

An aerial night view of a city, likely Dubai, showing a large roundabout with a central fountain area and several tall skyscrapers. The city lights are visible, and the sky is dark. The text is overlaid on the left side of the image.

Sustainability Efficiency Resilience

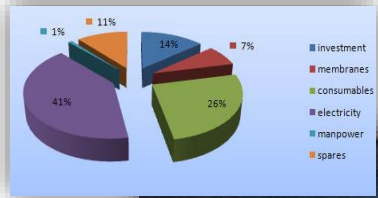
Digital Transformation for Sustainability
& Resilience in Water Utilities via Unified
Operation Centre

Shan Subramaniam - Water segment leader East Asia

Life Is On

Schneider
Electric

Water Industry: Emerging Challenges & Implications (COVID-19 impact)



CapEx/OpEx constraints, environmental impacts & unplanned situations



Aging infrastructure & Non-revenue water



- Remote operations, limited crew on site
- Aging workforce vs digital world
- Workforce crisis training

Essential service focused on keeping people safe



Strong impact on planned projects & modernizing plants/networks for operators & EPCs

Loss of revenue from commercial usage & provision of service in residential



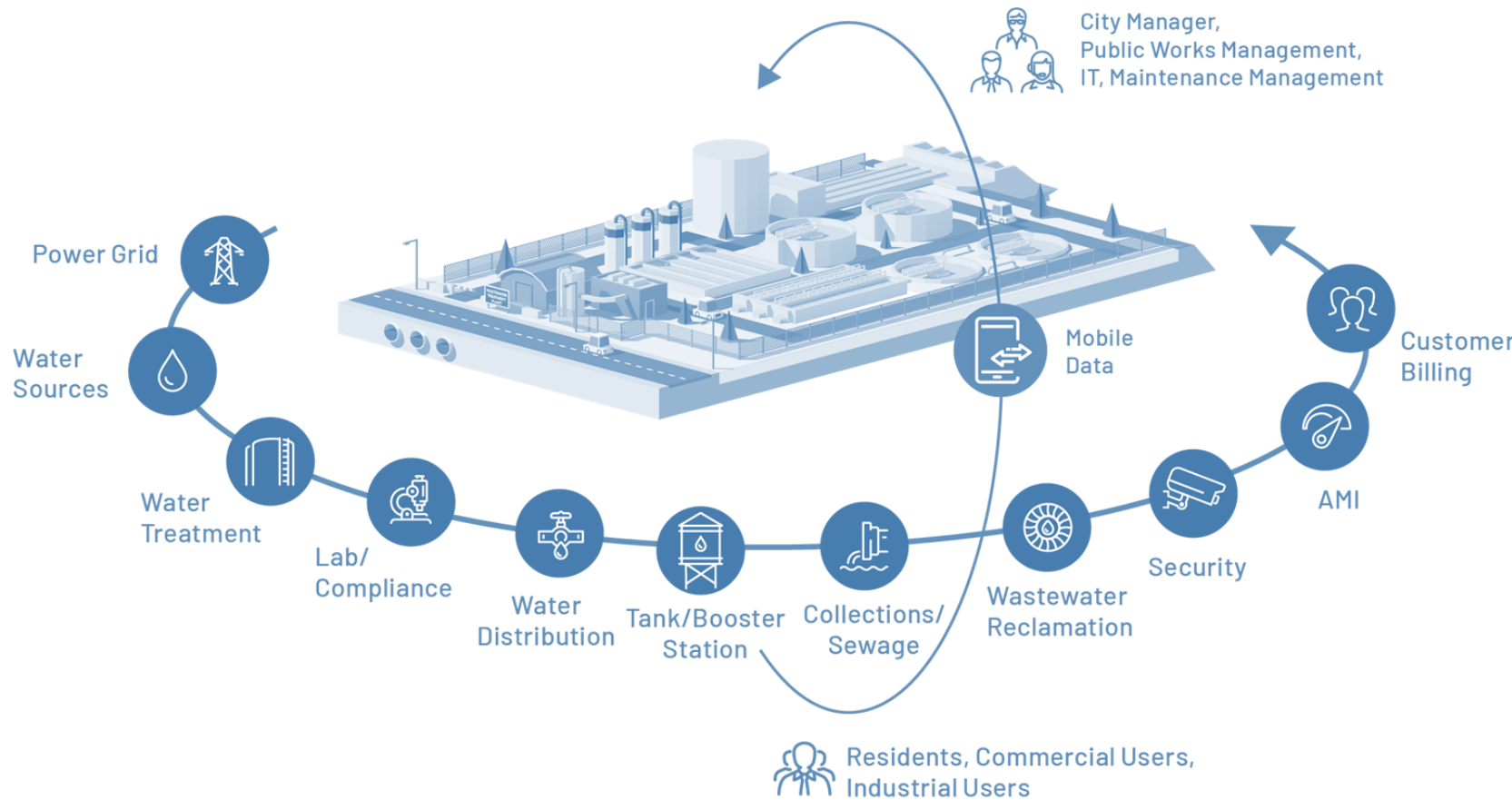
There could be up to a 20% loss of revenue for the water utilities



- Lack of existing knowledge for such a crisis
- Accelerate in digital transformation
- Workforce empowerment

What we do to address this?

