Please check our wiki for help on navigating the form.

Horizon 2020

Call: H2020-SC5-2018-2019-2020

(Greening the economy in line with the Sustainable Development Goals (SDGs))

Topic: SC5-11-2018

Type of action: IA

Proposal number: SEP-210504260

Proposal acronym: WASTEWATER DIGIT

Deadline Id: H2020-SC5-2018-2

Table of contents

How to fill in the forms

The administrative forms must be filled in for each proposal using the templates available in the submission system. Some data fields in the administrative forms are pre-filled based on the steps in the submission wizard.

1 - General information

Topic	SC5-11-2018	Type of Action	IA
Call Identifier	H2020-SC5-2018-2019-2020	Deadline Id	H2020-SC5-2018-2

Acronym	WASTEWATER DIGIT
Proposal title	DIGITAL PLATFORM FOR DATA MANAGEMENT OF THE SEWARAGE-WASTEWATER TREATMENT PLANT-EFFLUENT SYSTEM IN THE INTEGRATED WATER CYCLE

Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &

Duration in months	*36*
Fixed keyword 1	Simulation tools and technologies
Fixed keyword 2	Water quality monitoring
Fixed keyword 3	Water technology
Fixed keyword 4	Web and information systems, database systems, information retrie
Fixed keyword 5	Competitiveness, innovation, research and development
Fixed keyword 6	Integrated management of water
Free keywords	*water infrastructures performance* *residual toxicity control* *innovative management tool* *water-smart solution* *IIoT technology* *water policies* *sensor data mining* *water system modelling* *water saving*

Proposal ID **SEP-210504260** *Acronym* **WASTEWATER DIGIT**

Abstract

The project proposal deals with the realization, at a demonstration level in a local territory, of a water-smart solution for sewerage, wastewater treatment plant (WWTP) and final discharge data collection, elaboration and modelling for water resource and environment safeguarding.
A Digital tool for the sewerage-WWTP-Effluent system data management represents an unique instrument which can monitor the whole sewage-WWTP system providing and sharing real-time data (rain, flow, depth, velocity, TSS, COD, …) useful both for sewer-WWTP operators to carry out the best management actions for the whole system and to have a database useful for calibration and validation of urban drainage and WWTP numerical models.
Flow and pollutant concentration on-line sensors will be placed along the urban water cycle. Thanks to an IIoT (Industrial Internet of Things) platform, real time-analysis and monitoring will provide the data base to perform integrated water modelling as an instrument for the water and wastewater utilities management. This can be used to quickly run simulations during extreme water conditions or to plan actions to improve water management in relation to effluent toxicological data.
The overall concept of the proposal is to introduce a quali-quantitative advanced modelling tool for IWC (Integrated Water Cycle) management companies. To open up IWC management operation to this advanced tool a digital transformation to new information technologies is necessary by IIoT integration.
The development of these new Information and Communications Technology(ICT)/water standard tools will enable improved the decision making on water management and the performance of water infrastructures.
This Digital platform can be considered as an innovative management tool for the urban sewage-WWTP systems, supporting cities towards the concept of "smart cities" into a new era of pro-active management and control.
This tool can be exported to other regions where upgrading IWCs are present.

Remaining characters 0

Has this proposal (or a very similar one) been submitted in the past 2 years in response to a call for proposals under Horizon 2020 or any other EU programme(s)? ○ Yes ◉ No

Please give the proposal reference or contract number.	
xxxxxx-x	

Declarations

1) The coordinator declares to have the explicit consent of all applicants on their participation and on the content of this proposal.	☒
2) The information contained in this proposal is correct and complete.	☒
3) This proposal complies with ethical principles (including the highest standards of research integrity — as set out, for instance, in the European Code of Conduct for Research Integrity — and including, in particular, avoiding fabrication, falsification, plagiarism or other research misconduct).	☒

4) The coordinator confirms:

- to have carried out the self-check of the financial capacity of the organisation on http://ec.europa.eu/research/participants/portal/desktop/en/organisations/lfv.html or to be covered by a financial viability check in an EU project for the last closed financial year. Where the result was "weak" or "insufficient", the coordinator confirms being aware of the measures that may be imposed in accordance with the H2020 Grants Manual (Chapter on Financial capacity check); or	○
- is exempt from the financial capacity check being a public body including international organisations, higher or secondary education establishment or a legal entity, whose viability is guaranteed by a Member State or associated country, as defined in the H2020 Grants Manual (Chapter on Financial capacity check); or	◉
- as sole participant in the proposal is exempt from the financial capacity check.	○

5) The coordinator hereby declares that each applicant has confirmed:

- they are fully eligible in accordance with the criteria set out in the specific call for proposals; and	☒
- they have the financial and operational capacity to carry out the proposed action.	☒
The coordinator is only responsible for the correctness of the information relating to his/her own organisation. Each applicant remains responsible for the correctness of the information related to him and declared above. Where the proposal to be retained for EU funding, the coordinator and each beneficiary applicant will be required to present a formal declaration in this respect.	

According to Article 131 of the Financial Regulation of 25 October 2012 on the financial rules applicable to the general budget of the Union (Official Journal L 298 of 26.10.2012, p. 1) and Article 145 of its Rules of Application (Official Journal L 362, 31.12.2012, p.1) applicants found guilty of misrepresentation may be subject to administrative and financial penalties under certain conditions.

Personal data protection

The assessment of your grant application will involve the collection and processing of personal data (such as your name, address and CV), which will be performed pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. Unless indicated otherwise, your replies to the questions in this form and any personal data requested are required to assess your grant application in accordance with the specifications of the call for proposals and will be processed solely for that purpose. Details concerning the purposes and means of the processing of your personal data as well as information on how to exercise your rights are available in the privacy statement. Applicants may lodge a complaint about the processing of their personal data with the European Data Protection Supervisor at any time.

