How CILE transforms water management through smart solutions

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Water production and distribution is not a too sexy business

How to make it a true « LONG FLEUVE TRANQUILLE »

William De Angelis,
Top5 Finalist CDO of the Year in BE

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ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2023: SPECIAL EDITION- UNSTATS.UN.ORG/SDGS/REPORT/2023/

SAFE DRINKING WATER, SANITATION AND HYGIENE STILL OUT OF REACH FOR BILLIONS IN 2022

2.2 BILLION PEOPLE LACKED SAFELY MANAGED DRINKING WATER

3.5 BILLION PEOPLE LACKED SAFELY MANAGED SANITATION

2.2 BILLION PEOPLE LACKED BASIC HAND WASHING FACILITIES

TO MEET 2030 TARGETS, PACE OF PROGRESS WILL HAVE TO ACCELERATE
6x DRINKING WATER
5x FOR SANITATION
3x HYGIENE

2.4 BILLION PEOPLE LIVE IN WATER-STRESSED COUNTRIES [2020]

81% OF SPECIES DEPENDENT ON INLAND WETLANDS HAVE DECLINED SINCE 1970

INTEGRATED WATER-RESOURCES-MANAGEMENT IMPLEMENTATION NEEDS ACCELERATION

NUMBER OF COUNTRIES PER PROGRESS LEVEL
LIMITED 55 | SUBSTANTIAL 22 | CLOSE TO TARGET 44 | MODERATE 52

6.a DC water/sanitation, expand capacity support

6.b Support participation local communities water

6.6 Protect & restore water related ecosystems

6.5 Implement IWRM at all levels

6 CLEAN WATER AND SANITATION

6.1 Achieve access safe drinking water for all

6.2 Access equitable sanitation / hygiene

6.4 Increase water-use efficiency

6.3 Improve water quality

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CILE at a glance

Private LORAWAN network using the water tanks for the transmission

CHIFFRE D'AFFAIRES _____ **137.239.999** €

PRODUCTION D'EAU / AN _____ **26.952.877** m³/an
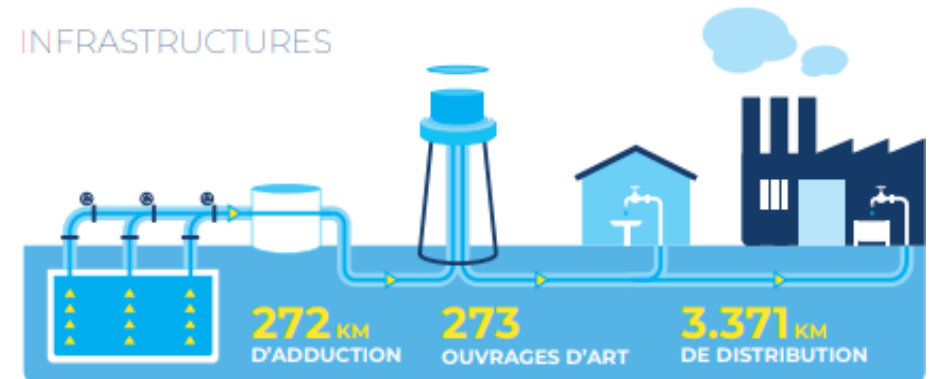
EFFECTIFS _____ **392** agents

298 + 99   **211** Employés + **181** Ouvriers

INFRASTRUCTURES

272 KM D'ADDUCTION   **273** OUVRAGES D'ART   **3.371** KM DE DISTRIBUTION

COMMUNES DESSERVIES _____ **24**

COMPTEURS EN SERVICE **267.478**   POPULATION DESSERVIE **563.400** habitants   CONSOMMATION MOYENNE **42,14** m³/an/habitant

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LoraWAN performance

Legend:
- Sigfox (blue)
- LoRa (red)
- NB-IoT (green)

