
PRESS NOTE

TOWARDS THE DIGITAL TWIN OF ITALIAN SOIL

Rome, 07/08/2025 - **Leonardo**, through e-GEOS, a company owned by the Italian Space Agency (20%) and Telespazio (80%), will support the **Department for Sustainable Development (DiSS)** of the **Italian Ministry of the Environment and Energy Security (MASE)** in the **development of a Digital Twin of the Italian territory**. The initiative falls under PNRR investment M2C4 I.1.1, which focuses on the development of an advanced monitoring and forecasting system. This high-resolution digital model of the terrain, built using airborne laser surveys (LiDAR) and aerogravimetric data, will serve as a strategic asset for understanding the morphology of the land and will lay the foundation for future Digital Twins capable of simulating and further studying its behaviour.

The DiSS project aims to enhance the morphological knowledge of Italian territory and gravity field at a national level, relying on cutting-edge geoinformation solutions and the proven expertise of the Leonardo Group, a recognized leader in the sector for its technical skill and innovation capacity. In this context, the **development of a model of the entire national territory** represents a key enabler for a **safer and more sustainable Italy**, providing an unprecedented level of precision in understanding both surface and subsurface characteristics. The project marks a breakthrough in the integration of digital and geospatial technologies and reflects the Leonardo Group's commitment to advancing innovative solutions for the country's safety and sustainability. The resulting databases will meet virtually all public and private stakeholder needs for terrain and gravity field information nationwide. They will also ensure interoperability with previously developed and ongoing databases, promoting open access and reuse.

Massimo Claudio Comparini, Managing Director of Leonardo's Space Division, stated: *"Leonardo, thanks to its leadership in space, digital and Earth Observation technologies, is strongly committed to the development of Digital Twin solutions, integrating data collection, processing and information extraction capabilities with supercomputing, cloud, and artificial intelligence. This strategic project, driven by innovation, vision and collaboration across public, private, and academic sectors, lays the groundwork for a deeper and smarter understanding and management of the territory, in support of resilience and sustainability. Leonardo is committed to putting its expertise at the service of Italy and Europe".*

Milena Lerario, e-GEOS CEO, added: *"With this project, e-GEOS, supported by Leonardo's vision, offers its experience managing large volumes of geospatial data to provide a concrete tool in support of the country's environmental and territorial policies. The digital twin will offer a precise, dynamic representation of the Italian territory, useful for studying the risks it involves and optimising intervention. We face this technological and operational challenge together with our partners, with a great sense of responsibility, as our way of contributing to a more sustainable and aware Italy."*

The map will be produced using aerial surveys. Laser Scanning LiDAR (Light Detection and Ranging) technologies will enable high-resolution mapping of land, infrastructure, soil morphology and surfaces. Aerogravimetric data will be key for developing the new national gravimetric database and defining the updated geoid model of Italy, which will also allow terrain models to be expressed in orthometric heights.



The digital model developed by the e-GEOS-led consortium will become a cornerstone of the integrated long-term monitoring and surveillance system, supporting territorial planning and environmental protection interventions, an increasingly urgent need as Italy faces growing hydrogeological instability phenomena. In addition to describing the land's morphology, the model will support slope stability analysis and hydraulic modelling, which are essential for delineating potentially flood-prone areas. Furthermore, the national gravimetric database and geoid will help improve the accuracy of positioning systems and subsurface analyses, including the identification of raw material deposits.

Editor's note

The consortium led by e-GEOS is composed of CGR S.p.A. (Compagnia Generale Ripresearee) and IRS s.r.l. (Italian Remote Sensing), both leading companies in the field of aerial surveys. Important companies, academic and research institutions are also contributing to the project: University of Pavia, Politecnico di Milano, Sapienza - University of Rome, Technical University of Denmark (DTU) and GReD s.r.l. (Geomatics Research & Development) and Mermec Engineering S.r.l.

The contract is one of several initiatives aimed at protecting the country's territory under the National Recovery and Resilience Plan (PNRR) in the context of the Integrated Monitoring System (SIM) Programme.

Leonardo is an international industrial group, among the main global companies in Aerospace, Defence, and Security (AD&S). With 60,000 employees worldwide, the company approaches global security through the Helicopters, Electronics, Aeronautics, Cyber & Security and Space sectors, and is a partner on the most important international programmes such as Eurofighter, JSF, NH-90, FREMM, GCAP, and Eurodrone. Leonardo has significant production capabilities in Italy, the UK, Poland, and the USA. Leonardo utilises its subsidiaries, joint ventures, and shareholdings, which include Leonardo DRS (71.6%), MBDA (25%), ATR (50%), Hensoldt (22.8%), Telespazio (67%), Thales Alenia Space (33%), and Avio (29.6%). Listed on the Milan Stock Exchange (LDO), in 2024 Leonardo recorded new orders for €20.9 billion, with an order book of €44.2 billion and consolidated revenues of €17.8 billion. Included in the MIB ESG index, the company has also been part of the Dow Jones Sustainability Indices (DJSI) since 2010.