Your personal data may be registered in the Early Detection and Exclusion system of the European Commission (EDES), the new system established by the Commission to reinforce the protection of the Union's financial interests and to ensure sound financial management, in accordance with the provisions of articles 105a and 108 of the revised EU Financial Regulation (FR) (Regulation (EU, EURATOM) 2015/1929 of the European Parliament and of the Council of 28 October 2015 amending Regulation (EU, EURATOM) No 966/2012) and articles 143 - 144 of the corresponding Rules of Application (RAP) (COMMISSION DELEGATED REGULATION (EU) 2015/2462 of 30 October 2015 amending Delegated Regulation (EU) No 1268/2012) for more information see the Privacy statement for the EDES Database.

2 - Participants & contacts

#	Participant Legal Name	Country	Action
1	UNIVERSITA DEGLI STUDI DI UDINE	Italy	
2	KEMIJSKI INSTITUT	Slovenia	
3	ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI	Italy	
4	ACQUEDOTTO POIANA SPA	Italy	
5	TECHNISCHE UNIVERSITAET WIEN	Austria	
6	IRISACQUA srl	Italy	
7	AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIULI VENEZIA GIULIA	IT	
8	UNIVERSITAET INNSBRUCK	Austria	
9	CAFC S.p.A.	Italy	
10	ACEGAS-APS Spa	IT	
11	BEANTECH SRL	IT	
12	HydroGEAspa	IT	
13	Liverza Tagliamento Acque S.p.A.	Italy	

2 - Administrative data of participating organisations

PIC	***Legal name***
999899281	*UNIVERSITA DEGLI STUDI DI UDINE*

Short name: UNIUD

Address of the organisation

Street VIA PALLADIO 8

Town UDINE

Postcode 33100

Country Italy

Webpage www.uniud.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....no

Legal person .....yes

Industry (private for profit).....no

Enterprise Data

SME self-declared status.....08/08/1977 - no

SME self-assessment ..... unknown

SME validation sme.....08/08/1977 - no

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: Dipartimento Politecnico di Ingegneria e Architettura ☐ not applicable

☐ Same as proposing organisation's address

Street: Via delle Scienze, 206

Town: Udine

Postcode: 33100

Country: Italy

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Prof. Sex: (•) Male ( ) Female

First name: **Daniele** Last name: **GOI**

E-Mail: **daniele.goi@uniud.it**

Position in org.: Professor

Department: Dipartimento Politecnico di Ingegneria e Architettura ☐ Same as organisation name

☐ Same as proposing organisation's address

Street: via Cotonificio 108

Town: Udine Post code: 3310

Country: Italy

Website: http://webgoi.uniud.it

Phone: +390432558827 Phone 2: +393207987937 Fax: +390432558803

PIC	***Legal name***
998756718	*KEMIJSKI INSTITUT*

Short name: NIC

Address of the organisation

Street HAJDRIHOVA 19

Town LJUBLJANA

Postcode 1000

Country Slovenia

Webpage http://www.ki.si

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Industry (private for profit).....no

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: Laboratory for Cheminformatics ☐ not applicable

☐ Same as proposing organisation's address

Street: HAJDRIHOVA 19

Town: LJUBLJANA

Postcode: 1000

Country: Slovenia

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Prof.

Sex: ○ Male ◉ Female

First name: **Marjana** Last name: **Novic**

E-Mail: **marjana.novic@ki.si**

Position in org.: Head of Laboratory

Department: Laboratory for Cheminformatics ☐ Same as organisation name

☒ Same as proposing organisation's address

Street: HAJDRIHOVA 19

Town: LJUBLJANA Post code: 1000

Country: Slovenia

Website:

Phone: +38614760253 Phone 2: *+xxx xxxxxxxxx* Fax: +38614760300

Other contact persons

First Name	***Last Name***	***E-mail***	***Phone***
Barbara	Tisler	barbara.tisler@ki.si	*+38647604 98*

PIC	***Legal name***
999661146	*ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI*

Short name: IRFMN

Address of the organisation

Street VIA GIUSEPPE LA MASA 19

Town MILANO

Postcode 20156

Country Italy

Webpage www.marionegri.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....no

Non-profit .....yes

International organisation .....unknown

International organisation of European interest .....unknown

Secondary or Higher education establishment .....unknown

Research organisation .....yes

Legal person .....yes

Industry (private for profit).....no

Enterprise Data

SME self-declared status.....31/12/2014 - no

SME self-assessment .....31/12/2014 - no

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: Environmental Health Sciences ☐ not applicable

☐ Same as proposing organisation's address

Street: VIA GIUSEPPE LA MASA 19

Town: MILANO

Postcode: 20156

Country: Italy

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr. Sex: (•) Male ( ) Female

First name: **Emilio** Last name: **Benfenati**

E-Mail: **emilio.benfenati@marionegri.it**

Position in org.: Head, Environmental Chemistry and Toxicology Laboratory

Department: Environmental Health Sciences ☐ Same as organisation name

☒ Same as proposing organisation's address

Street: VIA GIUSEPPE LA MASA 19

Town: MILANO Post code: 20156

Country: Italy

Website: www.marionegri.it

Phone: +39-02-39014420 Phone 2: +xxx xxxxxxxxx Fax: +39-02-39014735

Other contact persons

First Name	***Last Name***	***E-mail***	***Phone***
Vittorio	Castiglioni	vittorio.castiglioni@marionegri.it	*+39-02-39014394*

PIC	***Legal name***
935760165	*ACQUEDOTTO POIANA SPA*

Short name: ACQUEDOTTO POIANA SPA

Address of the organisation

Street Viale Duca degli Abruzzi 1

Town Cividale del Friuli

Postcode 33043

Country Italy

Webpage www.poiana.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....unknown

Non-profit .....unknown

International organisation .....unknown

International organisation of European interest .....unknown

Secondary or Higher education establishment .....unknown

Research organisation .....unknown

Legal person .....yes

Industry (private for profit).....unknown

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: *Name of the department/institute carrying out the work.* ☐ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: (•) Male ( ) Female

First name: **Alessandro**

Last name: **Patriarca**

E-Mail: **alessandro.patriarca@poiana.it**

Position in org.: General manager

Department: ACQUEDOTTO POIANA SPA ☒ Same as organisation name

☒ Same as proposing organisation's address

Street: Viale Duca degli Abruzzi 1

Town: Cividale del Friuli

Post code: 33043

Country: Italy

Website:

Phone: +390432706110

Phone 2: *+xxx xxxxxxxxx*

Fax: +390432700771

Other contact persons

First Name	***Last Name***	***E-mail***	***Phone***
Tosca	Todone	tosca.todone@poiana.it	*+390432706113*

PIC	***Legal name***
999979888	*TECHNISCHE UNIVERSITAET WIEN*

Short name: TU WIEN

Address of the organisation

Street KARLSPLATZ 13

Town WIEN

Postcode 1040

Country Austria

Webpage www.tuwien.ac.at

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....yes

Legal person .....yes

Industry (private for profit).....no

Enterprise Data

SME self-declared status.....03/03/2016 - no

SME self-assessment ..... unknown

SME validation sme.....09/08/2002 - no

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: Centre for Water Resource Systems ☐ not applicable

☐ Same as proposing organisation's address

Street: KARLSPLATZ 13

Town: WIEN

Postcode: 1040

Country: Austria

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: ○ Male ◉ Female

First name: **Gemma**

Last name: **Carr**

E-Mail: **carr@waterresources.at**

Position in org.: Post Doctoral Research Assistant

Department: Centre for Water Resource Systems ☐ Same as organisation name

☒ Same as proposing organisation's address

Street: KARLSPLATZ 13

Town: WIEN

Post code: 1040

Country: Austria

Website:

Phone: +43(0)15880140665

Phone 2: *+xxx xxxxxxxxx*

Fax: *+xxx xxxxxxxxx*

PIC	***Legal name***
936201709	*IRISACQUA srl*

Short name: IRISACQUA srl

Address of the organisation

Street Via IX Agosto 15

Town Gorizia

Postcode 34170

Country Italy

Webpage www.irisacqua.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....unknown

Non-profit .....unknown

International organisation .....unknown

International organisation of European interest .....unknown

Secondary or Higher education establishment .....unknown

Research organisation .....unknown

Legal person .....yes

Industry (private for profit).....unknown

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

No department involved

Department name: *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr. | Sex: (•) Male ( ) Female

First name: **Igor** | Last name: **Bortolotti**

E-Mail: **ibortolotti@irisacqua.it**

Position in org.: Technical supervisor

Department: IRISACQUA srl ☒ Same as organisation name

☒ Same as proposing organisation's address

Street: Via IX Agosto 15

Town: Gorizia | Post code: 34170

Country: Italy

Website:

Phone: +390481593212 | Phone 2: *+xxx xxxxxxxxx* | Fax: +390481593410

Other contact persons

First Name	***Last Name***	***E-mail***	***Phone***
Emanuela	Stabile	estabile@irisacqua.it	*+390481593124*

PIC	***Legal name***
950037595	*AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIULI VENEZIA GIULIA*

Short name: ARPA FVG

Address of the organisation

Street VIA CAIROLI 14

Town PALMANOVA

Postcode 33057

Country Italy

Webpage www.arpa.fvg.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

Legal person .....yes

Industry (private for profit).....no

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: *Name of the department/institute carrying out the work.* ☐ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: (•) Male ( ) Female

First name: **Stefano**

Last name: **De Martin**

E-Mail: **stefano.demartin@arpa.fvg.it**

Position in org.: Manager

Department: AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIU ☒ Same as organisation name

☒ Same as proposing organisation's address

Street: VIA CAIROLI 14

Town: PALMANOVA

Post code: 33057

Country: Italy

Website:

Phone: +39-04321918031

Phone 2: +xxx xxxxxxxxx

Fax: +39-04321918134

PIC	***Legal name***
999869114	*UNIVERSITAET INNSBRUCK*

Short name: UIBK

Address of the organisation

Street INNRAIN 52

Town INNSBRUCK

Postcode 6020

Country Austria

Webpage http://www.uibk.ac.at

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....no

Legal person .....yes

Industry (private for profit).....no

Enterprise Data

SME self-declared status.....01/01/1900 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

Department 1

Department name: Department of Infrastructure Engineering ☐ not applicable

☐ Same as proposing organisation's address

Street: Technikerstrasse 13

Town: INNSBRUCK

Postcode: 6020

Country: Austria

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr. | Sex: (•) Male ( ) Female

First name: **Manfred** | Last name: **Kleidorfer**

E-Mail: **manfred.kleidorfer@uibk.ac.at**

Position in org.: Associate Professor

Department: Department of Infrastructure Engineering ☐ Same as organisation name

☐ Same as proposing organisation's address

Street: Technikerstrasse 13

Town: Innsbruck | Post code: 6020

Country: Austria

Website: https://www.uibk.ac.at/umwelttechnik/

Phone: +4351250762134 | Phone 2: *+xxx xxxxxxxxx* | Fax: +43 512 507 9490 693

PIC	***Legal name***
938058968	*CAFC S.p.A.*

Short name: CAFC S.p.A.

Address of the organisation

Street Viale Palmanova 192

Town Udine

Postcode 33100

Country Italy

Webpage www.cafcspa.com

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....unknown

Non-profit .....unknown

International organisation .....unknown

International organisation of European interest .....unknown

Secondary or Higher education establishment .....unknown

Research organisation .....unknown

Legal person .....yes

Industry (private for profit).....unknown

Enterprise Data

SME self-declared status.....12/06/2014 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

No department involved

Department name: *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: (•) Male ( ) Female

First name: **Michele**

Last name: **Mion**

E-Mail: **michele.mion@cafcspa.com**

Position in org.: Director of "Servizio Progettazione e Lavori"

Department: CAFC S.p.A.

