

Lliria Irrigation Association

Comprehensive digitization of the irrigation system to improve operational efficiency and resilience

The Lliria Irrigation Association has **over 4,500 members and manages irrigation systems in several municipalities located in the Campo de Turia area of the Valencian Region (Spain)**. The Association, which has been operating for almost 40 years and falls under the Jucar River Basin Authority (CHJ), manages an irrigable area of approximately 7,721 hectares, with an average water concession of 5,500 m³ per hectare, which comes from a variety of sources, including surface and groundwater.

The Association has modernized its infrastructure, including three balancing reservoirs with a combined capacity of 240,000 m³, as well as a pressurized network of over 351 km, equipped with regulating valves, filtration stations, head units, and hydrants. This facilitates **more efficient management, with predominantly pressurized irrigation systems and minimal use of traditional flood irrigation**. The Association has also installed photovoltaic systems to generate its own energy.

Against a backdrop of structural water scarcity, high climate variability, and growing pressure on energy costs, **the Association has launched a comprehensive modernization process aligned with the PERTE initiative for the Digitalization of the Water Cycle**, aimed at enhancing the efficiency, control, and resilience of the irrigation system.

Challenges

The Lliria Irrigation Association faced the challenge of **managing an extensive, heterogeneous water network** spread over a large, geographically complex territory. **Differences in the age and level of modernization of the infrastructure** required greater technological standardization, integrating sectors with diverse hydraulic characteristics into a more coherent, better monitored, and more efficiently managed system, which was essential to prevent **operational fragmentation between areas and competition for water**.

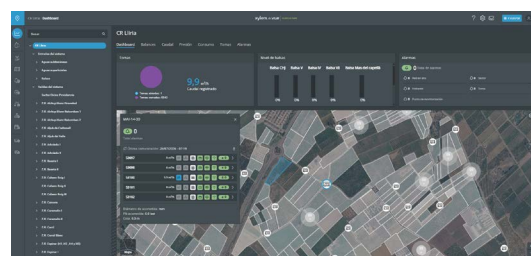
Compounding this structural challenge was an increasingly severe water scarcity situation, marked by **irregular rainfall and recurring droughts**. In this context, a strategic tool was required to optimize the use of water resources, manage the various water sources, reduce losses, adjust irrigation schedules to real availability, and ensure compliance with water concessions.

Beyond the operational aspect of water infrastructure management, the Association **sought to create a digital environment that would enable unified, real-time management of climate data, irrigable land data, and mapping information**, generating useful recommendations for growers



Project highlights

- Integration of SCADA, GIS, PLCs, and sensors into a single platform.
- Real-time monitoring and control of the network, consumption, allocations, and operational variables.
- Generation of indicators, alerts, and recommendations to optimize decision-making.
- Reduction of incidents and improvement in water and energy efficiency.



Dashboard, KPIs, and dynamic GIS

and establishing a more resilient irrigation model that is both water- and energy-efficient. In short, the aim was to address both climate-related and economic challenges in the face of increasing climate uncertainty.

Solution

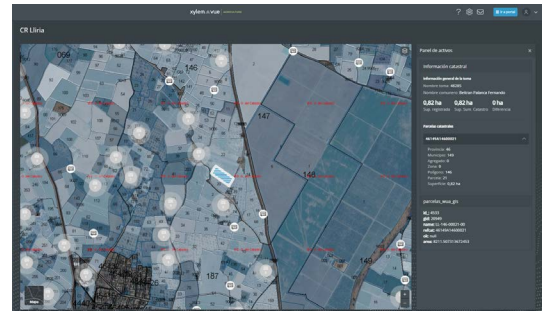
The new digital system is **based on the Xylem Vue platform, integrating its Unified Network Management and Agrotwin solutions** to coherently structure and manage the irrigation system's hydraulic and energy systems. The Unified Network Management application **monitors and controls the upstream network** (through connection to the Association's PLCs) and **creates customized dashboards** covering energy and hydraulic parameters and irrigation recommendations by integrating data from various SCADA systems, PLCs, sensors, and other technologies. This also facilitates **automatic report generation and traceability**. Furthermore, Agrotwin centralizes **real-time monitoring** of the distribution network and access to historical data, water allocations, and consumption at plot level, while also incorporating agronomic and land-use information.

The overall platform enables **the generation of operational and agronomic indicators, the configuration of alerts and control rules, and more proactive decision-making**. All of this is deployed on an interoperable and scalable web architecture, aligned with PERTE requirements and designed to **centralize information that was previously fragmented across different systems**.

Results

The implementation of an integrated solution, based on the Xylem Vue platform, has enabled the Liria Irrigation Association to transition to **digital, centralized, and real-time system management**. This has provided greater control over flow rates, volumes, and schedules; improved coordination of balancing reservoirs and intake points; and has enabled ongoing monitoring of a distributed infrastructure.

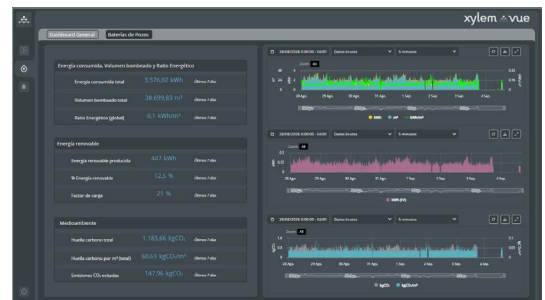
The solution **has reduced response times, improved detection of deviations, and decreased operational incidents** by facilitating irrigation scheduling, the generation of historical data and traceability. Overall, it has enhanced environmental sustainability and optimized the energy performance of pumping operations—including photovoltaic power generation—to promote more efficient use of resources. The project has achieved greater use of real-time data and decreased operational incidents, strengthening the Association's ability to make decisions based on objective data and anticipate critical scenarios.



GIS: registry and connection to the cadastre



Pressure control



Energy dashboard

"Our goal is to achieve full control of our facilities through a single platform so we can optimize irrigation, improve operational performance, and reduce costs. The Xylem Vue platform enables us to monitor all of our Association's infrastructure (...) and make data-driven decisions."



José Alfonso Soria, President of the Liria Irrigation Association and President of FECOREVA