Radar chart axes: Scalability, Latency-Performance, Payload length, QoS, Battery life, Cost efficiency, Deployment, Coverage, Range
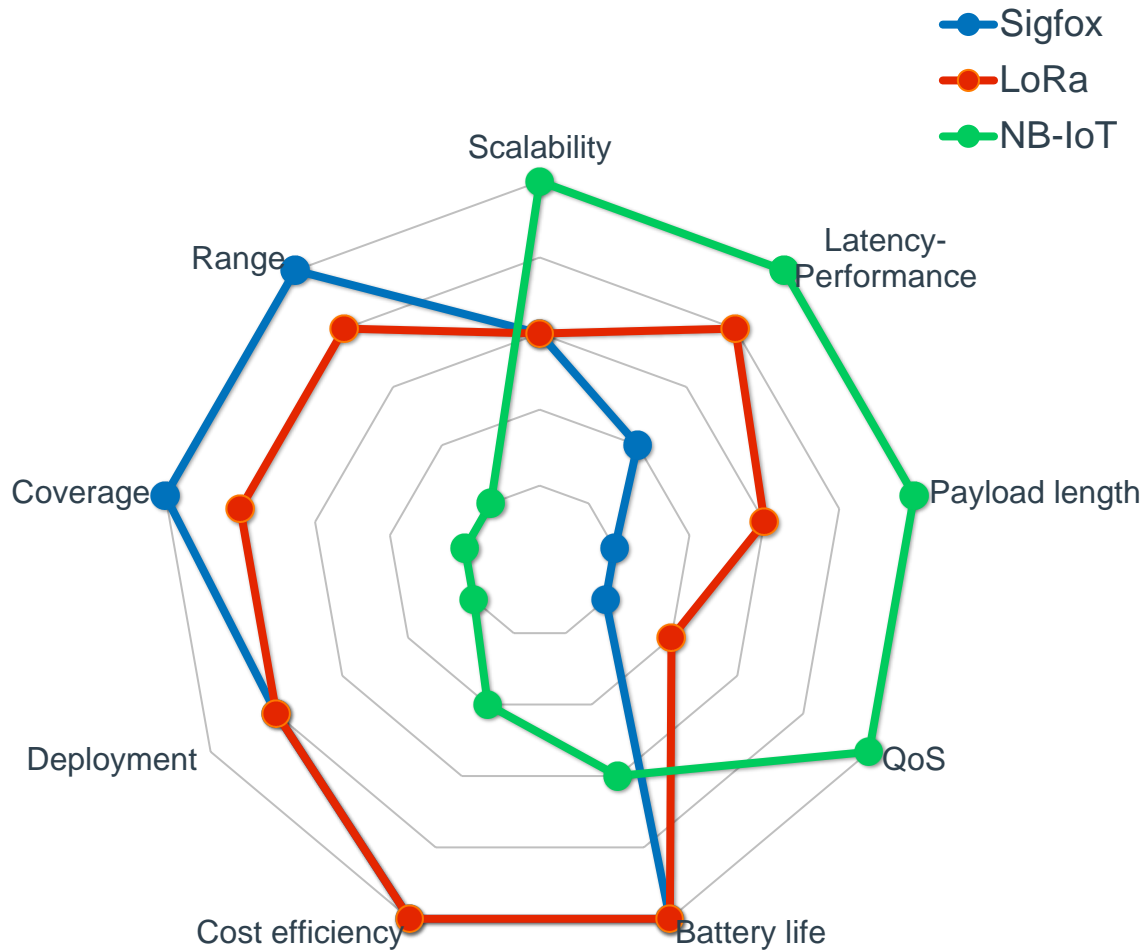
Key Points

Water Meter
- Battery Lifetime (15 years)
- Payload (Meter + Alerts)

Public sector
- Cost Efficiency
- Deployment

Sensitivity Label: General

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The Smart Initiatives

Transforming Water Network Operations to become more Sustainable

Water network performance

73,5%

Transform (Build)

1. **2.** **3.** **4.**

1. SMART LEAK	**2. SMART GRID**	**3. SMART METER**	**4. SMART CITIES**
	Datalake	Smart Rollout Smart Billing Smart Conso ($$$)	IOT use cases and service catalogue

