

BALKANS JOINT CONFERENCE AND EXHIBITION
ACCELERATING
Change 7-9 NOVEMBER 2023
GOLEM, ALBANIA

*Towards Safe, Reliable
and Sustainable Services*



A data-driven water story: from the source to the citizen. The case of Kos Island

A.Papadopoulou & A.Dragkolas
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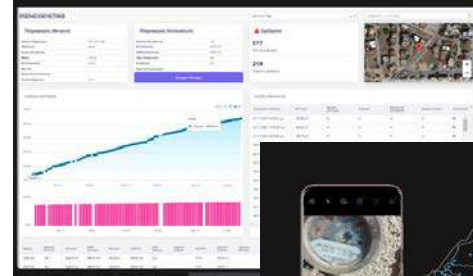
Outline

- The water supply system (WSS) of the digital city of Kos Island
- The methodology and technics
- “SmartVille” one Platform with 10 Innovative Applications
- The results of innovative IoT use in the WSS of Kos Island

The objective of the paper

- Low water consumption measuring

From threat  to opportunity



- More reliable data is a necessity for the optimization of the Technical Operation and Maintenance of Water Utilities

Introduction to Olympios Group



Founded 1997
Integrated Solutions, Distribution & Representation of more than 60 manufacturers



Founded 2003
Automation Solutions, SCADA Systems, AMR/AMI



Founded 2014
Integrated Solutions, Construction Services



Founded 2020
Software Integrated Solutions, IoT, ERP & Billing Systems



Founded 2022
Integrated Solutions

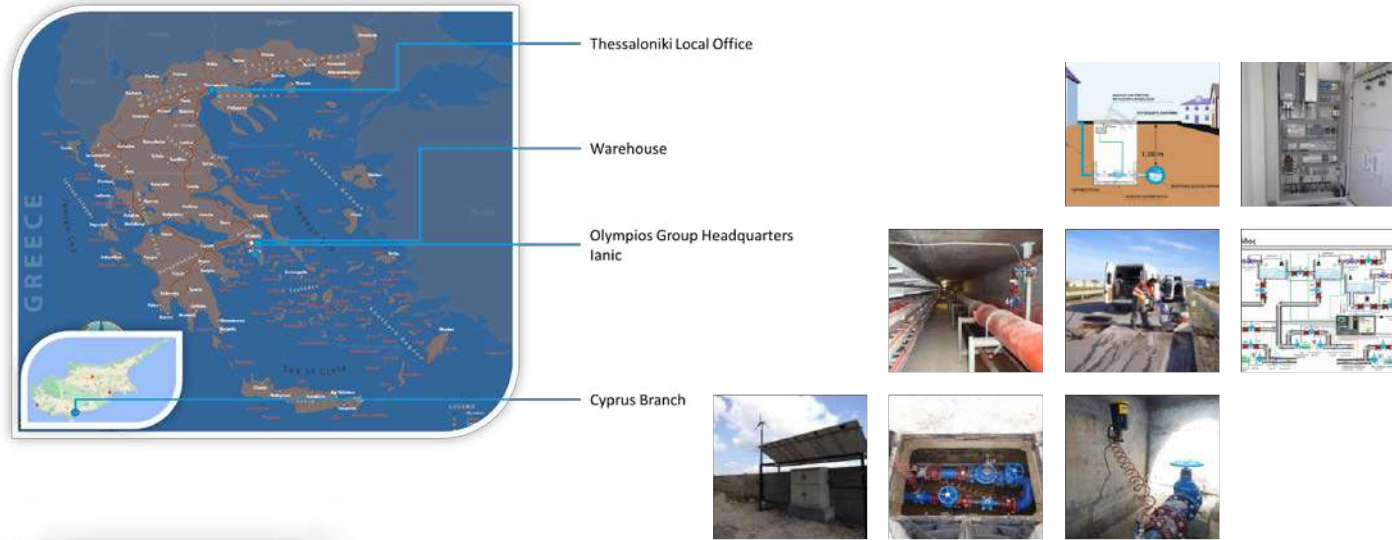


The philosophy of our group has always been to provide complete solutions to our clients, we support in every aspect all the products and services, before and after the sale.

We focus on the needs of each customer separately and we offer tailor-made solutions implementing high quality products and services, considering always the cost-profit ratio, for our clients.



Introduction to Olympios Group



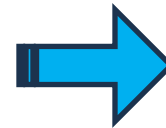
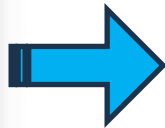
Thessaloniki Local Office

Warehouse

Olympios Group Headquarters Ianic

Cyprus Branch

The collage includes: a building with a sign, a server room, a large pipe installation, a construction site, a schematic diagram, a small building, a water treatment unit, and a water tap.



