



GIS ♦ MODELS ♦ IOT ♦ DIGITAL TWIN

**Open technology and expert knowledge to drive
your organization's digital transformation**

WHO WE ARE

- + **20** Years of experience
- + **400** Water & IT projects
- + **20** R&D&I projects
- + **25** Employees
- + **100** Satisfied clients

And a strong ecosystem of universities & partners



Home - bgeo

D Dev User

Good morning, Dev User

What would you like to do today in bgeo?

CONTINUE WORKING

QWC2 · Water Supply Network

Network vector map 1 hour ago

Continue → New tab

★ Favorites Drag cards to reorder them or move them between groups

QWC2
Web GIS viewer

QGIS · RDP
QGIS remote desktop

Training
Training

🗪 All applications 10

Documentation
Guides and manuals

Superset
Data analytics

LeakDetection
Leak detection

GMAO
Maintenance

Mobile
Field app

GeoNode
Maps and data geoportal

API
Integrations and API

Twin
Digital Twin

Grafana
Real-time dashboards

Files
Document manager

🖨 Operational status 6

0

0

40/500

3.44
▼ -0.08

6

99.7 %
▲ +0.1

BGE0360

GENERAL FEATURES



Open Source: Financial Sustainability and Scalability.



Data Always at the Core: Uniqueness, quality, governance, and lifecycle management. Interoperability: Connects all departments, enabling them to share information.



Water Supply and Sewerage: A service-agnostic platform for water supply, wastewater management, and urban drainage.



Auditing, cybersecurity, innovation, and AI: We share our vision of how sovereignty, cybersecurity, innovation, and AI can go hand in hand.



REAL Knowledge Transfer: Knowledge must remain within your organization.

An aerial view of a city at night, with a glowing blue network overlay. The network consists of numerous nodes, represented by small blue circles with signal waves, connected by a web of blue lines. The nodes are distributed across the city, with a higher concentration in the central business district and along major roads. The background shows the city's lights and a river.

TECHNICAL FEATURES

TECHNICAL FEATURES

Powered by


Field network surveying

Tools, workflows, and protocols, all clearly defined to ensure the successful surveying and inventory of assets in the field.

Desktop, web and mobile environments

Provides access across all platforms and environments.

Asset mapping and visualization

Provides comprehensive geographic visualization of pipes, valves, hydrants, pumps, reservoirs, meters, and other water distribution network assets.

Hydraulic modelling capabilities

Scenarios, alternatives, and planning sectors. All integrated into the GIS to make mathematical modelling a practical tool for assessing network performance and identifying critical points.

Predictive maintenance and asset management

Identifies pipes and assets at risk of failure based on model forecasts and historical data. Optimizes maintenance planning and budget allocation.

Support for asset planning, design and management

Enables future infrastructure changes to be assessed before implementation. Supports the strategic planning of network expansions and improvements, assesses the impacts of climate change, and helps plan for urban growth. It also enables the efficient scheduling of maintenance activities.

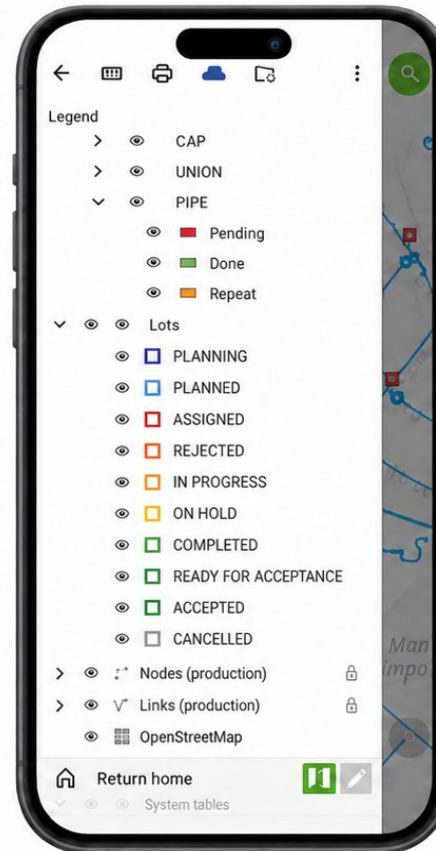


CORPORATE GIS - FIELD DATA COLLECTION

Mobile tools for asset surveying
Continuous quality control, traceability, and team management

Powered by
GISwater

The screenshot shows the 'Campaign' configuration window in the GISwater desktop application. The 'Element Relationships' tab is active, displaying various fields for campaign management. The 'Layers' panel on the left shows a tree view of data layers including 'LOTS', 'Lot Nodes', 'Lot Pipes', 'Lot Service Connections', 'Lots', 'CAMPAIGNS', 'Campaign Nodes', 'Campaign Pipes', 'Campaign Service Connections', 'Campaigns', 'INVENTORY', 'BASE MAP', and 'OpenStreetMap'. The 'Campaign' form includes fields for Campaign ID (5), Name (COMPLETE), Planned start/end (08/03/2026), Actual start/end (08/03/2026), Review class (ENHANCED), Active (checked), Organization (ORC1), Operation ID (expl_01), Sector ID, Status (PLANNING), Priority, and a Description field. Buttons for 'Accept', 'Cancel', and 'Help' are at the bottom.

