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ACCIONA: The journey to digital transformation in water

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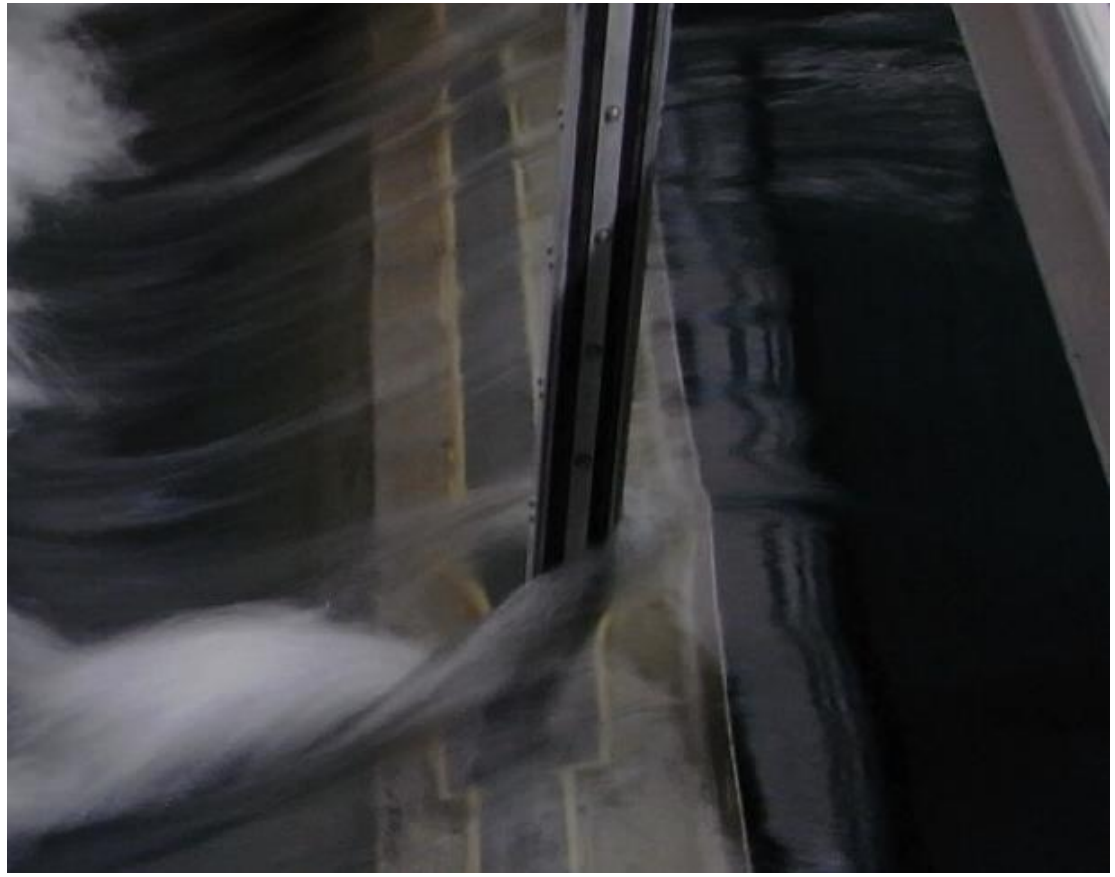
Who is ACCIONA?

- We are a global group that develops and manages sustainable infrastructure solutions, especially in renewable energy

- Five years ago, we embarked on a journey towards the digital transformation of Water since it’s an essential resource for humanity, which is becoming increasingly scarce

- We use AVEVA's tools to build digital solutions that would help enhance production processes



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Who is ACCIONA?

Our goal: To make a positive contribution to society and to the planet, providing sustainable solutions to the most urgent issues such as global warming and water scarcity.

