

Smart Water Management

AfWA' s 90th SCIENTIFIC & TECHNICAL COUNCIL

xylem
Let's Solve Water

11/30/2022

INTRODUCTION



- ✓ XYLEM digital ecosystem creates an information-centric and connected environment. As the workforce is connected to each other they are now connected to physical assets and the environment. Networks of sensors installed through supply, collection, treatment and distribution operations will monitor conditions in real time. Data and information will be available via the cloud and hand-held devices anywhere, anytime.
- ✓ Beyond instantaneous process control, big data analytics provides us the unique opportunity to explore Decision Intelligence.

XYLEM IN FIGURES

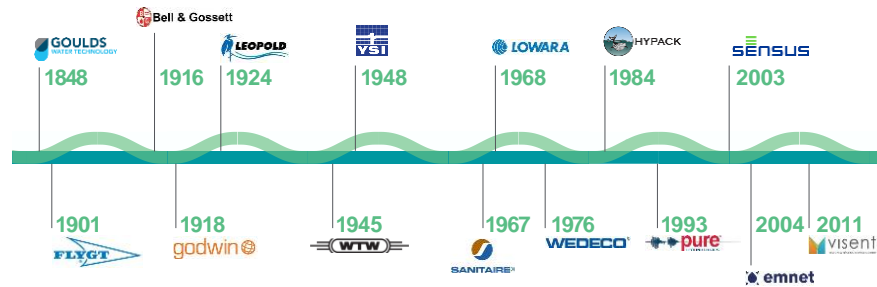


- ✓ Even more exciting is that interconnectivity does not have to stop at the fence line of each utility. The interconnectivity between water utilities, creates large stores of data about their assets, and the environment. Big data analytics will generate insightful information into the behavior of the shared environment and common physical assets.
- ✓ This information sharing and integration will holistically improve the management of our precious resource, restore balance to the environment and benefit society. In doing so, Industry 4.0 will drive economies of scope and scale across the entire water industry that were unimaginable in third industrial revolution.

- ✓ There are four major technological elements to Industry 4.0: i) Industrial Internet of Things (IIoT), ii) Cloud Computing and Edge Computing, iii) Big Data Analytics and iv) Artificial Intelligence and Machine Learning. Xylem's digital solutions fall under elements iii) and iv).
- ✓ machine learning enables systems to take prescriptive actions based on data-driven predictions. Automation has already replaced routine, manual tasks with higher value. Machine learning and artificial intelligence enables decisions and actions to be taken preemptively in response to changing conditions.
- ✓ in-situ IIOT devices with edge computing will detect, control and provide visibility on events i.e. level rises, pressure changes, changing water quality and wastewater loading, loss of flow, off-spec effluents, etc. Big data analysis and machine learning allows preventive intervention, shifting the risk paradigm away from consequence management.

XYLEM BRANDS

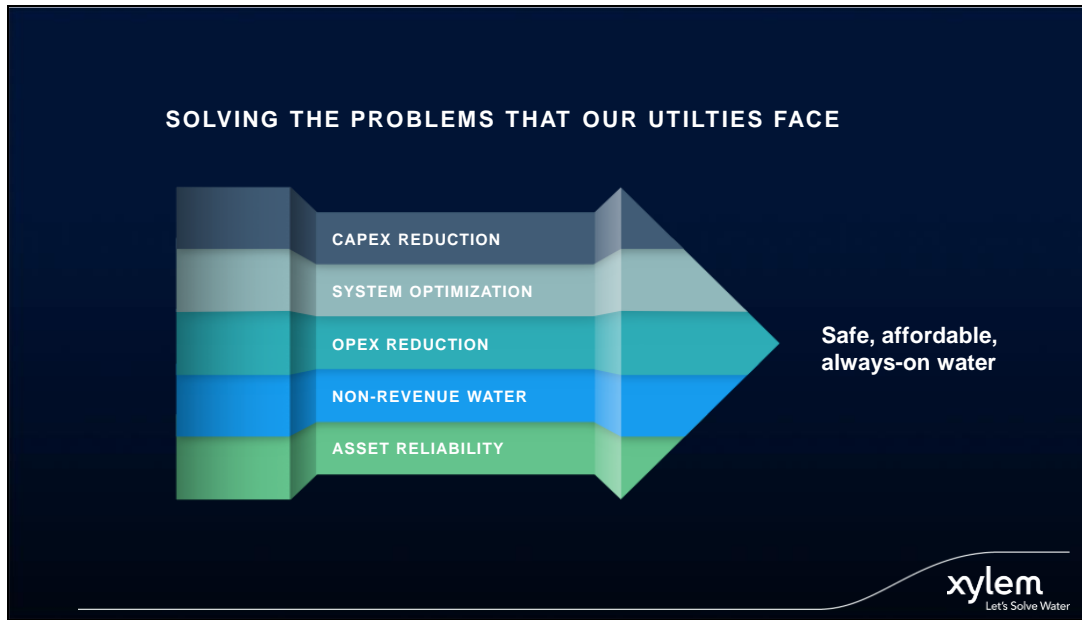
We have always brought together the most progressive brands



