

HORIZON EUROPE PARTNER SEARCH FORM

Call Topic(s): HORIZON-CL4-2027-04-DATA-09 HORIZON-CL4-2027-SPACE-03-33
HORIZON-CL4-2027-04-DATA-03 HORIZON-CL4-2027-04-DIGITAL-EMERGING-06
HORIZON-CL4-2027-SPACE-03-34 HORIZON-CL4-2027-04-DATA-08 HORIZON-CL4-
2027-SPACE-03-12 HORIZON-CL4-2027-04-DIGITAL-EMERGING-04 HORIZON-CL4-
2027-02-DIGITAL-EMERGING-52-two-stage HORIZON-CL4-2027-04-DIGITAL-
EMERGING-11 HORIZON-CL4-2026-SPACE-03-31 HORIZON-CL4-2026-SPACE-03-61
HORIZON-CL4-2026-SPACE-03-32

Project Type: Research & Innovation Action (RIA), Innovation Action (IA), Coordination and Support Action (CSA)

EXPERTISE/COMMITMENT OFFERED

Form of Participation in a Horizon Europe Project: I offer my expertise to participate as a Partner in a Horizon Europe Project

Description of Researcher/Research Team Expertise: The team is led by Jaroslav Sochan, founder and CTO of Global Singularity. He spent two years within the ALICE collaboration at CERN as part of the Technical University of Kosice group, working on detector configuration for ALICE. The company grew out of that background, which is why it was built around data and control engineering rather than around generic IT services. ESA track record. We currently hold two ESA contracts awarded through competitive ITTs, both under the Space Safety Programme (S2P). The first is Proxima, a platform that operationalises space weather data products for the ESA SWESNET network, developed together with the Slovak Academy of Sciences and the Technical University of Kosice. The second starts in October 2026 and covers a worldwide telescope observation network: data sharing between observatories and end users, and processing of the resulting observational data on AWS. Proxima was presented at the European Space Weather Week. Earth observation. In AgroScan we process satellite imagery for agricultural monitoring, combining raster processing pipelines with machine learning models and large-scale text generation over agronomic data. Together with the ESA work this gives us direct experience with the awkward parts of the domain: heterogeneous instrument sources, geographically distributed data producers, and pipelines that have to stay reliable without an operator watching them. The core team is five engineers, with backgrounds in control systems, distributed computing and applied machine learning. Our combined



expertise covers: - Distributed data engineering and stream processing (Kafka, Flink, Kubernetes, time-series systems at scale) - Earth observation and raster data processing, from ingestion through to derived products - Applied machine learning and LLM systems, including model serving, fine-tuning and evaluation for production workloads - Numerical and high-performance computing, including GPU acceleration of graph and simulation workloads - Cloud architecture and operations, with certified AWS practitioners on the team

Keywords Specifying Your Expertise: Earth observation, satellite imagery processing, space weather, SWESNET, telescope networks, observational data pipelines, raster data processing, geospatial data infrastructure, real-time data streaming, Apache Kafka, Apache Flink, time-series databases, data ingestion pipelines, multi-tenant SaaS architecture, AWS, cloud-native architecture, Kubernetes, infrastructure as code, CI/CD, LLM inference, model serving, NVIDIA Triton, vLLM, MLOps, GPU acceleration, edge AI, detector control systems, scientific data management

Activity Offered: Research, Technology, Demonstration

Involvement Proposed/Added-Value to Consortia: Global Singularity is a Slovak SME working in cloud and AI engineering. We are an AWS Partner, a member of the NVIDIA Inception programme, and a member of Hopeno, the Slovak AI-focused European Digital Innovation Hub. Most of what we do sits between research and production: taking models and data products that work in a lab and making them run reliably as a service. We are looking for a technical partner role, ideally leading a task on data infrastructure or GPU/AI inference. What we can contribute: Data and inference pipelines. We have built and run a streaming and inference platform on AWS using Amazon MSK and Managed Flink for ingestion, SageMaker Serverless Inference with NVIDIA Triton for model serving, and TimescaleDB on Kubernetes for time-series storage. Everything is deployed as infrastructure as code with CDK, with Tekton pipelines for CI/CD and Keycloak handling multi-tenant identity. We have done per-tenant isolation for a SaaS pipeline builder, so we know where that gets difficult. GPU and AI inference. We design and operate LLM inference in production, from model serving with vLLM and NVIDIA Triton through to batch generation at scale; one of our deployments produces several hundred thousand generated records for a commercial client. We work across both managed cloud GPU capacity and on-premise NVIDIA hardware, including ARM64 Grace-class platforms, and we plan deployments around the constraints that actually bite in practice: sustained throughput under thermal and power limits, cost per token, and data residency. Space data. We built Proxima, a platform that turns space weather data products into operational services for ESA SWESNET. It was developed together with the Slovak Academy of Sciences and the Technical University of Kosice, so we are used to working with academic partners on delivery timelines rather than publication timelines. Where we add value:

consortia usually have no shortage of good science and a shortage of people who will keep it running after the demo. That engineering layer is what we do. As a Slovak SME we also help with Widening-country participation and geographic balance.

PROFILE OF PARTNER SOUGHT

Role: Technology Development, Research

Country / Region: Any - Europe/North America/South America, Leading Countries

Expertise Required: We are looking to join a consortium that already covers the parts we do not. For the data centre efficiency topics, the essential partner is a data centre or HPC facility operator willing to host a pilot deployment and provide operational baseline data, ideally alongside academic or RTO partners working on thermal engineering, cooling technologies or power systems, so that our software and data layer pairs with hardware-side research. For the Earth observation and satellite communication topics we are looking for space segment partners: satellite operators, ground segment providers or EO data providers. In both cases we would prefer to work with an experienced coordinator with a track record in Horizon Europe Cluster 4, as this would be our first Pillar II participation and we would rather be led by someone who has run these projects before.

PREVIOUS EXPERIENCE

Short Introduction of Key Areas of your previous Research/Innovation projects: ESA SWESNET / Proxima (ESA contract, competitive ITT, Space Safety Programme). A platform that operationalises space weather data products, turning research models produced by the scientific community into monitored, continuously running services with defined availability. Developed with the Slovak Academy of Sciences and the Technical University of Kosice, and presented at the European Space Weather Week. The main innovation was on the operational side: making heterogeneous scientific data products behave as dependable services rather than as scripts run by their authors. Worldwide telescope observation network (ESA contract, competitive ITT, Space Safety Programme, starting October 2026). Data sharing between geographically distributed observatories and end users, with processing of the resulting observational data on AWS. The technical challenges are instrument heterogeneity, distributed data producers with uneven connectivity, and the need for a shared data model across sites that are independently operated. AgroScan. Satellite imagery processing for agricultural monitoring, combining raster processing pipelines with machine learning models. The project also included large-



scale generation of structured agronomic content across roughly 13,000 items covering crop varieties, fertilisers, plant protection products and organisms, produced with self-hosted LLM inference. Streaming and inference platform (AWS). A production data platform built on Amazon MSK and Managed Flink for ingestion, NVIDIA Triton on SageMaker Serverless Inference for model serving, and TimescaleDB on Kubernetes for time-series storage, deployed as infrastructure as code with per-tenant isolation for multi-tenant use. Legacy code modernisation. GPU-accelerated graph algorithms applied to dependency analysis of legacy codebases, with a conversational layer on top so that engineers can interrogate a system they did not write.

CONTACT DATA

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Research Organisation Type: Industry/SME

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RESEARCH AREAS OF INTEREST

Pillar 1: Excellent Science: European Research Council (ERC), Research Infrastructures

Pillar 2: Global Challenges & European Industrial Competitiveness: Cluster 4: Digital, Industry & Space, Cluster 5: Climate, Energy & Mobility, Cluster 1: Health, Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture & Environment

Pillar 3: Innovative Europe: European Innovation Council (EIC), European Innovation Ecosystems (EIE), European Institute of Innovation and Technology (EIT)

Horizontal & Cross-Cutting Areas: Widening Participation & Strengthening the European Research Area (WIDERA), European Partnerships (Institutionalised, Co-funded, Co-programmed), EU Mission - Cancer

CONSENT TO INFORMATION SHARING

I agree with the publication of my contact data: Yes