23,910
GWH Produced in 2022

1,149
HM3 Volume of Water Treated in 2022

+6,000
Km of Roads Constructed in more than 25 Countries

950,000
m2 of social infrastructure over the last 13 years

100%
Of Emissions Offset

13.2
M T CO_2 Emissions avoided by Renewable Generation

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Water Scarcity Facts

#1

Around 70% of the planet is covered by water, but humans can only drink 2.5% of it

#2

Over 2 billion people don’t have reliable water services

#3

The world is running out of water because of climate change and pollution

#4

A lack of clean water kills millions of children

#5

Millions of Americans don’t have good water systems

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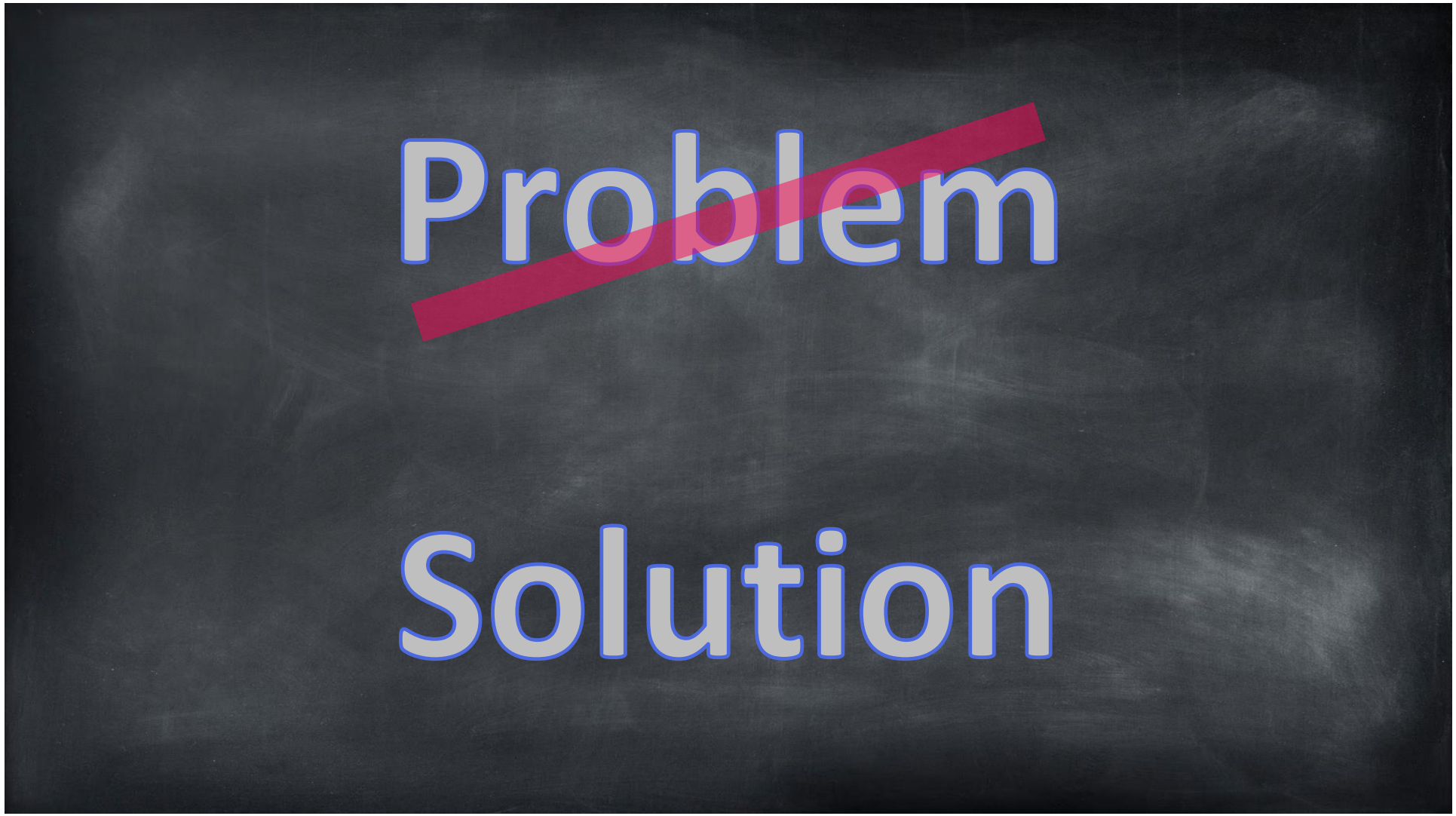

