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**ABB Ability™**

## **Water Management System**

Leverage data for real-time response.  
Improve operations.





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**Today's water distribution networks have a problem with data. The data needed to make timely and business-critical decisions resides in disparate sources. Legacy systems do not communicate with all available data.**

**The result is non-harmonized data that hinders effective monitoring and decision-making. Today's operators need a proven way to integrate data from multiple sources to manage operations across the entire water system.**

# A fluid environment

**The potable water sector is facing multiple challenges.** From balancing the sustainable use of finite resources to addressing growing demand driven by population growth and economic development, water distribution networks must navigate complex issues every day. These include:

**Aging infrastructure:** Aging pipes, pumps, and treatment facilities are a significant challenge for water distribution networks. As infrastructure deteriorates over time, it becomes more prone to leaks, breaks, and failures, leading to water loss, service disruptions, and increased maintenance costs.

**Water loss and non-revenue water:** Water loss, often due to leaks, unauthorized consumption, and inaccurate metering, poses a significant challenge for water distribution networks. Non-revenue water reduces the efficiency of the system, wastes valuable resources, and impacts revenue for water utilities.

**Water quality and contamination:** Ensuring the safety and quality of drinking water is crucial, but water distribution networks face challenges related to contamination from various sources. Aging infrastructure, industrial discharges, agricultural runoff, and microbial pathogens can compromise water quality, necessitating vigilant monitoring and effective treatment measures.

**Climate change impacts:** Climate change exacerbates challenges for water distribution networks by altering precipitation patterns, increasing the frequency and intensity of extreme weather events, and exacerbating water scarcity and drought conditions. These impacts strain water resources, disrupt supply reliability, and require adaptive measures to enhance system resilience.

**Population growth and urbanization:** Rapid population growth and urbanization place increasing demands on water distribution networks, leading to higher water consumption rates, greater infrastructure stress, and the need for expansion and upgrades to accommodate growing communities. Balancing water supply and demand amid urban growth is a significant challenge for water utilities.



# ABB Ability™ Water Management System

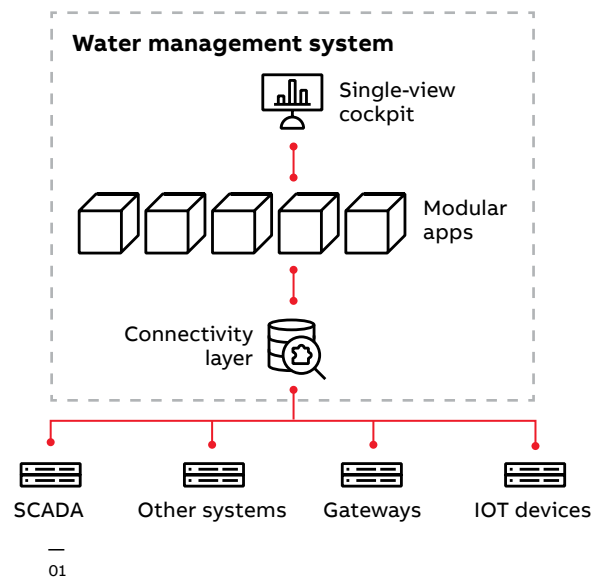
A modular, vendor-agnostic platform seamlessly integrating diverse data for comprehensive management of your water operations

01 ABB Ability™ Water Management System aggregates and harmonizes data from multiple disparate sources and presents it in a unified view for faster, better decision-making.

The ABB Ability™ Water Management System is a software platform that integrates data from multiple sources of information, including existing SCADA systems, to manage operations across the entire water distribution network with an efficient and effective unified view.

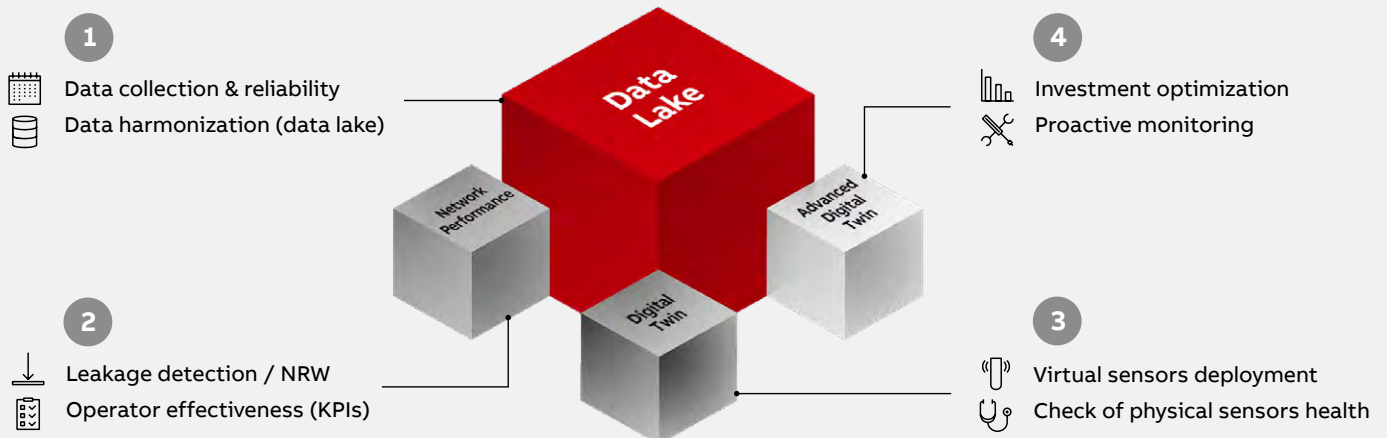
## Manage operations across your entire network

With the ABB Ability™ Water Management System, you connect multiple types of information coming from systems and plants. You then harmonize and aggregate that data to feed specific cognitive modules. The result? You enhance situational awareness in a single interface, make smarter decisions, and improve operational efficiency.