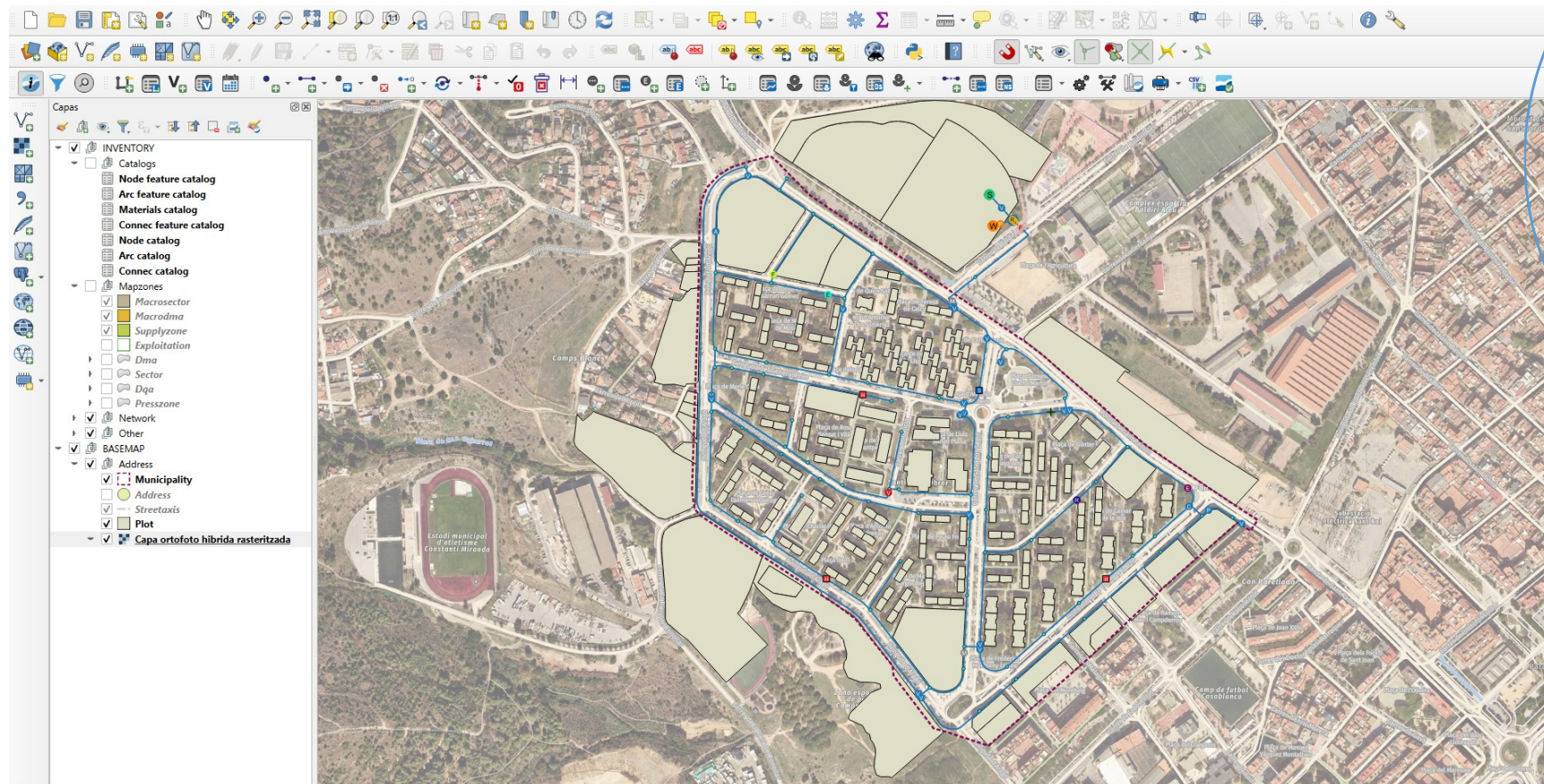


The screenshot shows the 'Check project' window in the GISwater desktop application. The 'Database log' tab is active, displaying a list of errors and warnings. The 'CONTROL DE CALIDAD' section shows a summary of the project status. The 'ERRORES CRÍTICOS' section lists various errors, including missing data, invalid values, and incorrect relationships. The 'ALERTAS' section shows a list of warnings. The 'INFO' section provides detailed information about the project status and data quality. A large blue circle highlights the 'ERRORES CRÍTICOS' section.

CORPORATE GIS - DESKTOP

Geospatial asset management tool
Data lifecycle and quality control

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GISwater



WJOIN - 3086

Connec type: WJOIN, Connecat_id: PVC25-PN16-DO, Arc_id: 113854, Epa_type: JUNCTION

Datos principales

Code:	3086	Customer code:	cc3086
Top elevation:	44.5752	Soilcat id:	soil1
Datasource:		Category type:	St. Category
Cat_matcat_id:	PVC	Fluid type:	St. Fluid
Cat_pnom:	16	Location type:	St. Location
Cat_dnom:	25	Label:	
Workcat_id:	work2	Label x:	3
Builddate:	11/05/2010	Label y:	
Owner:	owner1	Label rotation:	-78.035
Workcat id end:	Only when state is obsolete	Rotation:	-78.035
Enddate:	11/11/11	Verified:	TO REVIEW
Minsector_id:	113854	Presszone:	pzone1-1d
Dqa:	dqa1-1d	Exploitation id:	expl_01
Staticpressure:		Workcat id plan:	
Link:	https://www.giswater.org	Asset id:	
N_hydrometer:		Press_max:	
Om_state:		Press_min:	
Conserv_state:		Press_avg:	
Access_type:		Cmzone_id:	

