Advanced Solutions
Asset Intelligent Services

AQUADVANCED®
quality monitoring

Advanced solution for
a real-time water quality
monitoring in distribution
networks

suez

SUEZ presents AQUADVANCED® Quality Monitoring, the new addition to the SUEZ digital tools for real-time management of water operations, designed for the continuous supervision of water quality in distribution networks.

▶ A unique combination of **operational expertise** and **technological innovation** to continuously detect, locate and qualify water quality events on the distribution networks.

▶ This solution has been designed to support **water utilities** in their challenges for **regulatory compliance** and the implementation of **Water Safety Plans.**

AQUADVANCED® Quality Monitoring innovation for risk management

AQUADVANCED® Quality Monitoring is a modular solution capable of detecting water quality anomalies in the distribution network by integrating the entire data-to-information chain with advanced network sensing and data analytics.

The solution allows:

▶ **Real-time monitoring of water distribution networks** adapted to the specific needs of the water utility

▶ **Targeted monitoring of:**
　▶ **Sensitive facilities** such as nurseries, schools, hospitals or retirement homes
　▶ **Sporting, cultural or festive events**, via the installation of temporary reinforced surveillance devices at essential control points

▶ **Support the management of chlorine reduction projects** by monitoring the residuals in the various parts of the system

securing drinking water networks by **detecting quality anomalies** at early stages

Improved risk management

▶ **Immediate identification of accidental or malicious incidents**: opening of fire hydrants, pollution, intrusions on the network, etc.

▶ **Characterization and localization of the impact of incidents**

▶ **Taking into account the specific characteristics of a territory on a permanent or ad hoc basis**: sensitive area, fragile resource, operational constraints, etc.
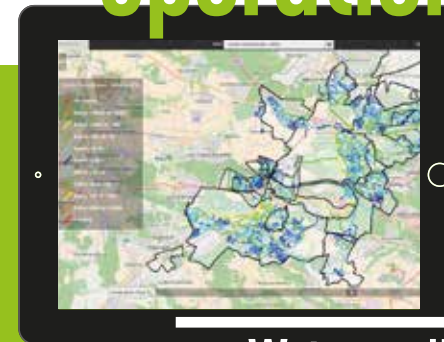
Regulatory compliance

▶ **Towards a "0" non-compliance objective related to operations**: bacterial pollution, particulate pollution related to work or interventions on networks, incidents on the production chain, etc.

▶ **Support for the implementation of new regulatory requirements**, in particular those introduced by the Water Safety Management Plans (WSMP)

▶ **Identification of recurrent network anomalies** such as backflow, red water, turbid water, unusual chlorine consumption, etc.

Operational excellence

▶ **Overall improvement of the global water production process**: modifications to the treatment plant, chlorine injection, THM elimination, etc.

▶ **Continuous monitoring of the stability of the quality of water delivered over time.**

▶ **Reduction of perceived changes in tap water quality**: taste, odour or colour.

from reliable measurement of parameters to **valuable operational indicators**

Water quality measurement

Integrated data platform

Advanced data analysis

AQUADVANCED® Quality Monitoring relies on proven technologies that guarantee the accuracy and relevance of the information delivered to water network operators.

▶ **Certified insertion probes measuring up to 7 physicochemical parameters**: chlorine, pH, conductivity, temperature, UV254, turbidity, TOC

▶ **Sensors for continual measurement of bacterial regrowth** in the distribution network, which can be supplemented by a pathogen identification protocol.

▶ **A stand-alone power supply unit** (patented) installed in the water network to provide electricity to the equipment when no connection is available.

▶ The data collected and processed in real-time are made available in a **SaaS application** integrating all relevant data of the distribution network.

▶ The software solution is **scalable and compatible with all SCADA systems on the market**. It also makes it possible to integrate existing sensors in the water utility.

▶ **Dashboard** showing **indicators for daily performance**, as well as **cartographic display** of sensors and data (quality maps).

▶ **Intelligent event detection by machine learning algorithms:** detection of abnormal variations in water quality, overspeed, abnormal bacterial growth, coloration,...with map location of the area potentially impacted by the event.