Sensitivity Label: General

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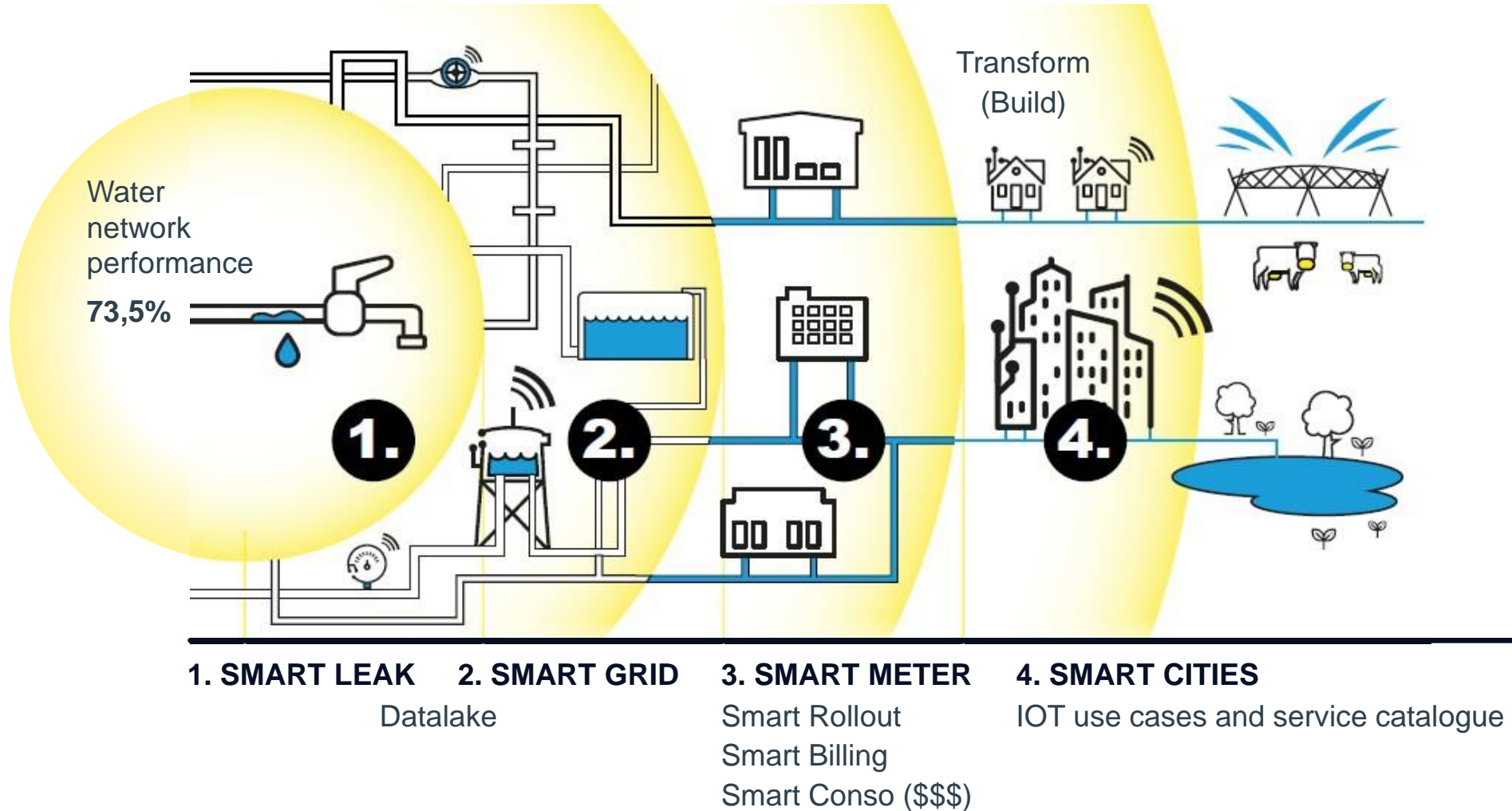
Using the CISCO Technologies

CILE OT Network   Actility Cloud Services   HTTPS/MQTT   Azure Cloud Services   API   SAP Cloud