☒ Same as organisation name

☒ Same as proposing organisation's address

Street: Viale Palmanova 192

Town: Udine

Post code: 33100

Country: Italy

Website:

Phone: +39 0432 517266

Phone 2: *+xxx xxxxxxxxx*

Fax: *+xxx xxxxxxxxx*

PIC	***Legal name***
970144434	*ACEGAS-APS Spa*

Short name: ACEGAS-APS Spa

Address of the organisation

Street via del teatro 5

Town Trieste

Postcode 34121

Country Italy

Webpage www.acegas-aps.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....no

Non-profit .....no

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

Legal person .....yes

Industry (private for profit).....yes

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

No department involved

Department name: *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: ○ Male ◉ Female

First name: **Chiara**

Last name: **Odorisio**

E-Mail: **codorisio@acegasapsamga.it**

Position in org.: Design and Planning Responsible Water Division

Department: ACEGAS-APS Spa ☒ Same as organisation name

☒ Same as proposing organisation's address

Street: via del teatro 5

Town: Trieste

Post code: 34121

Country: Italy

Website:

Phone: +39-329-6049708

Phone 2: *+xxx xxxxxxxxx*

Fax: *+xxx xxxxxxxxx*

PIC	***Legal name***
933188889	*BEANTECH SRL*

Short name: beanTech

Address of the organisation

Street Via Pradis

Town Colloredo di Monte Albano (UD)

Postcode 33010

Country Italy

Webpage www.beantech.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....no

Non-profit .....no

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

Legal person .....yes

Industry (private for profit).....yes

Enterprise Data

SME self-declared status.....31/12/2014 - yes

SME self-assessment .....31/12/2014 - yes

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

No department involved

Department name: *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr. | Sex: ○ Male ◉ Female

First name: **Liliana** | Last name: **Morsut**

E-Mail: **liliana.morsut@beantech.it**

Position in org.: Responsible for research and development unit

Department: BEANTECH SRL ☒ Same as organisation name

☒ Same as proposing organisation's address

Street: Via Pradis

Town: Colloredo di Monte Albano (UD) | Post code: 33010

Country: Italy

Website:

Phone: +39-0432889787 | Phone 2: *+xxx xxxxxxxxx* | Fax: *+xxx xxxxxxxxx*

PIC	***Legal name***
907213162	*HydroGEAspa*

Short name: HydroGEAspa

Address of the organisation

Street Piazzetta del Portello, 5

Town Pordenone

Postcode 33170

Country Italy

Webpage www.hydrogea-pn.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....unknown

Non-profit .....unknown

International organisation .....unknown

International organisation of European interest .....unknown

Secondary or Higher education establishment .....unknown

Research organisation .....unknown

Legal person .....yes

Industry (private for profit).....unknown

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

No department involved

Department name: *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: (•) Male ( ) Female

First name: **Mauro**

Last name: **Trevisan**

E-Mail: **mauro.trevisan@hydrogea-pn.it**

Position in org.: Manager

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PIC	***Legal name***
928508833	*Liverza Tagliamento Acque S.p.A.*

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Postcode 30026

Country Italy

Webpage www.lta.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body .....unknown

Non-profit .....unknown

International organisation .....unknown

International organisation of European interest .....unknown

Secondary or Higher education establishment .....unknown

Research organisation .....unknown

Legal person .....yes

Industry (private for profit).....unknown

Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

Department(s) carrying out the proposed work

No department involved

Department name: *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street: *Please enter street name and number.*

Town: *Please enter the name of the town.*

Postcode: *Area code.*

Country: *Please select a country*

Dependencies with other proposal participants

Character of dependence	***Participant***	

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Dr.

Sex: (•) Male ( ) Female

First name: **Giancarlo**

Last name: **De Carlo**

E-Mail: **giancarlo.decarlo@lta.it**

Position in org.: General Manager

Department: Liverza Tagliamento Acque S.p.A.

☒ Same as organisation name

☒ Same as proposing organisation's address

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Town: Portogruaro

Post code: 30026

Country: Italy

Website:

Phone: +390422760109

Phone 2: *+xxx xxxxxxxxx*

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3 - Budget

Total requested EU contribution for the proposal/ €	5 450 000

COVER PAGE

Title of Proposal

DIGITAL PLATFORM FOR DATA MANAGEMENT OF THE SEWARAGE-WASTEWATER TREATMENT PLANT-EFFLUENT SYSTEM IN THE INTEGRATED WATER CYCLE (WASTEWATER DIGIT)

1. Excellence

1.1 Objectives

The main objective is to realize, at a demonstration level in a local territory, a ***water-smart solution*** for sewerage, wastewater treatment plant (WWTP) and final discharge data collection, elaboration and modelling for water resource and environment safeguarding.
The Integrated Water Cycle (IWC) is a controlled, by human science and technology, part of the global earth water resources in which is possible to apply digital tools to plan, design and control all the units developed in it.
A Digital platform for the sewerage-WWTP-Effluent system data management represents an unique instrument which can monitor the whole sewage - WWTP system providing and sharing real-time data (e.g. rain, flow, depth, velocity, TSS, COD, …) useful both for sewer - WWTP operators to carry out ***the best management actions*** for the whole system and to have a database useful for calibration and validation of urban drainage and WWTP numerical models.
Modelling is nowadays a fundamental instrument in the ***management of the IWC***. Multiple scenario analysis helps to ***manage best practices***, to meet regulation limits and to propose advanced objectives for the discharge point-area with final effluent ***residual toxicity control***. Data coming from on-line instruments and sampling must be processed by digital elaborations to reach optimal use in computing and model simulations. Data quality by on-line sensors (such as flow or pollutant concentrations) is a crucial aspect to develop reliable modelling tools, to overcome this problem the nexus between IIoT (Industrial Internet of Things) and the IWC is needed.

Specific project objectives are:

- To choose six sewerage-WWTP-final discharge systems with different characteristics (in mountains, hills, plains and coastal regions within Friuli Venezia Giulia-Italy region), design a monitoring arrangement by on-line and sampling monitoring devices (some already present, some to build);
- To create an IIoT platform to collect and elaborate data by real time analytic tools to anticipate equipment failures, ensure the performance control of on-line sensors and consequently guarantee real-time monitoring;

- To carry out models and simulations of the Sewerage-WWTP-Final discharge units to create and analyse various scenarios (daily, weekly, seasonally, during storm water etc.);
- To create a final effluent tool to represent and to predict the ecological protection status in the considered area, useful for diagnostic and prognostic purposes.

In this way modelling of the urban water cycle can be elaborated with consistent data and continuously upgraded with the data coming from on-line or sampling instruments to help the utility companies to respond more quickly to critical situations or to plan new sewerage-WWTP configurations.
A Digital platform for the sewerage-WWTP-Effluent system data management can be considered as an ***innovative management tool*** for the urban sewage-WWTP systems, supporting cities towards the concept of "***smart cities***" into a new era of ***pro-active management and control***.
This tool can be exported to other regions or areas where upgrading IWCs are present.