Key Drivers: Uptime, Integration, Efficiency & Cost



Make faster, more informed decisions & speed crisis response

Minimize risk to people, assets & operations with integrated process & engineering environment

Reduce Energy & Operational Costs

Optimize Performance of Employees, Assets & Operations

AVEVA

Schneider
Electric

Schneider Electric provides energy and automation digital solutions for efficiency and sustainability

Key figures for 2019

5% of revenues devoted to R&D

€27.2 billion

2019 revenues

41%

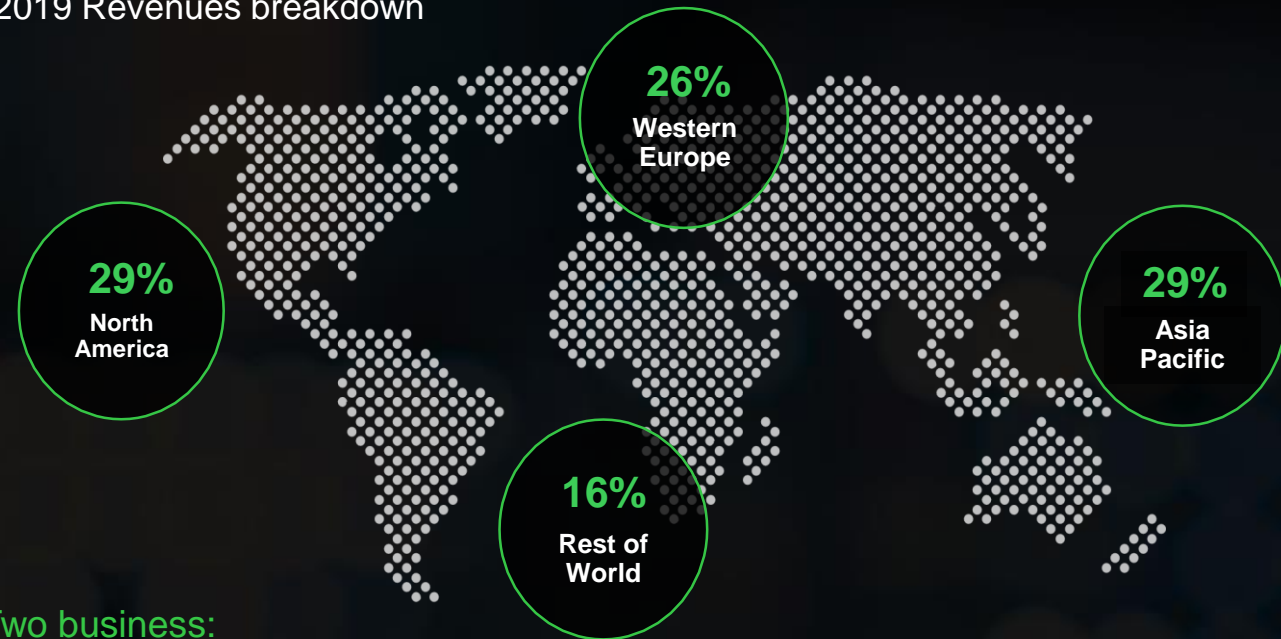
of revenues in new economies

135,000+

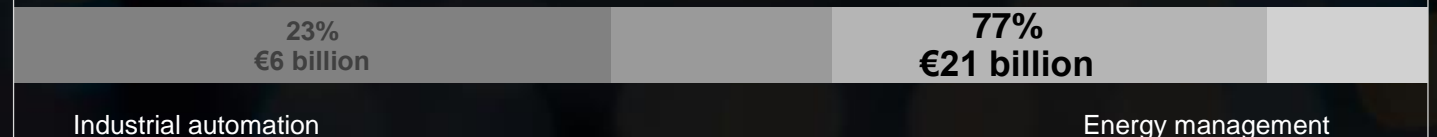
Employees in over 100 countries

A well-balanced global presence

2019 Revenues breakdown



Two business:



Sustainable and resilient water is critical for human health, environment and economy