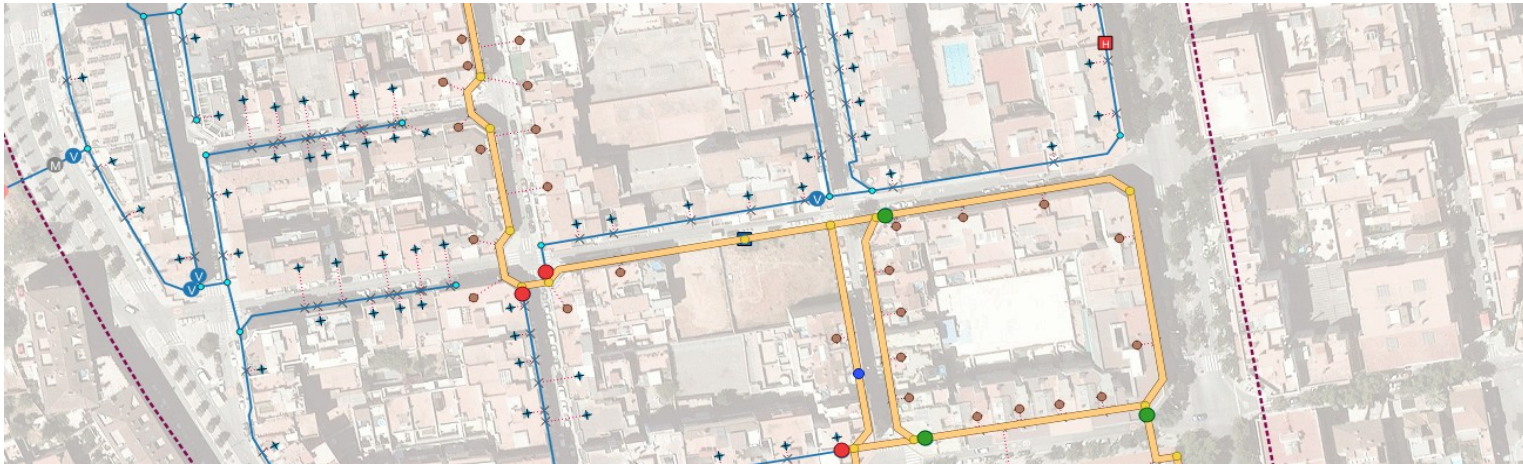
Datos adicionales

Sector:	Dma id:	State:	State type:
sector1-1d	dma1-2d	OPERATIVE	OPERATIVE

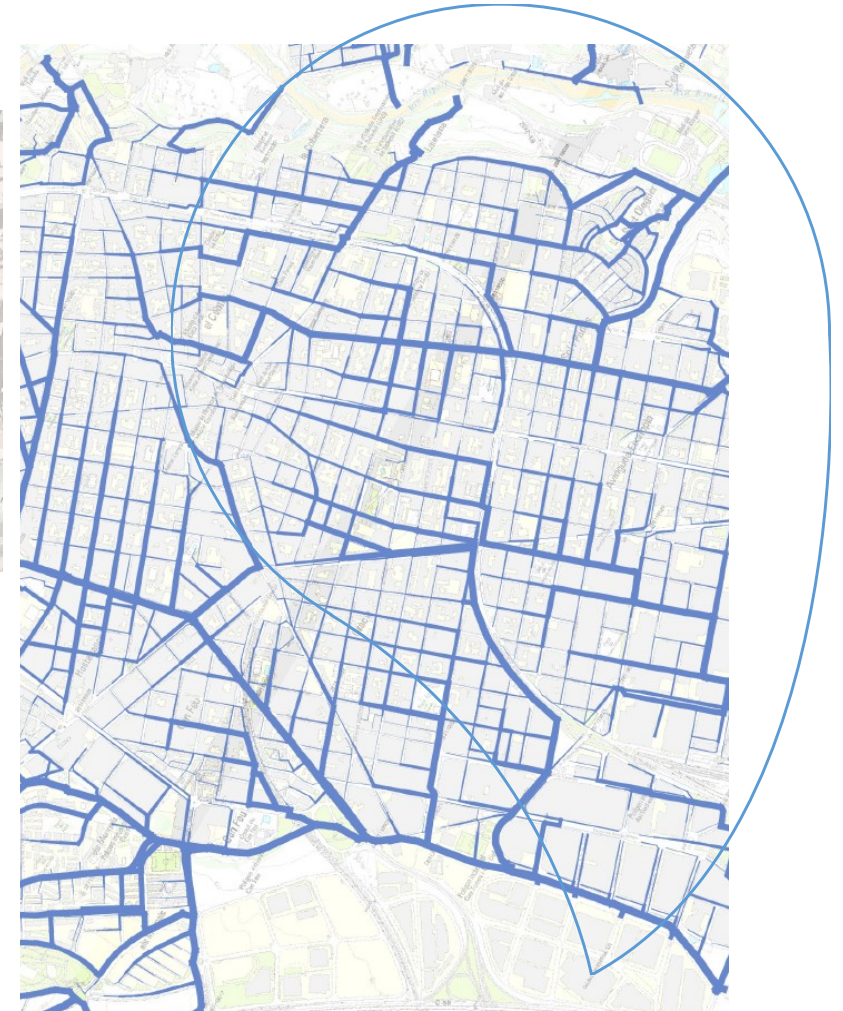
Aceptar Cancelar Aplicar Help

CORPORATE GIS - MATHEMATICAL MODELS

Integration of the EPANET, SWMM and IBERSWMM engines

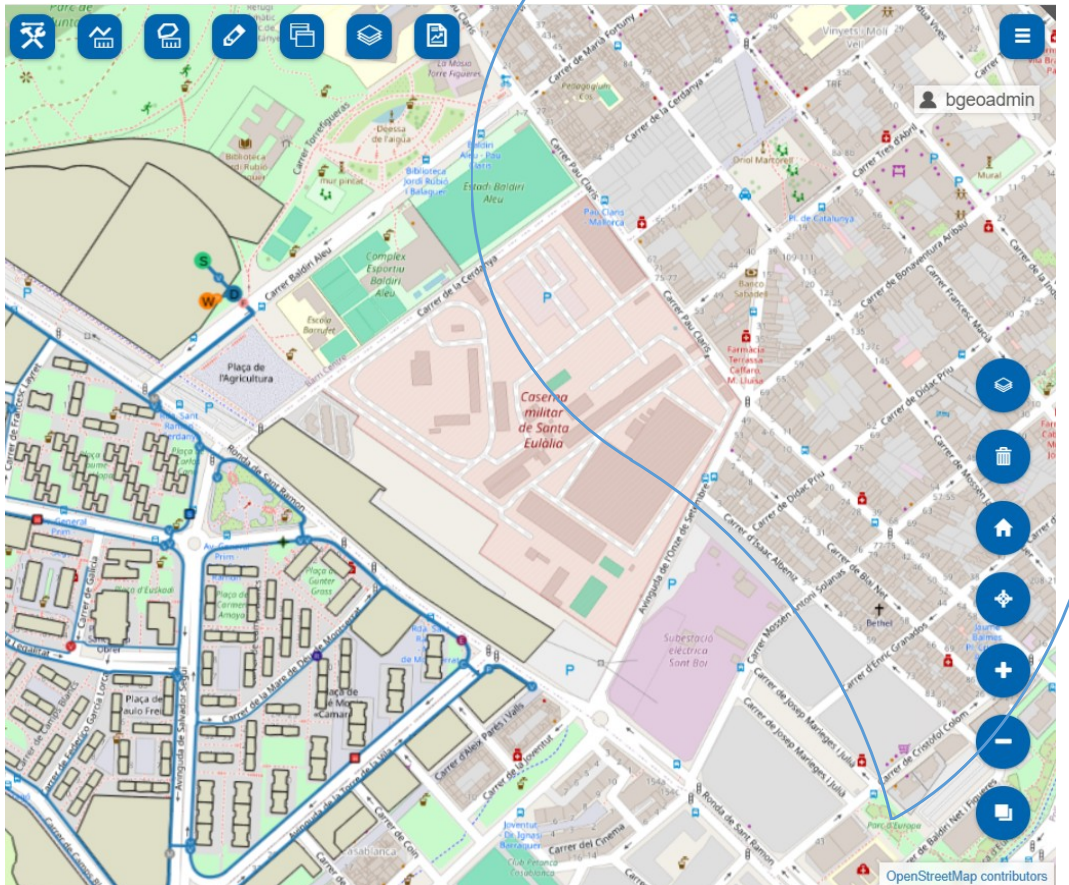
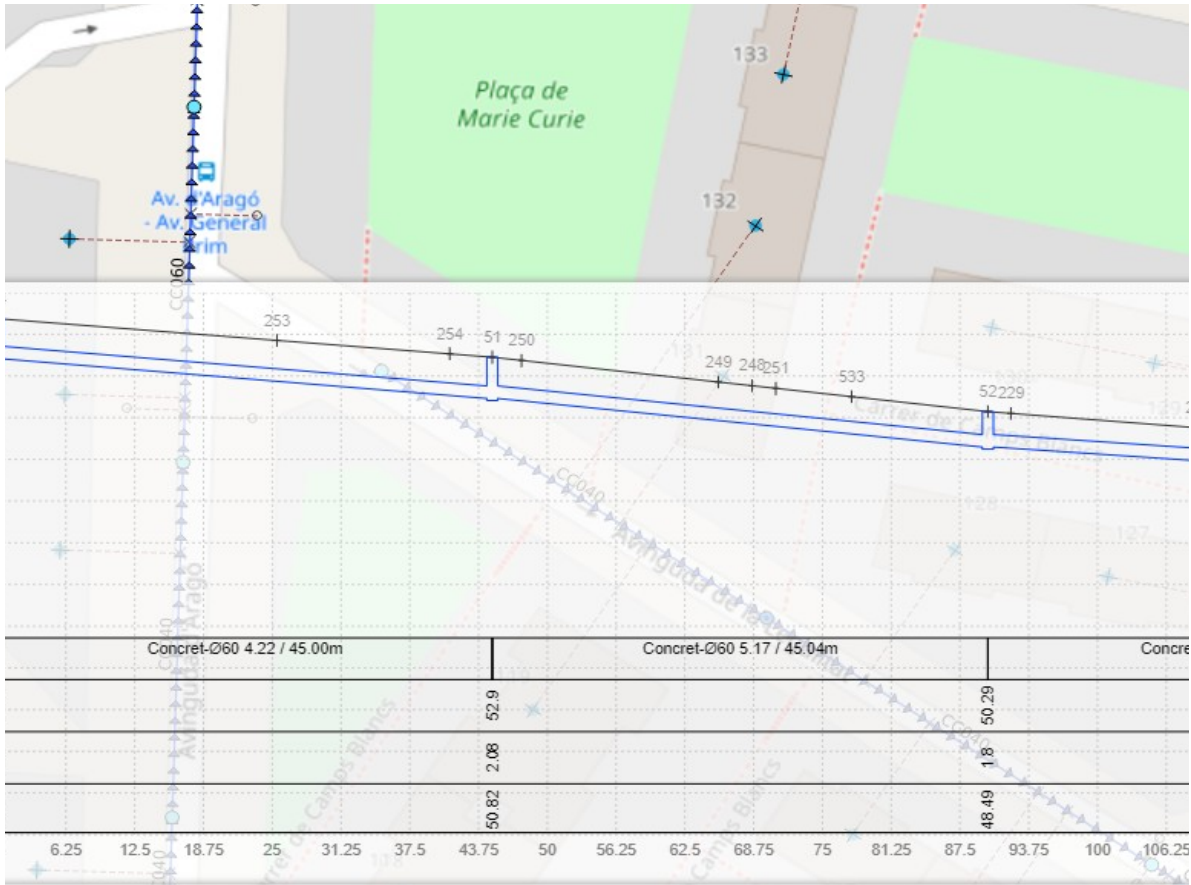


- Water supply models for pressure, flow, and water quality
- 1D sewerage models and coupled 1D/2D drainage models
- Tools for generating alternatives and planning sectors
- Calibration tools using genetic algorithms