1.2 Relation to the work programme

The work program topic is “Digital solutions for water: linking the physical and digital world for water solution”.
The proposal offers the possibility to make available the physical data of the urban water cycle to utilities that manage it and to control and use this data in advanced management tools like mathematical models of sewerage, WWTP and final effluent toxicity.
Limited on-line sensor application and poor system integration now inhibit the use of these advanced tools.
This proposal's aim is to spread the practice of sewage-WWTP-residuals simulation system quality control. The application of the ***water-smart solution*** conceived in all the urban water management area (from sewerage to final effluent in water bodies) enables data collection and elaboration to reach the best quali-quantitative simulation and monitoring for IWC management, control and governance.
Flow and pollutant concentration on-line sensors will be placed along the urban water cycle. Thanks to an IIoT platform, real time-analysis and real-time monitoring will provide the database to perform integrated water modelling as an instrument for the water and wastewater utilities management. This can be used to quickly run simulations during extreme water conditions, or to plan actions to improve water management in relation to effluent toxicological data.
Humanities disciplines and social sciences will contribute to understand the entry barriers at policy and regulatory level, and importantly, how to replicate and apply this ***innovative technology*** to ***other European regions***.
The development of these new ***ICT (Information and Communications Technology)/water standard tools*** will enable improved the ***decision making*** on ***water management*** and the ***performance of water infrastructures***.

1.3 Concept and methodology

(a) Concept

The overall concept of the proposal is to introduce a ***quali-quantitative advanced modelling tool*** for IWC management companies. To open up IWC management operation to this advanced tool a digital transformation to ***new information technologies*** is necessary by IIoT integration.
Thanks to the proposed technology, it will be possible to simulate the processes that take place in IWC, giving a ***standardized operative tool***, that could enable hydraulic network, treatment unit

planning, design, management and requalification in a sustainable and water efficient way. The demonstration project aims to develop a ***technologically advanced standard in water cycle management*** and to supply a tool for ***optimum management of network and plant systems***, but also for ***scenario evaluation*** during ordinary or extreme events (such as those driven by climate change).
Different "demonstrative" situations in each of the homogeneous areas will be selected and used to demonstrate to companies (or stakeholders), over the large scale, the potential success of an innovative approach for the IWC management.
IWC will be characterized and simulated, paying particular attention to the presence of ***residual compounds*** and evaluation of their possible toxicity. ***Chemometrics, in-silico and in-vitro tests*** are planned to ***evaluate final effluent eco-toxicology***.
The proposal will promote investments for ***optimal water management***, as desired by the 2020 Europe Strategy for Sustainable Growth. The project contributes to the main community reference in this matter, like Water Framework Directive 2000/60/CE (EUWFD).

The demonstration project takes advantage of deep knowledge and experience in the water cycle research field held by water companies, as well as the expertise held by Udine University, who are already involved in previous research and innovation projects on IWC.
The project will be followed by a network of working teams aimed at the ***protection, enhancement and research of water resources and reuse*** through the sharing of knowledge, the joint preparation of excellent projects and collaboration for the preparation of common projects, that share various ***multidisciplinary realities***. In particular, it is acknowledged the presence and validity of ***academic and professional authoritative representatives***, able to share technical skills (in the fields of engineering, medicine, policy and communication sciences), with engagement of PhD researchers specialized in multidisciplinary areas and important laboratorial support (for specialized and targeted analysis).
Moreover, ***expertise of company*** is very important for developing the necessary instrumentation and IT tools for IWC data management and evolving urban water cycle management. Indeed the strength of the project is given by the ***complementarities of the participants*** chosen with different expertise and knowhow, which allows a ***global view of the entire demonstration process***. For a ***demonstration project***, ***a crucial advantage is the contribution of partners within the research area***.

Project partners are:

- University of Udine (UNIUD-Italy). They have extensive expertise regarding: integrated water cycles characterization and mathematical models for urban water cycle, hygiene and epidemiological risks evaluation of water, knowledge related to the best tools for citizen awareness of environmental themes and, particularly, of water and its use;
- Ohio Water Resources Center (Ohio WRC) (Ohio State University, USA). They have extensive expertise in water quality, sustainable water use and in wastewater treatment. The UNIUD group will collaborate with the Ohio WRC in comparing different technologies and visions on the IWC;
- Integrated water service managing utilities (ACQUEDOTTO POIANA Spa, IRISACQUA s.r.l., CAFC Spa, ACEGASAPSAMGA Spa, Hydrogea Spa, LTA Spa);
- ARPA-FVG (Regional Agency for the Environmantal Protection of Friuli Venezia Giulia) have expertise in environmental sustainability processes, procedures and analytical support;
- IRFMN – "Mario Negri" Institute and NIC-National Institute of Chemistry (Slovenia). They will bring in expertise on methods for characterization, monitoring and risk assessment of residual pollution of IWC, using chemometrics and statistical methods for control and forecast pollution of reusable water.
- Centre for Water Resource Systems, TU Wien (Austria). They will contribute expertise on

evaluation of stakeholder participation in water resource management and the role of water policies and regulations that take into account the presence of residual contaminants (some are emerging contaminants).;

- The Institute for Infrastructure Unit of Environmental Engineering (University of Innsbruck) will provide simulation modelling for the demonstration cases.
- BEANTECH srl will provide the ICT tools and IIoT platform.

The demonstration project will be planned in a dedicated meeting between partners, that will enable the intervention logic, objectives, results and activities to be defined in a combined way. This will avoid role duplications, enhance resource management and efficiency, and maximize individual capacities. Once the macro-activities and partners role (PP) have been defined, the next step will be project sheet definition (to which every partner will contribute, according to its activity and specific knowledge). The Leader Partner (LP) will coordinate single PP roles and inputs within the WP.

The project is situated at ***level 7,*** "system prototype demonstration in operational environment" and should reach ***level 9*** "actual system proven in operational environment".

