

### **FINAL CONFERENCE**

Achievements and challenges of a trans-national Pre-Commercial Public Procurement to develop innovative water smart-meters for the benefit of users and the environment

- 14 December 2021 -

**Welcome & introduction** 

Eric MINO OiEau





This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731996.

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#### FINAL CONFERENCE

Achievements and challenges of a transnational Pre-Commercial Public Procurement to develop innovative water smart-meters for the benefit of users and the environment

 Innovation, Public Procurement, smart water metering, green solutions -

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14 December 2021 | 10:00 to 12:30

#### TECHNOLOGIAL FAIR | 15:00 to 16:30

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#### smart\_met<sup>®</sup> 10:00 - 10:15 WELCOME & INTRODUCTORY REMARKS Eric Mino, Head of service, Office International de l'Eau (OiEau) Agenda overview Jose-Luis Fernandez-Villacañas Martin, Scientific Project Officer, 'Technologies for Smart Communities' Unit, DG CONNECT, European Commission 10:15 - 10:30 SETTING THE SCENE - DIGITAL WATER AND THE TWIN TRANSITION Andrea Halmos, Policy Officer 'Technologies for Smart Communities' Unit, DG CONNECT, European Commission 10:30-11:10 WHY INNOVATION MATTERS IN THE FIELD OF SMART WATER METERS -**OBJECTIVES, METHODOLOGY AND RESULTS OF SMART MET** Diego Macchiella, SMART.MET lead procurer, Secretary-General, Viveracqua (Italy) Sara Bedin, Independent Expert Innovation Policies & Procurement Bernard Michaux, Chief Operating Officer, Compagnie Intercommunale Liégeoise des Eaux (Belgium) Q&A session 11:10-11:20 e-break 11:20-12:20 SESSION | WHAT'S NEXT? CREATING THE RIGHT FRAMEWORK TO HARNESSING THE POTENTIAL OF DIGITALIZATION Daphne Voss, Senior Water Engineer, Water Advisory Division - JASPERS, European Investment Bank • Elena Gallo, Vice-Director of the Water Directorate, Italian Regulatory Authority for Energy, Networks and Environment Mercedes Mira Costa, Project Manager – Standardization & Digital Solutions, CEN-CENELEC Panel discussion moderated by Nuria Hernández-Mora, Fundación Nueva Cultura del Agua (FNCA) 12:20 - 12:30**CLOSING REMARKS** BUDAPEST WATERWORKS VIVERACQUA VIVAQUA

Eric Mino, Head of service, Office International de l'Eau (OiEau)

## Smart.Met PCP project

Drive the development of a new cost effective, efficient, interoperable Water Smart Metering system based on open standards

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### Through a Pre-Commercial Procurement

Smart Met is an Horizon 2020 project funded by the call ICT-34-2016 - Pre-Commercial Procurement, within the ICT Information and Communication Technologies Work Program 2016-2017

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- Lead Procurer VIVERACQUA
- PCP Quality Manager Sara Bedin
- Communication Aqua Publica Europea
- Internal Board Secretariat
   Fundación Nueva Cultura del Agua
- Technical Assessment Committee
  OiEau
  UniLim
  ARAGON

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DRIVE

SMARTMET Technical Assessment Committee

(all partners - experts)

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SMARTMET Executive Board (All Partners)

**SMARTMET Buyers' Group** 

(all utilities CEO or Chief Procurers)

ADVISE

ASSESS

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DECIDE

PRE

COMMERCIAL

**FNCA** 

PROCUREMEN

### Project Timeline and budget



Total budget : 4.44 million €, with EU contribution 3.99 million €

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Duration: 5 years (January 2017 – January 2022)

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## smart met a

#### > Introduction to SMART.MET:

**Diego Macchiella** SMART MET lead procurer, Secretary-General Viveracqua (Italy)





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### The project idea

When examining the solutions offered by the market in field of smart meters, public water operators within Aqua Publica Europea realized that we were facing similar challenges and unmet needs. So the idea behind the project has been:

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- ...bringing together public water utilities facing similar challenges (all partner utilities are members of Aqua Publica) ...
- ...launching together a transnational public procurement (Pre-Commercial Procurement)..
- ...pushing the market to conduct research and development addressing our needs...
- ... and finally testing innovative, better performing, more adaptable smart meters for the benefit of users and the environment

## State of the art analysis

 Starting from the analysis of the state of the art, we have verified that the needs expressed by the water operators couldn't be met by cutting-edge solutions already on the market, and that the following developments were required:

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- technological development of 3 ground-breaking functionalities currently not available in any existing solution, nor protected by patent or otherwise mentioned in the literature as close to the market (bidirectional real-time communication, centralized backup and synchronization, detection of water leaks on the network side)
- integration of the functions currently available in different solutions but not entirely in a single solution;
- adoption of consistent data transmission models and protocols capable of guaranteeing interchangeability / interoperability;

## The challenge

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 $\Rightarrow$  Developing an innovative (not yet present on the market) smart meter system, which address the following basic unmet needs

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- 1. Open standards for exchanging data with different:
  - data transmission systems
  - country of use
- 2. Interoperability between different device systems, and therefore the possibility of connection with:
  - third party databases, applications and software
  - physical architecture of third party devices

### The challenge

- 3. Bidirectional real-time communication programmable upon request
- 4. Centralized backup and synchronization smart metering (to make the smart meter installation process significantly more efficient)
- 5. Detection of water leaks on the network side, using smart meters installed as distributed sensors.

