The ICT4WATER cluster and related activities

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Smart water
Smart societies

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Outline

- **ICT for Water Management: The EC strategy since 2012 related to smart water**

- **The ICT4WATER cluster**

- **Third generation projects-Coordination and support actions-WIDEST**

- **EC perspective: smart water meters and the future: The road to standardisation**

European Commission:
The broader context.
Strategy since 2012

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EC the broader context: ICT for Water Management

- Smart technology and ICT related to smart technology is a major current research and investment field internationally

- Part of the "smart city" grid and initiatives

- **Smart energy** starting first
  - Pioneers in smart technology applications for domestic and industrial users
  - Legislation related to smart energy meters already exists in some EU countries (e.g. France, UK)

- **Smart water** follows, especially research around **smart water AND energy**, a major research issue for the EC

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ICT and Water Management– EC perspective

- Part of the H2020 Digital Perspective for Europe
- Smart technologies:
- To increase water efficiency
- To improve water management
- To manage water demand
- To reduce leakage
- To reduce energy for water utilities and households
- To increase end user awareness
- To affect end user behavioural change
- with (near) real time surveillance and feedback

ICT and Water Management under FP7 and H2020

- **Targets**

  - Assets management
  - Business models
  - Decision support system and monitoring
  - End-user awareness
  - Geographic Information Systems (GIS), OGC, Sensors
  - Modelling, real-time process, knowledge extraction, stream data mining
  - Ontologies, semantics, interoperability, standards
  - Water regulation

ICT and Water Management under FP7 and H2020

- **Links to the Juncker agenda priorities**:

  1. A new boost for Jobs, Growth and Investment
  2. A connected Digital single market
     - Better online access to digital goods and services
     - An Environment where Digital Networks and services can prosper
     - Digital as a driver to growth.
  3. A Resilient Energy Union with a forward-looking Climate Change policy
  4. A Deeper and Fairer Internal Market with a Strengthened Industrial Base
  5. …….

FP7/H2020: Funding on ICT and Water Management

- Funding (Budget ≈ 50-55M € for research in smart water since 2012)

  - **2012-2013**: Five (5) Collaborative EU projects

  - **2013-2014**: Five (5) more Collaborative EU projects

  - **2015**: Five (5) Coordination and Support Actions (CSA)

- All the projects:

  - **Similar themes and targets**: All targeting water utilities and end users (customers)

  - 1st group: Emphasis (rather) on water utilities

  - 2nd group: Emphasis (rather) on end users and their behavior

  - 3rd group: Horizontal actions, dissemination

  - **Interdisciplinary** approach

  - **Partnerships** between ICT equipment providers, software companies and water authorities

- The 15 projects have been "**clustered**" for coordinated actions and cooperation

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ict4water.eu

FP7/H2020: The cluster ict4water.eu

122 partners in ict4water.eu

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EC perspective– Target outcomes

- ICT-enabled solutions for **Integrated Water Resources Management**

- Innovative **demand management** systems

- Decision support systems (DSS)

- **Data management** technologies (Big data)

- Research and Innovative **integration**

- Validation in at least **2 real-time operational** environments

- Evaluation of anticipated cost/benefits and **market** prospects

The ict4water cluster : Case Studies (pilots)

Projects funded in 2012	Case studies
EFFINET	Barcelona , Limassol (Cyprus).
ICeWater	Timisoara, Milan
iWIDGET	Barcelos (Portugal), UK, Athens
WatERP	Barcelona, Karlsruhe
UrbanWater	Portugal, Czech republic
Projects funded in 2014	
DAIAD	Spain, UK
ISS-EWATUS	Skiathos (Greece), Sosnowiec(Poland)
SmartH20	London, Locarno (CH)
WATERNOMICS	Poland, Thermi (Greece), Milan
WISDOM	Cardiff (UK), La Spezia (Italy)