Research on ***urban drainage modelling***, ***wastewater treatment*** process modelling and ***ecotoxicology*** and their integration will be a fundamental part of the demonstration in ***six IWC systems***.
All research partners are involved in ***innovation and research***, the multidisciplinary fields and expertizes introduced in the project cover a wide range: activities on IWC simulation research, in silico studies and modelling, chemometrics, statistical and mathematic activities, performance control activities, water policy studies and research, studies on stakeholder participation in water management.
The final ***digital tool*** will lead an improvement in the ***medium term*** in decision making on water management and the development of ***new markets*** for water–smart technologies and services. The innovative tool developed in the project will be shared with public institution, private companies or stakeholders and integrated water service managing utilities.
This ***innovation action*** between ICT solutions and the ***urban water sector*** has the capacity to improve ***resource efficiency***, ***climate change*** and ***sustainable development*** in the management of the IWC.
The ***digitalization*** and subsequent ***simulation*** of the IWC with specific attention on ***residual chemicals*** and ***emerging pollutants*** can lead to a new vision on water policies and regulations and can open a ***round table*** with ***authorities*** and ***governance*** in order to achieve better ***water management***.

(b) Methodology

All project actors will work to develop the ***innovative standard*** on ***six selected IWC locations*** in Friuli Venezia Giulia. The choice to limit the study to a restricted area arises from the possibility to work on ***plants of different sizes*** (small/medium/large), in ***heterogeneous territories*** (from mountain to coastal area) located in a radius of about one hundred kilometers in which different IWC characteristics are expected. The choice of a regional scale for the demonstration project is therefore related to a ***better feasibility of the project***, thanks to ***already implemented*** and well known ***IWC networks*** and to the possibility to ***develop a pilot-area model of management***.
Once the digital platform for the sewerage-WWTP-effluent system data management will be developed, validated, tested, standardized and implemented in the pilot regional area, each partner will work together ***to export, adapt and disseminate*** such demonstration results ***in geographic areas with different hydrogeological and climatic characteristics*** and make them usable on a "typical" well defined ***regional large scale***.

During the project the coordinated involvement of the ***managing authorities***, who deal with the management of water resources, will be essential for the experimental implementation of ***innovative water systems and services solutions*** resulting from the use of the proposed and demonstrated standard. The real application on ***existing urban water cycles*** will enable the new approach to be tested, evaluated, validated and disseminated, leading to a ***more efficient management of resources*** of the IWC.
Each one of the core work-packages couples a fundamental approach and the development of new investigation tools aimed at a realization of an ***innovative water-smart tool for management of water resources.***
Workpackages (WP) will be performed by a combination of partners. In any case, for each WP a Responsible partner will be designated and will coordinate the work to be carried out for each task. Responsible partners are always selected on the grounds of their specific expertise.
The demonstration project will be based in seven main WP as detailed in the following. A complete and more detailed description of the WP will be provided within the 2nd stage of this two-stage submission procedure:

WP1. Coordination (Responsible: UNIUD; Partners involved: all). Duration: 0-36 months.
Prof. Daniele Goi will be the scientific coordinator and manager of the project. The objective is to manage the technical, research, administrative and financial activities within the framework of the project, as well as to monitor the project evolution and take actions to keep the scheduled planning. For any administrative issue, Prof. Daniele Goi will be assisted by a financial and administrative support. A steering committee will be formed with one representative from each partner organization who will take driving decisions at critical stages in the project (e.g. the mid-term assessment).
Within this work-package dissemination and training activities will be also organized, and particularly:

- publication on highly-ranked scientific journals will be promoted;
- participation to national/international conferences will be pursued;
- Seminar/Workshop event for PhD students, post-doc researchers, young scientists will be organized at the end of the first part of the project.
- Seminar/Workshop/Technical courses event for operators, interested engineers, industrial end-users, managers and technicians, traders and industrial Associations related to the fields of application of the Project will be organized by the end of the project. It will also be organized a workshop/open table in every country were the PPs are (Italy, Slovenia, Austria) to actually activate the local managing authorities and end-users.

WP2. Select and arrange on-line sampling monitoring devices (Responsible: UNIUD; Partners involved: Managing authorities/companies, ACQUEDOTTO POIANA Spa, IRISACQUA s.r.l., CAFC Spa, ACEGASAPSAMGA Spa, HydroGEA Spa, LTA Spa). Duration: 0-24 months.
Provide each urban water cycle (in the six areas identified, see figure 1) with on-line sensors and samplers for flow and pollutant concentrations measurements. Some flow measurement devices (area velocity) will be installed in the sewage network upstream the WWTP, and other devices will be installed downstream the WWTP. For what concerns quality, pollutant concentrations will be monitored through probes installed upstream, inside and downstream the WWTP.