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## smart, met a

PCP approach to drive innovation, while stimulating competition

**Sara Bedin** Independent Expert on Innovation Public Procurement and IPRs management





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### smart, met met m PCP instrument: development in phases and multiple sourcing



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# Reducing the fragmentation of public demand, sharing risks and economic benefits

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RBLIC PROCURERS

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SUPPLIERS

### IPRs management

 Through PCP is given each contractor the ownership of the IPRs attached to the results it generates during the PCP means that they can widely exploit the newly developed solutions commercially.

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- Each contractor is responsible for the management (including protection) of its IPRs and bears the costs associated with this. The phase tendered prices take this into account.
- In return, the offered and adjudicated price contains a financial compensation for keeping the IPRs ownership compared to the case where the IPRs would be transferred to the procurers (the tendered price must be the 'non-exclusive development price'). Moreover, the procurers have received rights to use the R&D results for internal use and licensing rights subject to certain conditions.

Optimizing the value for money and enabling innovation at a higher scale and price point



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### Creating opportunities for EU companies to take international leadership in new markets

BETTER VALUE FOR MONEY THROUGH COOPERATION

CVAP

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CIAP

CUPP

CUAP

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CIPPP

EUROPEAN HOME MARKET

CUAR

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### ANY QUESTIONS?





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#### > PCP phases and awardees

#### Diego Macchiella

#### Sara Bedin

SMART MET lead procurer, Secretary-General Viveracqua (Italy) Independent Expert on Innovation Policies & Public Procurement





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## Pre Commercial Procurement

- **Phase 0** of the project started with the release of a 'Prior Information Notice' in June 2017 which launched the *Open Market Consultations* in 4 different places:
  - 5 September 2017 Madrid

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- 11 September 2017 Livorno
- 21 September 2017 Brussels
- 27 September 2017 Budapest
- 95 companies participated in the consultations:
  - 17 meter manufacturers
  - 13 network-device vendors
  - 21 water operators
  - 44 software and systems integration companies

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### smart\_met<sup>®</sup> Pre Commercial Procurement (Phase 1)



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## Pre Commercial Procurement (Phase 1)

Phase 1 of the project was launched with the publication of an open call for tenders on 29 June 2017.

The SMART.MET evaluation committee, on the basis of MEAT criterion, awarded a contract to four companies/consortium:

Fast S.P.A (Italy)

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- Dynamic Consulting, Abering Contadores de Agua, Gomez Group Metering (Spain)
- Telereading (Italy)
- Hydroko, Ng (Belgium).

The four awardees signed a phase contract to conduct the "research and design of the solution": in the period from 20 December 2017 to 31 March 2018 they elaborated a feasibility study, with evidence of the technical, financial and commercial feasibility. An end-of-phase report and deliverables have been evaluated and (all) the contractors have been informed of successful completion of phase 1.

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### smart, met a Pre Commercial Procurement (Phase 2)



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## Pre Commercial Procurement (Phase 2)

Phase 2 of the project was launched in May 2019 through a mini call-off.

The fours contractors that successfully completed phase 1 were eligible for phase 2.

Tenderers were therefore invited to submit their offer for phase 2, to execute prototyping services. Based on evaluation procedure, (all) four contracts were awarded:

Fast S.P.A (Italy)

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- Dynamic Consulting, Abering Contadores de Agua, Gomez Group Metering (Spain)
- Telereading (Italy)
- Hydroko, Ng (Belgium).

In the period from July 2019 until April 2020, suppliers developed the prototypes and functionalities of the various components: meter, communication infrastructure and control systems, as well as validated prototypes in their labs

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## Pre Commercial Procurement (Phase 3)

Phase 3 of the project was launched last June 2020 with a mini call-off.

Only offers from contractors that successfully completed phase 2 were eligible for phase 3.

The invited suppliers submitted their offers for carrying out testing services. Based on MEAT criterion, 2

Phase 3 contracts were awarded and signed with the following operators:

- Telereading (Italy)
- Hydroko, Ng (Belgium).

## Pre Commercial Procurement (Phase 3)

The phase 3 has involved a series of field tests, to verify and compare the entire set of features and the performance of the different solutions in real life operating conditions (urban, rural and mixed).

The field testing were carried out in 5 different sites, one for each of the countries in which the water utilities operate

- France
- Italy
- Spain
- Hungary
- Belgium

The number of smart meters installed in each site (new or existing meters + retrofit) are approx. 300.

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> The SMART.MET technological challenges

#### Bernard MICHAUX

CILE





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## The challenge briefing

 Based on open standards for full interoperability between different devices and software applications supplied by different providers.

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- Based on standard communication protocols, like for instance IoT, able to guarantee the bi-directional communication in "real time mode" from Smart Meter Layer and Control Room Layer.
- Based on an energy source capable to ensure real-time operations for the whole duration of the meter life-cycle.
- Able to make decisions on its own without prior communication with the Control Room Layer (ex.: detection of a reverse flow -> immediate closure of the water meter and generation of an alarm sent to the control room).



The challenge

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# Preliminary results: the technical innovation

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- Accurate detection of reverse flow with an automatic valve.
- Accurate detection of leakage after the meter, on the users' network. Improvement of the services to the users.
- (For some protypes) Improvement of the leakage detection in the network.
- Stable NB-IOT/SIGFOX communication in real life conditions (even in rural areas or in very difficult conditions – cellar, basement garage).
- No gateway or a small one directly integrated on the support of the equipment.
- Very high level of performance on the data collection platform.

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# Preliminary results: other (non technological) benefits

- Meet, share and compare the approach of several water utilities.
- Open your mind to the real challenges of smart metering, by keeping his feet on the ground.

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- Find the best compromises in accordance to the needs of each.
- Real human experience with all the actors playing in the project.



### ANY QUESTIONS?



