Smart Water Projects – Largest deployment EU

Birdz – Bruno Hamamljan

LoRaWAN®

Creating Valuable Connections

Not transferred without prior consent by the Alliance®
FOCUS ON WATER INDUSTRY
NON-REVENUE WATER: THE TOUGH REALITY

Hear That?
It's the sound of non-revenue water, and your budget going down the drain.

Water Produced - Water Billed = Non-Revenue Water

How Much of Your Water is Non-Revenue?
Average of 24% Per Year

20-50% of water is lost due to:
- Leakage & pipeline bursts
- Water theft
- Private tankers
- Illegal connections
- Maintenance problems

Not to be shared without prior consent by the LoRa Alliance®

Creating Valuable IoT Connections | lora-alliance.org
HELP CITIES AND WATER UTILITIES TO BETTER MANAGE WATER DISTRIBUTION AND IMPROVE WATER MANAGEMENT

Smart water meters provide a comprehensive digital water solutions to maximize balance with 3 water KPIs

Enlighten consumption

Availability

Quality

Creating Valuable IoT Connections | lora-alliance.org
IN EMEA, AMR DOMINATES AMI

- EMEA Market for water metering is stable
- Smart Water metering has grown continuously at fast pace (CAGR: +14%)
- AMR (Walk-by/Drive-by) is the dominant meter reading mode (>95% smart water meters)
- Public water sector requires long battery lifetime (12-15 years)

Source: IHS Markit 2017
• No single connectivity solution will dominate as far as the operator’s offers are still very dispersive.

Source: Kurrant 2019 & estimation

LoRaWAN® is a registered trademark of Semtech Corporation or its affiliates in the United States and/or elsewhere. All other product or service names are the property of their respective owners.
LARGE SMART WATER PROJECTS
Starting Point: How do you define «Large»?
CASE #1: EAUX DU GRAND LYON (FR – 2014)
One of the largest LoRaWAN® digital water network projects in Europe

- 54 municipalities
- 1.3 million supplied customers
- 396,000 metering points
- 97.4 million m³ distributed water per year
- 4,000 km distribution pipe network

Positive Outcomes:
- 1,200 new water leaks found and repaired
- 1 million m³ of water saved annually in production
- Increase of water network efficiency in four years, from 77% in 2014 to 85.2% in 2018
CASE #1 : EAUX DU GRAND LYON
Description of the Smart Water Network program

Smart Instrumentation
- 396,000 Smart Water meters
- 6,000 Acoustic Correlators from Gutermann
- 100 Fire and Water Hydrants
- 50 KAPTAS quality sensors

A Tough program
- Roll-out planned from Feb-2015 to Jan-2019
- O&M over 10 years duration
- Reference Project in terms of KPI and SLA for Water Conservation

Contractual SLA & KPI
- 100% of smart water meters must be connected to Eaux du Grand Lyon Business ERP (Public Service compliancy) and service continuity is guaranteed for 10 years
- Data Collection KPI: 98% of the smart meters must send all daily midnight index... each day in a month
- If KPI are not satisfied, a financial penalty is applied (the client doesn’t pay the monthly fee for faulty meters)
- Example: 97% Measured vs 98% KPI, means 7,9k faulty smart meters, Financial penalty equal to -2,0% on monthly contract revenues for 1% deviation from KPIs
CASE #1: EAUX DU GRAND LYON
LoRa® enabled AMI System from Birdz

Geographical distribution of smart meters

- 396k Smart water meters (LoRa/Birdz)
- 250 gateways (LoRa/Birdz)
- 21,1k repeaters (Birdz)
CASE #1: EAUX DU GRAND LYON
Proprietary LoRa AMI Network vs Public LoRaWAN® Network?

Geographical distribution of smart meters

LoRa enabled proprietary Network by Birdz

Public LoraWAN network

Creating Valuable IoT Connections | lora-alliance.org
2019, FINETUNING THE LoRaWAN® USE CASE WITH PARTNERS

Creating Valuable IoT Connections | lora-alliance.org
CASE #2 : CAPA (Corsica – 2018)
First Veolia project with public LoRaWAN® operator

- 10 municipalities
- 85,104 supplied customers
- **30 000 metering points**
- 450 km distribution pipe network
- Most of cities are on the seaside, with hills
- Contract duration : 12 years
CASE #2: CAPA (Corsica – 2018)
Project figures

Rollout status: 10,897 smart meters installed YTD (36%) - Target: 30,000 smart meters by Dec-2020
CASE #2: CAPA (Corsica – 2018)
First results promising, but strong need for coverage densification

Smart Meter KPI (LRW AMI)
(Number of modules for which we have collected at least one LRW frame)

<table>
<thead>
<tr>
<th>KPI#1</th>
<th>KPI#2</th>
<th>KPI#3</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 1 day</td>
<td>After 2 days</td>
<td>After 5 days</td>
</tr>
<tr>
<td>Measured (%)</td>
<td>87.07%</td>
<td>87.74%</td>
</tr>
<tr>
<td>Target</td>
<td>85.00%</td>
<td>90.00%</td>
</tr>
</tbody>
</table>
CASE #2 : CAPA (Corsica – 2018)
Still a long way to go…

**Projected coverage**: Projected Coverage Map of Public LoRaWAN® Operator (in yellow)

**Reality**: Geographical distribution of smart water meters **with no communication**.
(9.17%; 999 smart water meters out of 10,897 installed YTD)
CASE #2 : CAPA (Corsica – 2018)  
How to deal with Deep Indoor – The Bridge

The good trade-off:
The Bridge Repeater ensures the commissionning of 100% of smart water meters – AMI infrastructure costs increase but less than densifying the number of LRW Gateway.
CASE #3 : TOULOUSE (FR – 2019)
First Big project with public LoRaWAN® operator

- 37 municipalities
- 756,000 supplied customers
- 466km² area to cover
- **200,000 metering points** (end of contract)
- 3,340 km distribution pipe network
- 56 reservoirs
- Contract duration : 12 years
- KPIs are tough, as always!
CASE #3: TOULOUSE (FR – 2019)
LPWAN coverage: the perfect match?

Geographical distribution of the smart water meters

Projected LoRaWAN coverage of the public operator

Not to be shared without prior consent by the LoRa Alliance.
ON THE ROAD TO 3 MILLION LoRaWAN® SMART WATER METERS

Not to be shared without prior consent by the LoRa Alliance®