UN's Sustainable Development Goals across the water cycle

Water Resources

Water Treatment

Desalination

Water Networks

Wastewater Networks

Wastewater Treatment

Scarcity

Irrigation management
River/basin management
Desalination



SDG9



SDG6



SDG11

Circularity

Industrial zero emission
Wastewater recycle

CO2 footprint

Water process optimization
Renewable & Energy efficiency

Asset Efficiency

Pressure & leakage management
Asset management

Resilience

Remote workforce
Flood management
Cybersecurity

Digital Transformation for Sustainability and Resilience in WWT

Operations

Break data silos
Business processes
Predictive and remote O&M

Assets

Maximize existing assets
Data driven models
Predictive & analytics management



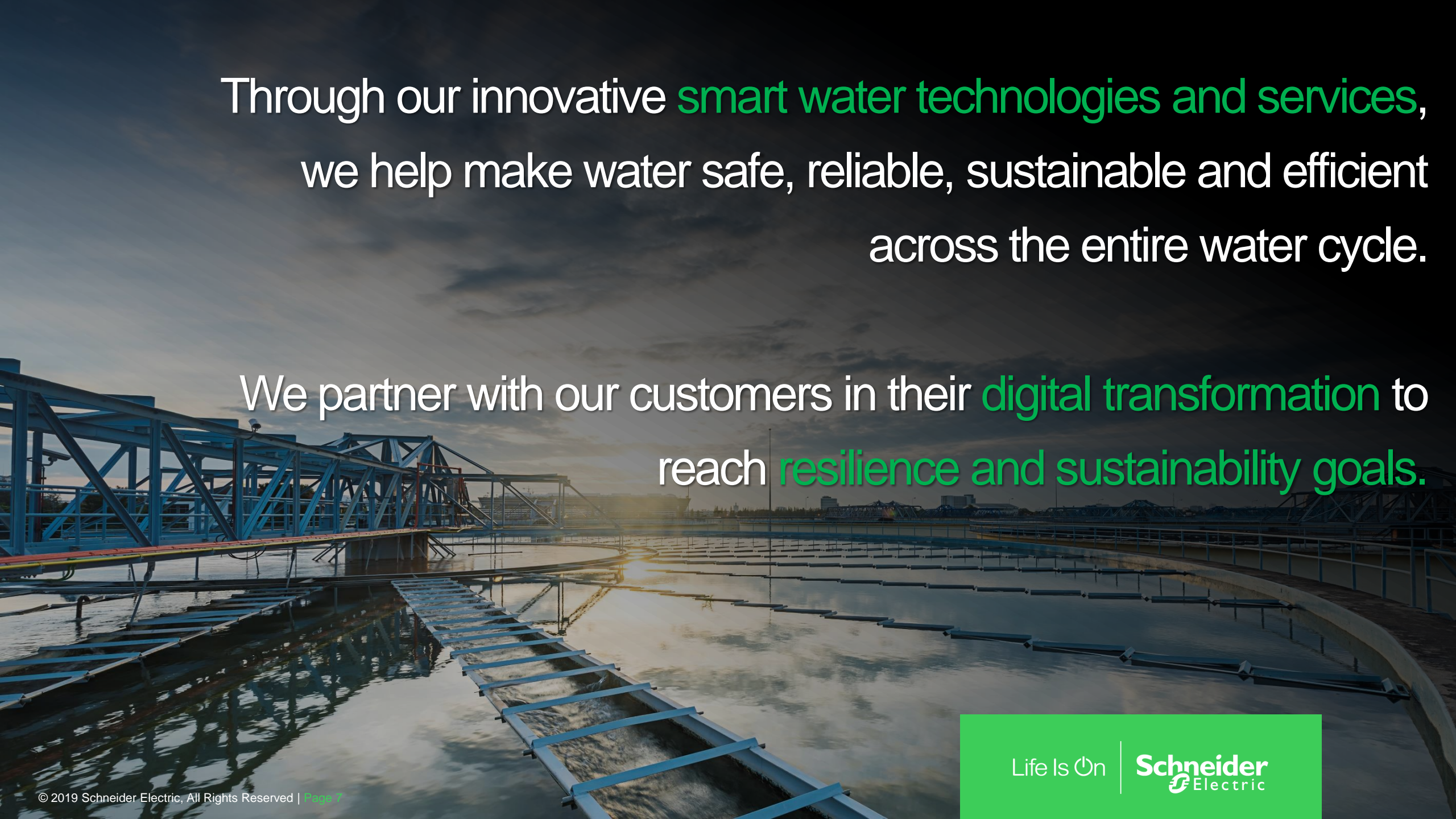
People

Workforce development
Innovation culture
Remote everything
Corporate brand
Customer experience

Resources

Non-revenue water
Analytics-based energy management

Digital technologies can play a major role in helping the water market reduce constraints moving forward
(Cognizant 20-21 Insights, 2020)

A wide-angle photograph of a water treatment plant at sunset. The sky is a mix of dark blue and orange, with the sun low on the horizon. In the foreground, there are several large, rectangular aeration tanks with blue metal frames. The water in the tanks is dark and reflects the sky. In the background, there are more industrial structures and a city skyline under a cloudy sky.

Through our innovative **smart water technologies and services**,
we help make water safe, reliable, sustainable and efficient
across the entire water cycle.

We partner with our customers in their **digital transformation** to
reach **resilience and sustainability goals**.