Introduction to Olympios Group

120+

Integrated Projects
for Water Distribution
Network Management &
Loss Reduction



150

AMR/AMI Projects
(wMBus, LoRa, NBloT)



35

Smartville Projects



25

WebGIS Projects



40

ERP & Billing
Systems



20

SCADA Projects
for WWTP



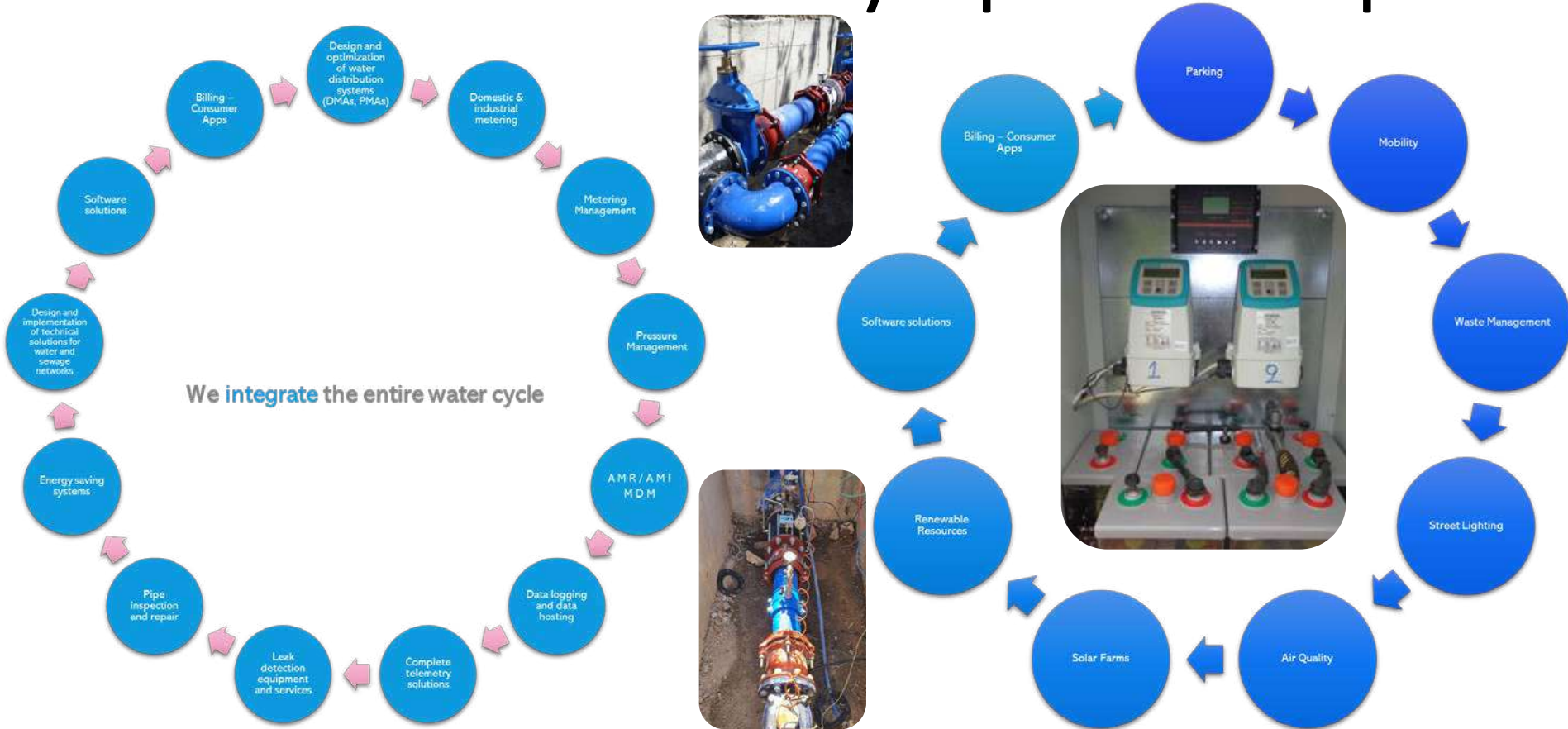
25

Contracts
for Leak Detection

Introduction to Olympios Group



Introduction to Olympios Group



Introduction to Olympios Group



Beyond
2022

Water
Europe
2023

Energy
Awards
2023

Best
City
Awards
2023

IFAT
2022



INTEGRATED REMOTE CONTROL SYSTEM (WATER CONSUMPTION AND QUALITY) - KOS ISLAND

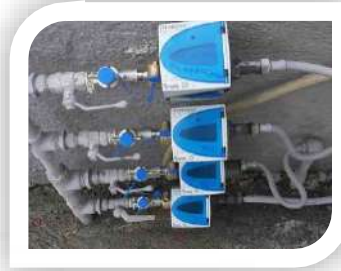
- ✓ 14 LCSs, leakage reduction/pressure control
- ✓ 43 LCSs, leakage reduction / pressure/supply
- ✓ 20 LCSs leakage detection / noise control
- ✓ 5 LCSs leakage detection / supply measurement
- ✓ 25 Local Control Stations leakage detection / supply measurement /external network / pump management
- ✓ 1 Central Control Station (CCS)



