



CUSTOMER CASE STUDY

Smarter software for a more sustainable city: AVEVA helps Barcelona become the perfect example of a smart city

City of Barcelona
Industry - Infrastructure

Goals

- To achieve a more sustainable and livable city by improving the quality of life of its citizens
- Ensure that all available services function and are optimized efficiently

Challenges

- A solution was needed to enhance the availability and functionality of the city's resources such as elevators, escalators, public fountains, parks and gardens
- Barcelona needed to effectively manage the city's water consumption for both irrigation and public use
- The city needed to implement a scalable system that enables the integration of new city processes and facilities

Results

- The city has optimized water consumption via a communications infrastructure built upon the existing irrigation network via a customized SCADA system
- AVEVA™ System Platform provides a modular structure composed of standardized communication equipment and protocols ensuring connectivity between existing and future systems, as well as scalability to adapt to the needs of the city
- The open platform allows seamless, real-time management of tailor-made applications via a centralized control system

Solution

- AVEVA System Platform
- AVEVA™ InTouch HMI

Barcelona, Spain - is home to more than 1.6 million residents and boasts a thriving tourism market of over eight million visitors annually. Maintaining the infrastructure of such a major city requires the efficient management of everyday services, such as water, landscape, elevators, escalators, and wastewater.

The more effectively these services are managed, the greater the contribution to the health and well-being of all who use them. To address Barcelona's critical infrastructure challenges, the city implemented advanced digital solutions from AVEVA to operate all municipal services more efficiently.

Creating a sustainable infrastructure management platform

Barcelona is an ideal global example of sustainable urban development and administration that relies on technology to successfully manage public services and activities throughout the city.

City planners and administrators teamed up with Logitek Wonderware Spain to ensure that all available resources were optimized through the implementation of AVEVA System Platform. The technology blueprint for the city included the ability to remotely monitor and control equipment and services such as building elevators and escalators, public fountains, and irrigation for parks and gardens.

“The remote monitoring of infrastructure processes created using AVEVA software is key to our success. The integrated software solutions enable our team to ensure energy use and supply of water are optimized to coincide with public demand. In addition, it manages the delivery of the right amount of water for irrigation based on current weather conditions and the needs of the plant.”

- **Cristina Vila Rutllant**

General Manager of Barcelona de l'Aigua SA,
Barcelona City Council

With the creation of Barcelona Cicle de l'Aigua SA, (BCASA) by the Barcelona City Council in 2014, the management of water use for the city and surrounding neighborhoods is now consolidated in one municipal department for efficient and successful management of the city's critical water supply.

For the BCASA Parks & Jardins municipal division, AVEVA technology plays a key role in the successful operation of the city's parks and recreation areas. Its smart water system uses sensors in each location to gather information on humidity, salinity, temperature, and wind.

This data is automatically uploaded to the main control room where AVEVA System Platform manages and monitors it, automatically regulating the amount of water used in each location.

With AVEVA System Platform, the city of Barcelona benefits from a single, scalable software platform that functions as an operating system for infrastructure applications. AVEVA System Platform provides an efficient and flexible method of developing, deploying, and maintaining the software applications used to manage and improve the operation of all city functions.

AVEVA System Platform allows city planners and engineers to rapidly create and deploy new systems, as well as easily modify current applications and deploy changes to existing systems when necessary.

“The Barcelona irrigation system is a remote-controlled process based on AVEVA System Platform, which integrates different existing systems located throughout the city. Based on the information gathered, we create a model to measure soil moisture which allows us to provide intelligence to the remote-control platform, ensuring the right amount of water is delivered at the right time.”

- **Ruben Rueda**

Application Consultant at Logitek and Wonderware expert



This platform integrates all city systems that require supervision and remote control in a SCADA system. The water control system managed by BCASA Parks & Jardins is among the main functions, with teams on the ground collecting and managing data via computers, smartphones, and tablets.

By providing common services such as configuration, deployment, communication, security, and data connectivity, as well as enhancing collaboration, AVEVA System Platform allows city engineers to build a single, unified plant model that logically represents overall processes, physical equipment, and industrial assets, including legacy systems. This capability makes the design and maintenance of these systems more flexible and efficient.

The plant model also gives essential context to data, greatly assisting with diagnostics and troubleshooting, as well as providing valuable system documentation throughout the system life cycle.

Managing a valuable resource through visualization

Barcelona Cicle de l'Aigua S.A. is a municipal company that manages water usage for the city of Barcelona. These activities include the management, maintenance, and planning of the sewage network, groundwater, city fountains, coastline, and drinking water.

The company manages the water usage of different municipal services as well as the distribution of water to surrounding homes.

“As we know, water is a valuable and scarce resource. The implementation of smart systems enables us to improve the management of different systems deployed in the city to optimize water consumption and achieve a more sustainable city.”

Cristina Vila Rutllant
General Manager of Barcelona de l'Aigua SA,
Barcelona City Council

The smart system remotely manages irrigation of the city's greenbelt areas via AVEVA technology. Water consumption is optimized and controlled via a communications infrastructure built on the existing irrigation network, which integrates a customized SCADA system for the city using AVEVA InTouch HMI.

To accurately display overall operations in a user-friendly, actionable format, AVEVA InTouch HMI provides an open and extensible supervisory HMI and SCADA solution that enables Barcelona to quickly create standardized, reusable visualization applications and deploy them across an entire enterprise.

By granting real-time visibility into processes, AVEVA InTouch HMI greatly enhances operator effectiveness and increases control of city operations, simplifying and enforcing standardization and change management.

City workers are now able to monitor multiple public operations from a single control room, by taking advantage of new connectivity opportunities provided by AVEVA System Platform and visualization offered by AVEVA InTouch HMI.

Centralized control of real-time information

With AVEVA's advanced digital solutions, Logitek Wonderware Spain successfully centralized the control of all infrastructure systems and helped the city achieve real-time information management.

“By leveraging Logitek’s know-how and AVEVA technology, the city’s diverse management systems have been unified into a single platform that operates all greenbelt areas and supports existing communication systems. This is also an open platform that allows for seamless process management that is tailored to the requirements of the Barcelona City Council.”

- **Fco. Jose Hernandez Astorga**

Head of Coordination and Activity for Urban Parks, Gardens, and Environment with the Barcelona City Council

AVEVA System Platform operates like a central nervous system, receiving and transmitting information by means of a strategically distributed network of sensors located throughout the city. This peripheral nervous system monitors the smart city’s operations and ensures efficient resource management.

“For the last year, Logitek Wonderware Spain has collaborated with various local integrators that specialize in technology installations at large municipal entities, such as airports or train stations. This enabled us to learn and understand the critical needs of these users. With the knowledge acquired, we were able to develop specific objects for the AVEVA software to enhance the city’s overall user experience.”

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Jordi Rey

Management Director of Logitek Wonderware Spain

AVEVA helps Barcelona maintain its status as a sustainable smart city

With the increasing majority of people living in cities, urbanization poses significant short-term and long-term challenges to governments and municipalities, driving the need for smarter, and more digitally managed infrastructure.

By providing the ideal technology platform for smart cities, AVEVA software enables Barcelona to access real-time, critical data for better, faster, and more efficient decision-making. As a Lead Partner of the Smart Cities Council and a corporate member of the New Cities Foundation, AVEVA is dedicated to providing real-time SCADA and operations management software designed to unify people, information, and processes for effective management of the smart city of Barcelona and cities of the future.