Life Is On

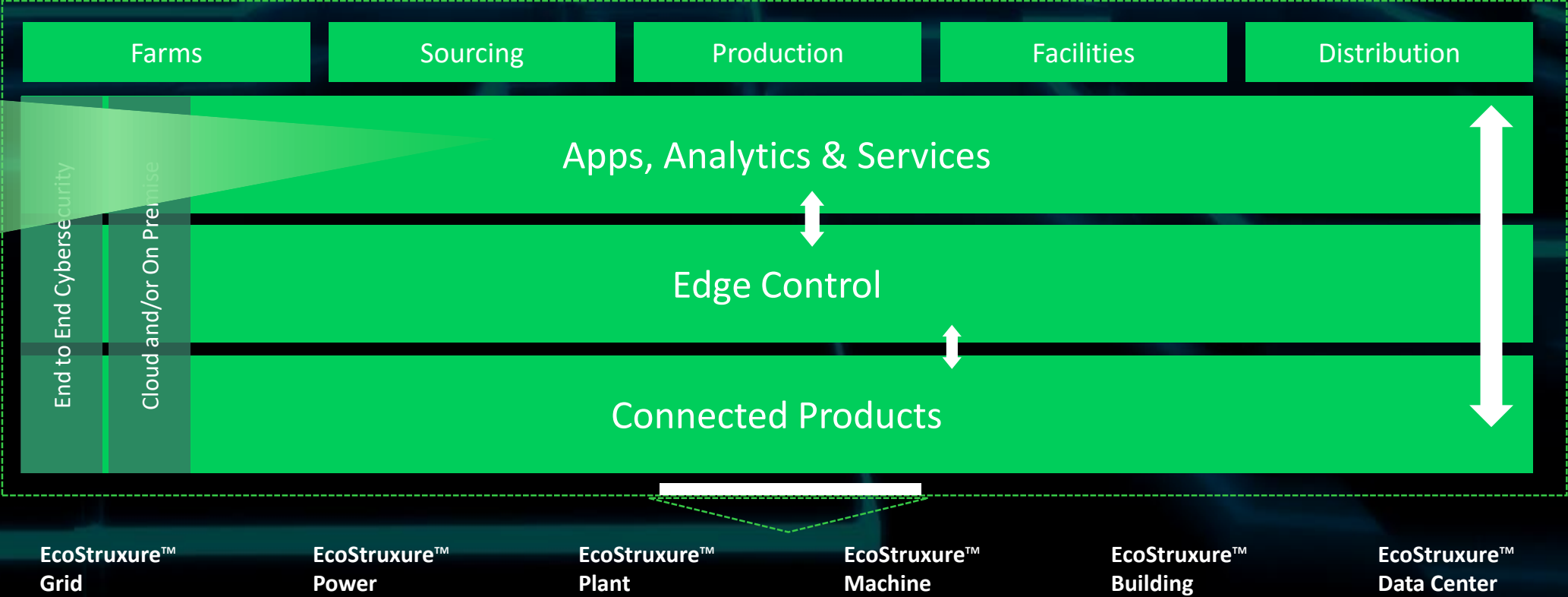
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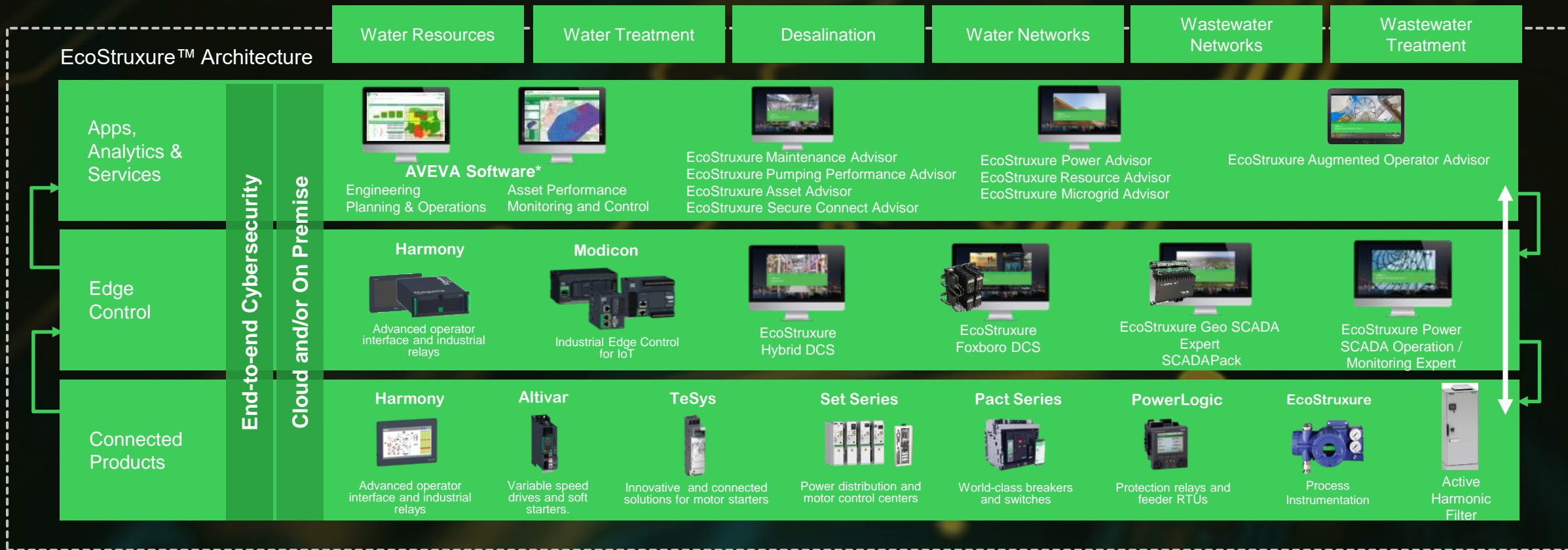
Integration for more efficiency



