



FORTISSIMO
PLUS

FFPLUS SUCCESS STORY: INNOVATION STUDY

FOUNDATION MODEL FOR GEOSPATIAL ANALYSIS

ORGANIZATIONS

GEODETICCA VISION s.r.o. is a Slovak SME specialising in geospatial data processing and developer of the CARTOGRAPHER platform, which converts satellite and aerial imagery into high-quality vector data for planning, environmental protection and emergency response. **The Centre of Operations of the Slovak Academy of Sciences** (Slovakia's national HPC centre) provided expertise in parallel programming, large-scale data processing and model training.



THE CHALLENGE

The geospatial sector increasingly relies on AI to extract information from satellite and aerial imagery, yet most models require large volumes of labelled data to perform reliably across diverse regions. For SMEs, this creates high costs, long preparation times and limited scalability. GEODETICCA VISION faced barriers to European growth because adapting models for each country demanded extensive annotation, slowing deployment and limiting scale.



Technology used: HPC, AI, Foundation Models
Industry Sector: Aerospace

THE SOLUTION

GEODETICCA VISION developed the GEODETICCA VISION Foundation Model (GVFM), trained on high-resolution imagery from 17 European countries. Using EuroHPC systems, including MareNostrum-5 and Slovakia's Devana system, 90 TB of raw imagery was processed into a 9 TB curated dataset with 600 million samples. The trained model was fine-tuned and integrated into the CARTOGRAPHER platform, delivering high accuracy with minimal labelled data.

THE IMPACT

The project transformed GEODETICCA VISION's business model by enabling a single reusable foundation model that supports deployment across multiple European countries. Annotated data requirements were reduced by 87.5%, cutting typical project costs from €170,000 to €25,500 and enabling affordable service agreements with municipalities, environmental agencies and SMEs. Faster deployment strengthens competitiveness and accelerates market entry.

Socially, the solution improves access to high-quality geospatial intelligence for budget-constrained public bodies, supporting better land-use planning, infrastructure management and disaster response. By reducing technical barriers, it enables smaller organisations to benefit from advanced AI-driven mapping capabilities. Environmentally, the approach reduces duplicated data preparation and repeated model training, lowering compute intensity and energy consumption. Improved mapping accuracy supports more informed environmental monitoring and sustainable land management decisions across Europe.

BENEFITS

- 33% higher mapping accuracy, improving reliability for planning and environmental analysis.
- Lower project costs, making advanced geospatial intelligence accessible to municipalities and SMEs.
- Faster deployment across regions, enabling quicker access to actionable spatial data.
- 87.5% reduction in labelled data requirements, lowering development overhead.
- Reusable foundation model enabling scalable expansion into new European markets in Europe.



EuroHPC
Joint Undertaking