xylem
Let's Solve Water

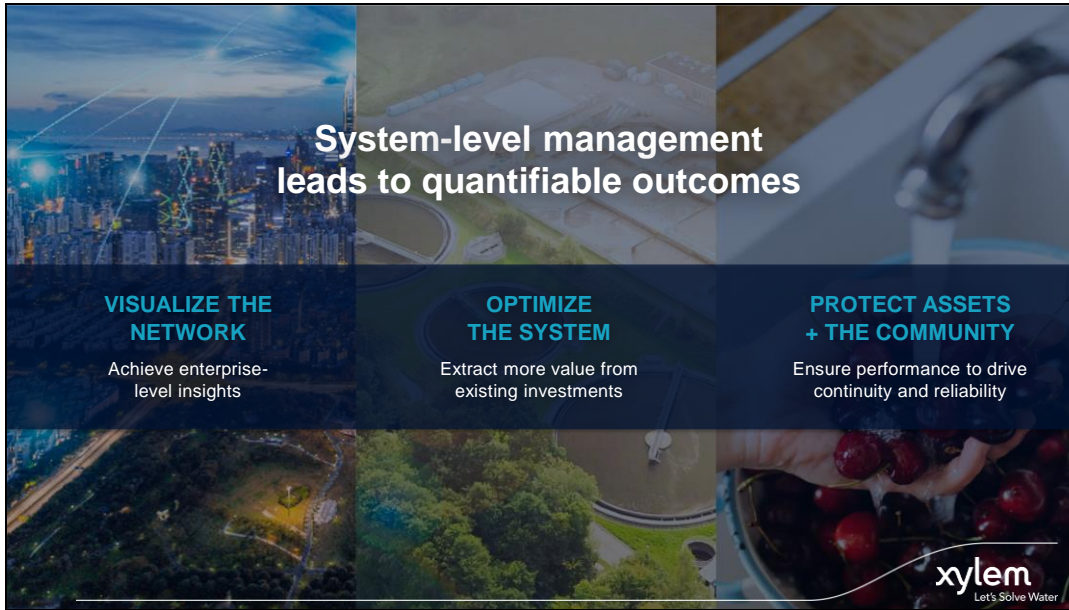
- ✓ Xylem: Founded in 2011, with heritage which spans more than a century.
- ✓ Since 1848, XYLEM brands have been transforming how the world gains access to clean water.
- ✓ Xylem is home to some of the world's **most trusted brands**, such as Flygt, Godwin, Bell & Gossett, among others.
- ✓ The recent acquisitions of **innovation leaders** such as Sensus and Pure Technologies have accelerated XYLEM's transformation to become an advanced technology solutions provider. **The most advanced in the water category.**

A SOLUTION FOR
COST
REDUCTION,
OPTIMIZATION &
RELIABILITY



- ✓ Here are the top most problems that face Utilities
- ✓ Without guidance, support, and a cohesive plan, solving these problems will remain an ongoing struggle

WHY CHOOSING XYLEM'S DIGITAL SOLUTIONS?



Xylem's DIGITAL Solutions help utilities gain capabilities in three key areas across their network.