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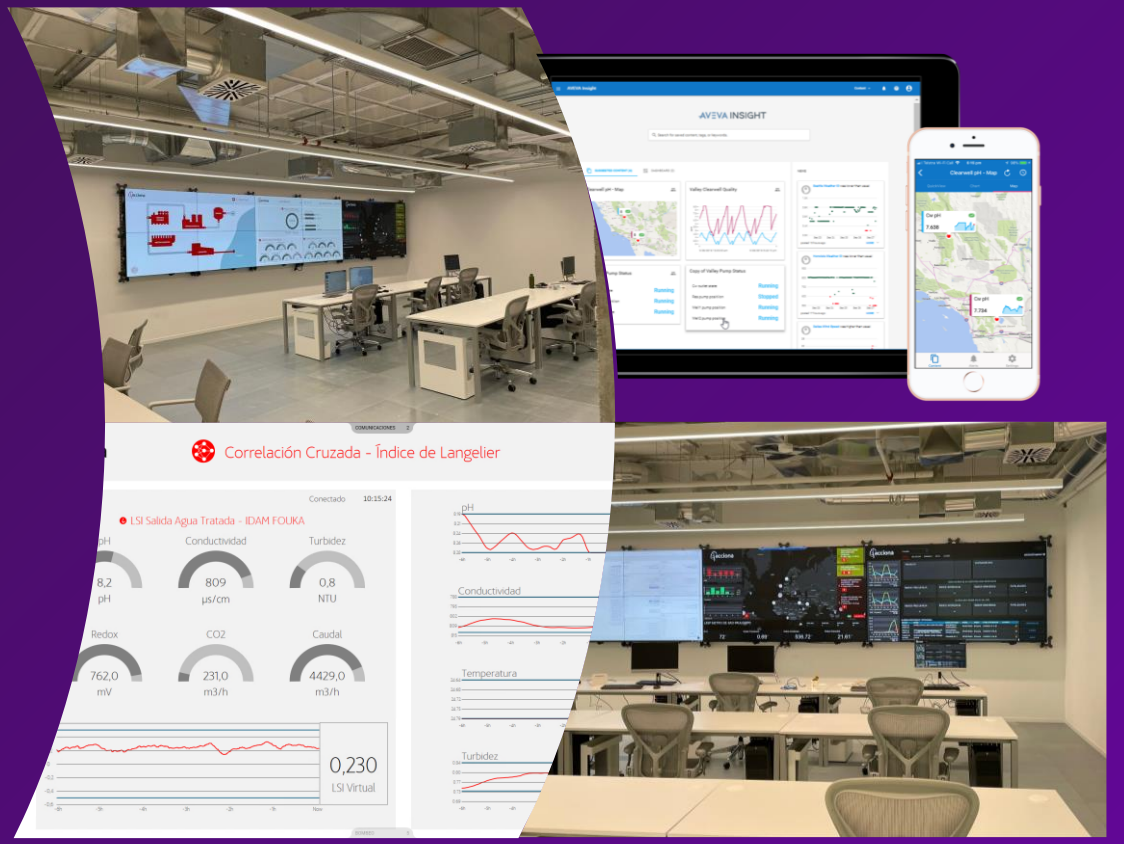
WATER CONTROL CENTER

CECOA

What is it? How?



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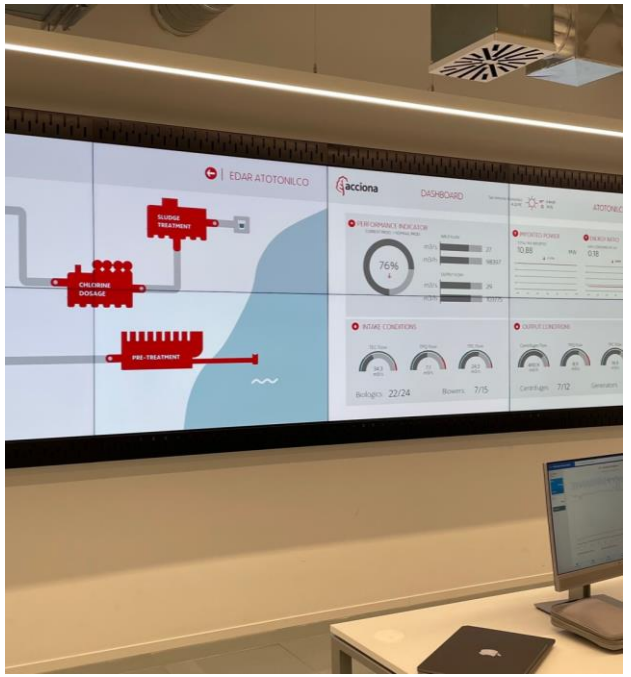
What is CECOA?

