CENTAUR

European Commission

Main Action	Activities	How to contributes
SW1- Deployment of technology enablers	*SW1 – Activity 1 and 3*	*CENTAUR has developed an artificial intelligence based localised smart water system, where water level sensors directly communicate (through low power radio signal) with a fuzzy logic steered flow control system that steers a flow control device, in order to alleviate urban flooding.*
SW3 – circularity in digitization of water use and reuse	*SW3 - Activity 2*	*CENTAUR is retrofitted in existing urban drainage systems, as a low cost flood alleviation system that utilises storage available in an existing system in a more efficient way, without the need for major new infrastructure. Meets current floodrisk demand and is a modular and hence adaptable system to meet future climate change and economic development demand on existing urban drainage systems.*
SW6 Decentralised smart water system	*SW 6 - Activity 1*	*CENTAUR is a decentralised smart water system for alleviating flooding from wastewater collection systems.*

INCOVER

Main Action	Activities	How to contributes
Smart irrigation with reclaimed water	**I&S1**	*Activity 6:* The smart irrigation system using reclaimed water has a standardized communication protocol 6LoWPAN which specifies that hundreds of FINoT node-enabled soil, air, flow meter sensors and actuators are networked under a single gateway.
Smart irrigation system with reclaimed water	**DS.1**	*Activity 2* Within INCOVER, the niche ICT parts that adds intelligence to the hydraulic and electric sub-systems-FINoT objects- were developed in-house by FINT (partner in INCOVER). These create a local wireless network that is mastered by FINoT gateway, which gets (microclimate) data from the FINoT agri-node and forces manual or automatic remote actuation of the irrigation through the FINoT's irrigation controller/ node
Development of new fit for purpose optical sensors for monitoring of wastewater treatment	**SW.1**	*Activity 1* Several optical sensors are being developed to monitor PHA (bioplastic) accumulation in cyanobacteria and purple bacteria in innovative wastewater treatment. Additionally, a VFA (volatile fatty acid) optical sensor based on IR and UV measurements is also being developed to monitor anaerobic digestion.

INTCATCH

European Commission

Main Action	Activities	How to contributes
Smart Water SW.1	*Activity 1*	*Use of sensors on robotic and autonomous boat platforms, feeding high resolution spatial and temporal data on water quality in real time.*
	Activity 2	*Development of a Decision Support System for identifying pressures on water quality in catchments, suggesting monitoring strategies and possible interventions / measures for improving water quality.*
Smart Water SW.2	*Activity 4*	*To develop and demonstrate the use of tools developed in the INTCATCH project and engage stakeholders in their use, empowering communities to become engaged with and take ownership of their water bodies.*
WATER & DIGITAL AW.3	*Activity 2*	*To engage stakeholders and citizen scientists with tools for monitoring water quality.*
	Activity 3	*To investigate how water quality information can be conveyed to end users, using smartphone apps, or information boards.*

INTEGROIL

European Commission

Main Action	Activities	How to contributes
Reinforce better utilisation and effective deployment of new technology enablers	*SW.1*	*INTEGROIL contributes mainly to Activity 1&2 in the sense that Big data and advanced visualization techniques are implemented so as they enable to make decisions in almost a real-time way. The project also addresses Activity 3 because the DSS specifically developed for the project (based on machine learning techniques) is able to reconfigure plant operational schemes according to input water features and desired output water requirements for reuse.*
Improve efficiency and circularity in digitalisation of water use and re-use	*SW.3*	*INTEGROIL mainly contributes to Activity 1. The integrated INTEGROIL solution is designed and developed to significantly reduce water dependency in water-intensive industries by making possible the reuse of reclaimed water for different purposes. Besides, the solution integrates different proven technologies adapted to work with complex waters so the resulting solution can be easily implemented in the market. This way the risk to be the first in implementing a novel solution is reduced.*
Develop and deploy Decision making tools able to apply new decision schemas considering competing objectives and multi-stakeholder governance models	*SW.5*	*INTEGROIL contributes to Activities 3, 4 and 5. The integrated solution comprises five different individual technologies that are operated by a DSS in quasi real-time way. This DSS allows fast plant reconfiguration to fulfil the pre-selected output requirements for reusing the reclaimed water. Moreover, plant reconfiguration aims at minimizing energy and operational cost requirements.*

