



**Take your utility to the next
level with the Integrated
Water Management Center**

Make real change using the hypervision platform

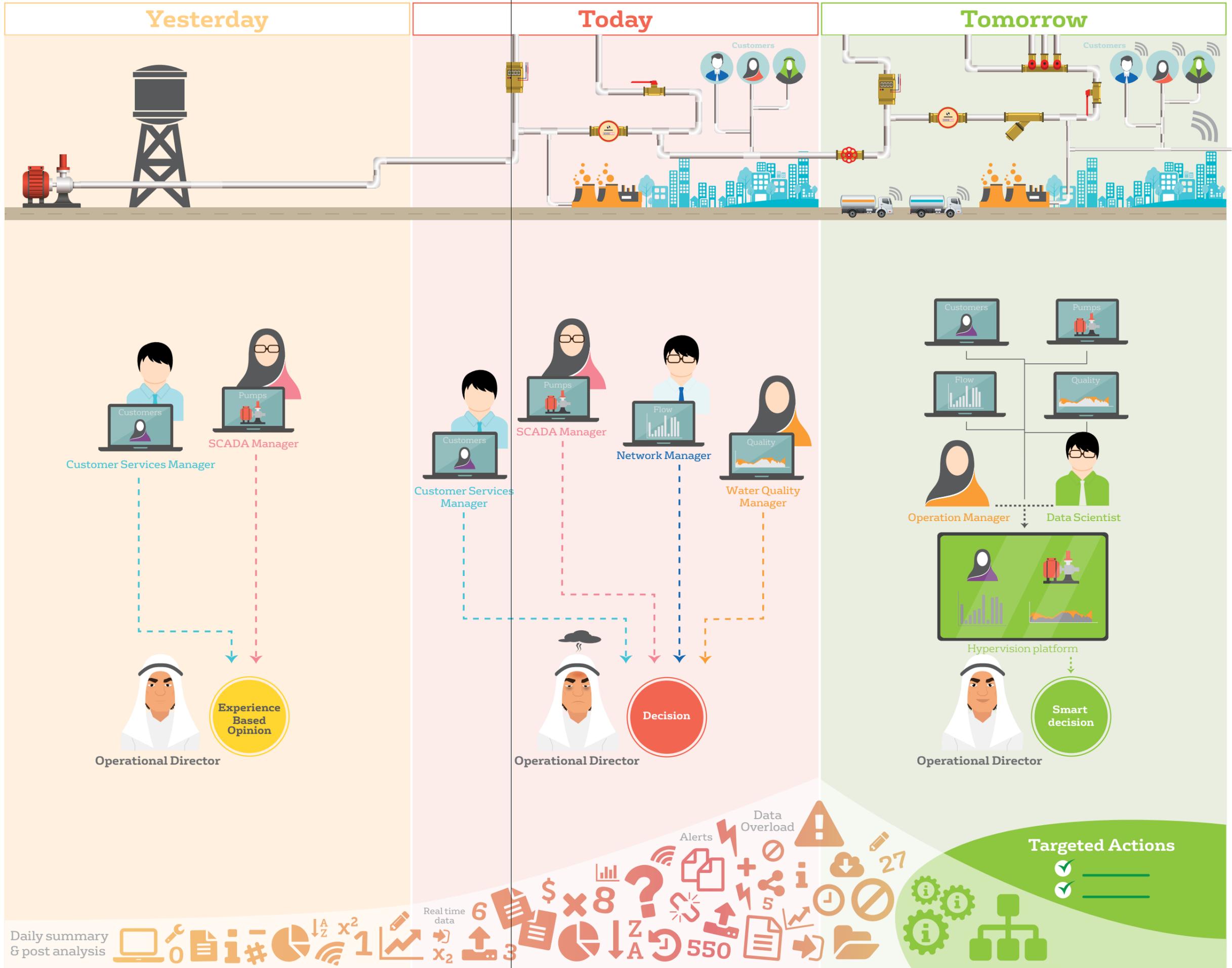
Fast growing cities, aging infrastructure, citizens desire for more information... No doubt, the complexity of water and wastewater infrastructure is booming.

The Internet of Things (IoT) and the Information and Communication Technology (ICT) are promising solutions. And rightfully, water and wastewater utilities are investing in a new generation of communicating meters and sensors. But this revolution is not limited to the IT. It shakes the whole organization. The new data streams command for smarter and fact-based decisions.

While yesterday, decisions were mostly taken based on experience and little information available.

Today, much more data are being generated. With the multiplication of systems and experts and without a framework for data collection and analysis, decision makers could face data overload. The consequence for the managers: taking sound decision is hard. The easy way out of this situation: the old way, experience based decision.