IT IS NOT a typical control center

CECOA is a meeting point where we join the ACCIONA Team and the technology.

Technological pillars

- **Connectivity** that complies with the strictest cybersecurity policies
- **Data** collection and analysis (Big Data)
- **Integration system**: Information standardization
- **Optimization** of our treatment infrastructures (Machine Learning, Artificial Intelligence algorithms)



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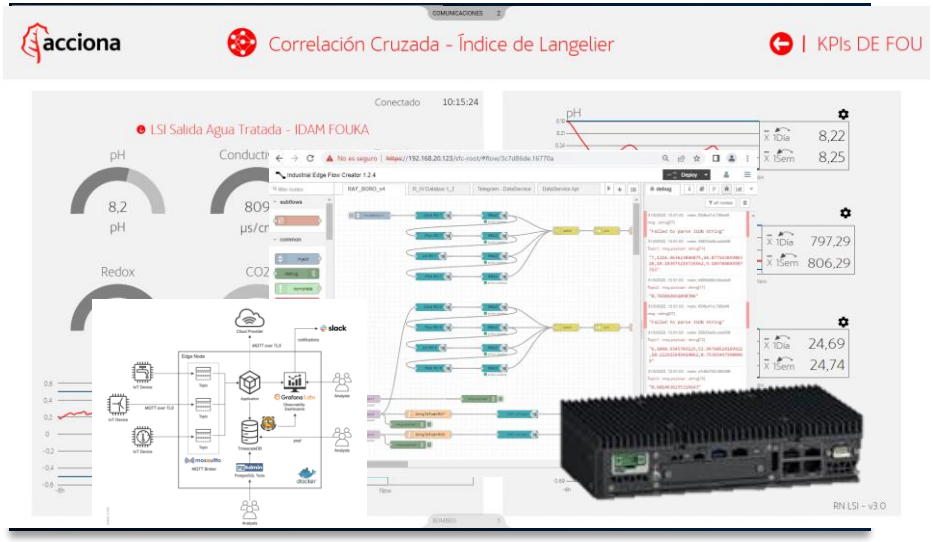
How have we done CECOA?

AVEVA™ System Platform

AVEVA™ Historian

Machine Learning



We have based CECOA on AVEVA System Platform

AVEVA System Platform provides a **collaborative**, standards-based foundation that **unifies people, processes, and assets** across all facilities for continuous operational improvement.

What have we done with it?

- A real-time SCADA
- Data analysis tool
- Machine learning platform

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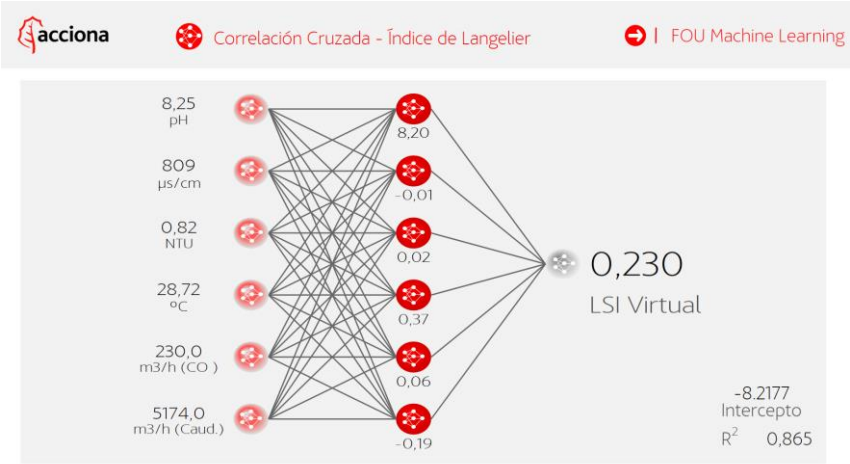
Only two examples



Virtual meters

Sometimes it is not possible to measure some water parameters, and a laboratory analysis is necessary to know their value.

We have created the virtual meters. With Machine learning algorithms, we can predict the values for that parameters, and improve our control loops and save chemicals.