The WSS of Kos

Customer: Water Utility of Kos island
Project: INTEGRATED REMOTE CONTROL SYSTEM (WATER CONSUMPTION AND QUALITY)
Location: Wider area of the island of Kos
Notes: Decrease in NRW by 32%

Total island area	282,5 km ²
Type of water meters	Digital
Location	Island/South Aegean
Consumption Fluctuation (high to low season)	Doubles/High touristic area
Water resources	Ground water
Population served	33.388 (2011)
NRW	> 35%
Measurement errors	12% System Input Value (estimation)
Infrastructure Leakage Index (ILI)	30,4 (2015)



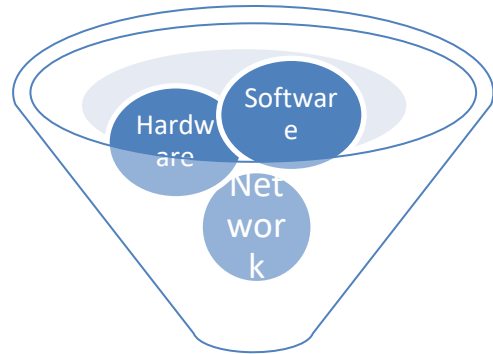
INTEGRATED REMOTE CONTROL SYSTEM (WATER CONSUMPTION AND QUALITY) - KOS ISLAND

Basic Components

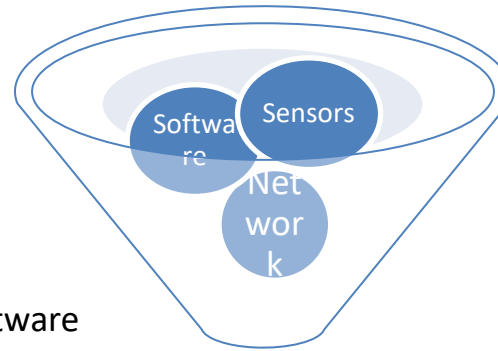
- Data Processing Units-PLC
- Servers
- Desktops & Laptops
- UPS
- Scada Software
- GIS Software
- Hydraulic Modelling Software
- Operation and Maintenance Software
- Electrical Equipment & Infrastructure

Basic Components

- PLC for remote operation
- Water Pressure Sensors
- Water Level Sensors
- Flowmeter Sensors
- Chlorine Sensors
- Inline Chlorination
- Electrical Equipment & Infrastructure
- Local Programming Network
- Communication Equipment

