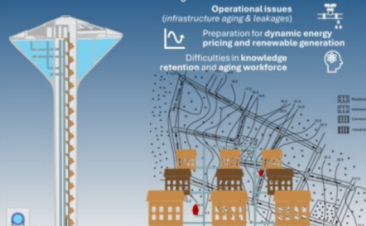


Water supply systems face a plethora of challenges that compromise their efficiency and sustainability

Among these, escalating energy costs, aging infrastructure, significant water losses, rising customer expectations, difficulties in staff knowledge retention, and the adverse impacts of climate change stand out as critical challenges. The result is a scenario where water utilities struggle to maintain service reliability, meet environmental standards, and ensure economic viability.

- Climate change impacts on the availability of water resources
- Operational issues (infrastructure aging & leakage)
- Preparation for dynamic energy pricing and renewable generation
- Difficulties in knowledge retention and aging workforce



Novel technology

Physics Informed AI + Real-Time Data Analytics

Ensures accurate predictions of system behavior
Improves the system's responsiveness, allowing detect and locate leaks immediately

Physical System Water Supply Systems

- Real-time data
- Smart Predictive Digital Twins
- Leak detection and localization
- Pressure loss
- Water demand forecasting
- Renewable gas forecasting
- Optimization algorithms
- Dynamic energy pricing

Prototype demonstration

In Europe, the Water Supply Systems are responsible for

- €B2.9-3.9
- 50% Average Water Loss
- 1,13% Total European electricity use

To create added value and applied innovation, the technology developed will be tested in a real Portuguese WSS as a real-time pilot-case in an actual operational environment (TRL 6-7).

Expected outcomes and impact

- Energy and costs
- Water losses
- Environmental Protection
- Public Health and Safety

This project aims to enhance the efficiency of the WSS, envisioning a future where water utilities are resilient, sustainable, and can meet evolving demands.



Towards Integrated Real-Time and Smart Water Leak Detection and Operation

GOTAS DIGITAIS, LDA

SAO SALVADOR - ILHAVO - AVEIRO

O projeto I-ReTiS-LeaksD&Op visa inovar a gestão dos sistemas de abastecimento de água (WSS) através de ferramentas computacionais avançadas. O seu principal objetivo é desenvolver um Gémeo Digital Preditivo Inteligente (SPDT) para otimizar a operação e detetar fugas em tempo real. A abordagem integra IA baseada em física, análise de dados em tempo real e otimização energética, permitindo reduzir perdas de água, custos operacionais e impacto ambiental. O projeto inclui ainda uma demonstração operacional para validar a tecnologia e fomentar a sua adoção. Os benefícios esperados incluem maior eficiência operacional, conservação hídrica, proteção ambiental e segurança pública, contribuindo para a sustentabilidade do setor.

Investimento total

376 675,68 €

Apoio financeiro da união europeia

300 926,97 €

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