CUSTOMER CASE STUDY

# Water data visualization increases Sabesp operational intelligence and resilience

**Sabesp - www.sabesp.com.br**
**Industry - Water**

## Goals

- Provide 100% reliability in water supply
- Streamline operations management

## Challenges

- Large and complex system with 28 million customers
- Limited water resources require extreme operational efficiency

## Results

- Water shortages decreased from 14% to 5%
- Customer satisfaction increased from 67% to 84%

## Solutions

- AVEVA™ PI System™
- AVEVA™ PI Vision™

In 2015, the Brazilian state of São Paulo faced a massive water crisis that left many of the area's largest reservoirs nearly bone dry. Sabesp, a state-owned water and waste management company, manages the water distribution and sewage collection and treatment for over half the state's cities. During the crisis, customers overwhelmed Sabesp's call centers, demanding information about water supply and water levels in the reservoirs. The volume of customer inquiries crowded out crucial communications about operations as Sabesp scrambled to maintain service. Following the crisis, Sabesp partnered with Stefanini, a Brazilian data-processing and consulting firm, to develop a stable and reliable environment using AVEVA PI System to better manage its operations.

## Going with the flow

Guaranteeing a reliable supply of drinking water in São Paulo's metropolitan region is a crucial but challenging task for Sabesp, one of the largest sanitation companies in the world. With great size comes great responsibility. Irregular terrain, ranging from about 750 to 1,100 meters (about 2,500-3,600 feet) above sea level, combined with high-density population areas, requires a large and complex system of pipes and pump stations to transport water to nearly 28 million customers. Further complicating matters, the São Paulo region has very limited water resources, demanding extreme efficiency of operations.

Sabesp set a goal to reach 100% reliability in its water supply by 2022. To achieve this benchmark in such a high-stakes environment, the company needed a new system that would provide all the information needed to run its operations efficiently. Sabesp had several clear requirements for the new system, including the ability to create an integrated analysis of the sanitation cycle. It also needed a user-friendly interface readable by everyone in the company, not just engineers. In addition, Sabesp needed the system to quickly integrate information from other business processes for rapid decision-making and online monitoring of indicators affecting customers.

## Model behavior

Sabesp already had a lot of data coming in from its remote equipment. With help from Stefanini, Sabesp set up a PI Interface for OPC DA to collect this data from its SCADA systems and move it to AVEVA PI System. Sabesp then used AVEVA™ PI Server's contextualization layer, the asset framework, to organize its assets, taking advantage of easy-to-use templates to make data modeling run more smoothly.

Now, no matter where they are, engineers and managers throughout the company can easily access information about the status of pipes, pump stations and reservoirs. This is accomplished by using a VPN to access AVEVA PI Vision displays online on any device.

AVEVA PI Vision also allows users to create dashboards to access general system maps as well as displays of different subsystems and pump stations. Users can drag and drop assets to create quick, intuitive web-based displays. These displays automatically provide important information about key assets, such as the current pressure at, or unit number of, a particular pump.

Due to the time-sensitive nature of running a water-management company, Sabesp wanted its new system to alert engineers about potentially critical events. The event frames and notifications features of AVEVA PI Server now automatically notify Sabesp about water shortages. Alarms and reports also help engineers and maintenance teams predict problems and take preventative action. "With the implementation [of AVEVA PI System], we can now do more together – we can act in parallel," said Silvana Franco, manager of supply control at Sabesp. "It was very important for us to have this benefit.

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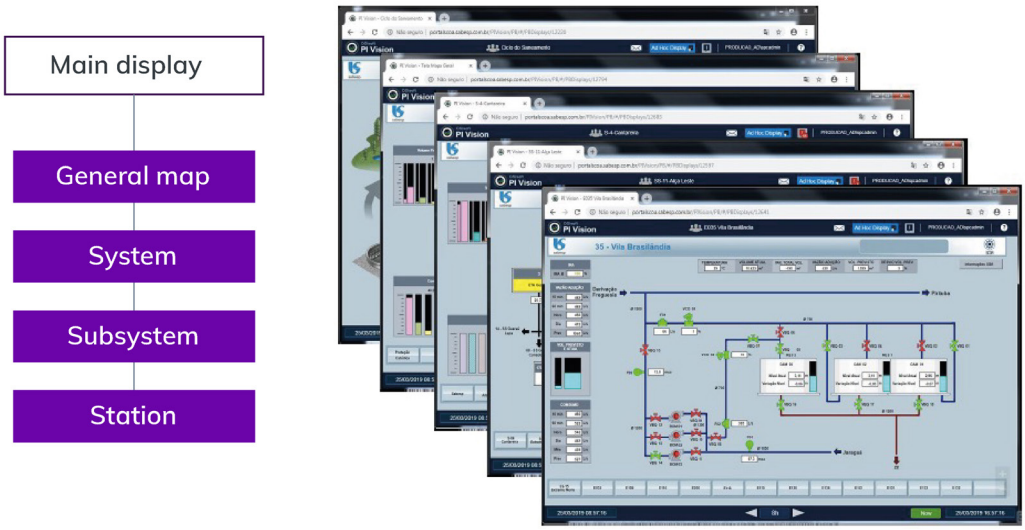
> **Silvana Franco**
> Manager of Supply Control of the Metropolitan Region of São Paolo, Sabesp




Using AVEVA PI Vision, Sabesp monitors various components of its water production infrastructure.

## Great expectations, greater results

The results of Sabesp's AVEVA PI System implementation went beyond expectations: Corrective maintenance decreased from 11% to less than 7%. In addition, Sabesp's water-loss index, measured in terms of liters per connection per day, decreased from 348 to 337, which Franco explained was "a very big result for us."

But perhaps most important of all, claims from customers about water shortages fell from 14% to 5%, and according to Sabesp's satisfaction survey, customer satisfaction increased from 67% to 84%.

Sabesp also used information from AVEVA PI System to create a customer-facing app so that the public can stay informed about water levels and availability. As a result, Sabesp's public image has improved greatly: in 2018, the Brazilian market research company IBOPE named Sabesp the second most reliable company in São Paulo. "We know implementing the PI System was a big part of this result," Franco said.

For more information about Sabesp and AVEVA PI System, visit **aveva.com**