Remote Commissioning

During the COVID-19 pandemic, we were forced to be confined to our different countries.

However, thanks to the connectivity of CECOA, we were able to remotely commission water plants located outside of Spain, such as the Al-Khobar plant in Saudi Arabia, which we could start up thanks to this feature.

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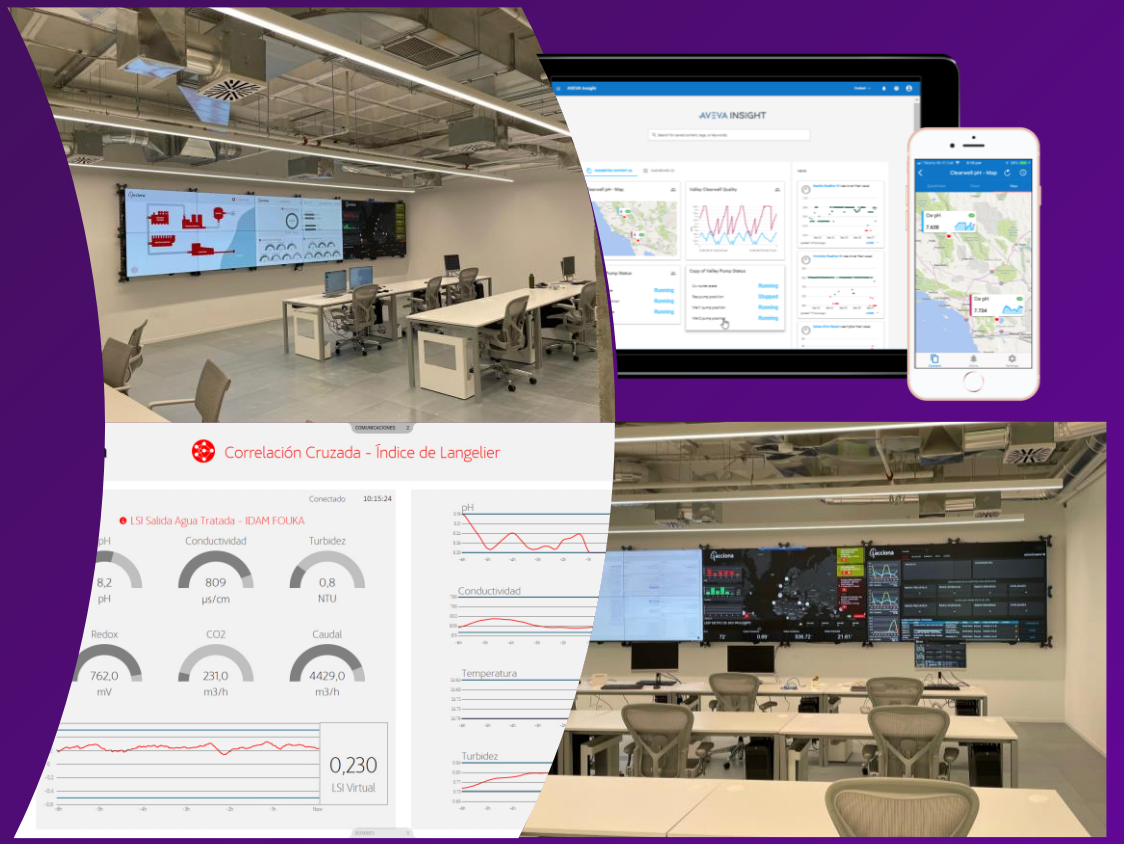
WATER CONTROL CENTER

CECOA Insight

Advanced Analytics



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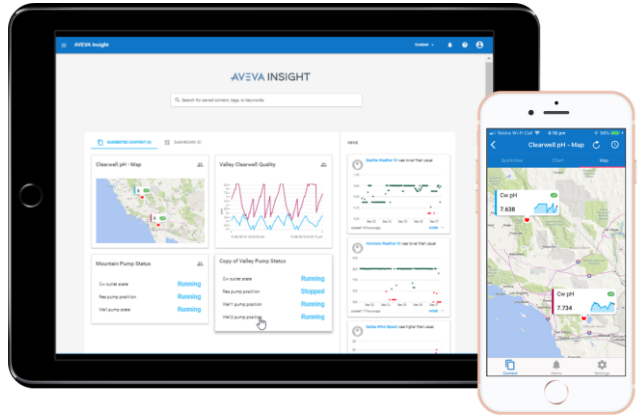
CECOA – AVEVA™ Insight

What is AVEVA Insight?