## Four modules to meet your unique challenges

Start with the core layer module and then add modules as needed to meet your unique requirements.





# Leverage the power of your data

## Single View Cockpit

The Single View Cockpit is a dashboard that meets the challenge of turning complex data into accurate, actionable information. Users access key information in a single, integrated dashboard that presents data, KPIs, alerts and other vital information in one view.

## Network performance

ABB Ability™ Water Management System automatically detects new leakages and sends alarms to supporting maintenance operations. WMS helps a water utility to prioritize investments for field leakage detection and network optimization based on data analysis. The platform automatically calculates the KPIs of DMAs and of the entire water distribution network according to IWA guidelines

## Advanced simulations & what-if analysis

With the ABB Ability™ Water Management System, you simulate past, present and future conditions, taking into account the real state of all controllable structures as observed physical variables (water levels, water demands, etc.). You then simulate future conditions based on predefined water demand profiles, and initial conditions as states of controllable structures.



# Implementation

Implementation of the ABB Ability™ Water Management System is a standardized process that aims to maximize the advantages of the platform according to agreed-upon project requirements

and KPIs. Implementation follows a modular approach that integrates each module with pre-existing products (such as SCADA) and infrastructure (such as a segregated LAN).



## Step 1: Discovery

ABB engineers interview stakeholders to clarify preliminary and fundamental pieces of information:

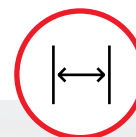
- How data is collected
- How data can be mapped into a pre-existing hydraulic model



## Step 2: Implementation

ABB engineers define and execute the implementation steps according to outcomes of Step 1:

- Real time monitoring system
- Network performance
- Leakage detection
- Digital twin of the network
- Water quality monitoring



## Step 3: Expansion

ABB engineers evaluate Step 2 initial outcomes and related feedback to evolve the WMS scope:

- Simulation for strategic evaluation and what-if analysis
- Upscale to large-scale network or large number of DMAs
- Add features
- Implementation of high-end informative system to take full advantage of all data coming from the field

## Benefits

When you integrate the ABB Ability™ Water Management System with your existing automation layer and available sources of information, you gain the immediate benefits of this basic deployment: automatic data collection and harmonization from different sources (field sensors, SCADAs, IoT Systems, etc.), and a unified view presented to the operator through the Single View Cockpit. The overall benefit to your operation is considerable.



Ensure data reliability by automating data harmonization



Reduce non-revenue water and save operator time



Reduce reliance on physical sensors



Enhance situational awareness



Make better-informed decisions



Improve operational efficiency across your entire water management system

# Case study

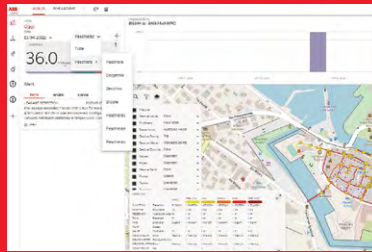
## Customer situation

City: Peschiera del Garda, Verona, Italy

- 98 Kms of pipe (16 Km/DMA)
- 6,320 network elements (valves, pipes, junctions, pumps)
- 16 measurement points for flow
- 17 measurement points for pressure

## ABB Solution

Pilot on 6 districts serving up to 20,000 citizens



### STEP 1

- Real-time data collection & harmonization system from SCADA and other sources
- Single view cockpit in place
- Automatic alerts on events
- Leakage monitor for DMAs

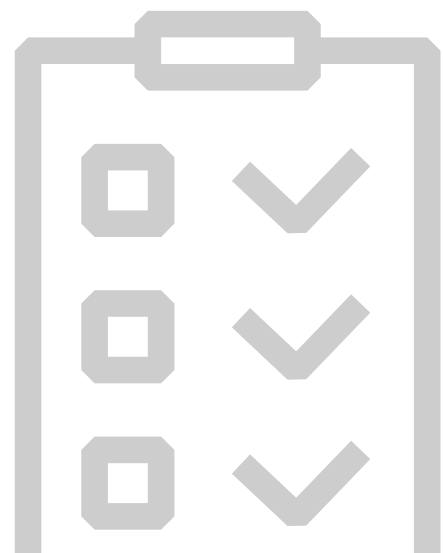


### STEP 2

- Full digital twin
- Dynamic hydraulic model
- Virtual sensors deployment
- Advanced simulations
- Water quality monitoring

## Results

- Huge time saving for the data collection and data quality / reliability checks
- Automatic reports calculated for any relevant KPI (optimized business decisions)
- Proactive monitoring of the network status (optimized day-by-day operations)
- Optimal re-use of all the existing hydraulic models (investments protection)



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## Why ABB

- 1 Market leader** in automation and control
- 2 More than 500 systems** installed globally in the water industry
- 3 Advanced applications** for energy efficiency and process optimization
- 4 Core competencies** in data collection, remote monitoring, and integrated solutions

To get started or learn more, please contact your local ABB sales representative or visit:



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