Mature projects: Results

Projects funded in 2012		Case studies
EFFINET	EFFINET	Barcelona , Limassol (Cyprus).
ICeWater	ICeWater	Timisoara, Milan
iWIDGET	iWIDGET	Barcelos (Portugal), UK, Athens
WatERP	WatERP	Barcelona, Karlsruhe
UrbanWater	urbanwater	Portugal, Czech republic
Projects funded in 2014		
DAIAD	DAIAD	Portugal, UK
ISS-EWATUS	Integrated Support System for Efficient Water Usage and Resources Management	Skiathos (Greece), Sosnowiec(Poland)
SmartH20	sH2o the smartH20 project	London, Locarno (CH)
WATERNOMICS	Wat€rnomics	Poland, Thermi (Greece), Milan
WISDOM	WISDOM	Cardiff (UK), La Spezia (Italy)

H2020 project WIDEST:
Coordination and Support Action (2015-2017)

Projects funded in 2012-13	
EFFINET	EFFI**NET**
ICeWater	ICeWater
iWIDGET	iWIDGET
WatERP	WatERP
UrbanWater	urbanwater

- *Water Innovation through Dissemination Exploitation of Smart Technologies*
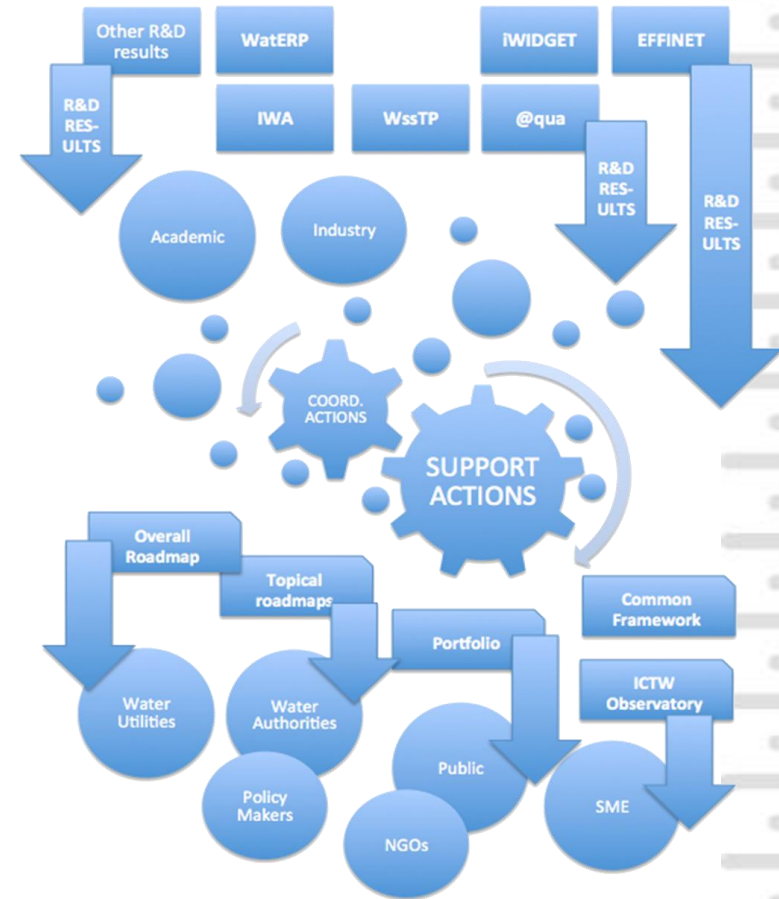- Water observatory, Roadmaps, Standards, EIP Water Action Group involvement
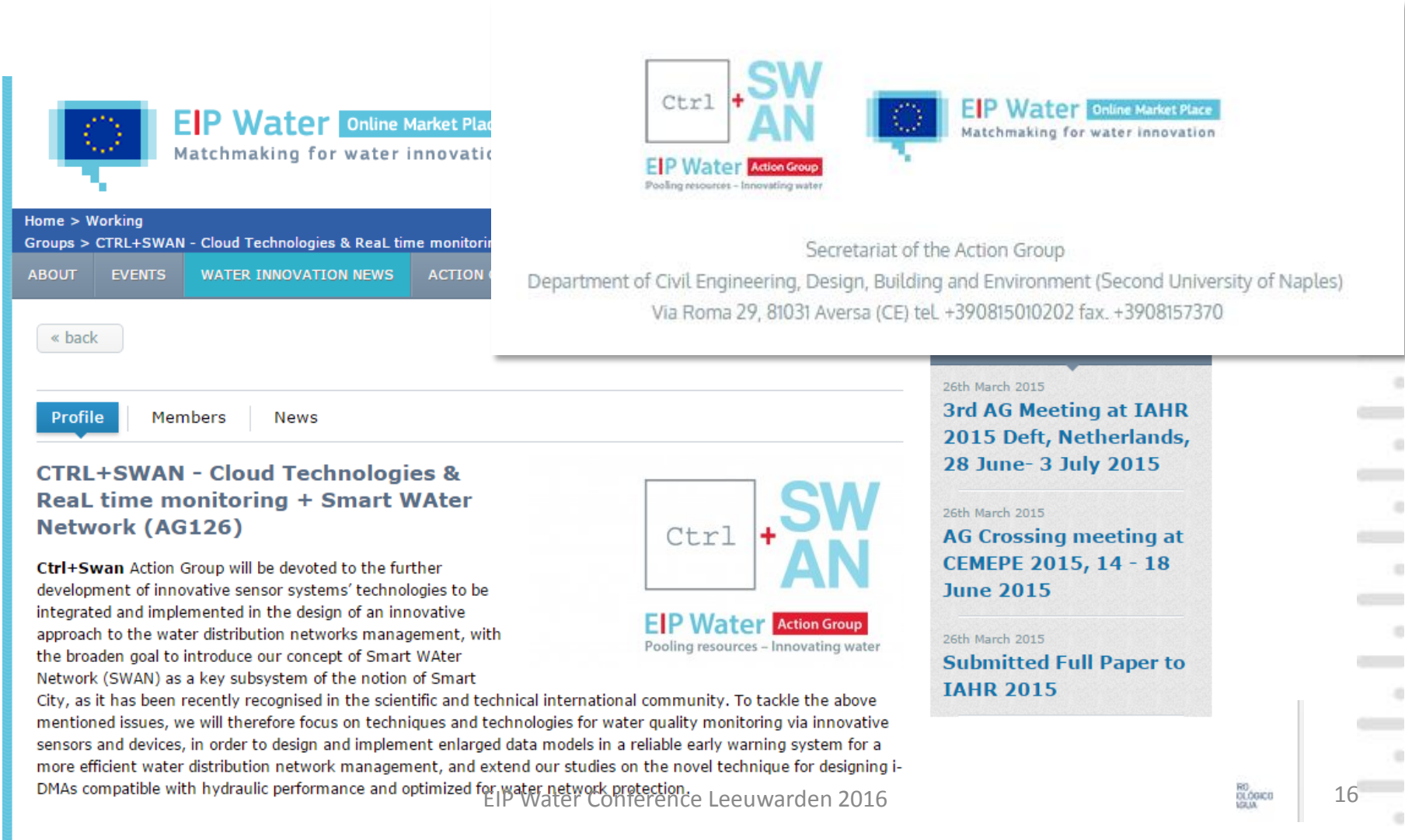
Water Innovation through Dissemination Exploitation of Smart Technologies (WIDEST) *aims at:*

- *Running an ICT for Water **Observatory** (IWO)*
- *Establishing **Common Dissemination Frameworks***
- *Connecting with EC a **EIP Water action group***
- *Organising **Events** to encourage interaction between stakeholders and the public.*
- *Producing four **Roadmaps**:*
    - *Semantic Interoperability and Ontologies*
    - *Smart City Connection*
    - *Smart Water Grids*
    - *Overall roadmap for key issues*
- *Producing a **Portfolio** containing effective ICT for Water technologies*