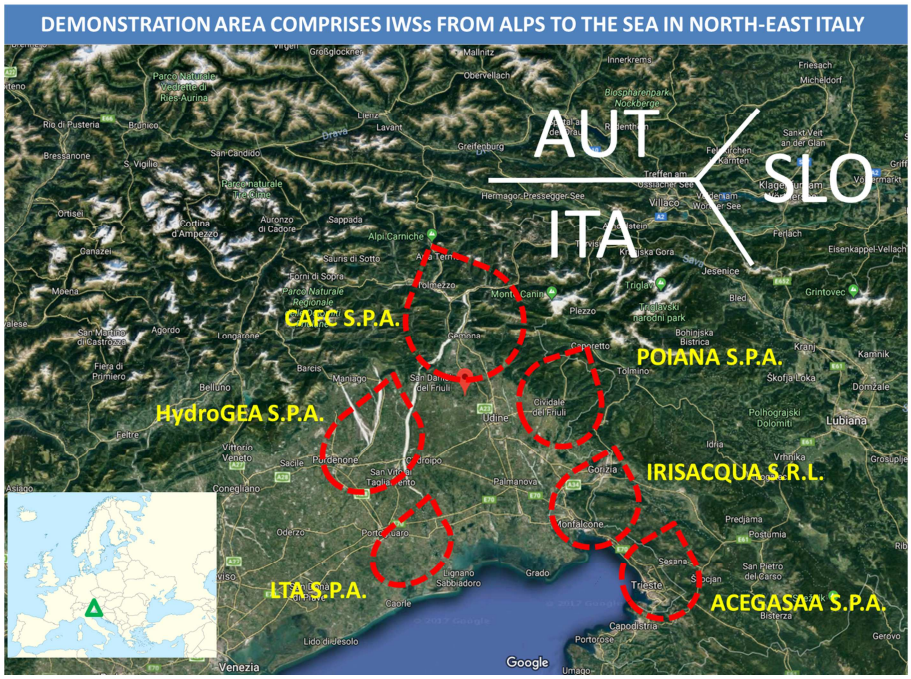


Figure 1 demonstration area and six IWC identified

WP3. Creation of an IIoT platform (Responsible: BEANTECH srl; Partners involved: UNIUD, The Institute for Infrastructure Unit of Environmental Engineering, University of Innsbruck). Duration: 6-30 months.
Create an IIoT platform to increase operational efficiency of the measurement system. In the platform all data from new sensors and existing sensors can be visualized and analysed by real-time analytics tools. This enables real time sensor failures to be identified (due to, for example, to drift or fouling phenomena) and also equips the system with a predictive maintenance tool. Ensured data quality, real-time monitoring of quali-quantitative parameters for sewerage and WWTPs is possible. The IIoT infrastructure will be based on a cloud sensor gateway that will collect the telemetry and data of remote devices. The gateway will be scalable and will allow users to scale with the growth of the number of field sensors. The sensor gateway will manage the requests as an IIoT hub and it will allow the massive scale ingestion of sensor telemetry. If pre-processing of sensor data is needed, this component will enable to normalize and to clean the data: this is going to be done by machine learning algorithms. The solution will include a high efficient, scalable cloud storage system to store sensor data and to allow access of data throughout standard APIs and connectors.

WP4. Calibration and validation of models (Responsible: UNIUD; Partners involved: The Institute for Infrastructure Unit of Environmental Engineering, University of Innsbruck, BEANTECH srl, ARPA-FVG, Ohio WRC). Duration: 18-33 months.
Data from IIoT can be transmitted to a cloud service where modelers can use these data to elaborate models and simulations in different scenario.

WP5. Evaluation of ecotoxicology of water bodies. (Responsible: IRFMN (silico simulation) and NIC (cheminformatics support); Partners involved:, UNIUD, Ohio WRC, ARPA-FVG). Duration: 12-33 months.
To assess quality effluent data to ecotoxicology by in. IRFMN will develop new methods for characterization, monitoring and risk assessment of residual pollution (in-silico, in vitro), based on already developed platforms for the hazard (VEGA) and the exposure (MERLIN-Expo) components. NIC would be the cheminformatics support for assessing the adverse effects of detected toxicants. In this way we will cover all potential contaminants, including those without

reported experimental (eco)toxicological values – which may represent the majority of the organic substances, thanks to the predictive models.

WP6. New water policies and regulations. (Responsible: Centre for Water Resource Systems - Austria; Partners involved: all). Duration: 6-36 months.
The digitalization and simulation of the IWC can open new perspectives on water treatment/reuse with a special focus on the residual contaminant. This WP will analyse existing water policies and regulations and identify how the new information generated in this project on the presence of residual contaminants (some of which are emerging contaminants) can better inform policy and regulation. Special focus will be paid to evaluating how policy recommendations may impact water resource management based on stakeholder (e.g. water utilities and decision makers) perspectives.

WP7. Final implementation and utilization of the developed digital tool. (Responsible: UNIUD; Partners involved: all). Duration: 30-36 months.
Within this final workpackage the knowledge acquired will allow the optimization and distribution of the innovative developed digital platform. The digital tool will be initially validated within real plants and then will be made available as an operational method and guideline, in order to improve decision making on wastewater management and water resource protection efficiency, through increased real-time accuracy of data knowledge. Calibrated and validated models then can be used by IWC management organisations. The operational method could be proposed to other managing authorities/companies outside/everywhere in different geographical areas implementing it on other different sewerage-wastewater treatment plant-effluent systems.

For each work packages a **milestone** is identified:

- WP1: dissemination at different level and training activities to share ideas, experiences, and create awareness and consensus on the results obtained at the end of the project.
- WP2: provide each IWC with on-line sensors and samplers.
- WP3: create the IIoT platform for data and obtain a predictive maintenance tool.
- WP4: elaboration and validation of urban integrated water cycle models and simulations.
- WP5: evaluation of ecotoxicology of final effluent by in silico methods.
- WP6: evaluation of potential impact of new tools and methods on water policy recommendations and regulations.
- WP7: Define an operational method and e-guidelines as final outcome of the project in which new procedures and standards are depicted, executed and exemplified.

All partners will be actively involved in the achievement of the project aim: the coordinator or Leader Partner (LP) University of Udine will take responsibility for the realization, the supervision and the administration of the project. Each WP will be coordinated by a partner, who will be the WP leader. This will allow the project activities to proceed in a coordinated and effective way, with no overlap of responsibility, as each partner will have a definite role in the participation and realization of the project. The partners will contribute in the realization of the project informing each other on the development of the activities and sharing expertise, knowledges and know-hows. Because the demonstration project will be organized on the selected area, personnel from the various partners will make many visits to the demonstrative sites for experimental sessions, bringing experiences and drawing data for the project objectives. Periodic meetings will be scheduled to assess the progress of the works and for initiating corrective actions on the project, if needed:

- Quarterly meetings for updating activities, comparison within work groups (even partial);
- Six-monthly comparison on tasks, new needs and connections,

- All the involved, institutional and external groups will be involved in annual workshops to share the results obtained.

Dissemination of the results will be achieved on different levels (popular scientific meeting, specialist congresses, publication in specialized scientific journals).

Halfway through the project, an intermediate evaluation of the project will be foreseen for:
- Evaluating the progress of work;
- Deciding any changes necessary for the successful completion of the project;
- Optimizing the objectives for the second half of the project based on the preliminary results obtained.

The total budget of the project is 5.450.000 Euro.
The amount will be divided among the partners according to the specific needs of personnel and instrumentation. A preliminary meeting between the partners made it possible to allocate the costs of the project *as a first approximation*.
A complete and detailed description of the budget division among the participant will be provided within the 2nd stage of this two-stage submission procedure.

