



the smart H2O project

A European project on water sustainability

CONTATORI INTELLIGENTI, DATA ANALYTICS E GAMIFICATION SULL'USO DELL'ACQUA

Andrea Castelletti, Piero Fraternali, Andrea Cominola

16/05/2018 | POLIMI-POLIEDRA



**POLITECNICO
MILANO 1863**

DIPARTIMENTO DI ELETTRONICA
INFORMAZIONE E BIOINGEGNERIA



Natural Resources
Management

LONDRA - UK

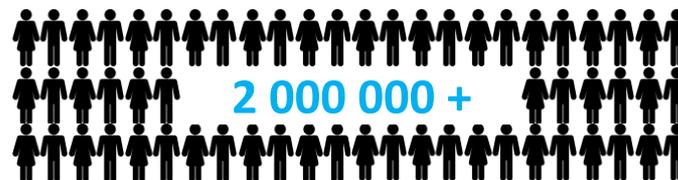
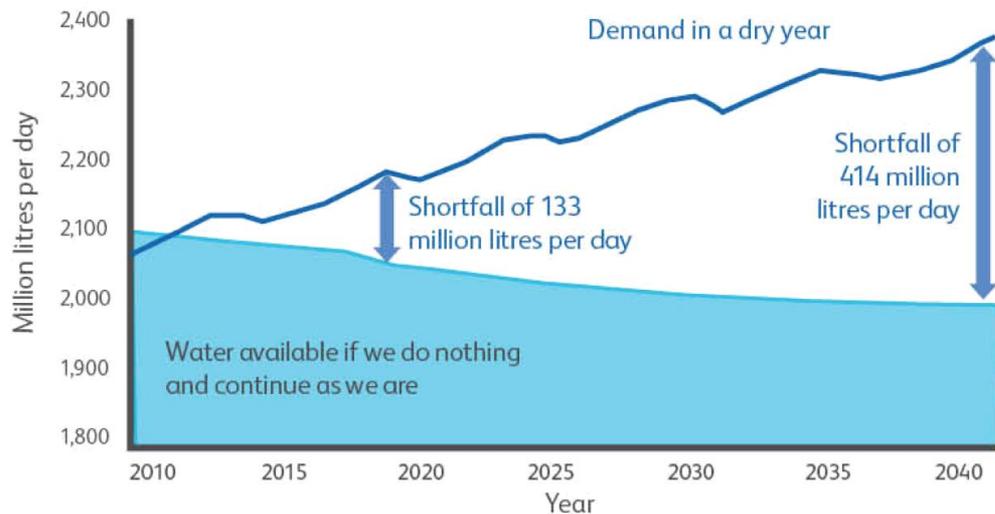


15 milioni di utenti

Acqua potabile: 2.6 GL/giorno

3 Miliardi \$ fatturato annuo (2013-14)

Forecast gap between supply and demand in London



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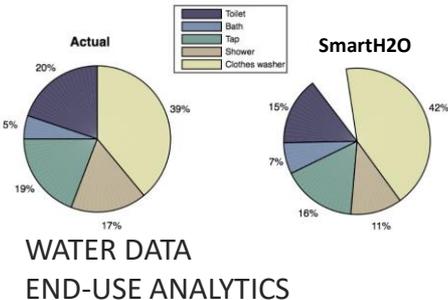


SINGLE-POINT
Smart meters
Data acquisition
and consolidation



**Consumption data
REPOSITORY**

- Privacy
- Security



**WATER DATA
END-USE ANALYTICS**

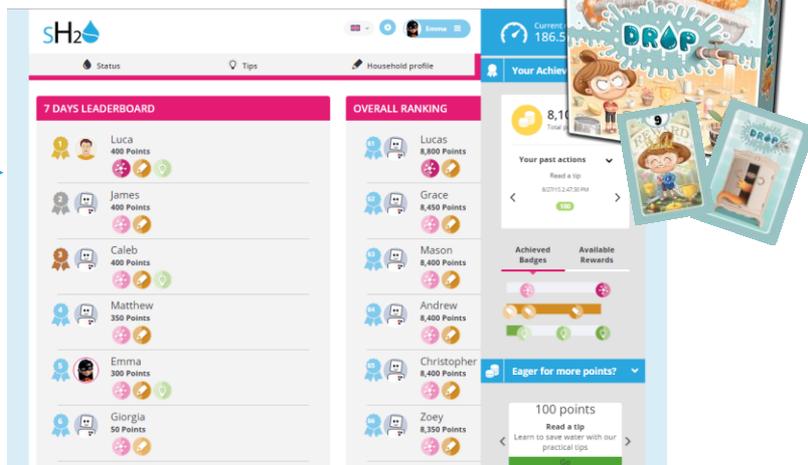


CUSTOMER SEGMENTATION

CONSUMERS PORTAL:
Awareness
feedbacks



**ENGAGEMENT AND
BEHAVIOURAL CHANGE:**
Personalized tips, rewards



HOUSEHOLD CONSUMPTION

Days ↕

Detailed consumption

Overview

Data updated on 2015-11-02 - Click on bars to see hourly consumption

your daily average ?

neighborhood average ?