Our way out: An hypervision platform. Data scientists and experts works upstream to deliver situational awareness with outside data and powerful analytics. In real-time, it enables fact-based and predictive decision-making thanks to unified data access and analysis resulting in targeted actions.



User case: Zero friction, One screen, Few clicks

1

A code red alert appears on the map.

The operator receives an alert for a suspected leak in Street Blanc. The Integrated Water Management Center integrates near-time remote measurements from several plant and network assets such as leak noise correlator (in red in the picture) and automated detection of anomalies such as suspected leaks.

The Integrated Water Management Center is a hypervision platform where relevant information for operation teams such as alerts are gathered in a single place. This allows the team to be aware faster of potential issues.



2

Technical details are one click away.

The operator directly reviews within the Integrated Water Management Center what the issue is. The team has access to more contextualised information based on the measurement from the leak noise correlator and other information gathered by the Integrated Water Management Center, such as pressure zone and urgency. This allows for situational awareness.



3

Intervention logistics start with accessibility...

In particular, the operator checks the accessibility of the street. Here, it is a one-way street which might make the intervention more difficult, as there could be a need to stop the traffic for a short period of time. The team can assess the situation remotely and better plan field interventions.



4

... and follow through with teams availability.

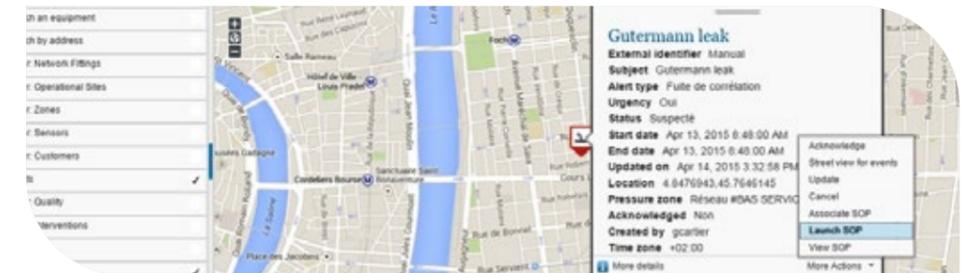
The operator also has access to the location of the nearest vehicles, and real-time traffic information to identify which field operator could be available and could reach the location of the suspected leak the fastest. The team can respond more efficiently and faster to events.



5

Intervention is dispatched in connection with existing systems.

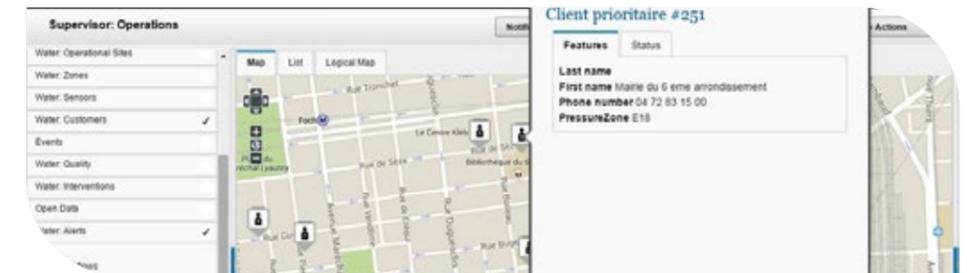
Based on his assessment of the situation, the operator decides to launch a Smart Operating Procedure that sends a work order to the relevant field operator with all details regarding the suspected leak. The Integrated Water Management Center facilitates the way the team are working by enabling them to act on from a single place that communicates with existing legacy systems and automating part of their tasks (no need to call the field operator to provide information on the suspected leak).



6

Information is dispatched as well to VIP customer and relevant authorities.

The operator is able to identify who are the VIP customers that might be impacted if the leak is confirmed. Details on these customers such as phone number are available, as well as the option to alert the customer department. The Integrated Water Management Center facilitates exchanges between departments and supports improved information to client and transparency.



Main features of our solution

Success factors

Scalability:

- Integration of data from multiple sources
- Future installations of sensors and equipment geographically
- Drinking water networks, wastewater collection systems, district heating and cooling networks, and broader city monitoring

Compatibility:

- Supports all major industry communication protocols (e.g. JMS, Web Services, HTTP Restful Services, WebSphere MQ, JDBC, ODBC, MQTT, Email, File based integrations)

Cloud / on premises

Critical factors

- Our end-to-end capability
- Water utilities domain experience across technologies and operations
- Dedicated resources and specialised skills

References

The Integrated Water Management Center platform is the result of Veolia leveraging experience from building control centres in major cities (Paris, Shanghai and Prague) to develop an industrialised version that could be easily implemented by water utilities.

Lyon - France



Lyon targets to save 12 million m³ of water per year.