Mincut and incident report

Integration of the EPANET, SWMM, and IberSWMM engines



CORPORATE GIS - MOBILE APP FOR FIELD OPERATIONS

Powered by
GISwater

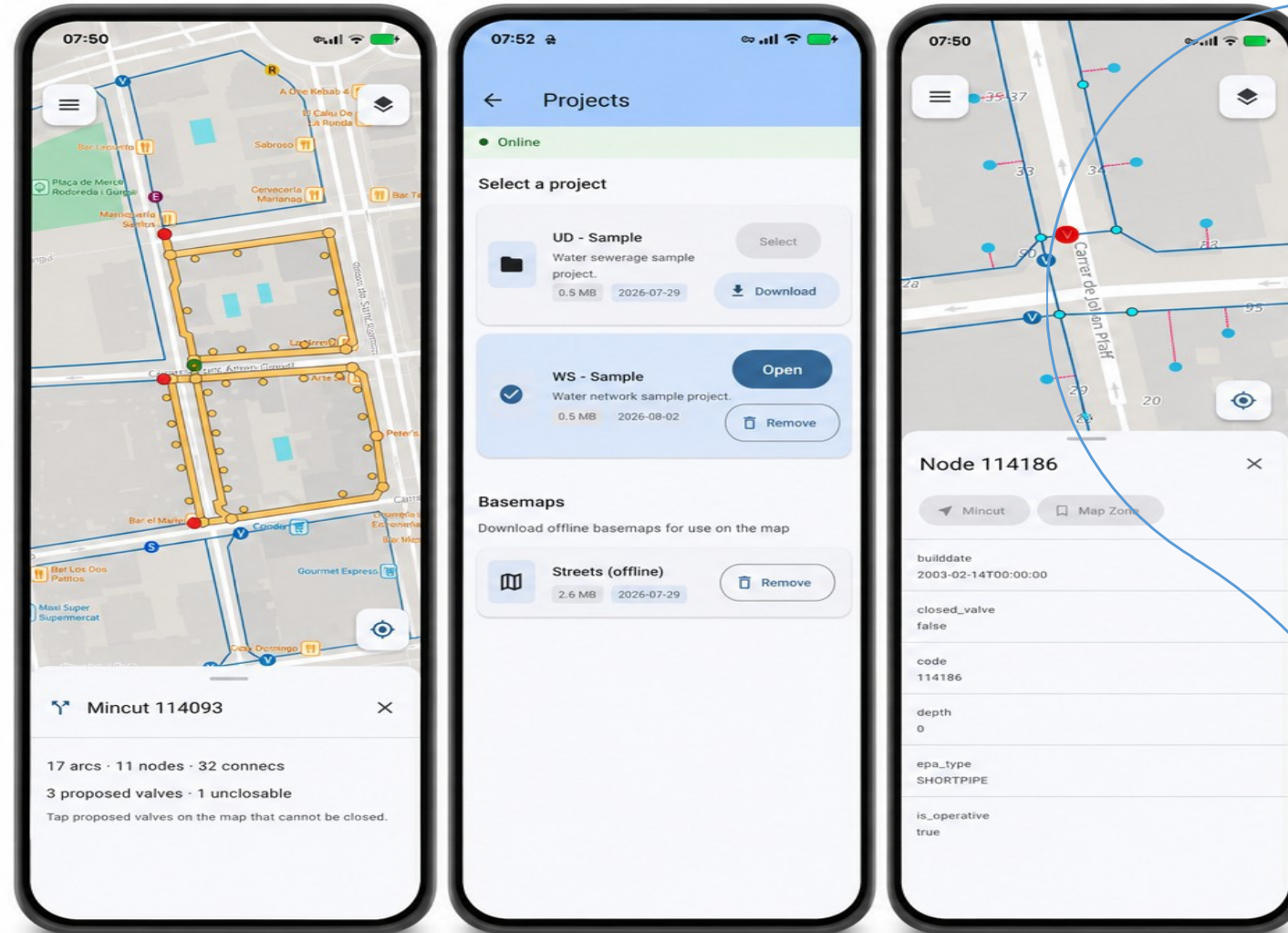
Offline app

Mincut

Upstream and downstream
tracing

Mapzones

Reports



GEOPORTAL

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Integrated Analytical Dashboards

Enables managers to combine dynamic Giswater maps with bar charts, pie charts, and real-time indicators on a single screen, providing an at-a-glance view of network status.

Visual Storytelling (GeoStories)

Provides advanced storytelling tools for creating interactive web-based documents that combine text, maps, videos, and charts, ideal for presenting investment plans to the board or submitting reports to public authorities.

Advanced Usability with No Technical Expertise Required

Designed with a state-of-the-art user experience, it enables managers and non-technical users to explore the network, perform analytical queries, and filter geospatial data without extensive training.

Temporal Analysis and Comparison Tools

Includes built-in tools for comparing maps side by side (split-screen mode) and using timelines to visually analyze changes in failures, network growth, or historical consumption patterns.

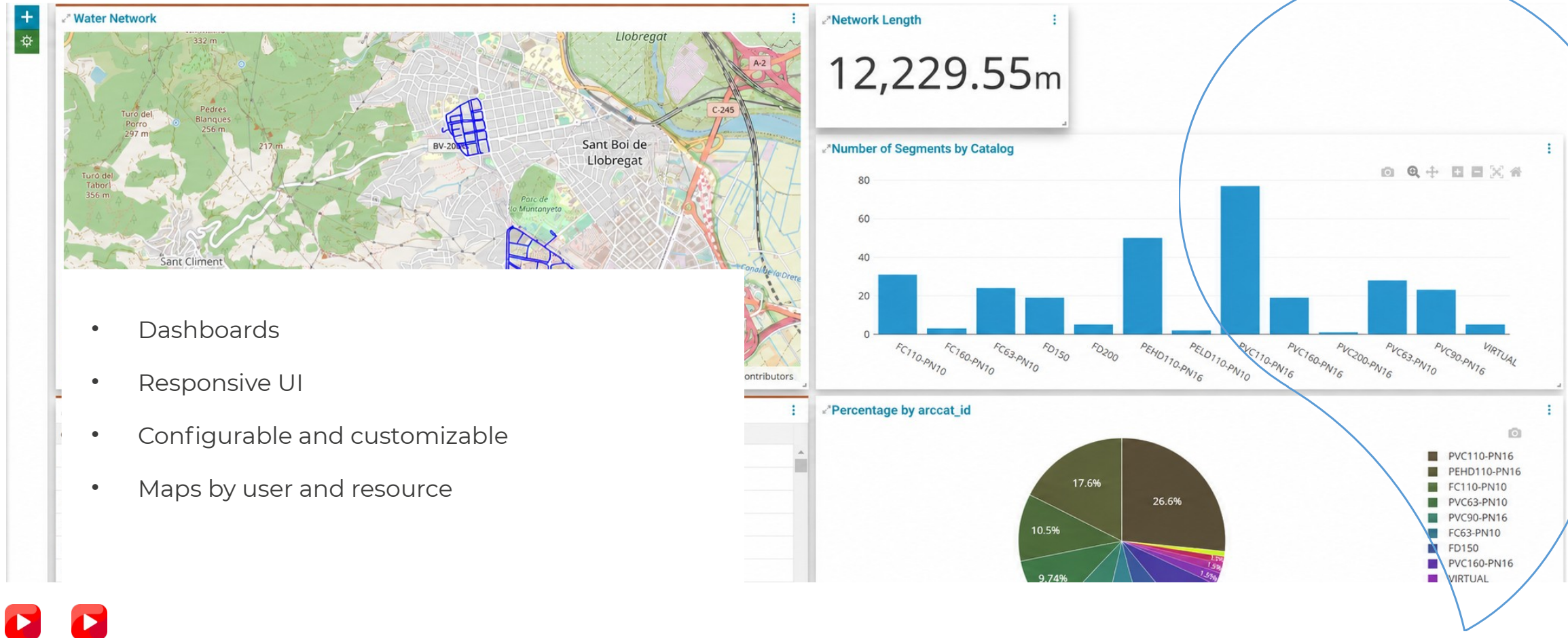
Flexible Connectivity and Third-Party Data Layers

Enables users to easily add and overlay external map services (such as cadastral data, live weather information, or municipal mapping) directly onto the platform's technical data.



GEOPORTAL

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GISwater



CONTROL PANEL

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GISwater

Real-Time Intelligence

View the status of your networks, pressures, and flow rates at a glance through interactive dashboards that turn sensor data into immediate operational decisions.

Living Technical Documentation (Interactive Notebooks)

Create dynamic manuals and technical reports with Quarto, combining explanatory text, code, and interactive Grafana dashboards, allowing readers to zoom in and filter dates while reviewing the report.

Operational and Business Dashboards

Monitor IoT/SCADA parameters (pressures, reservoir levels, and Telegram alerts) alongside management indicators (maintenance tickets and operator performance) in a single unified interface.

Quality Auditing and Knowledge Transfer

Ensure business continuity by storing dashboards and reports as code in Git, following the As-Code approach. This ensures that knowledge is preserved and fully protected.