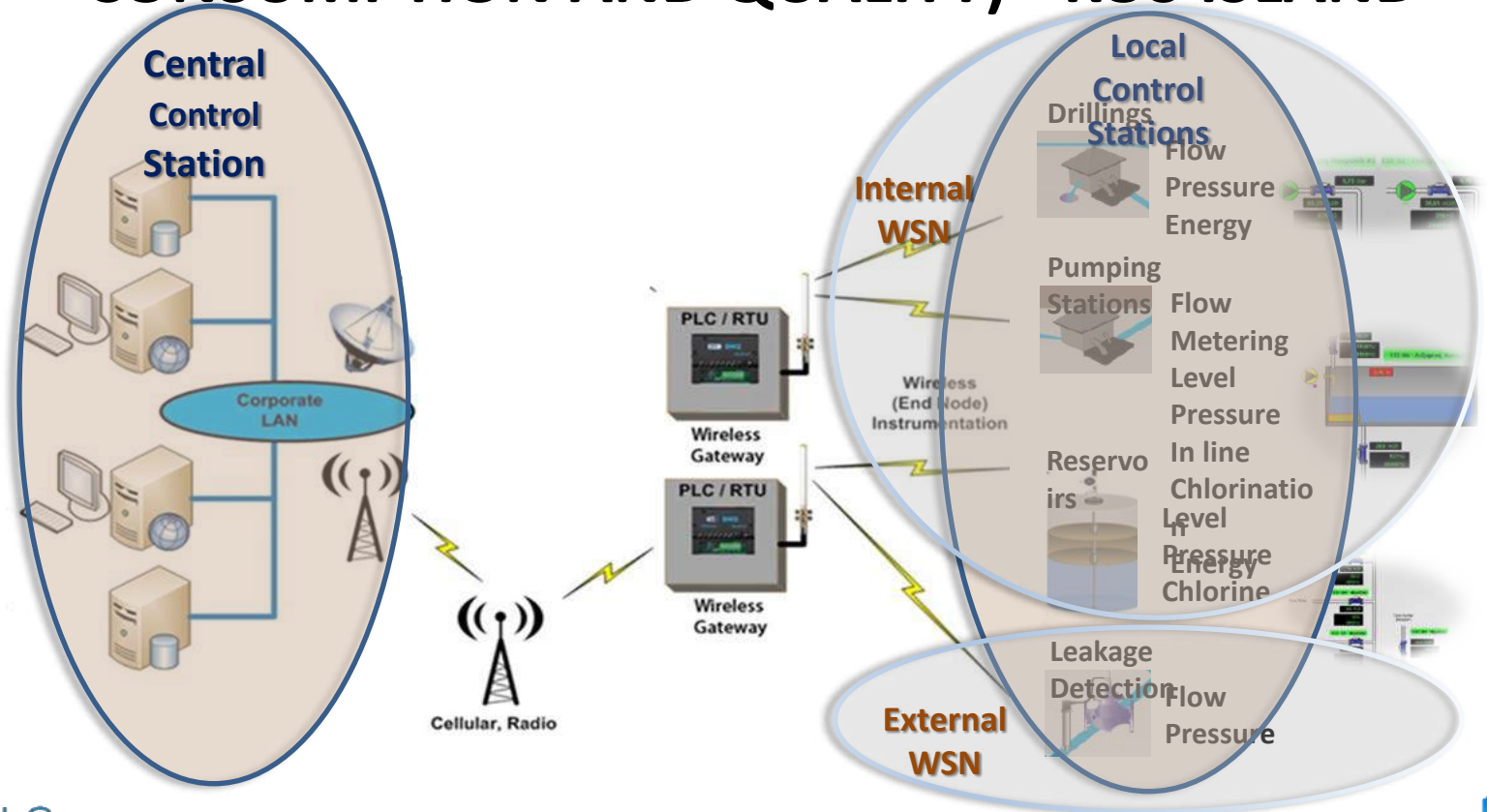


Central Control Station

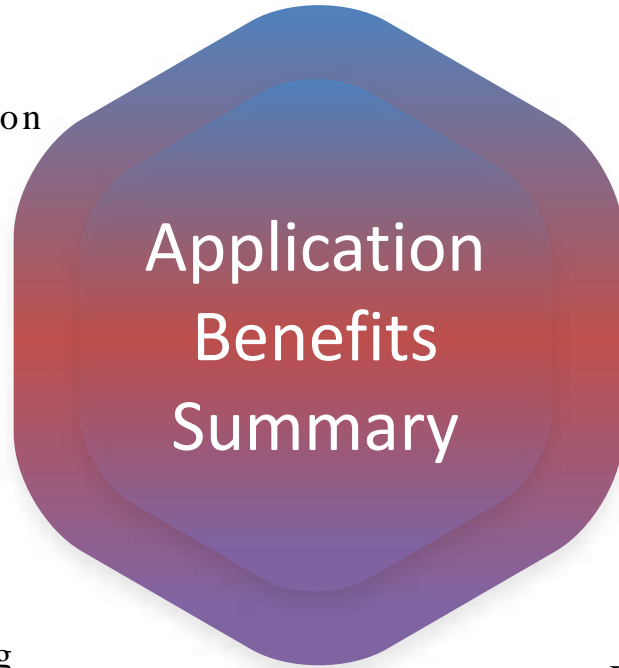


Local Control Stations

INTEGRATED REMOTE CONTROL SYSTEM (WATER CONSUMPTION AND QUALITY) - KOS ISLAND



Results and Recommendations



Automated water supply network component operation

Remote operational control

Tank Outflow Monitoring

Operation Alarm Messaging

Water Quality Monitor & Control

Significant reduction of the time required for customer meter reading collection

Backflow, Pipe burst, Internal leakage Alarms notifications

Decrease in NRW by 32%

The project Outputs and Results

Quantitative Indicators

Infrastructure operating costs reduction

Reduction of operating and administrative costs of drinking water distribution

Reduction of Non-Revenue Water

Application of new technological standards (measuring equipment) minimize water losses

Detection time of leakage in the entire network

Reliable calculation of water losses, frequent access to detailed data and data security

Improve relations of trust among consumers and services/ Customer Complaints Reduction

Water Quality Improvement

The project Outputs and Results

Qualitative short and long term result indicators

Reliable calculation of water losses, frequent access to detailed data and data security

Capacity building of Water Operators, simple software and easy integration into the WSN

Application of innovative tools and methodological approach in the whole water supply network

Highlight the importance of quantifying water losses in high touristic areas

Obtaining statistical and hydrological data for the purpose of short- and long-term planning and programming and the prioritization of future investments

Avoiding billing errors that end in consumers complaints

Decision-making based on reliable data and not on ' estimates ' or ' knowledge ' or ' experience '

Better overall management of drinking water (consumption profiles per household day, period, region, etc.)