Greater Lyon has the second largest drinking water service in France in terms of the population connected: **1.3 million** people across **54** municipalities. Veolia produces and delivers drinking water to **400,000 customers**, and operates **4,000 km of networks** and **150 operational sites** across the network.

The recently renewed operational contract has focused on innovation and digital solutions, and relies on the provision of the Integrated Water Management Center, together with the implementation of thousands of sensors (including Gutermann and Kapta sensors) to dramatically increase the performance of the network, improve the efficiency of the field teams, and upgrade service levels to customers.

Veolia is implementing the ECONO project under which it is planned in particular to install **5,500 leak location sensors** for the **continuous surveillance of 2,000 km** of the most sensitive parts of the network. Added to this, **500 mobile sensors** will be used for an active leak detection program along an additional **800 Km of the network**.

References

Shanghai, Pudong - China



Access to 3D views of infrastructure for the water distribution Field Operators on their Smartphone.

In the space of a decade, the water service of Shanghai's financial and commercial hub, Pudong, has become a platform of global expertise, implementing the most innovative technologies to manage drinking water systems.

In Pudong, Veolia serves over **4.2 million** people under a public-private partnership covering the management of the entire drinking water service. This partnership, which is unprecedented in China and has been running **since 2002**, handles a volume of **1.6 million m³ of water every day**.

Pudong's integrated Water Movement Control Center is equipped with the latest generation network management tools. It is able to monitor the **34 sectors** of the **drinking water distribution system 24/7** using **463 measuring instruments** that can locate and visualize leaks or pollution. The mobility solution Center complements this set-up by providing on-site network operators access to 3D views of all the facilities and the relevant technical data in just a few clicks. It constantly interfaces with the operators' smartphones, which stream data on response time, team location, progress photos of maintenance works and emergency management for Veolia customers.



Tidworth - UK



System scalable from 4,200,000 inhabitants in Pudong to 300 times less in Tidworth... and still worth it.

Tidworth is a rural town with a transient, mainly military population of between 12,000 and 15,000. Veolia provides water and sewerage services to the town through its own water and wastewater networks. The networks comprise borehole supplies, water and waste water treatment plants, approximately 100 km of water mains, 140 km of sewers and 10 sewage pumping stations. The population is set to increase by 25% in the next five years. The Integrated Water Management Center and an array of meters and sensors have been provided to demonstrate the power of our Smart Network solution and to deliver improvements in performance and service across the board and to help us to supply the increased population without increasing abstraction.

Analytics for sewer monitoring: overflow & storage capacity optimisation

The existence of a causal link between climate disruption and extreme weather events has been identified. Specific to this example, an increase in rainfall intensity in some regions of the northern hemisphere has been observed. In order to adapt to this change, the City of Copenhagen turned to Veolia to implement an approach that would forecast flooding in order to optimise the sewer network storage capacity, to prepare the plant to receive additional volumes of water (wet weather mode), and to minimise damage caused by these events.

The STAR2 Professional control system has been continuously developed by Krüger (a Veolia subsidiary) since 1992, and combines years of experience and process knowledge.

Key results of the Copenhagen implementation:

- **90% elimination of overflow** events per year were demonstrated
- **93% reduction in investment needed** (against standard storage basins solution)
- **10-15% less energy required** to treat wastewater achieved at a plant already controlled by PLC as well as online measurements corresponding to 10-12 % reduction in greenhouse gas emissions
- **One third less pollution from overflows to the sea around Copenhagen**
- **Increase in value of property** around the harbour

How to procure the Integrated Water Management Center?



Different offers targeted to your priorities

	Your benefits					
	Environmental & health performance	Risk management	Transparent Interaction	Service improvement	OPEX savings	CAPEX savings
Critical situations	✓	✓				
Leakage	✓	✓	✓	✓	✓	✓
Water quality	✓	✓	✓	✓	✓	✓
Non revenue water		✓			✓	✓
H ₂ S risk	✓	✓	✓	✓	✓	✓
Real time management	✓	✓	✓	✓	✓	✓
Customer Services		✓	✓	✓		✓
Assets management		✓	✓	✓	✓	✓
Interventions by Management		✓	✓	✓	✓	✓
Energy Efficiency	✓	✓	✓		✓	

Four phases in 12 months to roll out the Integrated Water Management Center

Phase 1	Phase 2	Phase 3	Phase 4
 Network Audit	 Set performance targets	 Create the smart network	 Proactive management of smart network
Network configuration	Client satisfaction	Plan how to smarten-up network	Exceed performance targets
Network condition	Regulatory compliance	Deploy technology	Real time modelling
Network performance	Capital & operational expenditures	Integrate outputs into management processes	Planning for the future

Resourcing the world