- ✓ **Increase your ability to visualize your entire water system** by providing enterprise-level network **transparency** to justify expenditures, and prepare for challenges before they become failures
- ✓ **Optimize that system** with deeper insights and actionable, data-informed **recommendations** to improve their systems in real-time, and make better use of inputs and personnel
- ✓ **And deliver greater asset reliance and resiliency**, and increasing safety for the community and your people

A HOLISTIC IMPACT

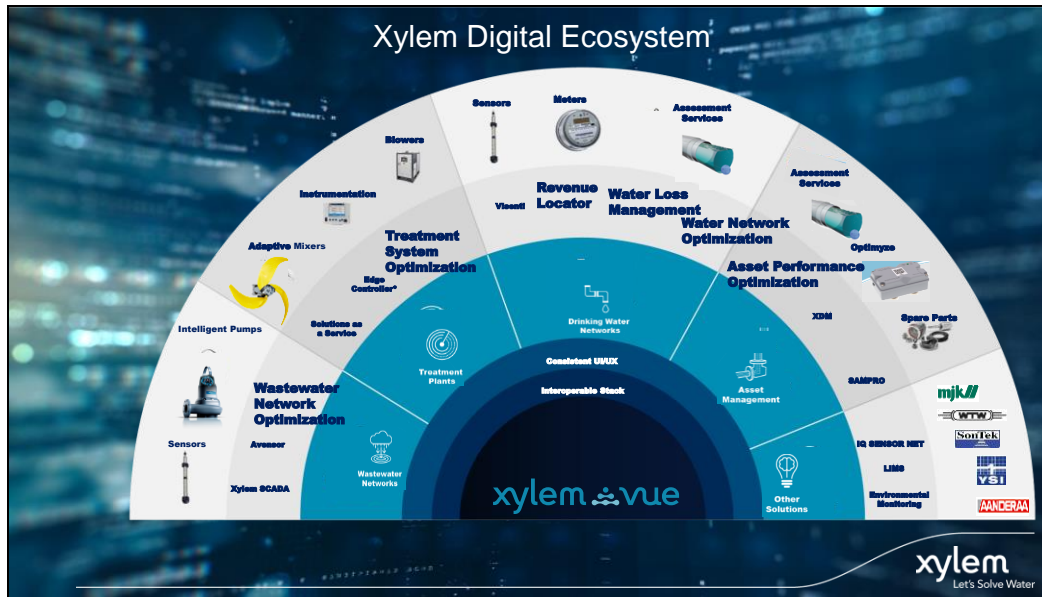
From intake to effluent, we can help

Xylem delivers holistic impact to the entire water cycle.



- ✓ Xylem provides supports across the entire municipal water cycle.

SUPPLIER OF INNOVATIVE TECHNOLOGIES

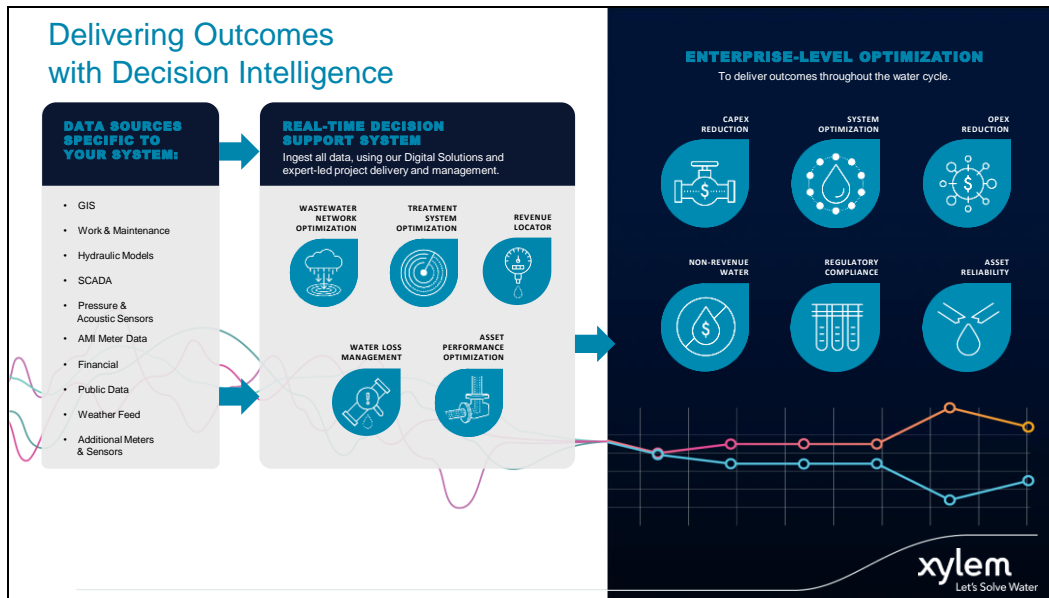


Introducing Xylem's Big Data Analytics, Machine Learning and Artificial Intelligence Platforms

- ✓ The digital ecosystem is rich and fertile in data. The utilities of the future will be able to unlock data and leverage that data in a more productive way to take help drive decisions.
- ✓ Xylem's Digital solutions transition our customer from edge computing "black box" solutions at point of process control to "glass box" solutions, that provide complete visibility and transparency in the transformation of big data into actionable information, promoting Decision Intelligence.