Zoom **1m** 3m 6m All

From To



7 DAYS LEADERBOARD

  **Michael**
9,250 Points

  **Samantha**
9,000 Points

  **Victoria**
8,900 Points

  **Jayden**
8,900 Points

  **Anthony**
8,850 Points

  **Aubrey**
8,700 Points

OVERALL RANKING

  **Aubrey**
20,800 Points

  **Olivia**
16,850 Points

  **Ava**
15,550 Points

  **Chloe**
15,400 Points

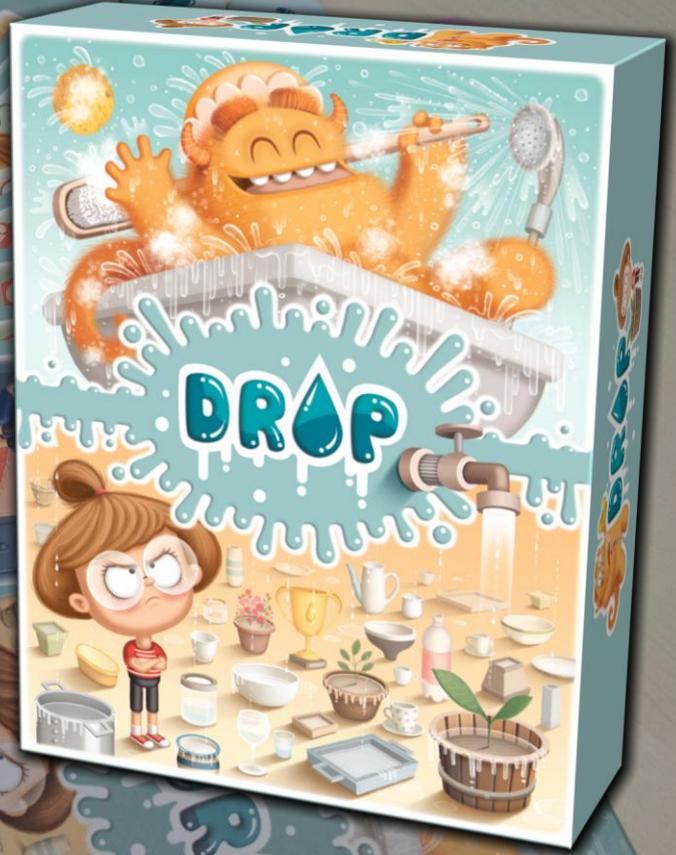
  

  **Victoria**
14,050 Points

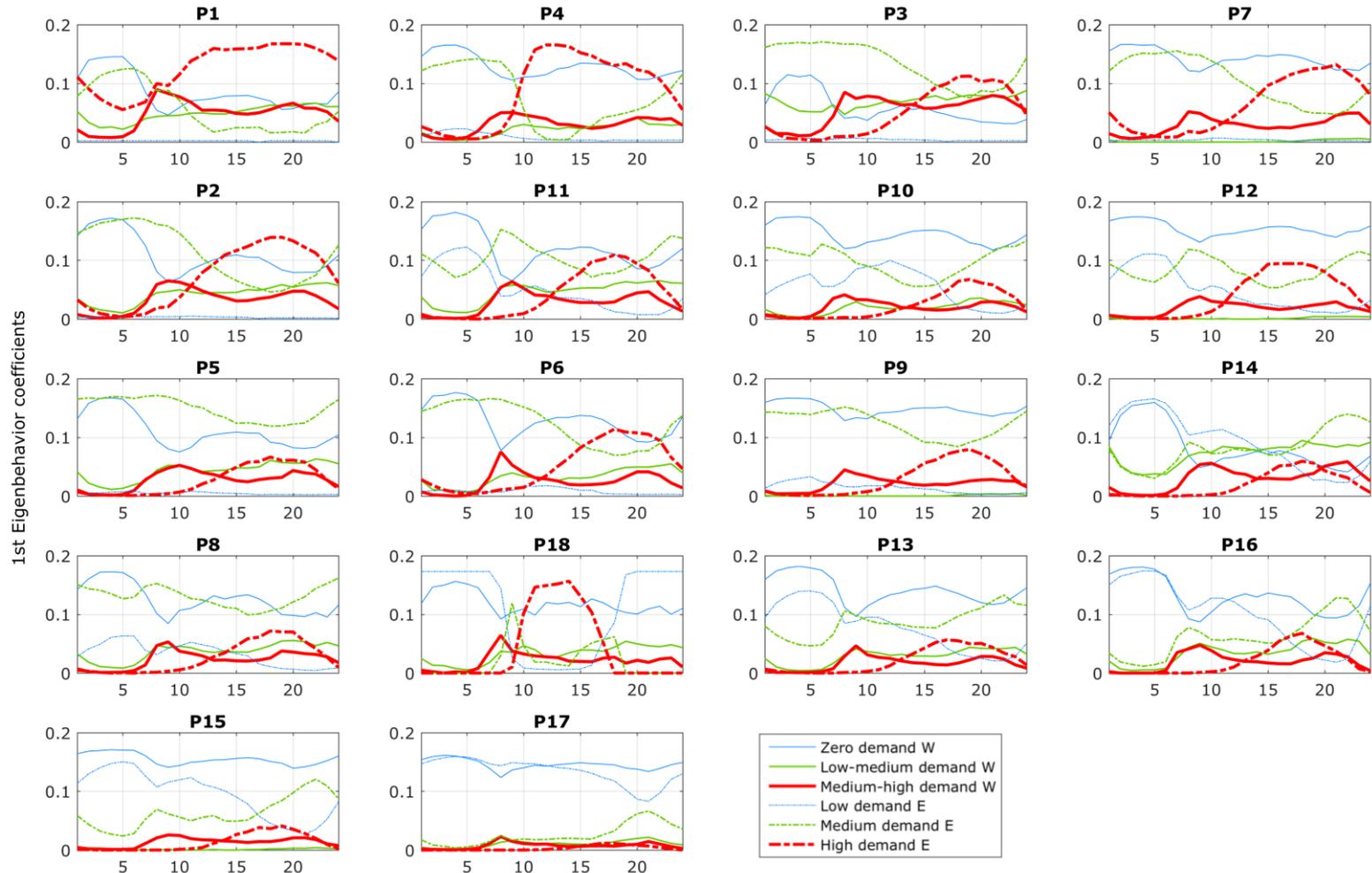
 

  **Addison**
13,950 Points



MODELLI DI DOMANDA IDRICA AD ALTA RISOLUZIONE



LONDON | UK

Thames Water water supply utility
15 million customers served

2.6 GI/day drinking water distributed

Development plan: 3 Million smart meters installed by 2030

LOCARNO | CH

Società Elettrica Sopracenerina
power supply utility, 80 thousand
customers served

Interested in multi-utility smart metering
(water, energy, gas)

Almost 400 smart water meters installed

VALENCIA | ES

EMIVASA water supply utility
2 million customers served

490,000 water smart meters currently installed

Development plan: 650,000 water smart meters installed





Gruppo di controllo



Utenti



INTEGRATED INTELLIGENT WATER-ENERGY METERING SYSTEMS AND INFORMATICS: VISIONING A DIGITAL MULTI-UTILITY SERVICE PROVIDER

R. Stewart, K. Nguyen, C. Beal, H. Zhang, O. Sahin, E. Bertone, A. Silva Vieira, **A. Castelletti, A. Cominola, M. Giuliani,**
D. Giurco, M. Blumenstein, A. Turner, S. Kenway, D. Savic, C. Makropoulos, P. Kossieris, A. Liu.

Environmental Modelling & Software, 2018

STRATEGY

INFORMATION

TECHNOLOGY

Regulatory and market transformation

Avoid siloed data, data access

Metering and communication technologies

Strategic planning

Data storage, management, and mining

Fit-for-purpose communication

Societal readiness preparation

Big data analytics, machine learning, and computational tools

Minimum energy devices

Demonstration and commercial cases (short and long term)

