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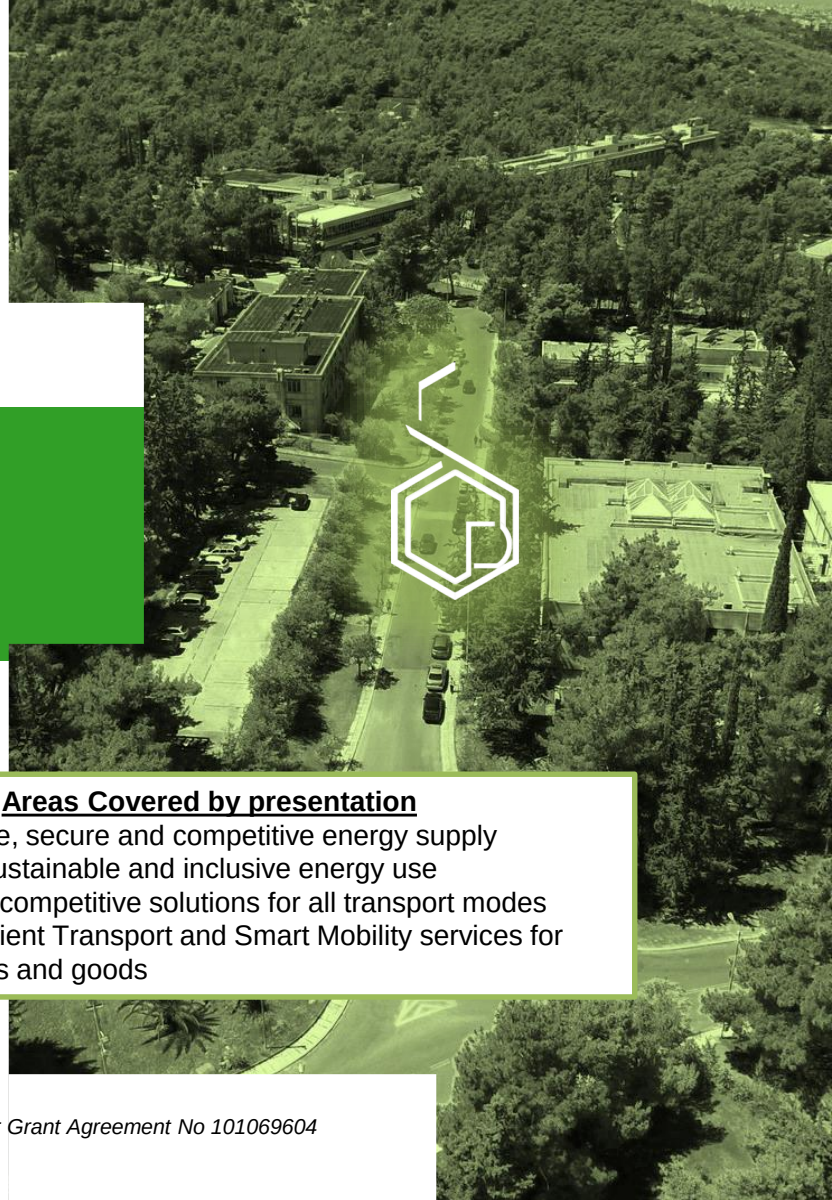
The network of Horizon Europe Cluster 5 National Contact Point.

DELTA-MPIS

GREENET Brokerage Event
6th May 2025

Georgios Zaverdinos



Areas Covered by presentation

- Sustainable, secure and competitive energy supply
- Efficient, sustainable and inclusive energy use
- Clean and competitive solutions for all transport modes
- Safe, Resilient Transport and Smart Mobility services for passengers and goods

The GREENET project has received funding from the EU Horizon Europe programme under Grant Agreement No 101069604

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Company Profile

About us

DELTA-MPIS is a Greek SME specialized in simulation-driven engineering

Operating within Lefkippos Technology Park, Greece's leading technology hub, DELTA-MPIS is **based at NCSR Demokritos, the country's foremost research center.**

This environment fosters collaboration with academic institutions, research organizations, and industrial partners, ensuring that our methodologies are at the forefront of technological advancements.