SIM4NEXUS

European Commission

Main Action	Activities	How to contributes
Development of cross-domain data sharing mechanisms (Water-Energy-Food - Land use – Climate Nexus)	*DS.2*	*Activity 1: The project is a dedicated RIA for the integration of Water-Energy-Food-Land use-Climate Nexus. It uses several specialised established "thematic" models, addressing components of the Nexus and combines data and outputs into a semantic public database, leading to shared cross-domain interoperability for any further use across domains and for system approaches.*
Develop and deploy Decision making tools able to apply new decision schemas considering competing objectives and multi-stakeholder governance models	*SW.5*	*Activity 1: SIM4NEXUS contributes to reducing heterogeneity among decision making by integrating cross-domain data and models* *Activity 2: It increases comparability of results, promotes comparison among different models* *Activity 6: Above all others, SIM4NEXUS develops new methodologies for climate change impact analysis, taking into account the whole Nexus, developing integrated models using System Dynamics modelling and ultimately into Serious Games, enabling the consideration of different policies by multiple stakeholders*
Raise awareness for water actors, considering cross-actor interactions (managing authorities, decision makers…)	*AW.2*	*Activity 3: SIM4NEXUS carries out innovative research, developing holistic models for the water-energy-food-land use-climate Nexus, which can be used by various actors and decision makers for analysing policies and interactions between domains, focusing on climate change medium and long term impacts. These Serious Games promote social and decision makers' awareness and enable authorities, professionals, citizens and water utilities to explore options in a cross-domain environment.*

SMART-Plant

Main Action	Activities	How to contributes
Deliverable 4.1 Energy and GHG emissions monitoring SMARTechnologie s	**I&S1, SW1, POL1**	*Development and application of robust monitoring strategies-protocols for wastewater treatment to address uncertainties regarding GHG emissions monitoring. (I&S1)* *Investigate the applicability of data-mining techniques (for pattern recognition, dependencies identification, outliers detection) for knowledge extraction from wastewater treatment sensor data. Advanced data analytics and visualization techniques will facilitate the identification of operational conditions that minimize energy and GHG emissions, without compromising the performance of wastewater treatment systems. Application of multivariate techniques for the assessment of the effect of the operating parameters and influent characteristics on direct GHGs emissions generation and energy consumption at wastewater treatment processes utilizing sensor data (SW1)* *The applied monitoring and control of the SMART-Plant systems will create the knowledge and understanding that will facilitate the introduction of better regulations (by a better understanding of the properties of water and wastewater – and the consumer requirements and health needs; feedback to the Innovation Deal). This will enable regulators and legislatures to better set targets and requirements. (POL1)*

SWAMP

Main Action	Activities	How to contributes
SMART WATER	*SW.1*	• *Activity 1: The smart irrigation system developed in SWAMP contributes to Smart Sensors, network communications, Big Data and IoT, and builds on existing standards.* • *Activity 2: SWAMP will enable real time decision making based on more variable factors by using intelligent and smart system components based on a predictive model and advanced machine learning.* • *Activity 3: The SWAMP scenarios require to collect and organize a huge amount of different data sources (Big Data) for extracting useful knowledge and models for precision irrigation. Machine learning will be used to build the models for water need estimation and irrigation planning.*
DATA SHARING	*DS.1*	• *Activity 1: SWAMP services will be interoperable by utilising existing technologies such as FIWARE, JSON.* • *Activity 2: SWAMP might contribute to ontologies in the domain of Smart Agriculture.*

Smart.Met : Pre-Commercial Procurement for smart metering

European Commission

Main Action	Activities	How to contributes
To develop an European Catalogue of ICT4Water standards and specifications including: Adoption of Priority and Feasibility of integration	*I&S.1 Activity 3*	*During phase 2 of the projects, the R&D Providers will be requested to actively participate at the Standardisation Working Group (SMARTMET-SWG), together with Smart.Met partners and possible guests (experts from EU research), for examining interoperability and pre-standardization issues. This SWG will release recommendations for the developments, and recommendations for the standardisation of most-wanted features ; these recommendations will be published under a Creative Commons licence, allowing their reuse and further improvements.* *The SWG will link with CEN CENELEC, to see which approach is the best suitable : to get connected to a specific or ad'hoc Technical Committee, to draft Technical Specifications, or a Technical Report, or to organise a Workshop Agreementhe R&D phases, and*
Reinforce better utilisation and effective deployment of new technology enablers	*SW.1 Activity 1*	*Smart.Met is a Pre-Commercial Procurement project : a group of public water utilities analysed their needs in terms of smart metering and the solutions available on the market, identified gaps, and then defined the scope of a call for R&D projects, to be performed by third-parties (meters suppliers, ICT solutions providers, research centres, etc).* *At the end of the project, 2 or 3 solutions will have been demonstrated, and will be close-to-the-market.*
Develop a common approach to water cybersecurity	*CS.1 Activity 2*	*Cybersecurity is among the key features expected by the utilities, and is a masterpiece of the assessment criteria for evaluating the quality of the solutions to be proposed by the R&D providers.*