European Commission:
Smart water and the future

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www.ict4water.eu

About the Cluster

Due to growing population and economy, seasonal climatic conditions have changed, including extreme events as floods and droughts. This affects as a whole the availability of water resources at world level. ICT and water efficiency is a key policy issue with potential for new research area that includes decision supporting system for the measurement of water quality and quantity including the recycling and water reuse processes. This necessitates increased interoperability between water information systems at EU and national levels and efficiency of water resources management. This site is a hub for the 10 sister projects on ICT and Water Management. Read more

Coordination and clustering – ICT4Water

- Development of the Roadmap " *Emerging Topics and Technology Roadmap for Information and Communication Technologies for Water Management"* May 2014/March 2015

- Actions
  - Exchange of information- Common website-Contacts
  - Special sessions in Conferences/Publications (WDSA, IAHR, CCWI)
  - Common development of standards and standardisation
  - Common papers
  - Links with/participation in Water EIP relevant action groups

CTRL+SWAN - Cloud Technologies & ReaL time monitoring + Smart WAter Network (AG126)

Ctrl+Swan Action Group will be devoted to the further development of innovative sensor systems' technologies to be integrated and implemented in the design of an innovative approach to the water distribution networks management, with the broaden goal to introduce our concept of Smart WAter

Ctrl + SW AN

EIP Water Action Group
Pooling resources – Innovating water

The road to smart water standardisation

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Standards/Standardisation for smart water

- **Within iWIDGET work started in 2014**
- **Step 1: Developing Questionnaire**
- **Step 2: Recording the opinions of experts/stakeholders from various backgrounds**
    - **Distributed to iWIDGET partners (Spring 2014)**
    - **Distributed to other ICT4WATER cluster members (Summer 2014)**
    - **Distributed to the Ctrl+SWAN action group (collective response)**
    - **Discussed at a special session at WATERIDEAS conference (October 2014)**
    - **Paper summarising questionnaire and responses in IAHR2015 proceedings**
    - **Special panel session open at SWAN 2015 conference (April 2015-London)**
    - **Special session during CCWI 2015 (3 September 2015)**
- **Step 3: Working on documents for the EC Roadmap**
    - **Special closed session about standards alongside SWAN (May 1, 2015)**
    - **White paper to be discussed in CCWI 2015**
    - **1st Standards/standardisation report to the EC (iWIDGET): finalised October 2015**
    - **2nd Standards/standardisation report to the EC (WIDEST): February 2017**

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Purpose for ict4water

- Develop a roadmap to standardisation :
  - Identify specific areas where standardisation is beneficial
  - Within each area identify an initial set of standards for adoption or development
  - Adopt a process for bringing about the adoption/development (OGC/W3/ISO)
  - Find leaders/sponsors
  - Set process in motion

- Suggest role of ICT4Water cluster in implementing the roadmap
- Propose: how standardisation should be resourced
- Agree on the draft outline report to the EC

Previous work: Standardisation priority sectors/types

- **Interoperability/compatibility** of systems and procedures
- **Comparability** of data and results of processing
- **Reliability** of systems and results
- **Security** of information
- **Safety** of smart technology
- **Communication** (IT) –**Effective operations**
- **Communication** with the consumers and the public, i.e. customer feedback

- *Type: Open standards*
- *Ease of use.*

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Standard-based framework for smart water standards

