D-HYDROFLEX

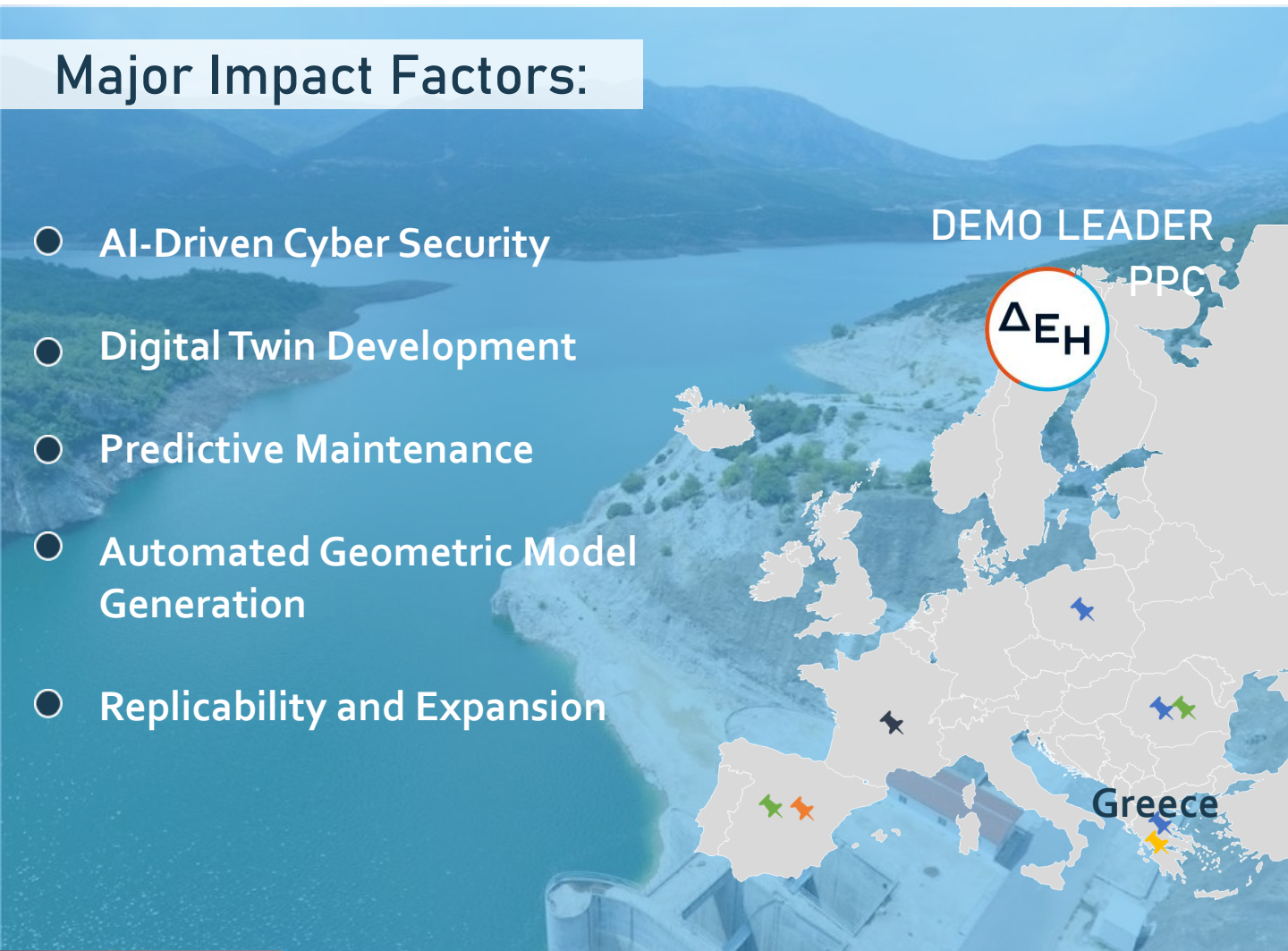
Demo # 5: Technical factsheet

Demo Title: Platanovrisi and Ilarionas HPP

This demo focuses on enhancing hydropower plant resilience through AI-driven cybersecurity and Digital Twin development, enabling predictive maintenance and replicable solutions.

Major Impact Factors:

- AI-Driven Cyber Security
- Digital Twin Development
- Predictive Maintenance
- Automated Geometric Model Generation
- Replicability and Expansion



"D-Hydroflex will increase efficiency and security through AI-driven digital transformation of hydropower operations."
Christina Papapostolou, PPC

D-HYDROFLEX project has received funding from the European Union's HORIZON Research and Innovation Action under Grant agreement No 101122357

Funded by the European Union

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Technology Types:

- Artificial Intelligence (AI) for cyberattack detection & automatic geometric model generation
- Digital Twin platform for asset monitoring & predictive maintenance

Components:

- MINDS F-Box for real-time AI-based monitoring
- Local anomaly detection models
- Network decoders/parsers for traffic analysis
- Federated IDS (FIDS) for distributed cyber protection
- Centralized asset management platform
- AI tools for geometric model automation

Fields of Application:

- Cybersecurity for HPPs and dam systems
- Digital asset management & lifecycle optimization
- Predictive maintenance and infrastructure resilience

Expected Benefits:

- Enhanced cyber-resilience for critical hydropower assets
- Increased reliability & operational efficiency
- Lower maintenance costs via predictive capabilities
- Replicable & scalable digital solutions

Technology Readiness Level (TRL):

- HYDROFLEX commenced at Technology Readiness Level 3 and is projected to deliver products achieving Technology Readiness Level 5 upon completion.

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