RUN4LIFE

European Commission

Main Action	Activities	How to contributes
Recovery of nutrients and water though circular models supported by IT technologies	*Circularity in digitalization of water use and reuse SW3*	Run4LIfe proposes a circular model of recovery and utilisation of nutrients for low impact fertiliser . A platform compiling this data maximises nutrient recovery and improve process efficiency. Information obtained in the demo-sites will be used for **process simulation to conceive a unified Run4Life model to be applied for particular conditions** (flow, source separation, nutrients concentration, etc.), allowing new business opportunities and providing data for critical raw material policies.
Social Innovation and Stakeholder Engagement	*Actors Awareness AW2*	1.To identify key stakeholders' expectations from the project with different roles and different levels of impact (regional, national, global impact) 2.To map the stakeholders' network at each of the project demo-sites, to show the levels of interaction. 3.To gather information on attitudes, opinion and behaviour of the concerned stakeholders 4.To provide **recommendations on the creation of engagement and social empowerment strategies.**
Decentralised approach for segregating concentrated products: black water, kitchen waste and grey water.	*Decentralised smart water systems SW6*	The project aims at recovering nutrients at the source in a decentralised approach for segregating concentrated products as black water (BW), kitchen waste (KW) and grey water (GW). - Run4Life process optimised through an **on-line monitoring system** for key performance indicators, nutrient concentration (NPK), pathogens and selected micropollutants. - Comparison of the proposed solution with conventional technologies.

STOP-IT

European Commission

Main Action	Activities	How to contributes
CS.1	*All Activities*	*A1: Risk- based Decision Systems for CI combining models to bridge the gap between physical and cyber threats, through a simulation-emulation approach. Training and education (link to JRC and certification).* *A2 and A3: Water Middleware enabling semantic interoperability: data exchange in a semantic interoperable way by the use of an ontology. Data sharing between other systems facilitated. Data quality assured at semantic level. Others: Software Defined Radio (SDR) technology.* *A4: via the trans-project community of practice (CoP) promoting collaboration across CIs.*
Ds.1	*A1 and A3*	*STOP-IT platform will convey standards such as WaterML2, OASIS & MITRE, INSPIRE. The project will contribute to the elaboration of newer CI protection standards or the evolvement of the existent ones through involvement in the CoP of organisations responsible for setting technical rules and standards for the water sector and EU associations as ENISA, ETSI and European PPP on Cybersecurity.*
Sw.1	*A3*	*Risk Treatment Technologies (at operational level): Security of sensor network communications; Network Traffic Sensors and Analysers (focus on scalability and Fault-tolerant and automatic reassignment of task); High-volume, Real-Time (RT) sensor data protection; Risk Assessment and Reasoning Engine; Computer vision tools for automated surveying of the large-area of the water utility; Anomaly detection combining cyber, physical and behavioural information; Water Middleware for enabling semantic interoperability; Human Presence Detection using WiFi signals.*

European Commission

Main Action	Activities	How POWER contributes
ACTORS AWARENESS – WATER & DIGITAL	*AW.1 a3* *AW.2* *AW3 a2*	*POWER is sharing success stories and best practice through water digital social platforms.* *The POWER platforms bring together professionals, politicians (and decision-makers) and citizens via the platforms to find solutions to water challenges, including reducing water consumption; increasing flood preparedness and resilience; increasing social perceptions for water; increasing the public acceptance of greywater usage.*
POLICY	*POL.4 a1,a2*	*POWER is demonstrating how water digital social platforms can contribute to water eGovernance in the key demonstration cities of Sabadell (Spain), Jerusalem (Israel) Leicester (UK) and Milton Keynes (UK) to tackle their specific water challenge.* *Within the cities of Sabadell and Jerusalem a procedure, known as ConCensus, is being set up, whereby the citizens will be given a major role in the creation and fulfilment of local water policies.*
SMART WATER	*SW.2 a4* *SW.3 a1*	*POWER key demonstration city water companies Hagihon (Jerusalem) and CASSA (Sabadell) showcase their technologies for e.g. leakage detection and reduction, use of non-potable water on the city water platforms* *POWER platforms contribute to smart city initiatives portfolio for the key demonstration cities of Leicester and Milton Keynes.* *POWER best practice repository and governance work raises the profile of water on the smart city agenda.*

SPACE-O

European Commission

Main Action	Activities	How to contributes
DATA SHARING	*DS.1*	*SPACE-O short to medium term forecasting service line integrates operationally satellite imageries from Sentinel 2 and Landsat 7/8. Additionally the models are setup based on global available datasets and forced by ECMWF deterministic and probabilistic precipitation and temperature forecasts.*
SMART WATER	*SW.1* *SW.2* *SW.5*	*-SPACE-O is integrating state of the art satellite technology for water quality monitoring and advanced hydrologic and water quality modelling using advanced ICT tools for generating real time, short to medium range water quantity and quality forecasts for reservoirs storing water intended for potable use.* *-Machine learning techniques are build in a DSS in order to enable cost-effective and environmental sustainable WTPs operation, based on the water quality parameters forecasts at the reservoir* *-SPACE-O provides one-stop-shops for digital water services (advanced water quality monitoring, short to medium term hydrologic and water quality forecasting, early warning system, DSS for WTPs, etc)*
BUSSINESS MODELS	*BM1*	*SPACE-O intends to commercialize a complete, operational service line for the water industry*