



Towards Smart Metering in Palma

Defining a strategy for the transition to Smart Metering with the help of the BuntBrain WaterMeters software





1/ The situation

Palma is the capital and largest city of the Balearic Islands in Spain and a very important tourist destination.

Water is a scarce and valuable resource in Palma. Climate change, growing levels of tourism, and the continued development of the island are amongst the factors that are aggravating the water scarcity situation. Desalination plants usually reach the limit of their capacity during summer.

EMAYA is a public company, fully owned by the Palma City Council municipality. Its role is to manage the public services relating to the integral water cycle (supply, treatment, sanitation and reuse), collection of urban solid waste and street cleaning.

Optimized meter management has been always a priority at EMAYA, which has the only meter testing laboratory in the Balearic Islands.

In 2018, EMAYA's water division began a process of analysis as part of a strategic vision that would lead them to roll out a smart metering implementation project in 2021, with the aim of equipping 100% of Palma with smart meters.

2/ The challenge

The challenge for BuntPlanet was to analyse the status of almost 100,000 water meters in Palma from a metrological perspective:

- To determine the average metering error and the optimal error to aim for.
- To calculate the investment required in order to optimise metering error and the potential return on this investment.
- To identify the highest priority water meters which should be replaced from an economic perspective.
- To draw up a meter replacement plan for the coming years.
- To determine which water meters were over- or under-sized.
- To identify which water meters were showing an abnormal consumption level or had stopped working.

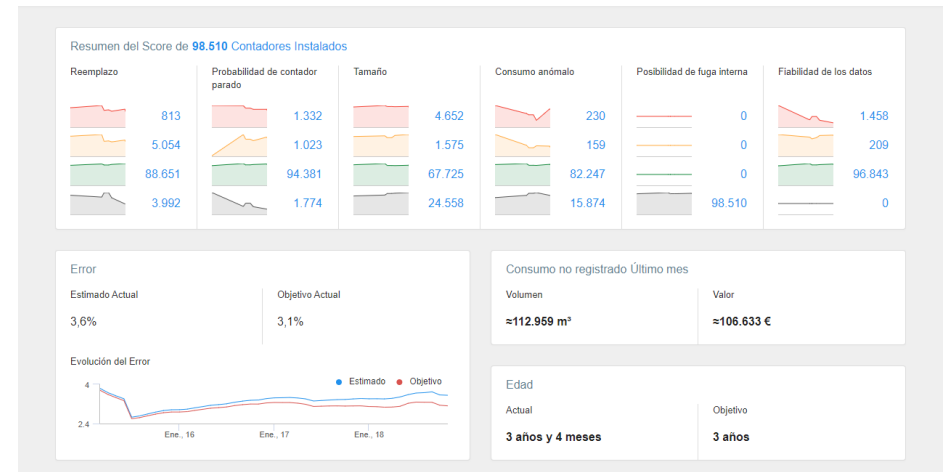
This analysis was to form the basis of the plan for the future migration to smart metering.

3/ The solution

The BuntBrain WaterMeters module was implemented, integrating data coming from almost 100,000 water meters with bimonthly readings. Historical readings were included as were the key features of each water meter (meter size, meter type, installation date, activity, etc.).

After loading the data, an analysis report of the starting situation of the meters was generated. The key conclusions collected in the report, presented in February 2018, were the following:

- The average metering error was 3.9%.
- The optimal error level from an economic point of view was 3.3%.
- Reducing error levels to the optimal value would generate an additional average revenue of 2.1 euros per meter every year, or around 200,000 euros annually.
- A meter brand registering lower values than the overall average was identified.



BuntBrain WaterMeters: Case Study

EMAYA Palma



The performance of 11,280 replaced meters was studied over a 10 month period, to verify that the advanced algorithms used by the BuntBrain WaterMeters software could help in the future transition towards smart metering. 29% of the new meters were replaced at the suggestion of the tool. The main results were as follows:

- Average metering error dropped to 3.6%.
- Measurements from meters replaced in response to a software suggestion rose, on average, by 13.85 euros per meter every month.
- Measurements from meters replaced following the traditional replacement criteria (mainly based on age) rose by an average of 1.69 euros per meter / month.
- Meters replaced in line with the criteria specified by the tool **showed 8 times more revenues** than meters replaced using the former replacement criteria, based mainly on age.

It was concluded that the application of advanced algorithms based on big data, degradation models and Artificial Intelligence could greatly help to prioritize the migration to smart metering.

4/ The benefits

BuntBrain WaterMeters was successfully tested for the first time in Palma.

The key benefits for EMAYA were:

- Metering error reduction.
- Increased profitability of water meter replacement.
- Simplicity of performance comparison of meter types and brands.
- Transparent, replicable and easier monitoring of KPIs related to water meters.
- A master plan for migration to smart metering.

5/ Project brief

- Municipality: Palma (Balearic Islands, Spain).
- Population served: 456,000.
- Number of customers: 98,510.
- Network length: 1,085 km.
- Implementation completed: February 2018.





6/ Solutions

- BuntBrain WaterMeters.

7/ Results at a glance

- Meters replaced in line with the criteria specified by the tool showed 8 times more revenues than meters replaced using the former replacement criteria, based mainly on age.
- A reduction in metering error from 3.9% to 3.6% in less than one year.
- The identification of a meter brand registering lower values than the average.
- Proof that advanced algorithms can help facilitate the transition towards smart metering from an economic perspective.

8/ End customer

EMAYA

9/ Distributor

BuntPlanet

10/ Links

www.buntplanet.com