Case Study

E-HYDRO: INNOVATION IN WATER RESOURCE MANAGEMENT THROUGH SIMULATION AND SMART MANAGEMENT

CHALLENGE

Water is an essential resource, **the management of which faces increasingly complex challenges**, such as the impact of **climate change**, pressure on **water resources**, and the need to anticipate future availability.

At the river basin level, the **lack of integrated tools to understand the behaviour of water**—both surface and groundwater—**limits managers' ability to make informed and sustainable decisions**.

Furthermore, the **growing complexity of aquatic ecosystems and the interaction between environmental, social and economic factors make it necessary to move towards predictive models** that integrate large volumes of data and enable the simulation of future scenarios.

In this context, there is a **need to develop advanced digital solutions that enable the intelligent, predictive and efficient management of water resources**.

Climate change is causing recurring episodes of extreme flooding around the world.

E-HYDRO PROJECT

E-Hydro is an R&D project **focused on developing a smart platform for the modelling and virtualisation of water resources, capable of integrating data, simulating scenarios and supporting decision-making in water management.**

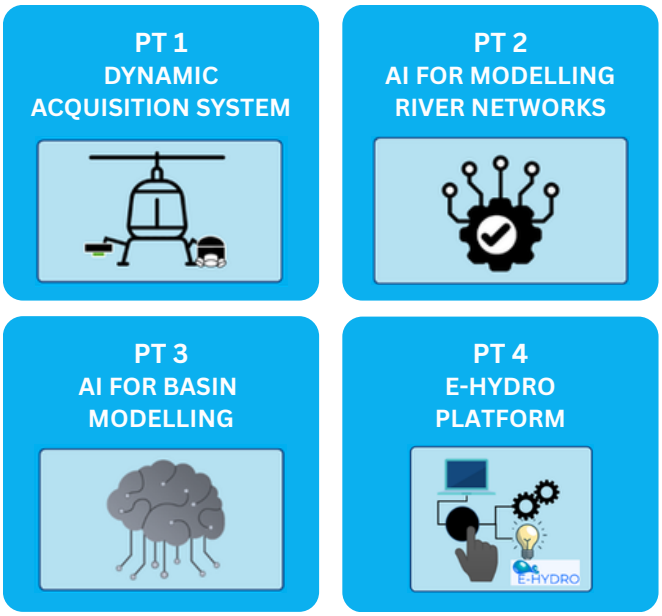
The project **combines advanced technologies such as artificial intelligence, remote sensing and numerical modelling to create a digital twin** of the river basin, enabling the analysis of water systems' behaviour and the prediction of their future development.

Its **key capabilities** include:

1. The **modelling and virtualisation of river courses** using data captured with high-precision LiDAR technologies.
2. The **development of early warning systems**, such as the detection of eutrophication processes in reservoirs.
3. The **prediction of the impact of climate change** and the evolution of demand on water resources.

The result will be an **integrated digital platform that will enable authorities and operators to visualise, analyse and manage water resources more efficiently, anticipating risks and optimising their use**.

The E-Hydro project is being developed within the framework of the TransMisiones 2023 Programme, promoted by the Centre for Technological Development and Innovation (CDTI) and the State Research Agency, by a multidisciplinary consortium combining technological, scientific and market capabilities.



Work packages defined in the E-HYDRO project

CLIENT

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The initiative is coordinated by CEMOSA, with the participation of companies such as Adasa Sistemas, AEROLASER and INSITU, alongside leading public bodies such as the University of Vigo, the University of Salamanca and IDAEA-CSIC. CDTI Consortium. Coordinator: cemosa Ingeniería y Control

AEI Group. Coordinator: Universidad de Vigo

Adasa Sistemas

adasa@adasasistemas.com

T +34 932 640 602

C/ Ignasi Iglesias 217, El Prat de Llobregat (Barcelona)