for Water & Wastewater

AVEVA



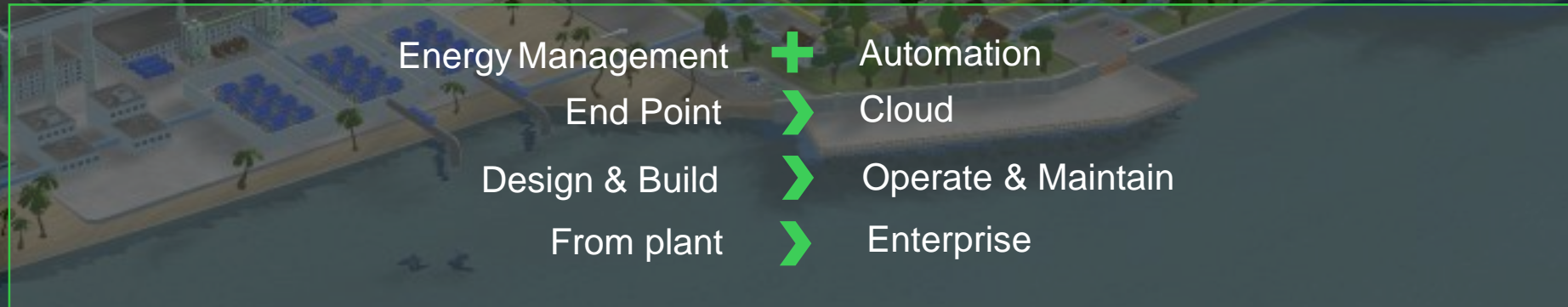


*The Schneider Electric industrial software business and AVEVA have merged to trade as **AVEVA Group** plc, a UK listed company. The Schneider Electric and Life is On trademarks are owned by Schneider Electric and are being licensed to AVEVA by Schneider Electric.

Smart Water Applications and Services for Sustainability and Resilience



Supported by an integrated and connected digital platform





Major water companies and utilities in the world partner with Schneider Electric

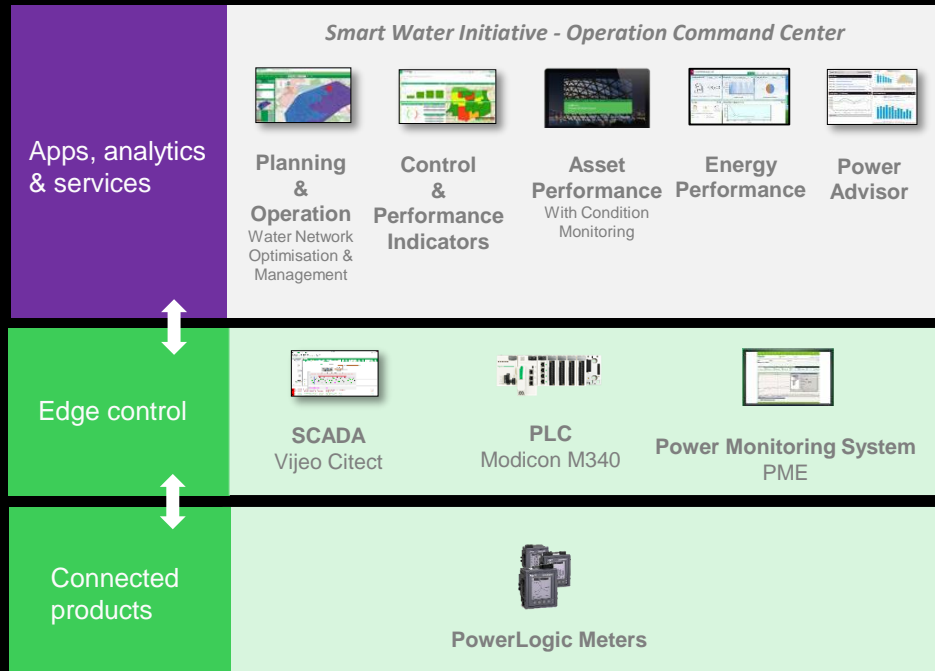
EastWater, Thailand Largest supplier of untreated water (500km transmission pipeline) in the eastern region of Thailand (Rayong) supporting industrial estates clients <https://www.eastwater.com/en/MediaCenter/CorporateNewsDetails/27>

Upgrading to Unified Operation Center with Schneider Electric's EcoStruxure solution establishing EastWater as Thailand's most advanced, efficient & 'SMART' untreated water transmission line - "SMART water initiative"

Aim to reduce water loss up to **10%**, energy cost (pumping) **15%** & increase overall operation efficiency up to **30%**

EcoStruxure™
Innovation At Every Level

for Water & Wastewater
Water Resources & Networks



existing SCADA Operation Command Center
launched in 2014

Moreover, East Water is able to reduce energy consumption by 2-3 percent a year.