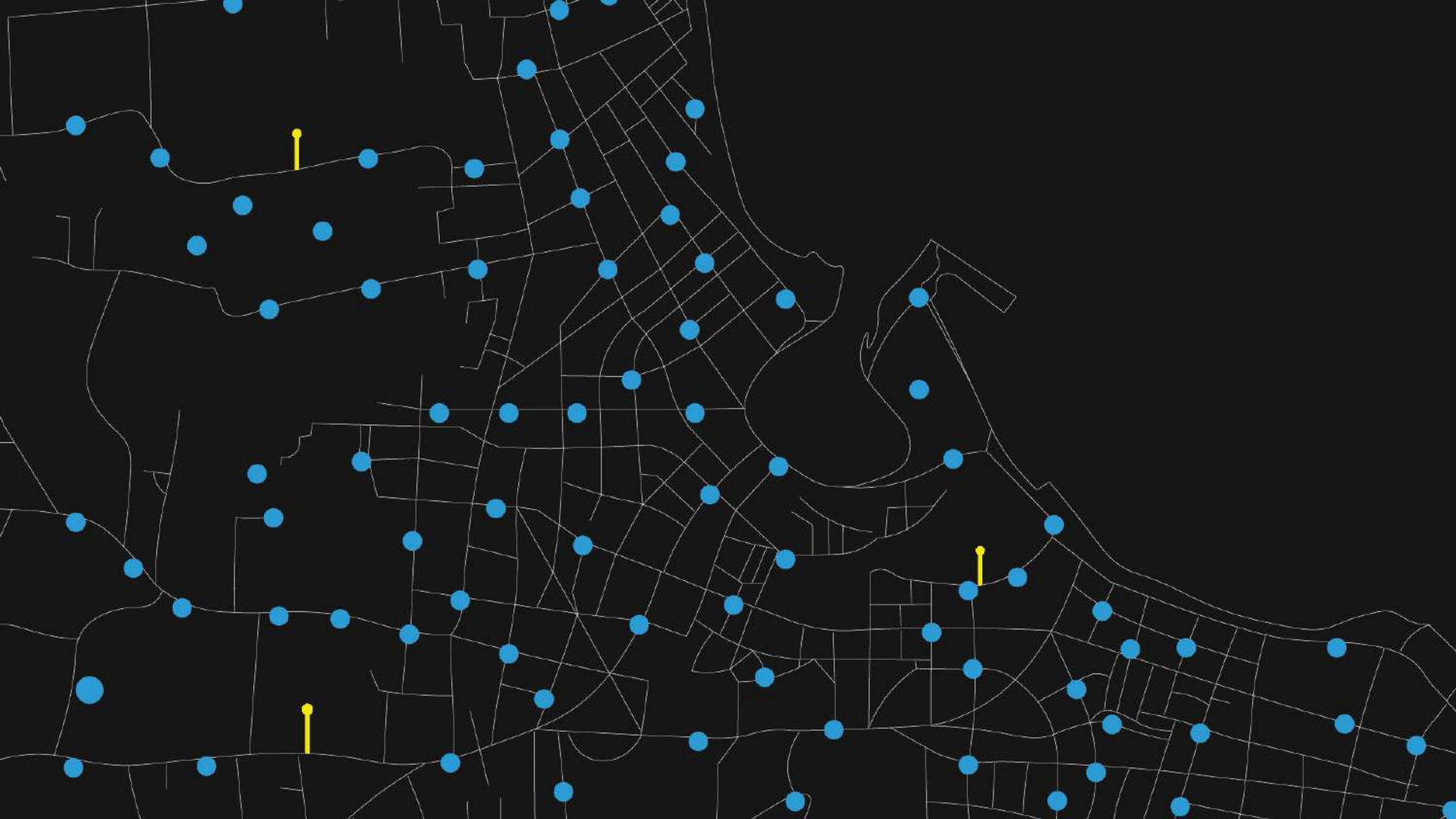
Possibility of adding and integrating into the system new control stations with future expansions of the system

The future “SmartVille”





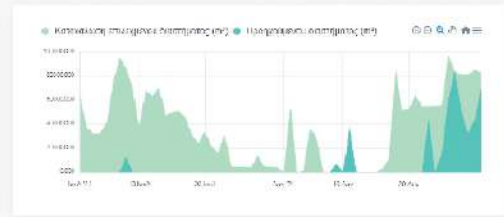
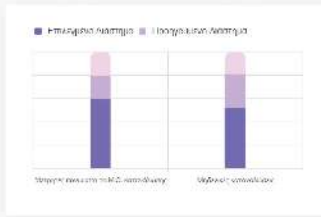
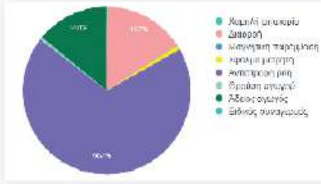