AVEVA Insight gives us **easy access** to your industrial information in the cloud. From **anywhere**, at **any time**. You can:

- Connect easily to production data in real time
- Have plant KPIs and visibility into what is happening
- Compare between assets or plants



What have we done with it?

- We have created KPIs to display the most relevant information for each plant to O&M team
- We have shared our information with our clients to be more transparent in the execution of our contracts

What did we achieve?

- Increased efficiency in our O&M teams thanks to having information available immediately
- Increased confidence from our clients in our operations

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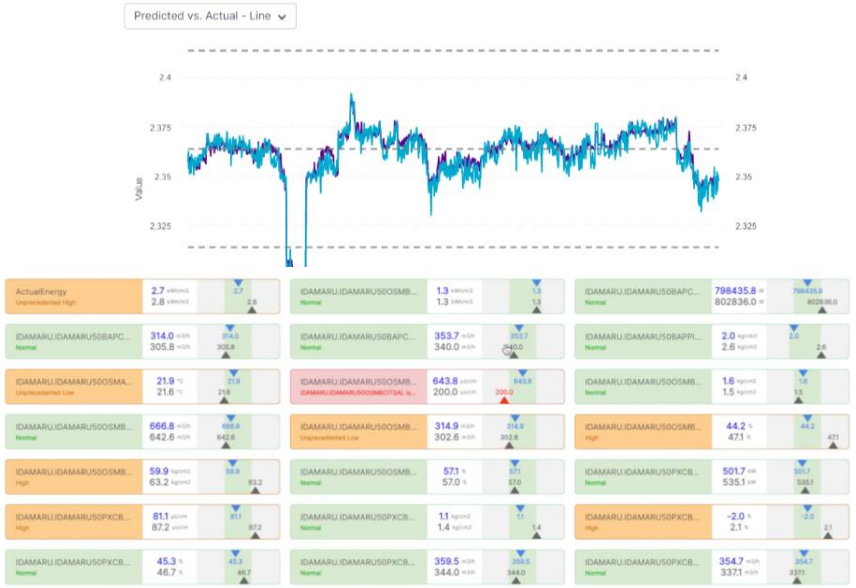
CECOA – AVEVA Insight Advanced Analytics

What is AVEVA Advanced Analytics?

AVEVA Insight Advanced Analytics is the cloud-based **machine learning platform for the industry**.

There are several machine learning algorithms that allow you to predict the behavior of equipment and, in this way, anticipate deviations in production. Also, the algorithms find the optimal operating point for the equipment under the operating conditions.



What have we done with it?

- We have created a prediction model for the production ratio of a Rack to optimize energy consumption through energy recovery systems.
- We did it in Canary Island “Gran Canaria”, at Arucas plant.

What did we achieve?

- A **4.6% reduction in energy consumption** of the Hi Pressure pump.
- **Increase the production** capacity of the rack **by 16 m3/h**.

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WATER AND WASTEWATER | SPAIN

ACCIONA minimizes environmental impact and increases the supply of treated water

Challenge

- The world is running out of water due to climate change and pollution. ACCIONA has committed to improve the performance of all treatment water facilities by providing treated water with minimum impact to the environment. To realize this ambition, they needed set of digital solutions to collect, contextualize, and analyze data to anticipate equipment behavior deviations and find the optimum operating point in real-time and allow them to increase water production capacity and reduce energy use at the same time.

Solution

- ACCIONA uses AVEVA™ System Platform to collect data, AVEVA™ Historian to add historical data and contextualize, AVEVA™ Insight for advanced analytics (machine learning) and provide easy access to monitor critical KPIs.