<https://www.youtube.com/watch?v=djgoYJVavNg>

East Water

Sustainable water management for a secure & stable supply

Customer Challenges

- Manage pumping water from multiple sources while ensuring constant water pressure and volume
- Optimize energy costs (approx. 40% of OpEx)
- Effectively manage water reserve during droughts
- Visibility of pipeline network, with data on ageing assets to monitor for leaks and improve decision making
- Ability to coordinate efforts & workflow between operation, maintenance, management and other departments

Solution

From its pumping system to its upgraded centralized unified operations center, East Water has chosen Schneider Electric as their main technology partner and trusted advisor for their Smart Water initiative. They use a full EcoStruxure for Water Network solution, integrating leading-edge industrial software from AVEVA.

Expected Customer Benefits

- 20-30% increase in overall operational efficiency
- 10% reduction in water losses
- 15% cut in energy costs (pumps)
- Improved effectiveness of business decision making, operations and the related processes
- Scalable and future-proof system that can integrate seamlessly into existing systems.

The Results: Life Is On with...

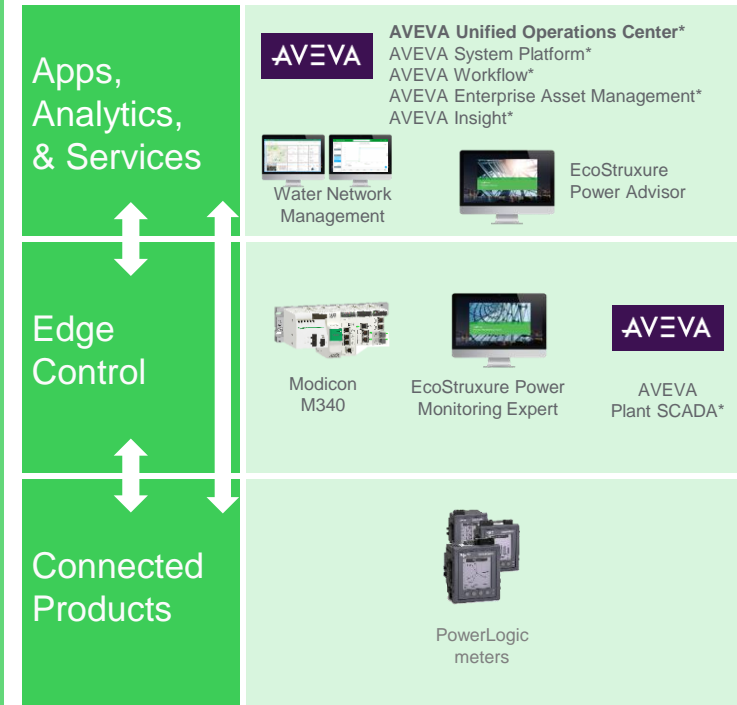
up to **30%** increase in operational efficiency and **15%** cut in energy costs

"Having this solution in place gives benefits to our business. It gives tangible return on investment. We are confident that in the long run, Schneider Electric's solution will help us reduce energy costs truly,"

Mr. Cherdchai Pitiwacharakul
Senior Vice President,
Operation and Customer Service, East Water

The **largest** supplier of untreated water for industrial use in eastern Thailand, and the country's **first** complete water pipeline stretching nearly **500** kilometers

EcoStruxure™ for Water & Wastewater



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Life Is On

Schneider Electric

NRDA: Naya Raipur

Scalable, innovative, customized, resilient & efficient solution



Customer Challenges

- Rapid urbanization
- Severe pressure on city resources
- Livability challenges for citizens
- Environmental sustainability
- Inefficient city operations

Solution

Command and control center integrating multiple systems:

- Utility Management: Smart Power, Smart Water systems
- E-governance system and call center
- City surveillance (APNR / speed detection)
- Building management system,
- Bus Rapid Transit System, street lighting system
- Geographic Information System to visualize location of assets/incidents
- Integrated asset management