AI Services for prediction

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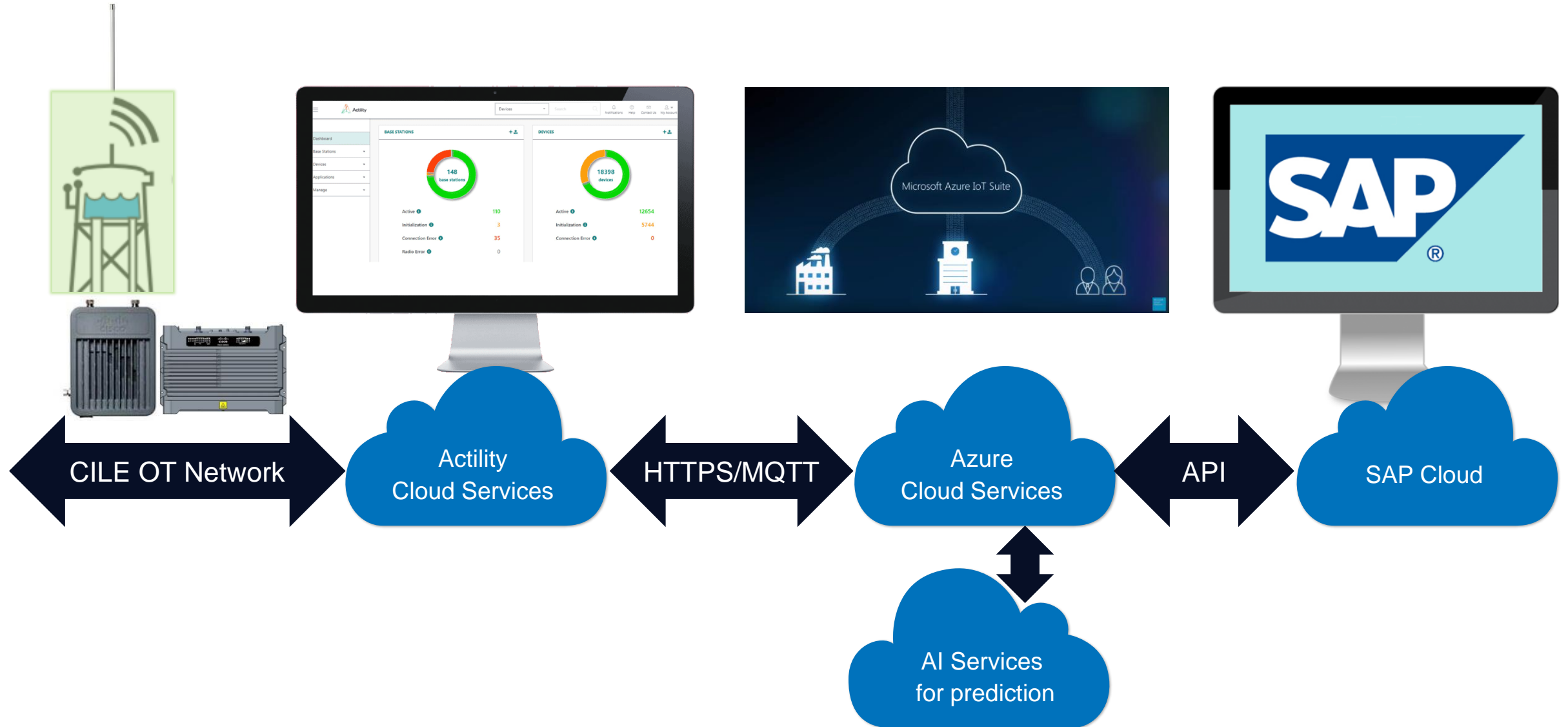
The impact on the organisation and the market

(A) Private TELECOM Network + Multi-Service Platform			
(B) CILE SMART INITIATIVES			**(C) SMART CITIES USES CASES** +
(1) SMART-LEAK	**(2) SMART-GRID**	**(3) SMART-METER**	**(4) SMART-CITIES**
GOALS — Identify Leaks for high water users (such as buildings, swimming pools, agricultural sites and hospitals) including concealed leaks	Reduce energy costs through remote monitoring and better control of power usage at water assets (including pumps, reservoir, storage, water and waste water treatments plants)	Empower households to better manage their water consumption and detect network leaks and water leaks	Leverage the IoT LoRaWAN network to deploy third -party use cases and scale up
ACTIONS — Deploy DMA-Connected water meters at strategic end points. Deploy consumption-monitoring capability for high-usage customers known through historical billing data. Plug leaks for high usage customers and provide opportunity to drive behavioural changes	Use LoraWAN IoT technology to complement SCADA systems by connecting LoRaWAN Enabled sensors (including pressure reduction valves, smart valve controls, water quality probe, flow monitoring systems and water level sensors)	Roll out automated meter reading (residential water metering)	Use LoRaWAN network roaming capabilities to support new use cases (such as city networks and planning, other utilities and agricultural irrigation). Enable versatile smart city connectivity for parking, smart street lighting, people counting, smart waste management, asset monitoring and other use cases
BENEFITS — • Improve billing efficiency • Increase visibility • Reduce environmental and social impacts • Reduce financial burden	• Manage water use more efficiently • Reduce energy and carbon footprints • Better balance supply and demand • Create digital twins of water infrastructure	• Support water savings via water protection programmes • Improve customer experiences • Support water strategy programmes • Reach sustainable development goals	• Amortise the cost of the LoRaWAN network by reaching out to new users • Create more collaboration between city agencies • Enable smart city collaborations with local governments and/or with utilities that share smart city infrastructure • Leverage LoRaWAN versatile connectivity and device offering to enable collaboration resulting in a lower totl cost of ownership

The major difficulty we encountered:

No business cases could be produced with ROI restricted by the high cost of data Transmissions by local TELECOM providers.