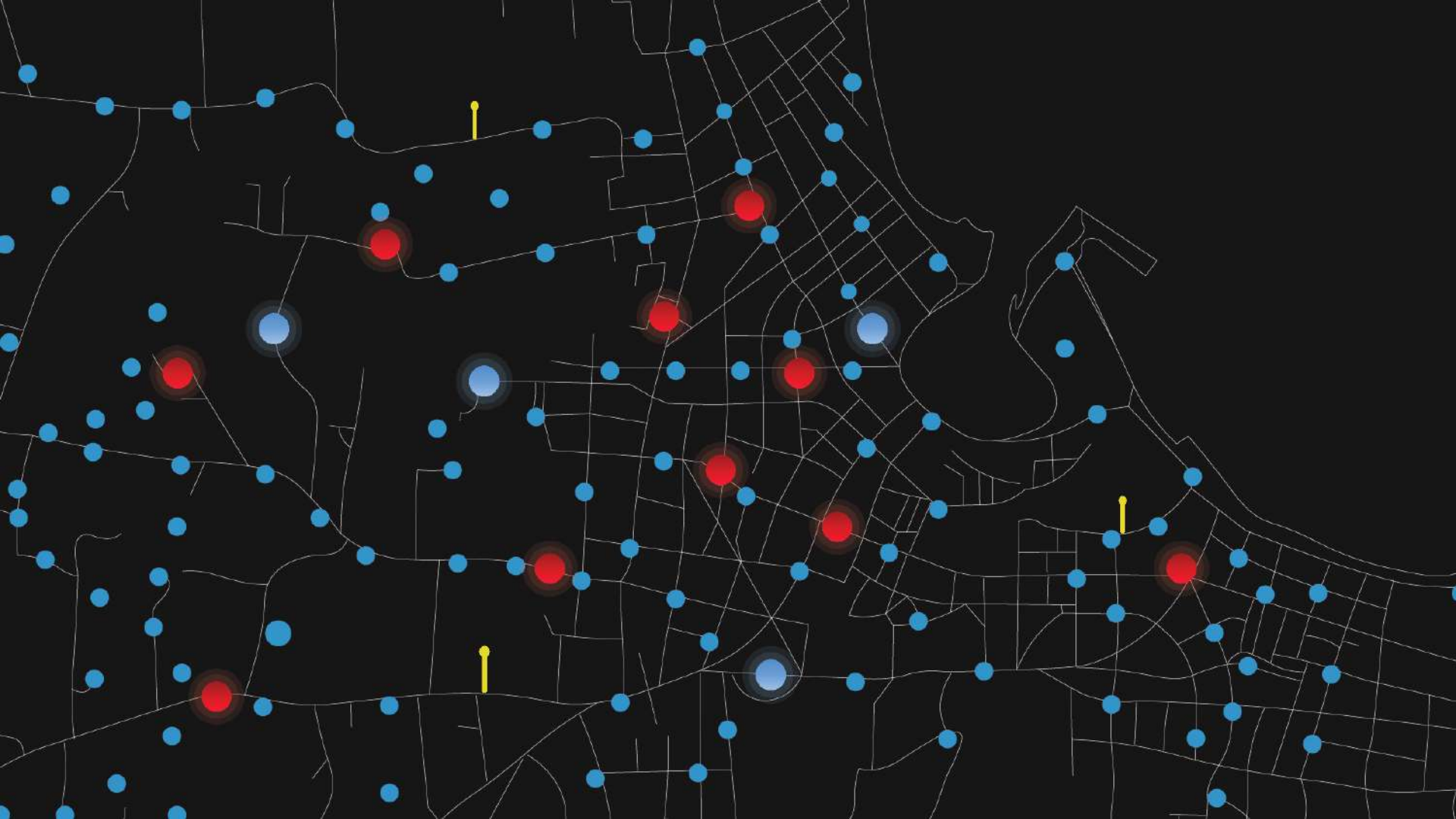
Դասեր

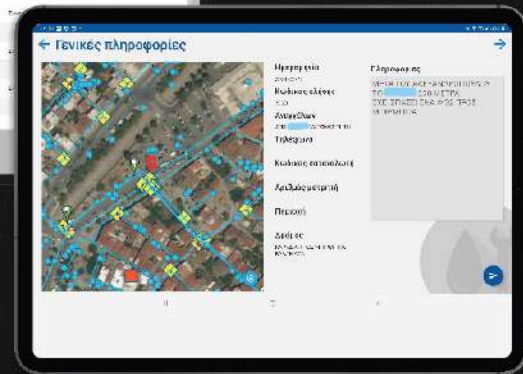
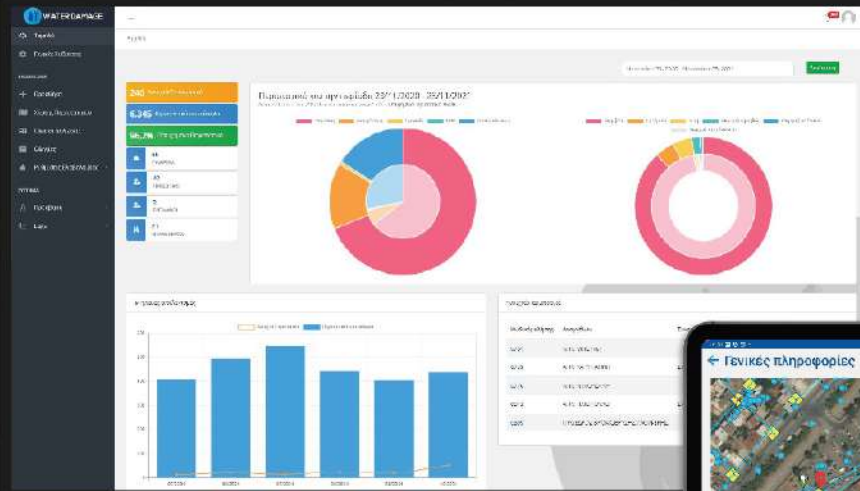
Ինքնաշարժային մեքենաներ