Customer Benefits

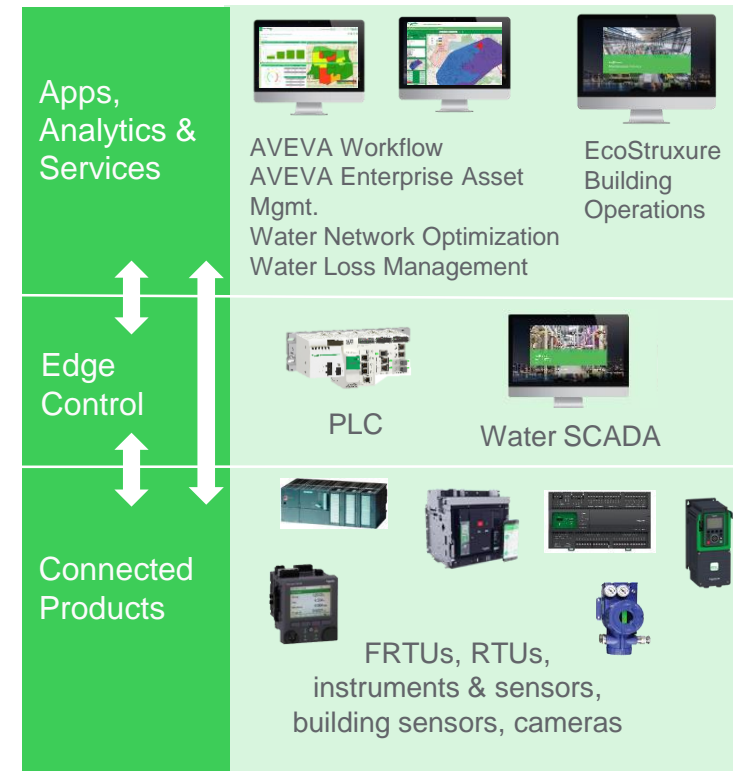
- Situational awareness and operational readiness through advanced unified dashboards and immediate access to KPIs & reporting data in the field
- Improved efficiency and faster response to incidents across multiple subsystems, leveraging advanced workflows

“Extremely well conceptualized, planned & executed. Naya Raipur will enable CG to technologically leapfrog with its state-of-the-art Central Command Centre. The infrastructure created is world class. The city is futuristic. I wish it all the best and a great future.”

Amitabh Kant, CEO, Niti Aayog, Government of India

India's **1st** smart greenfield city will provide **world-class** amenities to residents, and become a financial, IT, and **global** education hub

EcoStruxure™ for Water & Wastewater
Innovation At Every Level



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ACQUA NOVARA (AVNCO)

Best-in-class operational technology for
Smart Water project



Customer Challenges

- Improve operational efficiency through the aggregation of different management organizations into one company, standardizing processes and procedures, and migrating to centralized management systems.
- Increase overall water supply performance: Reduce water loss & energy use
- Regulatory compliance around increased efficiency

The Solution

Full EcoStruxure for Water solution, including telemetry, SCADA and integrated AVEVA software for water networks, delivered by Certified Alliance Partner and telemetry experts, BitControl.

Schneider Electric is now ANVCO's main technology partner, having implemented most of the OT software (corporate systems) and supplied hardware (RTU, PLC, sensors)

Customer Benefits

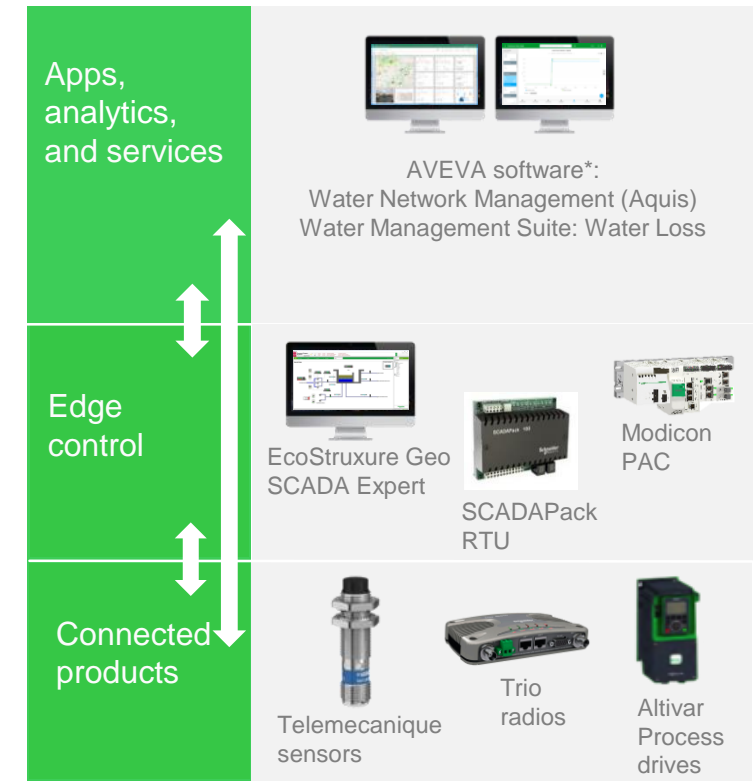
- 10% reduction in water loss (equivalent to 6 Mm³/year of water saved)
- 15% reduction in energy consumption
- Improve operational efficiency
- Secure the long-term resilience of water supplies

Life Is On with... 10% less water loss and 15% less energy used

Water services provider for domestic, agricultural & industrial uses supplies **450,000** inhabitants in **139** municipalities with over **3.7 billion** cubic meters/year

EcoStruxure™
Innovation At Every Level

for Water &
Wastewater



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Electric

PADANIA ACQUE

Complete solution and IoT integration for technological innovation of water services