CONTROL PANEL

Card 1 - Network Infrastructure



Network Infrastructure

1,245 km of Pipelines

Card 2 - Non-Revenue Water (NRW)



Non-Revenue Water (NRW)

18.5% Water Losses

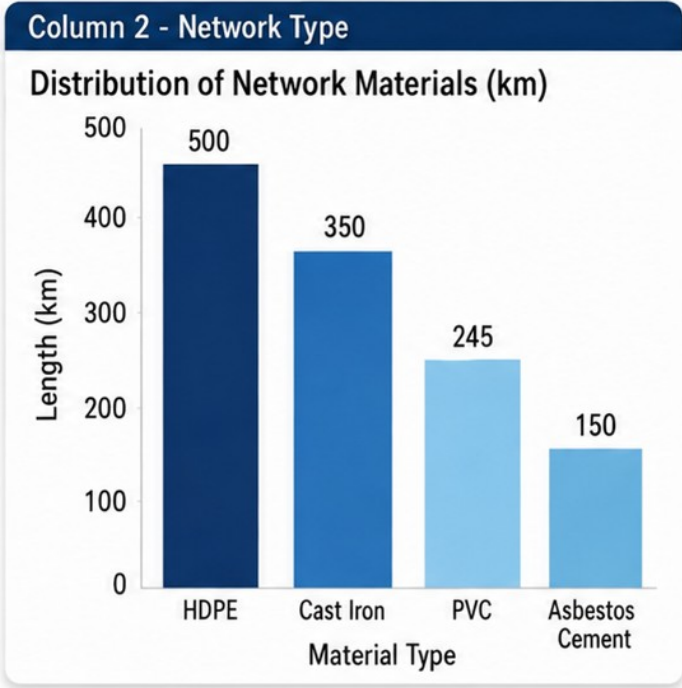
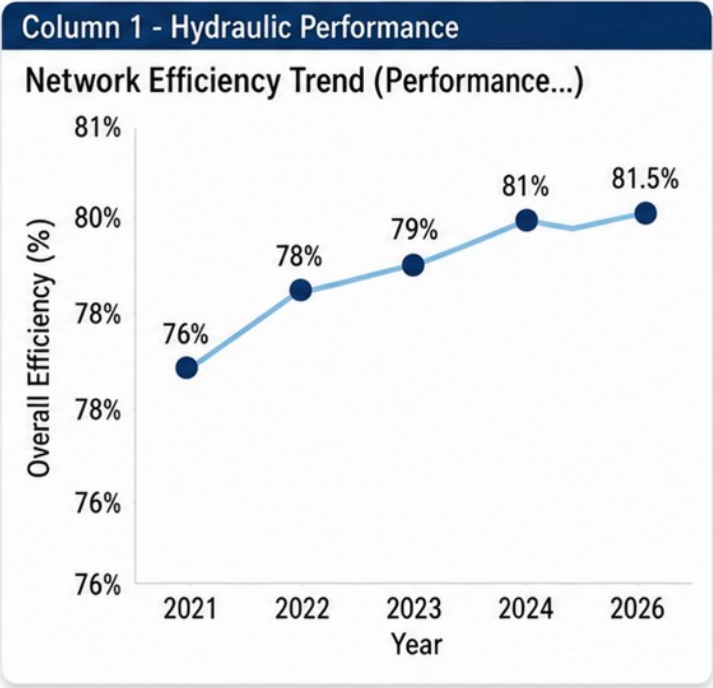
Card 3 - Population Served (Total Customers)



Population Served

45,200 Active Customers

2 - Analytical Charts (height=50%)



3 - Operational Details (height=25%)

Control Table

Summary by Hydraulic Sector

Sector	Length (km)	Losses (%)	Status
North Sector	14.3	19.7	Normal
Central Sector	29.7	18.3	Monitoring
South Sector	14.1	17.3	Monitoring

Average Flow Rate (m³/h)

Sector	Length (km)	Losses (%)	Status
North Sector	23.8	19.7	Normal
Central Sector	36.5	18.3	Monitoring
South Sector	26.3	17.3	Monitoring
Industrial Area	18.9	13.5	Monitoring

IOT MONITOR



DIGITAL TWIN

Real-time monitoring and situational knowledge

Monitor network performance - pressure, flow, and levels - in real time. Detect anomalies such as leaks, overflows, and blockages at an early stage. Improve emergency response with up-to-date information on system status.

Hydraulic and operational optimization

Simulate different scenarios, such as pump failures, heavy rainfall events, and valve operations. Optimize pumping schedules, energy consumption, and flow balancing. Improve service reliability and regulatory compliance.

Integrated water systems management

Integrate drinking water, wastewater, and stormwater drainage into a single platform. Coordinate responses across interconnected systems, for example during heavy rainfall events. Enable the comprehensive management of the urban water cycle.

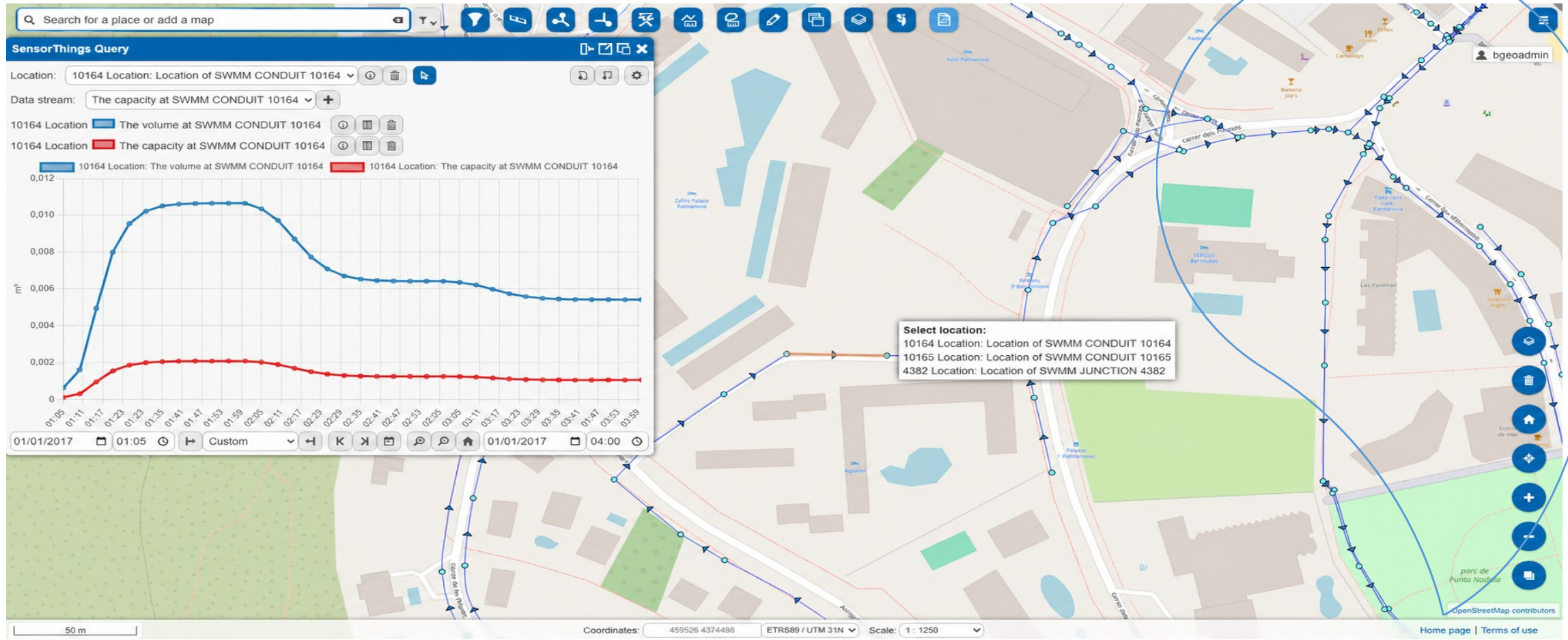
Stakeholder communication and decision-making support

Provide intuitive dashboards for decision-makers. Improve transparency through visual, data-driven reports. Facilitate collaboration between departments, including engineering, operations, and planning.



DIGITAL TWIN - SENSOR INTEGRATION

Use of SensorThings standard for sensor mapping in desktop and web environments.