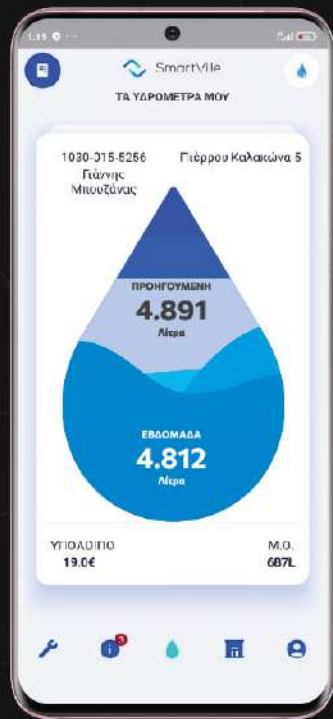


Կատարված քաղաքացիական	Ինքնաշարժային մեքենաներ	Ընդհանուր	Միջակայք
15.41 m ³	6.90 m ³	22.31 m ³	22.31 m ³
15.41 m ³	6.90 m ³	22.31 m ³	22.31 m ³









SmartVille app

Η νέα Android & iOS εφαρμογή
για τον καταναλωτή

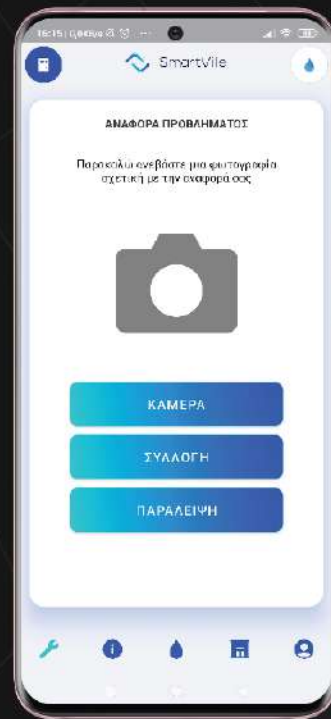
Επισκόπηση κατανάλωσης και καθορισμός ορίων