Results

- **The prediction model enabled the optimization of energy consumption through energy recovery systems resulting in 4.6% reduction in energy consumption of the High-Pressure pump and increased production capacity of the rack by 16 m3/h.**
- **Increased efficiency in O&M teams thanks to information readily available and improved confidence from clients due to transparency of operations.**

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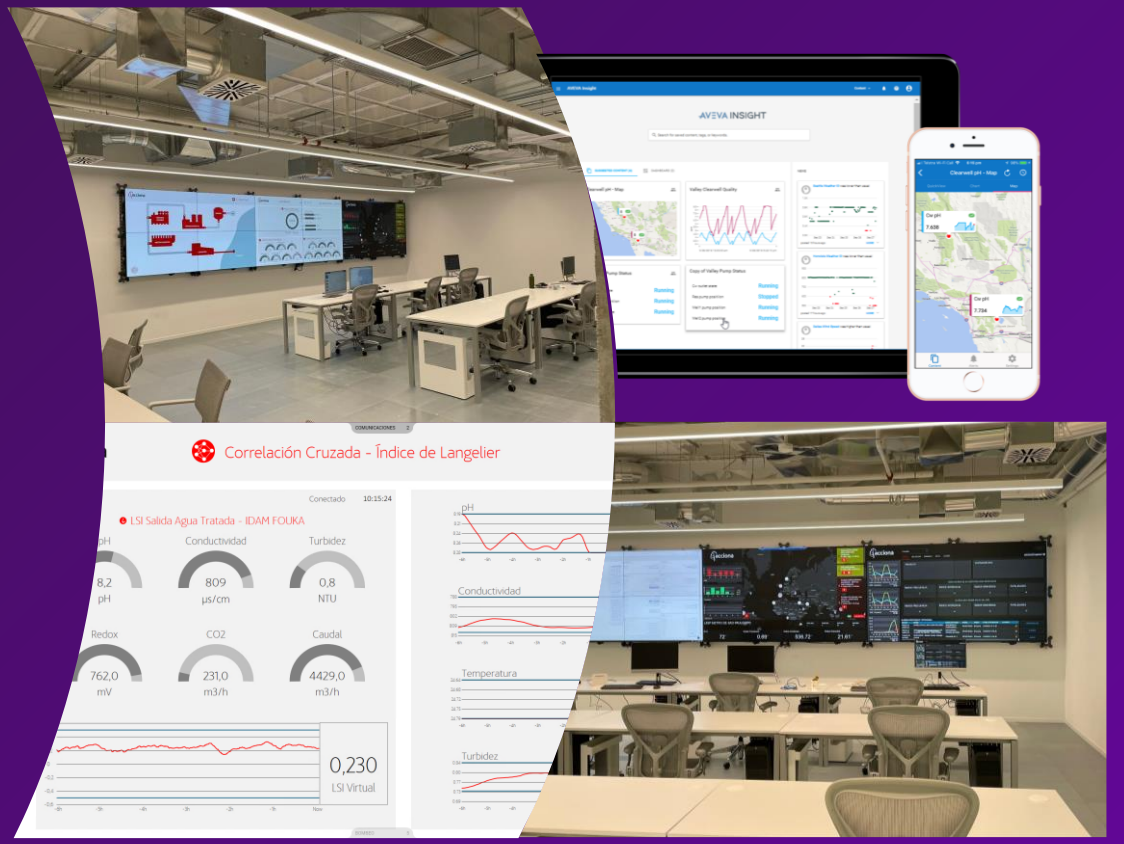
WATER CONTROL CENTER

What's Next? P.M.S.

Plant Management System



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ACCIONA's Plant Management System

What is ACCIONA P.M.S.?

The PMS is a powerful tool that has been developed by ACCIONA in collaboration with Schneider Electric, for creating a specific software focused on the desalination world.

