

Smart meters Smart water Smart societies

## An eLearning approach for improving household water efficiency

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### **Developing the eLearning facilities**

- The elearning facilities aim to support and motivate end-users to improve their domestic water-efficiency, bringing new awareness on household level and bridging the gap between customers and new ICT services.
- The platform is mostly developed around Moodle online suite which was extended in order support additional add-on web applications and facilities.



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Towards an eLearning approach

- Aspects of guided, but flexible, learning process
  - Sense of control and self-direction
  - Specific goals to achieve
  - Practical knowledge and experience
  - Sense of group and social networking
- The course structure and platform's front-end were further supported by a social research in Athens on consumers' cognition on the potential use of ICT services in water sector.
  - Dominant forms of information: tips, interactive material (games, FAQ's, quizzes), narratively or visually water stories
  - Dominant means of presentation: graphics, comprehensive tables and figures, videos and animations, images and sketches of appliances, sort and easy messages
- Adoptions of a flexible knowledge cycle that incorporates the above characteristics and implements the various applications



## iWDGET

#### Learn about Water

- Information on
   "water identity" with
   special focus on
   domestic water,
   through a series of
   questions & answers.
- The user can opt the
   level of detail of the
   presented feedback
   and resources.

Navigation - III	Frequently Asked Questions			
My home My profile Current course	Here is what you really want to know about water! Press "Learn More" tab for even further information and "Related Sites" tab for relevant sites and sources.			
<ul> <li>Be Smart with Water in the House</li> </ul>	View list View single Search Add entry			
<ul> <li>Participants</li> <li>General</li> <li>Learn about Water</li> <li>Frequently Asked Questions</li> <li>View list</li> <li>View single</li> <li>Search</li> <li>Understand your Water Consumption Profile</li> </ul>	Page: 1 2 (Next) Question: What is the hydrologic cycle? Answer: Earth's water is following a constant track known as the natural water cycle. The water cycle, also known as hydrologic cycle, describes the continuous and endless movement of water on, above and below the surface our planet, according to the following three basic steps: 1) the water precipitates from the atmosphere; 2) travels on the surface and through groundwater to the oceans; and 3) evaporates or transpires back to the atmosphere from land or evaporates from the oceans. Learn More:			
<ul> <li>Act on Reducing Consumption</li> <li>Evaluate and Design</li> <li>Go One Step Further</li> <li>Additional quidance and</li> </ul>	The water cycle has neither end nor starting point. Due to the heat of the sun, water from oceans and soil evaporates into the atmosphere as vapor. Additionally, some ice and snow evaporate directly without first turni to liquid (this process is called sublimation). These quantities of vapor water, along with vapors produced by pli transpiration, rise into the air where cooler temperatures cause it to condense into clouds. At some point the liq water in the clouds returns to the Earth's surface as precipitation (e.g. either as snow or as rain). Apart from the amount that may be stored in glaciers for hundreds of years, most of the precipitation falls over the land and flo (surface flow) through channels towards the ocean. On the way some of the water rimitrates through the soil ar becomes groundwater flow. The water cycle will restart with the evaportanspiration of years from oceans, soil 2			

## **WDGET**

### Test "Water Sense"

- Through a multiplechoice quiz the users can evaluate their behaviours related to domestic water consumption and test their knowledge on "water issues".
- The platform highlights the correct answers and ranks the performance, offering the sense of competition.



### **Explore "Water Profile"**

Navigation 🔶 📕	Water Calc	ulator	
Home ■ My home	Discover the water consumption profile of your ho	usehold	1
Site pages My profile	Learn how your total water consumption is allocated in outdoor uses, by specifying your personal characterist		rious domestic indoor and
<ul> <li>Current course</li> <li>Be Smart with Water in the House</li> </ul>	Your household's water det	ails	^
<ul> <li>Participants</li> <li>General</li> </ul>	Number of people in residence	1	
Learn about	BATHROOM WATER USE		
Water Vunderstand your	Weekly showers in the residence per person	4.2	
Water	Average shower time (min)	8	
Consumption Profile	Weekly baths in residence per person	2.0	
Water Sense Quiz	TOILET WATER USE		
Water	Average number of flushes daily per person	4.12	
Calculator	Flush volume (L)	9	
Act on Reducing Consumption	FAUCET WATER USE		
Evaluate and	Average number of times each person uses faucet daily	4	
Design Go One Step	Duration of faucet use (min)	1	
Further	DISHWASHING WATER USE		
Additional guidance and	How many times are dishes washed by hand weekly	2	
resources	How many dishwasher loads each week	1	
My courses	Water usage per dishwasher load (L)	35	

 The results are presented in the form of a **report** and **pie charts** that depict the breakdown of total water consumption into main indoor and outdoor water uses.  The on-line Water Calculator provides detailed information on the water consumption profile of the household.

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 As input parameters, the application takes information about daily habits and property characteristics.





# **IMDGET**

### Improve "Water Efficiency"



Through the **online application** the user can navigate at different places within **a virtual house**, and the various **tips and practices** will emerge by clicking on an activity or appliance.





#### **Evaluate and Develop**



- The "Water Planner" is a what-if modelling tool, based on UWOT model, that simulates the domestic water network with both BAU and/or BATNEEC appliances and advanced WDM infrastructures.
- The portal presents graphs of annually potable demand, wastewater, energy consumption etc.