Ειδοποιήσεις για διακοπές υδροδότησης και πιθανή διαρροή νερού

Αναφορά προβλημάτων





**Πλήρες ιστορικό χρεώσεων
και ηλεκτρονικές πληρωμές (e-bill)**



Atrium 2.0 Cloud ERP για εταιρείες ύδρευσης

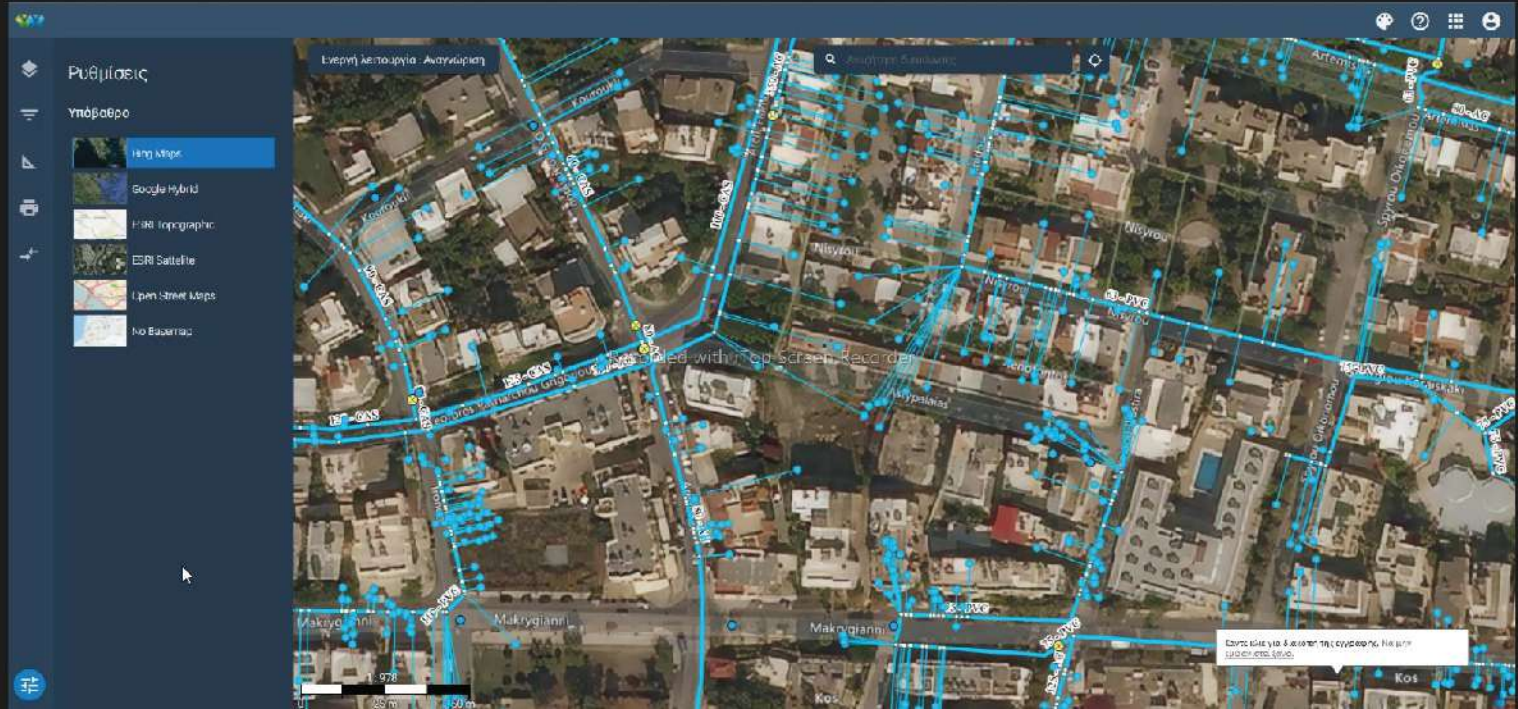


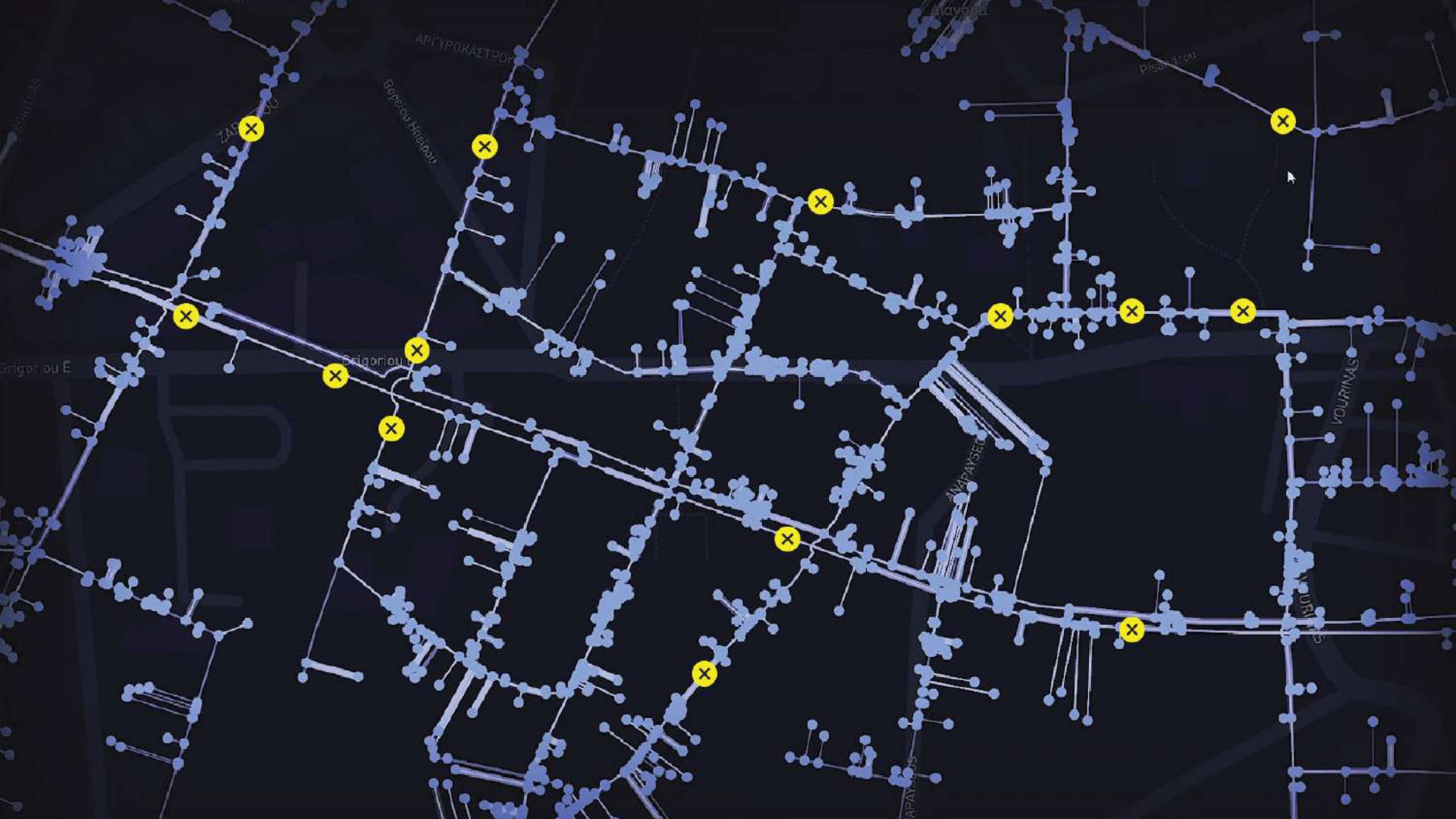
SCADA
Web interface

WaterPillar

-Ψηφιακή χαρτογράφηση των υποδομών (WebGIS)

-Υδραυλική προσομοίωση των δικτύων ύδρευσης





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Thank you and Questions