Our innovative architectural concept resolved those challenges:

We own our IOT telecom network using the water tanks for the transmission.

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SmartCities UseCases - Cities Objectives

Air Quality monitoring

Waste Management

Parking Management

Light Control

Outdoor AirQuality monitoring

Water Quality Control

Asset Tracking

Smart Metering

How NTT Smart Solutions works

We create Real-time alerts

We discover insights and trends

We generate predictive analytics

Data sources **collect data**

With LoRaWAN.

This data is just noise and complexity.

Big data engine curates and calibrates data.

Data analytics transforms data into valuable assets.

Outcomes presented **through a display layer**.

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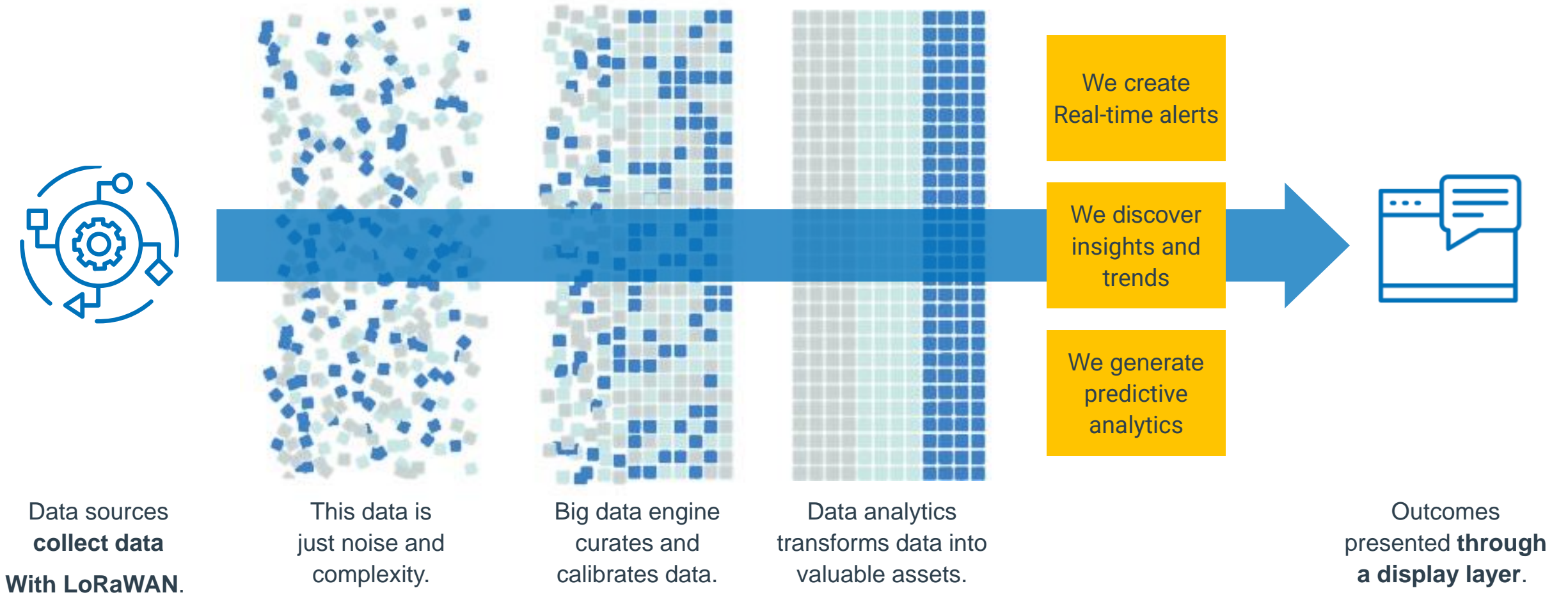
NTT Truth In Sustainability Solution

Enables measurement, reporting and data driven optimization actions to achieve environmental sustainability goals faster

Service Driven

Quick Start to Baseline Carbon Footprint

+ Emission factors + => CO2e

Ease of Integration

Ease of Use and Compliance Reporting

Flex and Expand

Azure, AWS, NTT, hybrid, On Prem

Sustainability and other use cases

Data Driven Decision Capabilities

What–if Analysis

Enhance Efficiency

Measure → **Insights/Report** → **Optimize**

Sensitivity Label: General

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