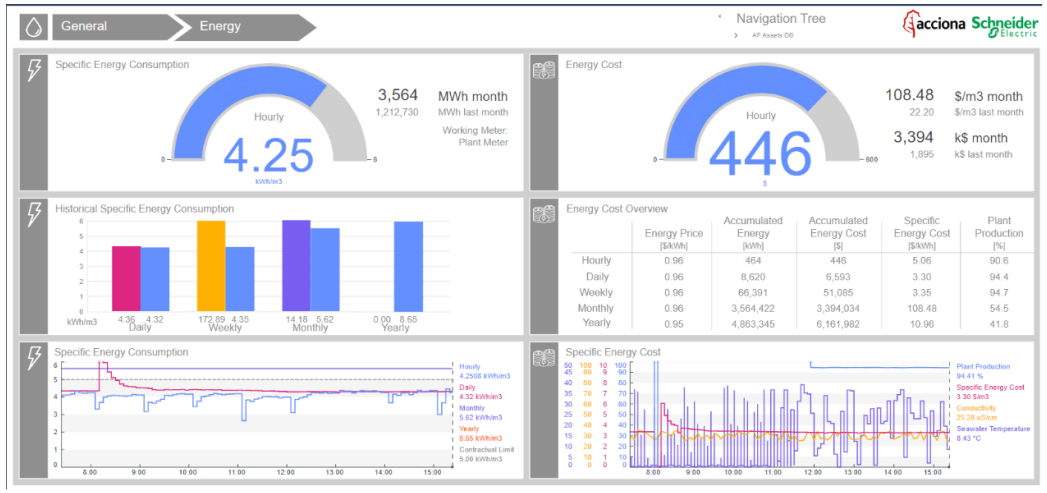
We have taken the AVEVA™ PI System foundation, and we are making the most advanced and specialized decision support system for water facilities.

What will we do with it?

We will have a place where we can find data from different sources (Process data, maintenance data, supply data, …), interconnected to extract the maximum insight from it.

Our systems will use a visual representations of data, making it easier for users to understand complex information.

The P.M.S. will incorporate predictive modeling, helping to out O&M team to anticipate future trends and outcomes.



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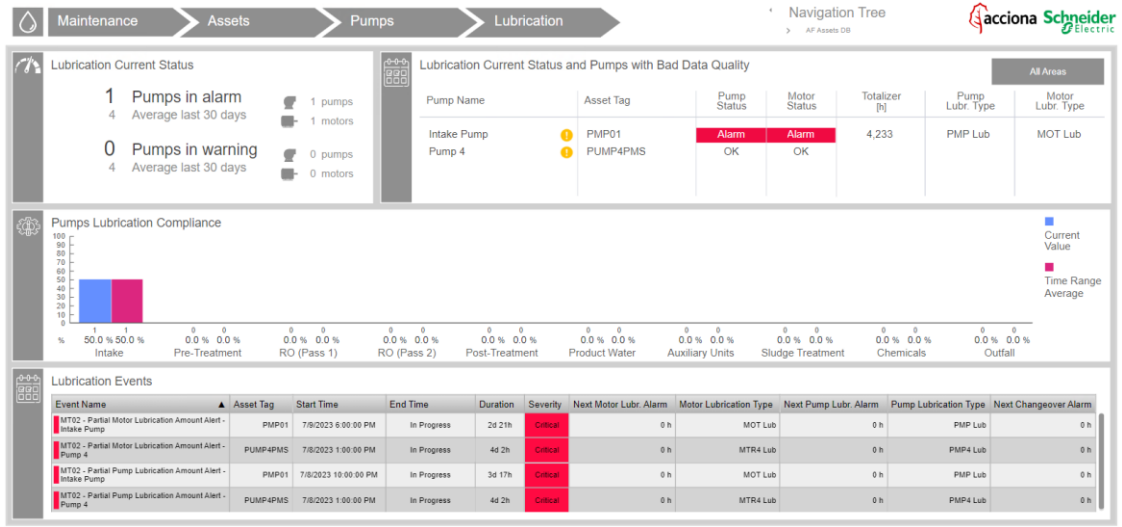
ACCIONA´s Plant Management System

What will we achieve?

- **Improved and faster Decision-Making:** providing data-driven insights, which lead to more informed and better decisions.
- **Enhanced Accuracy:** reducing the risk of human errors in decision-making, leading to accurate outcomes.
- **Cost Reduction:** By optimizing processes and resource allocation, the systems can lead to cost savings.
- **Competitive Advantage:** P.M.S. give us an edge by enabling them to make strategic decisions faster and more effectively than competitors.
- **Collaboration:** Our system facilitate collaboration among team members by providing a centralized platform for decision-related discussions and data sharing.
- **Risk Management:** P.M.S. can assess and mitigate risks associated with various decisions.
- **Strategic Planning:** It will support long-term planning by providing insights into trends and potential future scenarios.



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Questions?

Please wait for the microphone.

State your name and company.

Please remember to…

Navigate to this session in the mobile app to complete the survey.

Thank you!

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AVEVA

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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

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