC, Max Rubner Institut)

PROJECT METHODOLOGY



EXPECTED IMPACTS

📈 Improved FAIRness
Enhanced research data quality in several domains using AI-assisted curation.

🔐 Privacy-Preserving AI
Federated, GDPR- & EU AI Act-compliant GenAI

📚 AI Literacy
Responsible AI curricula & OERs for **50+** institutions

🌐 Open Sovereignty
Sovereign open AI, model, data & platform independence

♻️ Reproducibility
FAIR-aligned workflows, **15+** models, **12+** agents

🎯 Scale
10+ GenAI services, **40+** datasets, **20+** providers

European Commission

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