

Smart Flows: Real-world Applications of Digital Transformation in Water Management

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**The story started in
Valencia (Spain)**

Water scarcity

Customer Satisfaction

Reduce Energy consumption

Secure Water Supply

reduce leaks and NRW

Carbon Footprint & Climate Change

Aging workforce & Knowledge Transfer

Water and sanitation: increasing access coverage

increasing cost of water treatment

Resilience to Extreme Events

Water Quality



Results of the Digital Transformation Process

From a leading European water utility ...



Years of experience

+130

Employees

+3,000

Annual Revenues

\$450M+

Cities Managed

400

Water Treatment Plants

30

Waste Water treatment Plants

300

...to a holistic transformation started in 2005...



Water scarcity and increasing **cost of water treatment**



Information siloes between areas and technologies (SCADAs, GIS, CMMS, ERP)



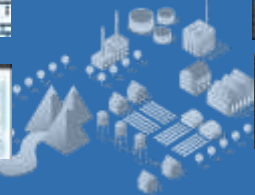
Generational gap – senior operators with know-how, and younger digital-natives

...to becoming one of the **leading international smart water companies.**



IDRICA

go-aigua



Smart Water Simplified

10+ bn data points / year connected
400+ clients worldwide



Services & Technology Provider for the water cycle

Technology by utilities for utilities



Results of the Digital Transformation Process



Great use cases solving O&M needs but...

Digital Frankenstein

Isolated use cases and data management

Before **go-aigua**



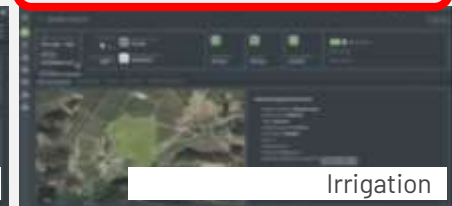
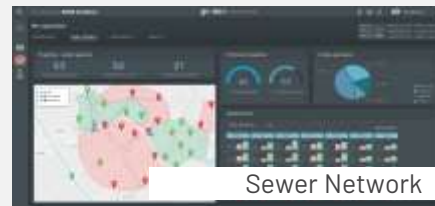
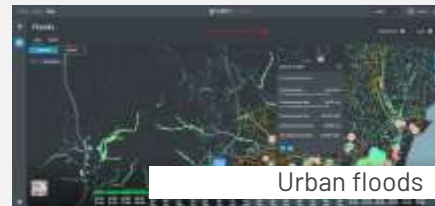
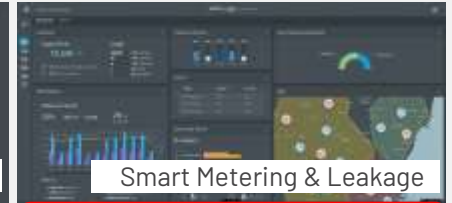
Results of the Digital Transformation Process



From siloed applications to a centric smart water platform for the entire water cycle

Data Centric Architecture
(unique Data Model)