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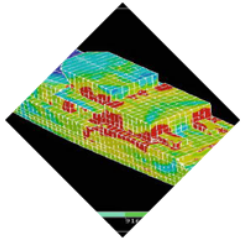
Technology Profile

Activities

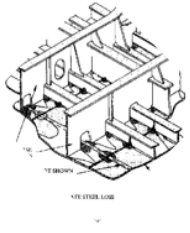


Advanced simulation and modeling

Cutting-edge computational tools,, digital twin development, for predictive analysis and performance validation in sectors such as **marine applications, composite manufacturing, and hydrogen storage.**

Process Optimization for Sustainability

Enhancing manufacturing efficiency, reducing material waste, and improving production workflows



Structural Performance & Safety Assessment

Ensuring composite and metal structures meet high standards of durability, reliability, and **regulatory compliance**, with real-time monitoring and optimization.

Lightweight Design & Performance Enhancement

Developing high-strength, lightweight composite solutions for applications in aerospace, automotive, maritime, and hydrogen storage systems.

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Research Experience

Research

Digital Twins for Process-Aware Composite Manufacturing

- Digital twins integrate simulation, in-line monitoring, and model-based defect tracking
- Enable **adaptive process control** in filament winding of pressure vessels
- Reduce development cycles and **increase reliability of composite components**

Damage-Driven Design of Structures

- FE simulations capture **damage progression in fiber-reinforced polymers**
- Support design of components with **controlled failure behavior** under realistic loads
- Accelerate the development of next-gen lightweight materials

Structural Health Monitoring

- Combines **sensor data** with **reduced-order models** for real-time structural assessment
- Enables virtual sensing and **early damage detection in composite structures**
- Facilitates predictive maintenance and lifecycle reliability management

Sustainability by Design Through Digital Toolkits

- Interactive platforms embed life cycle analysis into early-stage design of composites and nanomaterials
- Support **hands-on training for researchers and engineers** on sustainability-driven development
- Promote circularity, eco-design practices, and **alignment with EU green innovation priorities**

SMART4ALL — An extensive network of Digital Innovation Hubs for boosting technology and business development in South, Eastern and Central Europe

Digital Innovation HUBs and Collaborative Platform for Cyber-Physical Systems — HUBCAP

materialize — Integrated online cloud platform of high performance materials

Novel Capacitive Deionization for Water Desalination — NANOΠΟΛ

HEAT — Enhanced Thermal conductivity of Polyethylene

Improving technification, safe production and use of nanomaterials in stone sector

MIND 4 MACHINES — Digital Twin for optimizing the manufacturing of pressure vessel

Advanced Materials & Manufacturing United for LightwEighT (AMULET) — AMULET

NanoER — Co-funded by the European Union — Educational platform for Life Cycle Analysis of treatments based on nanoparticles

Masters Course on Smart Sustainability Solutions — Ecolution — Erasmus+

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Topics to be addressed

Destination 2. Cross-sectoral solutions for the climate transition
HORIZON-CL5-2025-04-D2-13: Coordinated call with India on waste to renewable hydrogens

Destination 3. Sustainable, secure and competitive energy supply
HORIZON-CL5-2025-02-D3-06: Innovative manufacturing of wind energy technologies

Destination 5. Clean and competitive solutions for all transport modes
HORIZON-CL5-2025-04-D5-11: Demonstration of battery energy storage systems in existing and new vessels via novel energy storage and ship design concepts (ZEWT Partnership)

Destination 5. Clean and competitive solutions for all transport modes
HORIZON-CL5-2025-04-D5-07: Accelerating the circular transformation of the EU automotive industry

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Thank you!

DELTA-MPIS
Engineering innovation

Neapoleos 27 & Patriarchou Grigoriou E' Lefkippos Attica Technology Park, NCSR Demokritos, Aghia Paraskevi, Attica, Greece

office@delta-ms.gr

delta-ms.gr