Cyber security and privacy

Production, installation, and operational costs

Legal aspects

Water-energy nexus pattern analysis and relationships

Standardization and interoperability

WaterSmart SOLUTIONS PLATFORM RESOURCES NEWS COMPANY

Intelligence Beyond the Meter

Customer Engagement and Data Analytics for Water Utilities

PERSONAL COMMUNICATION AT SCALE

SHARON WATER SAN JOSE Environmental Services Brighton ACWD

Microsoft launches tool aimed at transforming how water is used worldwide

Mar 21, 2017 | Deborah Bach

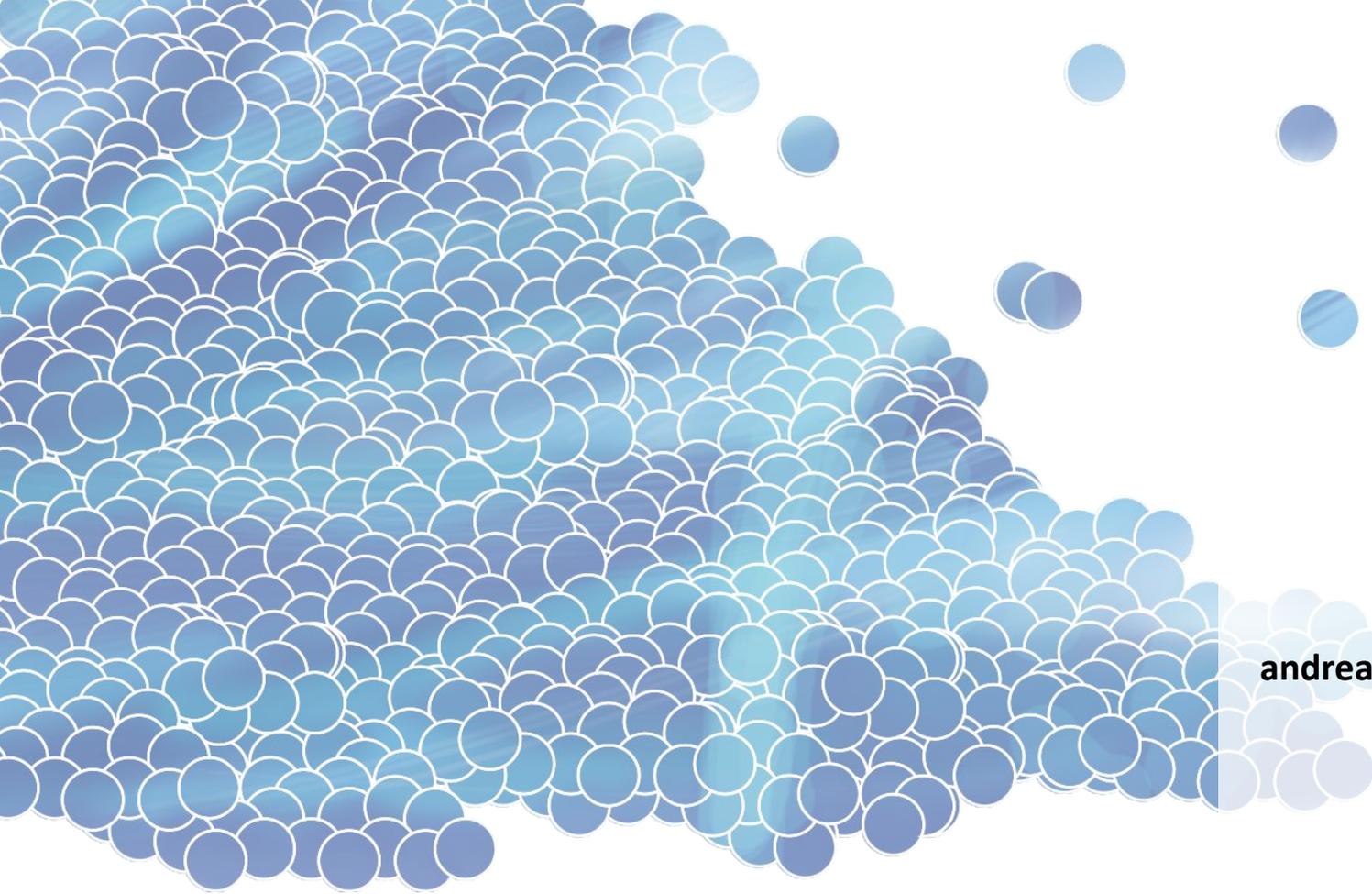
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ECOLOGICAL WATER RISK MONETIZER APPLICATIONS METHODOLOGY PARTNERS

Robert Smith, Company Name

Risk Analysis

This 2D map demonstrates a facility's risk based on projected population growth and projected water scarcity. Naturally, areas with an already scarce water supply and an expected increase in the number of people consuming the resource raise the water risk.



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Natural Resources
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