DIGITAL TWIN - DSS FOR WATER SUPPLY

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GISwater

REAL-TIME MONITORING AND SITUATIONAL AWARENESS

Hydraulic and operational optimization

Stakeholder communication and decision-making support through “what-if” scenarios

The screenshot displays the GISwater software interface, which is used for water supply digital twin modeling. The interface is divided into several sections:

- Left Sidebar (Data Tab):** Contains a form for entering data for a specific pipe. The fields and their values are:
 - Arc type: PIPE
 - Arcid id: FC63-PN10
 - Sector id: sector1-1d
 - Dma: dma1-2d
 - State: OPERATIVE
 - State type: OPERATIVE
 - Node 1: 1035
 - Node type 1: T
 - Elevation 1: 53.9190
 - Depth 1: 0.0000
 - Code: 132
 - Datasource: (empty)
 - Cat matcat id: FC
 - Nominal pressure: 10
 - Nominal diameter: 63
 - Workcat id: work1
 - Gis length: 77.99
 - Builtdate: 12/09/2006
 - Ownercat id: owner2
 - Workcat id end: (empty)
- Map View:** A central map showing a residential area with buildings and green spaces. A blue line represents the water network, with a specific pipe highlighted in orange. The map includes a search bar at the top and a toolbar with various icons for navigation and analysis.
- Mincut Dialog Box:** A modal window on the right side of the map, titled 'Mincut'. It contains the following information:
 - Id: 7
 - Status: On planning
 - Work order: (empty)
 - Details section with dropdowns for Type (Demo) and Cause (Accidental).
 - Date received: 29/05/2026
 - Description: (empty text area)
 - Scheduled dates section with 'From' and 'To' date pickers.
 - Assigned to: bgeoadmin
 - Buttons: Accept, Apply, Cancel
- Notification Bar:** A green bar at the bottom right of the map area with the text: 'Setting mincut. Mincut set successfully.'

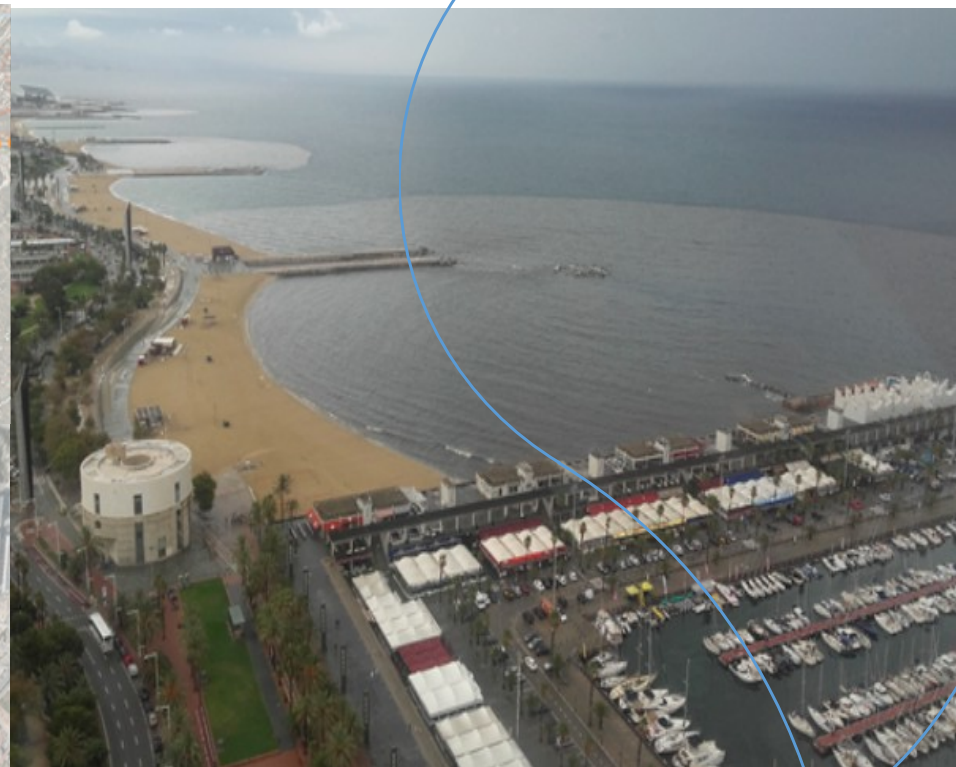
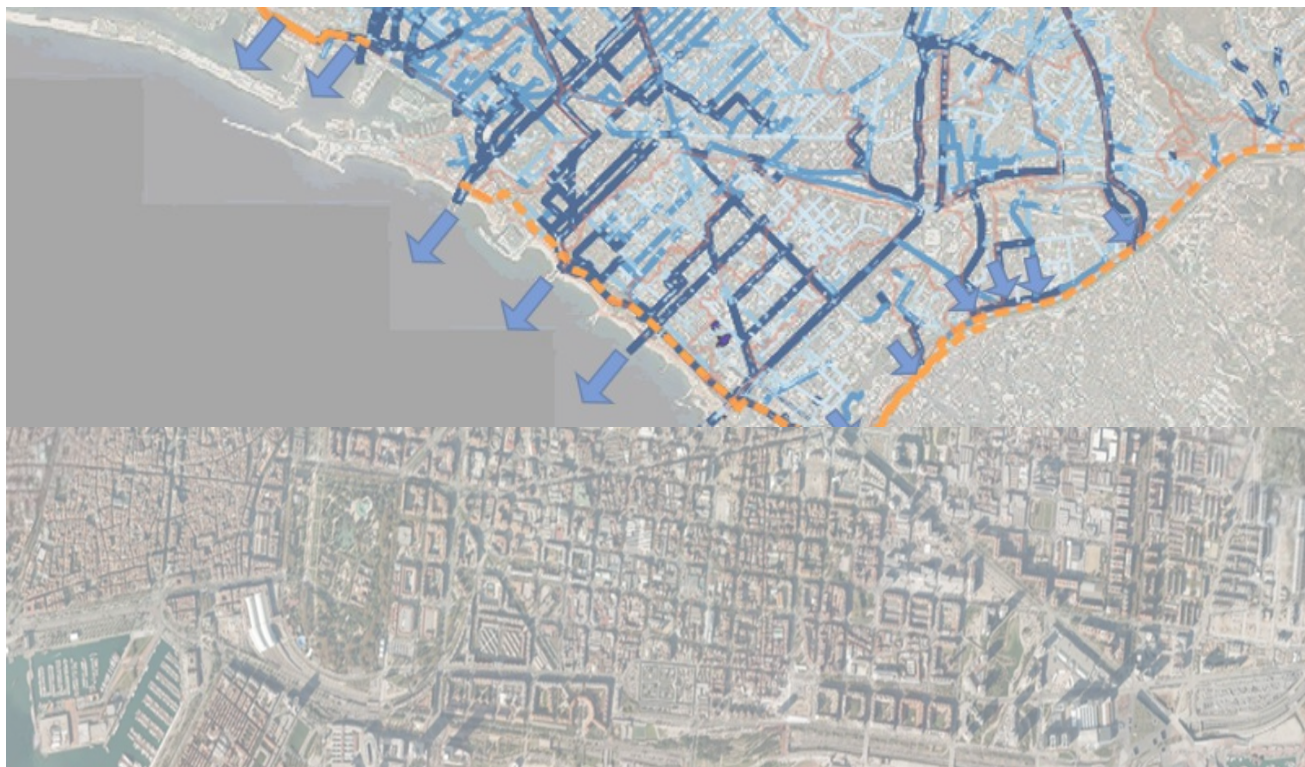
DIGITAL TWIN - DSS FOR COMBINED SEWER OVERFLOWS (CSOs)



WASTEWATER QUALITY CONTROL FOR BATHING WATERS - BARCELONA

Forecasting combined sewer overflow events into the marine environment during rainfall