Customer challenges

- Integrate existing telecontrol systems into a single SCADA
- Extend remote control to over 1000 aqueducts, sewage and purification plants
- Create a centralized control room to efficiently operate remote assets at over 1000 sites
- Reduce water losses in critical aqueducts
- Develop hydraulic models in real time capable of pre-focusing water losses

Solutions

Complete solution, built on strong EcoStruxure platform with integrated software and WWW domain expertise, addressing all of the customer requirements, particularly around water management and water network management:

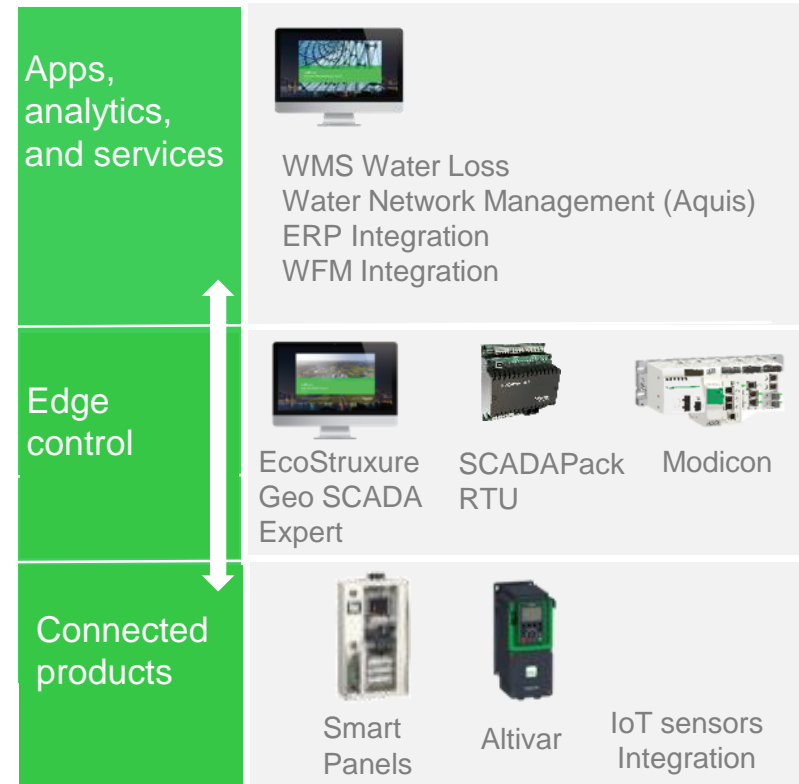
- Water Management Suite (WMS) Water Loss
- Water Network Management (Aquis)
- Integration with Work Force Management
- Integration with ERP
- Remote monitoring & control

Expected customer benefits

- Reduction in water losses by **5%** with **1.2 M m3/year** (1,000 m3/km/y) of water saved, equivalent to supply over **10,000 households**
- Energy consumption reduced by **6.5%** saving **900 K kWh/year**, equivalent to the electricity used by **270 homes**
- Maintenance productivity improved by 15%

Water & Wastewater services provider for the Province of Cremona uses **EcoStruxure** to optimize control, operation & maintenance of **1000s** of key infrastructure assets

EcoStruxure for Water & Wastewater
Innovation At Every Level **EcoStruxure Plant & Power**



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Unified Operations Centre: Operation's Decision Support

Situational Awareness to command over planned & emergency situations

Business Intelligence throughout WWW Utility

- Quantity
 - Water Balance
 - Source/Plants/Reservoirs/Transmission/Distribution
 - Leak/Loss/NRW
 - WW|Sewage|Recycle
 - Various Parameters

- Quality
 - Lab/Online/Hydraulic Model
 - Water
 - Raw-Treated Distributed
 - Source/Plant/Reservoir
 - Transmission/Distribution
 - Chlorination | Pollutants...
 - WW | Sewage
 - Source/Plant/Reservoir
 - Collection Network
 - Govt. Regulations

- Consumptions
 - Electrical Power
 - Source/Reservoirs
 - Transmission/Distribution
 - Chemicals
 - Source
 - Transmission-Distribution

- Assets
 - Pump-Motors Performance
 - Source
 - Transmission/Distribution
 - Valves, Instruments...
 - Source
 - Transmission-Distribution
 - Pipes
 - Source
 - Transmission-Distribution

- Predictive Scenarios
 - Plants & Network
 - Assets | Power

Unified Applications

Plant & Network Optimization
Advanced Process Control

Operations & Energy Optimization | Assets Maintenance

Water Network Management Energy Performance Asset Performance Performance Dashboards

Unified Platform

Historian | HMI | Workflow | Intelligence | Surveillance | Customization
SW Drivers for Multi Vendor HW-SW

SCADA | IIOT-Edge

Various Control Rooms
(Supervisory Control & Data Acquisition)

Third party system

- Other Hydraulic Model
- Quality: LIMS
- SCADA | GIS | Billing | NRW | ERP | BMS

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