Priorities
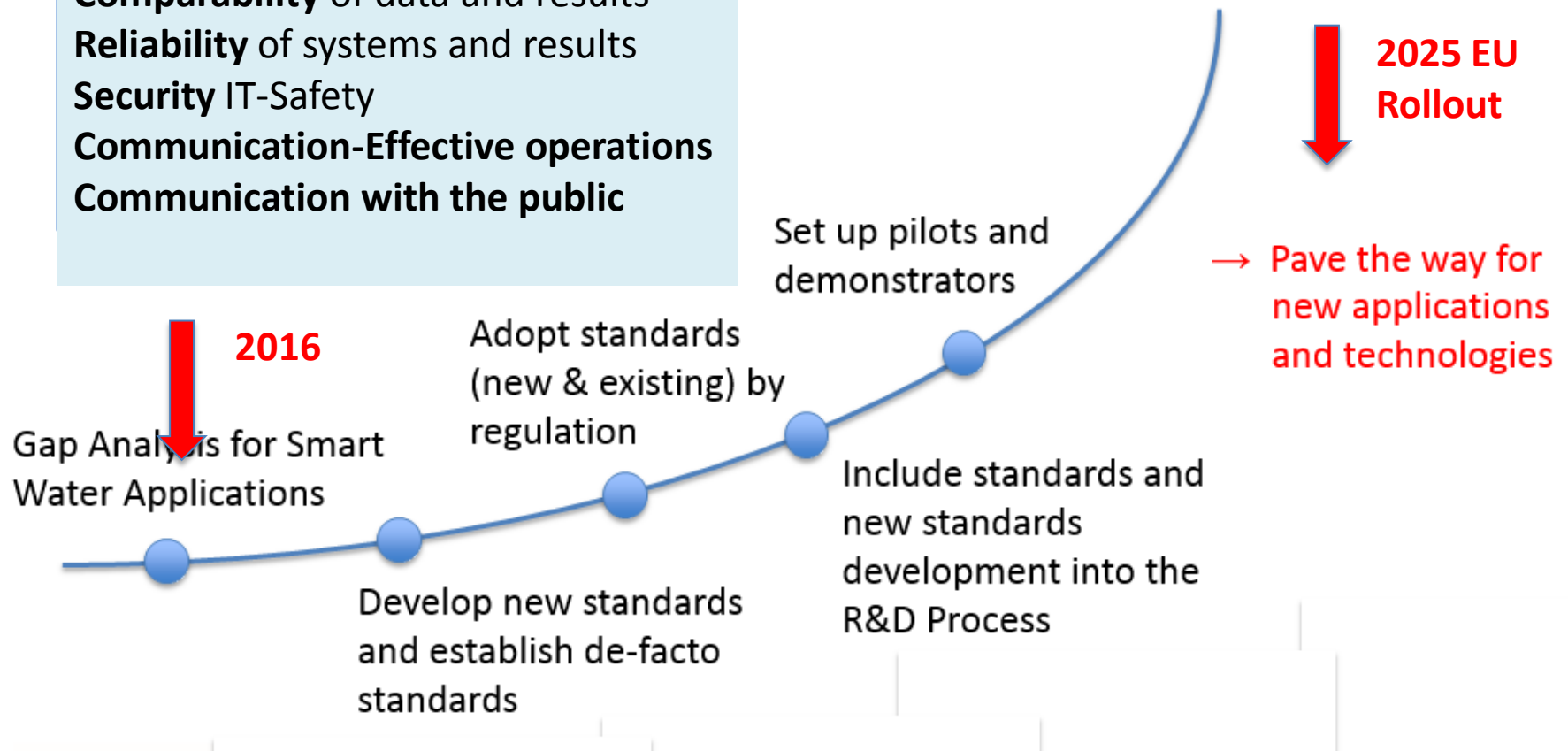**Interoperability/compatibility**
Comparability of data and results
Reliability of systems and results
Security IT-Safety
Communication-Effective operations
Communication with the public

2025 EU Rollout

→ Pave the way for new applications and technologies

Set up pilots and demonstrators

2016

Adopt standards (new & existing) by regulation

Gap Analysis for Smart Water Applications

Include standards and new standards development into the R&D Process

Develop new standards and establish de-facto standards

Thank you
Visit us:
http://ict4water.eu

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