Decision-support tool for beach management for Barcelona City Council

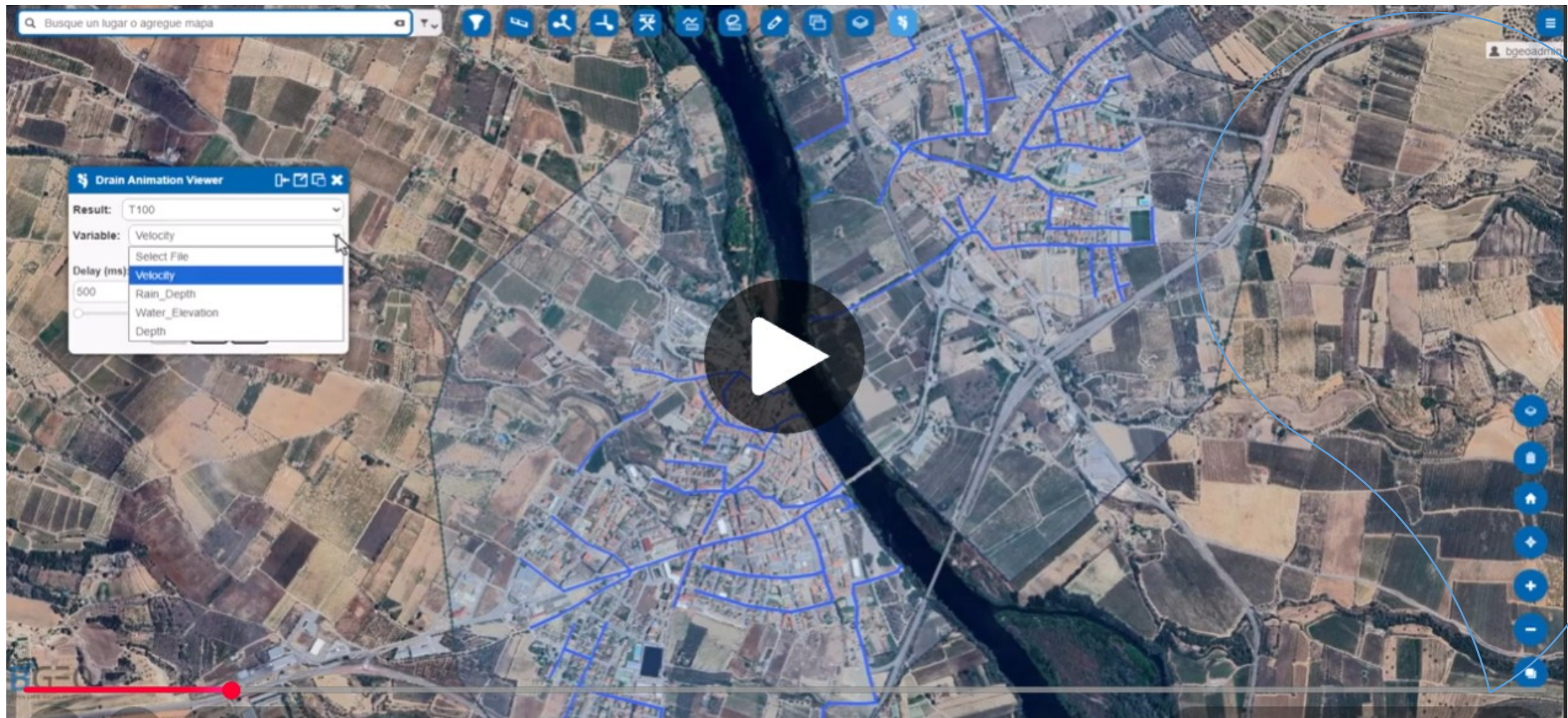


DIGITAL TWIN - EARLY-WARNING DSS

+

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GISwater

IberGIS

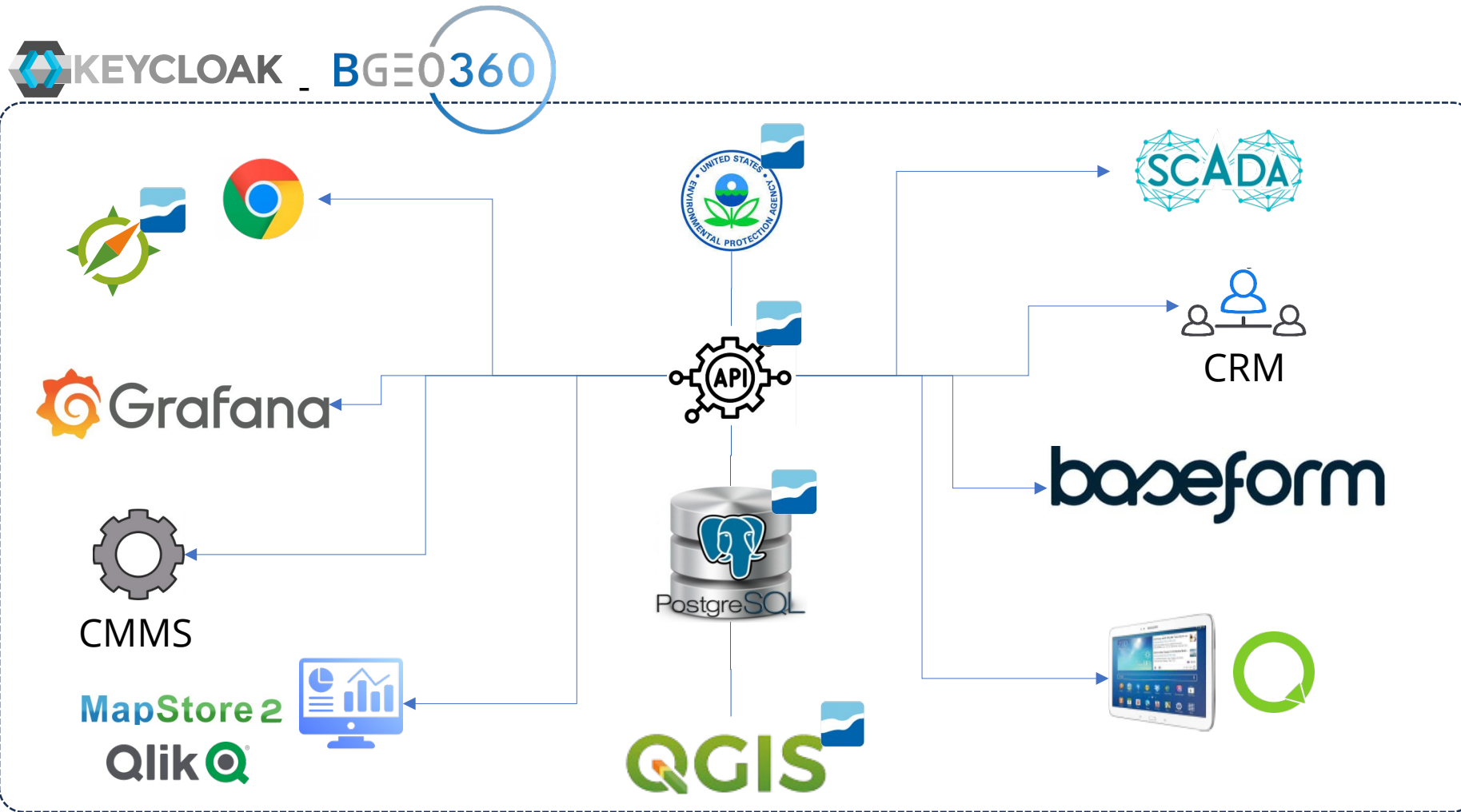


The background of the slide is a dark, aerial view of a city at night. A complex network of glowing blue lines connects various points across the city, representing a smart infrastructure. These points include wireless signal towers, industrial buildings, a large water tank, and several circular tanks, likely part of a water treatment plant. A river or lake is visible on the left side of the image.

GENERAL FEATURES

TECHNOLOGY ARCHITECTURE

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GISwater



INTEROPERABILITY

Full bidirectional interaction with all types of technologies used by the organization

Integration with data analytics and water-loss management

Seamlessly integrates with solutions such as BASEFORM. The quality and continuous updating of the asset inventory significantly enhance the value of these solutions, particularly by enabling the dynamic, daily zoning of district metered areas.

Integration with CMMS / GMAO

Connects water asset management with computerized maintenance management systems. Enables the creation, consultation, and updating of work orders linked to incidents, assets, or network elements. Improves the traceability of maintenance activities and facilitates preventive and corrective maintenance planning.