After 



From January 2023



Digital Twin Components

Digital Twin
Components

DATA

MODELS

ANALYTICAL
INSIGHTS

GIS

Infrastructures

Clients

SENSORS

Real-Time

Off-line Time

SCADA

Monitoring

Remote
Operation

**SMART
METERING**

Customer
Services

Network
Operation

CMMS

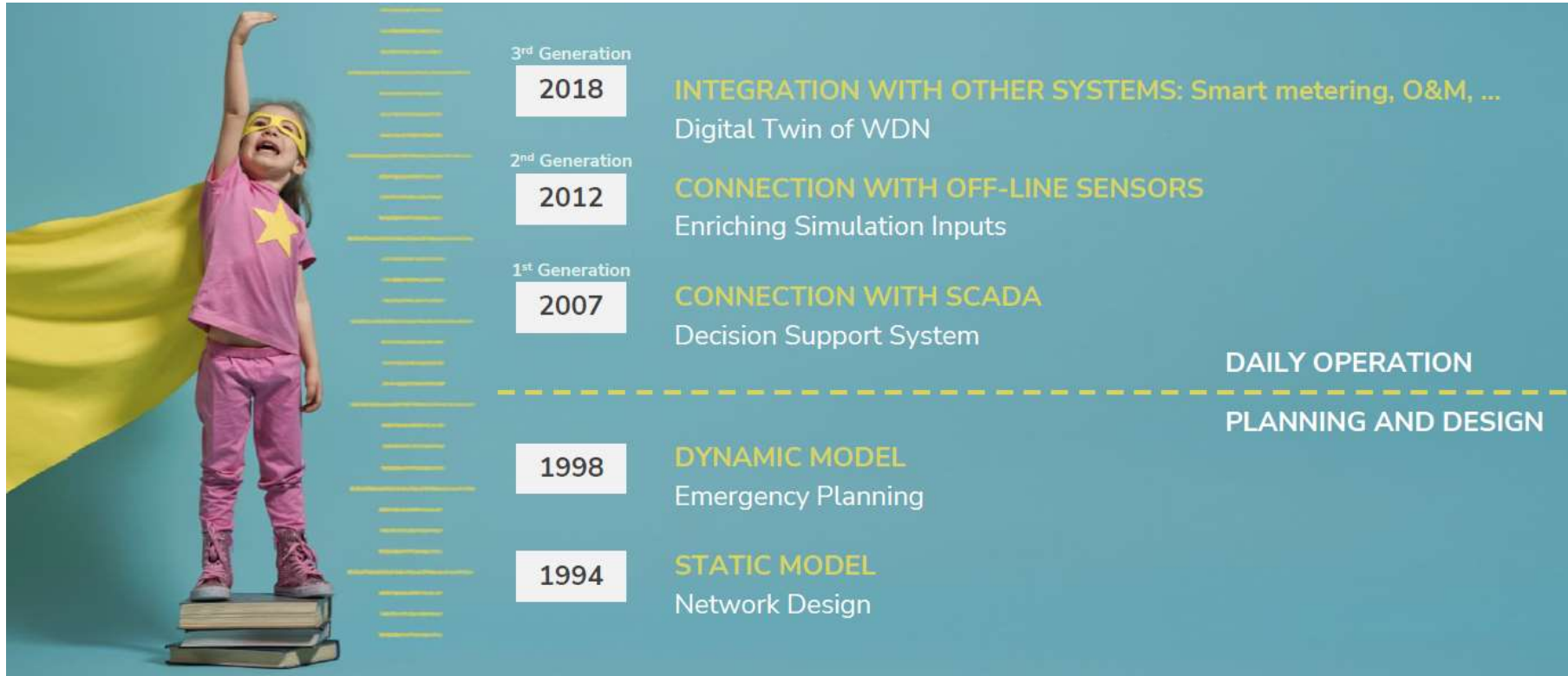
Maintenance
Register

Mobile Work
Mgmt

Data Centric Platform



Digital Twin evolution in Valencia Metropolitan Area



Digital Twin in Valencia

Valencia (Metro Area) Water Distribution

Valencia + 51 Municipalities: 1.7 M inhabitants

2 D.W. Treatment Plants

250 km Main + 1200km Distribution (Looped)

Hydraulic Model connected in Real Time

900 km / 47 pumps / 28 tanks / 254 valves

430 pressures sensors / 200 flowmeters / 400k smartmeters

Fed by 20.000 daily readings



→ + 10.000 “virtual sensors”



Application & Benefits



PLANNING TOOL

Optimal network design

Contingency planning

Master Plans for infrastructures

Maintenance scheduling

NRW Reduction

Define behavior of new infrastruc.

Assess network requirements



Application & Benefits



DAILY OPERATIONS

Operators training

Hidden failure & anomalies detection

What-if analysis & future simulations

Early response to emergencies

Water quality monitoring & control

Leak location & energy optimization

Decision support system



Results in Valencia

4 hm³

water saved

+18%

NRW reduction

+19%

reduction in
maintenance cost

+45%

improvement in
administrative tasks
related to field work

+60%

complaint reduction

+15%

energy efficiency



Thank you!



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