

Wat€rnomics



Waternomics Methodology

A standards based methodology for the implementation of water efficiency programs using smart water systems



The Waternomics project is co-funded by the European Commission
within the 7th Framework Program (Grant Agreement No. 619660).



Waternomics Methodology



Contents

Introducing the Waternomics Methodology	3
Overview	4
Case Studies	6
Partners	back


Introducing the WATERNOMICS Methodology

Climate change, increased urbanisation and an increasing world population are several of the factors increasing the stress on our available natural water resources. There is a growing awareness amongst citizens, businesses and policy makers that fresh water is a limited resource and should be treated accordingly. Great progress has been made in the field energy efficiency and carbon emissions reductions, it is time to turn our attention to water.

The WATERNOMICS Methodology is a standards-based methodology which helps organizations of all types, decision makers and end users alike save water through water efficiency measures and the implementation of water efficiency programs leveraging information communication technologies (ICT). A consequence of saving water is also the saving of energy and reduction of emissions (pumping, water treatment, etc). It is also the case that with more data and information about our water networks and water usage being analysed, that problems and leaks will be spotted early, saving water, money and mitigating damage.

As such, smart water systems can help with managing water as a resource in a holistic way and for a variety of benefits. Accordingly, the WATERNOMICS project has developed a methodology that navigates its users through all the essentials for adopting a smart water system in organisations or for implementing water efficiency measures in homes. It does this by providing a framework, set of tools and references that enable actions towards water efficiency measures and the successful implementation of water management programs.

WATERNOMICS methodology has embraced best practices and lessons learned from the transition towards smart grids in the energy sector and adopted those elements that can be applied for the implementation of smart water systems in the water sector. Concepts like smart meters, end-user involvement, informative billing, communication standards and analysis of large quantities of consumer data, are common in today's energy sector but are only recently introduced to the water sector.



**This brochure introduces the
WATERNOMICS methodology,
a standards based methodology for the
implementation of smart water systems.**

Overview



WATERNOMICS standards based methodology helps organisations with the adoption and implementation of smart water management systems. The methodology offers a five phase process, similar to that of ISO50001 (Energy Management Systems) and enables organizations to establish the systems and processes necessary to improve water efficiency and consumption.

This methodology leads to reductions in water cost through systematic management of water as a resource and the implementation of a Water Management System.

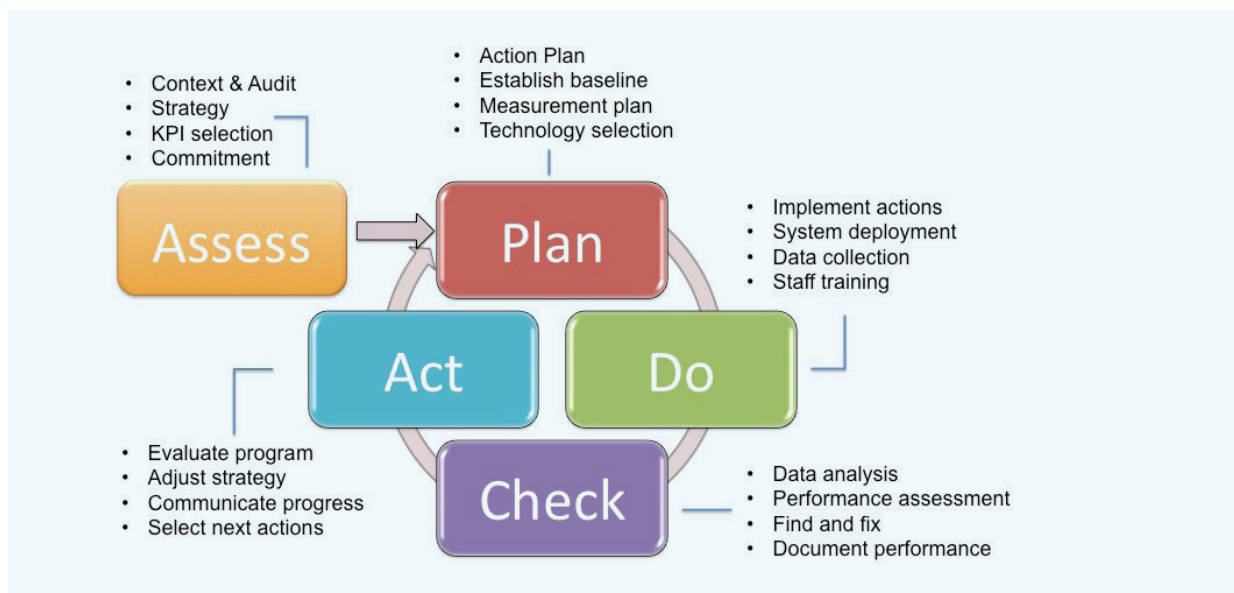
The methodology is based on the Assess-Plan-Do-Check-Act continual improvement cycle and incorporates water management into everyday organisational practices.