#### **Getting familiar with Smart Technologies**

	Frequently Asked Questions						
Iome My home Site pages My profile Current course Be Smart with Water	Here is what you really want to know about the implementation of state- of-the-art ICT technologies and services on water domain! Press "Learn More" tab for even further information and "Related Sites" tab for relevant sites and sources.						
in the House Participants		View list	View single	Search	Add entry		
<ul> <li>Learn about Water</li> <li>Understand your Water</li> <li>Consumption Profile</li> <li>Act on Reducing Consumption</li> <li>Evaluate and Design</li> <li>Go One Step Further</li> <li>Frequently Asked Questions</li> <li>View list</li> </ul>	Question:           Vhat are smart technologies?           Insumation and Communication Technology" (CT) refers to a wide range of innovative and integrated solutions and services with an emphasis on acquisition, storage, transmission and manipulation of vast amounts of data on a real-time basis. The ICT services are based primarily on telecommunication technologies such as internet, wirefess networks and cell phones, through which the collected data are transmered and presented to various stateholders in the form of valuable information via web-based applications. The utilinate goal of this innovative approach is the improvement of the quality of our life through a sustainable growth that vial in to pose restrictions and pressures to future generations. Towards this direction, various sectors such as health, education, incorporated innovative ICT solutions in order to improve the quality of their services.						
View single	Related Sites:						_

The platform aims to bring user closer to the various state-of-the-art smart technologies, promoting their role and benefits. Towards this direction, success stories of their implementation and **ongoing EU** research on ICT and Water are also presented.

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#### PEAN RESEARCH ON ICT AND WATE My ho efficiency through the use of ICT services Site pages My profile Current course Be Smart with Wate in the House Participant General Learn about information at: http://www.ice.wish.eu/uk/icewish.asp Water Understand you Water Consumption Profile more interesting information at: http://www.a-qua.eu Act on Reducing Consumption Evaluate and Design Go One Step Further E Frequently Asked Question Success Stories and Experience 📄 European ICT and Wa

#### European Research on ICT and Water

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Learn about the ongoing European-funded projects towards the improvement of domestic water

· ICE-WISH (2011-2014) is a demonstration project where ICT-based innovative energy and water monitoring system has been installed across 300 social dwellings in 10 European countries (Belgium, Bulgaria, Denmark, France, Germany, Greece, Italy, Poland, Spain, UK) in order to collect and communicate realtime consumption data at the household level via a standard home TV. ICE-WISH service will provide customised and appealing information at both households and housing associations level to empower occupants to control their energy and water usage. The tailored information comprise: real time energy and water consumptions and costs, historical data, daily reports, forecasts for future energy and water consumption, recommendation and guidelines for efficient water and energy usage. Learn more interesting

@qua (2011-2013) is a Thematic Innovation Network aiming at the gathering and sharing of best practices, indications, solutions and standards in order to stimulate innovation and competiveness through the wider uptake and best use of ICT solutions for the water domain by citizens, governments and business. Through this process, @qua aims to identify the needs, the gaps and the expectations for ICT solutions in the various water business processes covering the full water domain, and especially urban water domain. Learn EnergyTIC (2011-2014) is a demonstration project that different innovative ICT solutions available in

different countries (France, Spain and later on a third cluster) will be implemented to collect real time information from water and energy companies. The collected data, adapted into valuable and appealing information, will be delivered to the users via sms alerts and easy to understand graphic messages displayed in different ways: in home display, residential terminal or digital TV. This solution benefits not only end-users who can monitor, understand, control and optimize their energy and water domestic consumption but also the energy distributor who will be able to better manage the facilities provided for the energy and water supplies. The different comprehensive ICT solutions will be implemented firstly in 1700 dwellings (1000 in France, 700 in Spain) and later on a third cluster case study. In France, the selected ICT solution uses water, gas and energy consumption data and retransmits processed data on all digital devices present in dwellings (TV, smartphone, tablet and web portal) as well as to technical staff in order to assist tenants in a suited follow-up of their consumptions. In Spain, the service will provide water and energy consumption data at individual and neighbourhood level either via the Digital Terrestrial Television or via Internet (smartphone, web portal). Learn more interesting information at: http://www.energy-tic.eu/ SHOWE-IT (2011-2013)project explores how advanced ICT components and systems can enable services that help reduce energy and water consumption in social housing against favorable conditions, by creating a

IWDGF

Giving a sense of group

The platform promotes the active participation of the user.

- Discussion forum about water efficiency. The user could share his personal experience and practices on water saving.
- **Pool of links** with resources and relevant sites or videos.
- Online dictionary with basic water-related terms.

#### Smart meters Smart water Smart societi

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#### Live demonstration



#### iWIDGET eLearning platform is available at:

http://www.i-widget-elearning.eu/iWidget/

#### For a demo experience use:

username: demouser, password: demo

Smart meters Smart water Smart societies	You are not logged in.
Idem:       Project       Partners       News       eleanning       Publications       Col         HOME > LOCK TO THE STEE         Action of the state       Action of the s	<ul> <li>between the second se</li></ul>

#### For video demonstration visit:

http://www.youtube.com/watch?v=s1zQ4KQI1SQ&feature=youtu.be