Innovative technologies: pumping systems, aeration equipment, flow meter, smart meter, pumps (multistage, self-priming, end suction, etc.)

HOW THIS WORKS ?



- ✓ XYLEM starts with your inputs, such as corporate data, public data, sensors and machine data. The data is ingested by powerful advanced analytics tools, but always in partnership between you, Xylem specialists and the water experts, of whom many come from a utility themselves. This partnership of talent coupled to our advanced machine learning and artificial intelligence platform, results into a customized solution that can facilitate automated control or provide operational guidance to help make more informed decisions based on data intelligence, that ultimately lead to outcomes required to preemptive management.

- ✓ XYLEM decision intelligence is - **actionable guidance** so utility operators and managers can take **data-informed action** based on the scenarios and recommendations of our decision support system.
- ✓ Our Digital Solution platforms are **SENSOR AND DATA-TECHNOLOGY AGNOSTIC**, it is the knowledge of our hydro informatics, technical experts and year of experience that makes this possible.
- ✓ If you use to watch soccer, coaches use game plays to create game play, these game plays are designed to place the player in position to where **the ball is going to be, not where it's been!** Similarly, XYLEM digital solutions shift the paradigm from reaction to preparedness.

WHAT XYLEM OFFERS

Xylem Digital Solutions					
SOLUTION	Wastewater Network Optimization (WWNO)	Treatment System Optimization (TSO)	Water Loss Management (WLM)	Revenue Locator (RL)	Asset Performance Optimization (APO)
DESCRIPTION	Visualization and decision support system that integrates real-time sensor data, system-level capacity and forecasts to optimize the utilization of the hydraulic capacity in wastewater networks.	Real-time digital monitoring and modeling solution that marries input data and plant models to provide analysis, insight and control so plant managers can visualize, optimize and manage their treatment plant operations to deliver better results at optimized cost and effort.	Data-source agnostic monitoring and sensing platform that brings together leak, burst and pressure transient detection with DMA monitoring and water balance calculations in a single user-experience so utilities can reduce lost water and improve operational efficiency.	Software platform using machine learning and analytics to provide utilities with data-driven operational guidance to prioritize field maintenance activities, implement efficient meter testing and replacement programs, and maximize revenue recovery.	Asset risk analytics and planning support services that help utilities significantly reduce failures and make informed, data-driven decisions on asset reliability and pipe prioritization in water distribution systems.
BENEFITS	<ul style="list-style-type: none"> Understand and predict hydraulic performance of your network in real-time Reduce need for costly and lengthy civil interventions and CapEx Increase customer service levels and deploy support more quickly 	<ul style="list-style-type: none"> Reduce OpEx costs while maintaining compliance Identify plant operational issues and reduce response times Accurately predict future operating conditions 	<ul style="list-style-type: none"> Identify leaks more quickly and accurately Determine counter-measures by understanding root causes of bursts Prioritize leak detection surveys in vDMAs 	<ul style="list-style-type: none"> Recapture up to 1.5% of annual top-line revenue More effective identification of underperforming meters than traditional methods alone Avoid unnecessary meter inspections and replacements 	<ul style="list-style-type: none"> Predict water main failures with 4-10X better accuracy than traditional tools Minimize the mobilization cost for pipe replacement Understand utility and community impact if risk is left unaddressed
REALIZED RESULTS	CSOs reduced by 450M gallons annually	30% reduction in aeration energy usage	Harmful transients reduced from 60 to 10 PSI	\$1M+ recoverable revenue identified	\$70MM est. annual cost saving for pipeline replacement

Here is the XYLEM digital optimization solutions portfolio “at a glance”

- ✓ XYLEM has solutions with demonstrated value, throughout all areas of the urban water shed in Wastewater, Treatment, Water, and Asset Performance.

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Thank You

Pour plus d'informations, contactez votre ingénieur commercial Xylem local ou visitez notre site www.xylem.com.

