

WATERNOMICS: ICT for Water Resource Management

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1 Introduction

Studies carried out by the European Commission¹ have identified that a significant part of Europe suffers from water stress. Furthermore, the cumulative impacts of economic development and climate change are likely to aggravate the situation in many areas where water stress already exists and further significant parts of Europe are likely to be affected in the future. The same studies identified a significant potential for water savings in Europe. ICT offers an untapped potential to improve the management of water resources by integrating real-time knowledge about water consumption at domestic, corporate and city level to enable the implementation of efficient resource and demand management strategies and pricing schemes. Into this challenge and opportunity, WATERNOMICS² brings together ICT and water stakeholders in joint research to deliver this untapped potential via real-life testing and demonstration experiments. The end result is the realization of new knowledge, technologies, business models and meaningful market uptake as well as EU leadership worldwide in water related ICT technologies. WATERNOMICS will provide personalized and actionable information on water consumption and water availability to individual households, companies and cities in an intuitive & effective manner at relevant time-scales for decision making. Key project objectives include:

1. To introduce **demand response and accountability principles (water footprint)** in the water sector;
2. To engage consumers in new **interactive and personalized** ways that bring water efficiency to the forefront and leads to changes in water behaviours;
3. To empower corporate decision makers and municipal area managers with a **water information platform** together with relevant tools and methodologies to enact ICT-enabled water management programs;
4. To promote **ICT enabled water awareness** using airports and water utilities as pilot examples;
5. To make possible **new water pricing options** and policy actions by combining water availability and consumption data;

¹ http://ec.europa.eu/environment/water/quantity/scarcity_en.htm

² The research leading to these results has received funding from the European 7th Framework Programme (FP7 - EU Research and Innovation funding programme for 2007-2013) under grant agreement 619660 - ICT for Water Resource Management.

6. To provide decision makers with the actionable information they need to **get started** in the implementation of a water management program today.

Thus WATERNOMICS will pioneer a new dialogue between water stakeholders. It will enable the introduction of Demand Response principles and open business models through an innovative approach that leverages water data, water availability based tariffs and gamification of water usage statistics. To maximize the impact WATERNOMICS will develop a water information platform that aims to raise awareness about efficient water management to provide users with insightful and actionable data [1] that can be immediately understood by relevant stakeholders in various environments to achieve the water efficiency and use reduction [2]. Indeed as almost always happens, a mere graph of the probability density function is usually not immediately understood by decision makers, so the aim of the WATERNOMICS platform is to collect all the available data dealing with water consumption, network leakages, maintenance and to show them in a simple way through, for example, graphs created ad hoc for the end users necessities and also through colours coding, metaphors and gamification. The information platform of WATERNOMICS is an instrument that focuses mainly on water efficiency at household, municipality and corporate level through the change behaviours of the end users to achieve reduced water usage and improved operation and maintenance by utilities. The innovative water information platform is the main instrument through which WATERNOMICS aims to change consumption behaviour and effect changes in water resource management and water consumption policy as it will provide a personalized and customizable solution and application to stakeholders.

2 WATERNOMICS Project Fact Sheet

About: The WATERNOMICS³ is a 3 year EU funded research project that began in February 2014 and responded to the call FP7-ICT-2013-11. The total cost is 4.264.385,00. It is coordinated by Dr. Edward Curry (NUI Galway). The partners variously specialise in ICT & Automation systems development, water sensors development, business model development, water system design, open source based platform, energy and sustainable management, exploitation, dissemination and communication activities.

Partners: National University of Ireland Galway (NUI Galway), ULTRA4, UNESCO IHE, TU, BM-CHANGE, R2M Solution Srl, SEA, Municipality of Thermi, VTEC Engineering BV.

References

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³ <http://waternomics.eu/>

2. Clifford, E., Coakley, D., Curry, E., Degeler, V., Costa, A., Messervey, T., Smit, S. (2014). Interactive Water Services: The Waternomics Approach. In 16th Int. Conf. Water Distribution Systems Analysis (WSDA 2014). Bari, Italy.