▶ **Advanced features by integrating a hydraulic model:** map of water sources, area of influence of a reservoir, residence time.

a four-step approach

01 Identification of potential risks

▶ Preliminary study of the network configuration and the equipment in place, as well assessment of the risks to be covered

▶ Selection of the physicochemical parameters to be monitored

▶ Identification of optimised placement points for sensor installation in addition to hydraulic sectorization
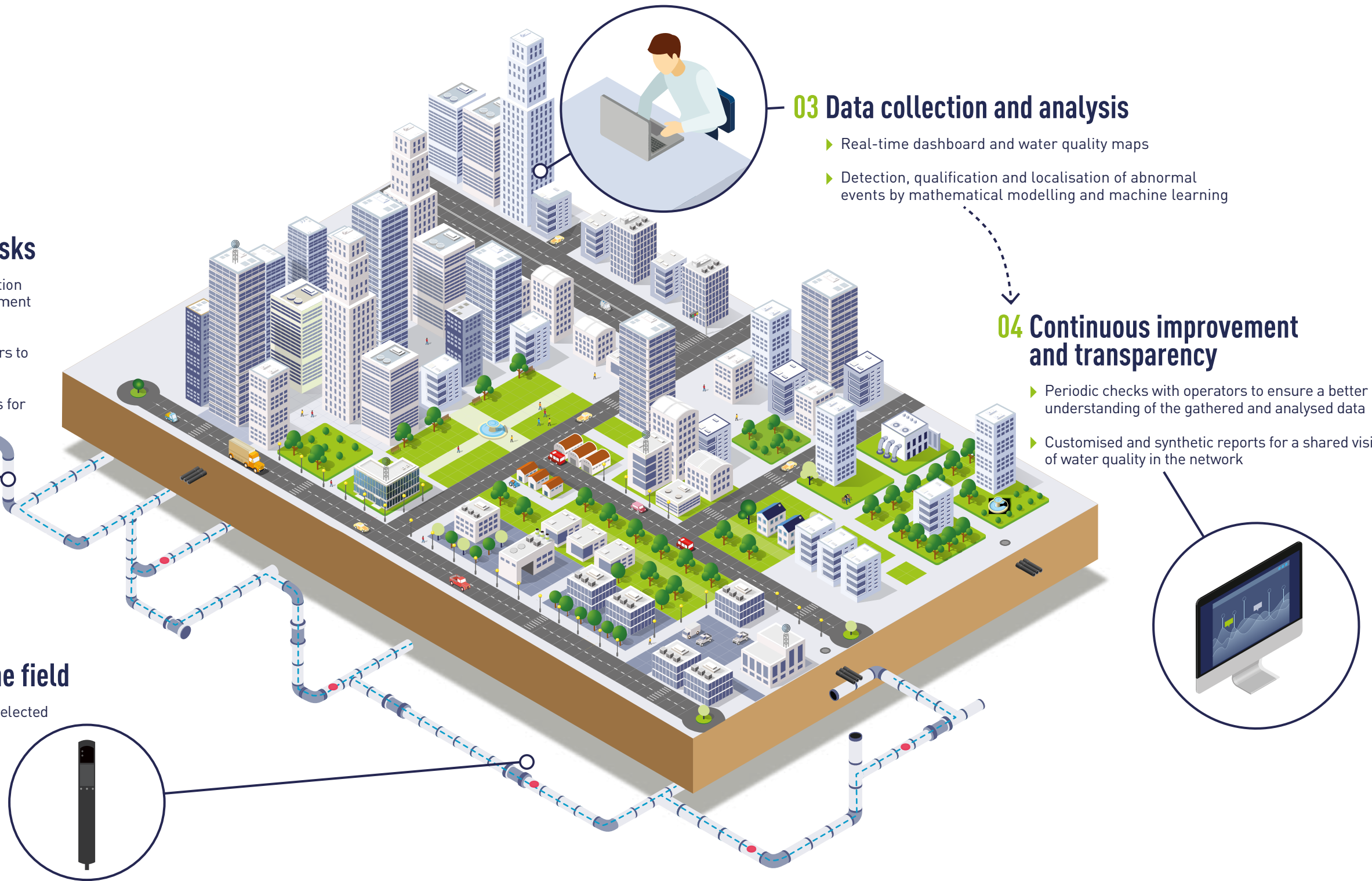
02 Deployment of sensors in the field

▶ Supply, installation and commissioning of selected equipment for monitoring parameters

▶ Maintenance and support

03 Data collection and analysis

▶ Real-time dashboard and water quality maps

▶ Detection, qualification and localisation of abnormal events by mathematical modelling and machine learning

04 Continuous improvement and transparency

▶ Periodic checks with operators to ensure a better understanding of the gathered and analysed data

▶ Customised and synthetic reports for a shared vision of water quality in the network

SUEZ