Benefits of WATERNOMICS Methodology

- Applicable to all types of organisations
- Compliant with industry standards
- Using best practices and lessons learned from the energy domain

How it works

Processes within the WATERNOMICS methodology are designed to adapt to organisations of any size and take you from initiating a water management program to monitoring the performance of the actions taken:



Assess: Determine whether or not an end user or decision maker should engage in the construct of a water management program, take water efficiency measures and/or implement a water information system.

Plan: Establish the baseline, objectives, targets and action plans necessary to deliver results in accordance with opportunities to improve water consumption.

Do: Implement the water management action plans.

Check: Monitor and measure processes and the key characteristics of its operations that determine energy performance against the water objectives.

Act: Take actions to continually improve water performance.



The WATERNOMICS Methodology is easy to learn and makes use of existing tools and techniques. By adopting WATERNOMICS Methodology as your project management method, you can benefit from the five principles, which are as follows:

- **Standards based:** WATERNOMICS methodology is built upon existing, broadly accepted standards like ISO50001, ISO50002, ISO14046 and IPMVP.
- **Scalable:** WATERNOMICS Methodology should be tailored to suit the organisations size, environment, complexity, capabilities and risks.
- **Holistic:** WATERNOMICS Methodology covers strategy, technology, processes and roles.
- **Manage by Phases:** A project executed according WATERNOMICS Methodology must be, for each phase, planned, monitored and controlled.
- **Data driven:** Decisions made in projects executed according WATERNOMICS Methodology, are based on sound and valid data.

The WATERNOMICS methodology can be shown by the following diagram.



Case studies

The WATERNOMICS methodology has been tested in four distinct pilots in three countries, Italy, Greece and Ireland, representing different user groups and different business and meteorological conditions.



Pilot sites in:
 Milan - Italy
 Thermi - Greece
 Galway - Ireland

Pilot 1:

Linate Airport, Milan, Italy. Installing a smart water system including a public information system at an operational airport is challenging. The WATERNOMICS Methodology helped with involving and aligning all stakeholders and selecting the right measures and strategy.

Pilot 2:

Single households, Thermi, Greece. Different households have different water and communication infrastructures. The WATERNOMICS Methodology provided structure to the installation and communication process.

Pilot 3:

NUI-Galway, Galway, Ireland. In the University, the smart water system is used both for water management as for educational purposes. The WATERNOMICS Methodology helped with the selection of the right technologies and maximising the business value for the University.

Pilot 4:

CnaC, Galway, Ireland. This brand new secondary school is equipped with a state of the art building management system. The WATERNOMICS Methodology helped with the design and implementation of the water information system for this school.

Partners



NUI Galway
Ireland



Ultra4
Greece



Unesco-IHE
Netherlands



TU Delft
Netherlands



BM-Change
Netherlands



R2M SOLUTION SRL
Italy



SEA
Italy



Municipality of Thermi
Greece



VTEC Engineering BV
Netherlands

WATERNOMICS is member of the ict4water cluster
and the Ctrl+SWAN Action Group.