Integration with billing systems

Links technical network information with commercial and consumption data. Facilitates the analysis of unusual consumption, fraud, meter-reading issues, and customer complaints. Provides an integrated view of network operations, customers, and the financial management of the service.

Integration with SCADA

Connects the platform to remote monitoring and control systems to display real-time operational data, such as pressures, flow rates, levels, pump statuses, and alarms. Improves network supervision, early incident detection, and operational decision-making based on up-to-date data.



CYBERSECURITY

Powered by


We incorporate cybersecurity capabilities to ensure secure and traceable access in line with current standards:

Secure authentication and two-factor authentication

Strengthens access to the platform through robust authentication mechanisms, including two-factor authentication. Reduces the risk of unauthorized access and protects critical water-system information. Enhances operational security across web, mobile, and corporate environments.

Compliance with the Spanish national security framework and ISO 27001

Facilitates alignment with frameworks such as Spain's National Security Framework (ENS) and the ISO 27001 standard. Helps structure policies, controls, and procedures aimed at protecting information. Strengthens trust, traceability, and regulatory compliance in service management.

Identity management and federation with Keycloak

Integrates centralized user, role, and permission management through identity solutions such as Keycloak. Enables authentication to be federated with existing corporate systems and consistent access policies to be applied. Facilitates privilege control, segregation of duties, and access auditing.

Up-to-date technology and continuous security

Keeps the platform and its technology components continuously updated to address known vulnerabilities. Incorporates best practices for system hardening, session control, activity logging, and access monitoring. Enables the system to evolve securely, reducing risks and improving resilience against threats.



INNOVATION

Water supply quality models

IMAQUA: Consolidation of previous water-quality solutions developed in collaboration with ACCIÓ-10 within the framework of the RIS3CAT innovation strategy.

IAQUA: Development and implementation of advanced quality models in collaboration with AVSA and EURECAT, using advanced AI tools.

Water Supply Network Failure Prediction Models

HYDROLEAKS (I & II): Advanced algorithms for locating and predicting structural leaks in drinking-water distribution networks, developed in collaboration with the Universitat Politècnica de Catalunya (UPC) and the Catalan Water Partnership (CWP).

FLUENT (I & II): An evolution of HYDROLEAKS incorporating risk-theory models.

Urban Drainage and Early-Warning Prediction Models

DRAIN: Development of urban runoff and flood models by coupling surface and underground drainage, resulting in the IberGIS product, in collaboration with the Universitat Politècnica de Catalunya (UPC) and the Universidade da Coruña (UDC).

FLOODCAST-AI: Development of intelligent systems for climate resilience and flood warnings, in collaboration with EarthPulse and the Catalan Water Partnership (CWP), using advanced AI tools.

Decision Models for Sewerage Renewal and Maintenance

PIPEWISE: Decision support systems (DSS) applied to sewer network asset management, integrating *sewfef* smart-inspection technology in collaboration with Inloc Robotics and using advanced AI tools.

PREDIGMA: Decision support systems (DSS) for the predictive maintenance of sewer networks, integrating *sewfef* smart-inspection technology in collaboration with Inloc Robotics.

53 wcm

42.73 wcm

TRAINING AND KNOWLEDGE TRANSFER

Unlimited Licensing and Democratized Training

By deploying the platform without restrictions on the number of users, all relevant roles can access, learn, and work with the system. This helps democratize knowledge across the organization and avoids the financial barriers associated with team growth.

Training Programme of More Than 270 Hours

Provides a comprehensive, structured training pathway available in both English and Spanish. It covers technical and operational aspects, enabling the training of professionals involved in engineering, operations, planning, and system administration. It supports a gradual implementation tailored to the organization's actual needs.

Continuous Training Integrated into the Platform

Incorporates training content directly into the working environment, enabling the continuous development of employees. It supports practical learning based on real cases, operational procedures, and platform features. This improves user adoption and reduces dependence on occasional external training.

Certified Training and External Knowledge Transfer

Complements internal training with courses available through the Geoinnova portal and university microcredentials offered by various Spanish universities. It enables users to certify their skills, professionalize the use of the platform, and strengthen knowledge transfer to public authorities, utility operators, companies, and training institutions. This makes Giswater not only a technological tool but also an educational and capacity-building platform.

1.53 wcm

42.73 wcm

TRAINING AND KNOWLEDGE TRANSFER

<https://geoinnova.org/cursos-de-giswater/>

Updated



GISWATER COURSE
BASIC WATER SUPPLY NETWORKS
ENROL at www.geoinnova.org

Basic Giswater Course for Water Supply Networks

Online

 30/09/2026 - 03/11/2026

 50 hours

 €750.00

This course offers the opportunity to explore the world of Giswater, an essential tool for optimizing the administration and operation of water supply networks. Through a practical and educational approach, instructors will guide students through a series of key objectives, enabling them to become advanced Giswater users and confidently undertake water supply network projects.

More information

Updated



GISWATER COURSE
WITH EPANET, WATER-LOSS REDUCTION AND OPERATIONAL IMPROVEMENTS
ENROL at www.geoinnova.org

Giswater Course with EPANET, Water-Loss Reduction and Operational Improvements

Online

 06/11/2026 - 17/12/2026

 60 hours

 €900.00

The Giswater course with EPANET, water-loss reduction and operational improvements provides participants with the skills and knowledge required to debug network errors, build and run water network models using EPANET, and implement key operational strategies for water supply systems.

More information

Updated



GISWATER COURSE
BASIC SEWERAGE AND URBAN DRAINAGE NETWORKS
ENROL at www.geoinnova.org

Basic Giswater Course for Sewerage and Urban Drainage Networks

Online

 30/09/2026 - 03/11/2026

 50 hours

 €750.00

This course offers the opportunity to explore the world of Giswater. Through a practical and educational approach, instructors will guide students through a series of key objectives, enabling them to become advanced Giswater users and confidently undertake sewerage network projects.

More information

Updated



GISWATER COURSE
WITH SWMM, CSO ANALYSIS, SUDS AND STORM TANKS
ENROL at www.geoinnova.org

Giswater Course with SWMM, CSO Analysis, SuDS and Storm Tanks

Online

 06/11/2026 - 17/12/2026

 60 hours

 €900.00

The Giswater course with SWMM, CSO analysis, SuDS and storm tanks provides participants with the skills and knowledge required to debug network errors, build and run sewerage and urban drainage network models using SWMM, and implement key operational strategies for wastewater management.

More information

Updated



GISWATER COURSE
IN A CORPORATE ENVIRONMENT
ENROL at www.geoinnova.org

Giswater Course in a Corporate Environment

Online

 24/06/2026 - 07/07/2026

 20 hours

 €300.00

This course is designed for professionals seeking in-depth knowledge of the implementation and advanced management of Giswater in a corporate environment. Through a series of structured topics, participants will explore the strategies, tools and techniques required to make the most of this powerful geospatial information management platform.

More information

New



GISWATER COURSE
FOR PLANNING AND PRICING
ENROL at www.geoinnova.org

Giswater Course for Planning and Pricing

Online

 08/01/2027 - 21/01/2027

 20 hours

 €300.00

Master Giswater from a planning perspective: create alternative sectors for the land registry, plan network changes and automate budgets for proposed works. A practical and strategic course for optimizing infrastructure management.

More information

ECONOMIC BENEFITS

Powered by
GISwater



Improved **CAPEX and OPEX** - lower **RISKS** - higher **REVENUES**

Reduced water losses

Lower failure and repair costs

Intelligent Investment Prioritization

Energy Optimization

Lower Operating Costs

Reduced Software Licensing Costs

Process automation

Improved Customer Service

Improved Oversight of In-House and Third-Party Activities

Reduced Penalties and Regulatory Risks

Reduced Impact of Emergencies

Overall Improvement in Performance Indicators

Increased Billing Through the Detection of Fraud and Illegal Connections

Greater Access to Financing Through Enhanced Organizational Capacity

Increased Revenue from Sewerage Charges



1.53 wcm

42.73 wcm



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Request a demo!