The results of the project will be of **benefit to whole society** without any gender preferences.
The partnership guarantees **equal employment opportunities** within the working group.
Employees and members of the team will be guaranteed equal pay for the same task/role and equal representation in decision-making for the same task/role. The project promotes a culture of enterprises capable of overcoming gender stereotypes, promoting women's participation in R&D, in business projects and in knowledge transfer. The activities for raising public opinion on environmental problems (specifically water issues) will be managed by equal participation of men and women, avoiding the predominance of representatives of one sex.

1.4 Ambition

By this demonstration project, the integration of water sector with IIoT tools will allow the enhancement of water resources managing services, advancing them towards the "***next generation of water systems and services***" in which advanced instruments like real time monitoring and mathematical modelling can significantly improve IWC performance and ***reduce the environmental impact*** on natural water resources. The project realization will result in significant outcomes and will have a direct impact on the IWC management both in case of critical conditions and optimal planning and design.

The main innovations of the project are:
- ***integratation of IIoT technology*** in the urban water cycle for a ***real time monitoring*** of sewarage and WWTPs on-line sensors;
- application of mathematical models for ***quali-quantitative simulation*** of the IWC in different pilot demonstration plants (small, medium, large) for the management optimization. These pilot demonstration plants will form ***a new operational paradigm easily exportable and implementable*** in other partner countries and other geographical settings;
- the use of a ***cumulative index*** for the risk assessment associated to the mixture of contaminants in the water bodies, integrating the ecotoxicological and toxicological properties of the contaminants;
- a ***new vision of water policies and regulations***.

2. Impact
2.1 Expected impacts

- ***the interoperability of decision support systems through the identification and use of ICT/water vocabularies and ontologies in view of developing or improving ICT/water standards;***
  The introduction of an IIoT platform ensure data quality by on-line sensors placed along the urban water cycle. In this way reliable data are available to improve IWC management and consequently water cycle standards.

- ***Improved decision making on water management, related risks and resource efficiency through increased real-time accuracy of knowledge and detailed (eco)toxicological information;***
  Real-time analytics performed by the IIoT platform increases real-time accuracy of knowledge of IWC. Through modelling and simulation based on accurate date from IIoT, ***the decision-making process*** is enhanced using advanced tools that improve the urban water cycle management. The decision-making process will be also enhanced by the detailed information of the (eco)toxicological risk associated to the contaminants, enabling a ***pro-active approach*** which will anticipate the occurrence on critical situations for the presence of unexpected pollutants.

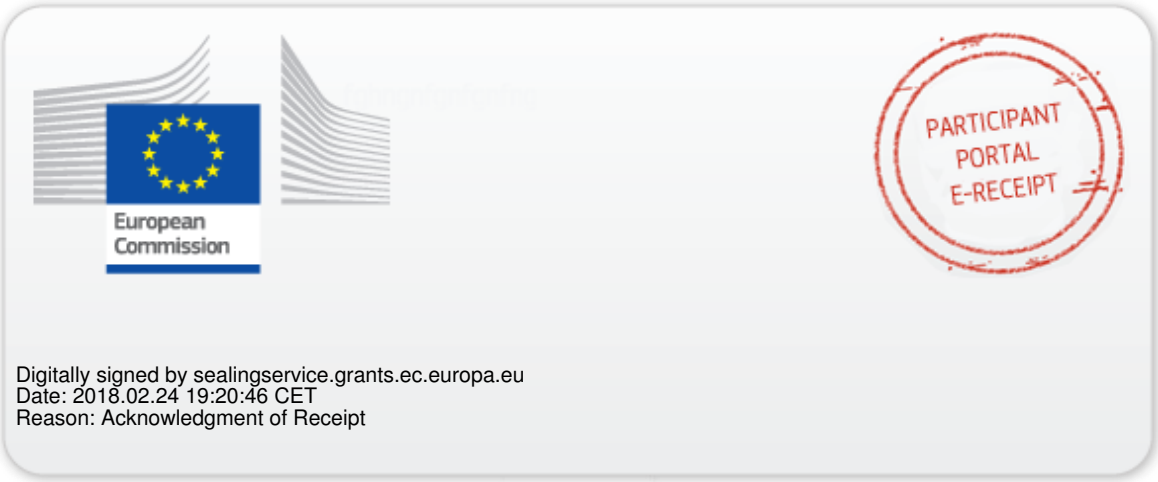
- ***Maximising return on investments through reduced operational costs for water utilities, including reduced costs for water monitoring, improved performance of water infrastructures, and enhanced access to and interoperability of data;***
  Water monitoring is improved by sensors whose efficiency is continuously monitored by the IIoT platform, in this way the predictive maintenance tool can reduce costs for water utilities. IWC data are available by ***cloud service*** to operators that can visualize and analyse them. Moreover, the mathematical modelling leads to ***improve and optimization infrastructure performance*** (for example, WWTP energy costs). The detailed (eco)toxicological characterisation will allow the identification of the most critical substances to be abated, and this will be translated into a more efficient price policy related to these critical substances.

- ***Enhanced public awareness on water consumption and usage savings;***
  The modelling and simulation can provide critical information on ***the impacts of changes in water consumption patterns*** and inform water users how ***water usage savings impact*** the entire IWC. This provides a vital tool for ***appropriate and effective policy development***.

- ***Data monitored and elaborated lead to a better knowledge about the impact of sewerage-WWTP system on the receiving bodies, within the platform a communication tool can be useful to enhance public awareness about this section of IWC.***
  A digital platform for the sewerage-WWTP-Effluent system data management represents a powerful tool for engineers and decision makers for evaluating the rehabilitation of existing sewers-WWTP systems and for ***the future development of cities*** with particular care to ***sustainable use of water resources.*** The information derived from the (eco)toxicological assessment will be also represented.

- ***Market development of integrated and cyber-resilient ICT solutions and systems for smart water management, and opening up of a digital single market for water services.***
  This proposal represents a first connection between ICT solutions and the urban water sector and can open up the ***development of the market for water services***.

- ***The implementation of the objectives of the EIP Water, especially, reducing the environmental footprint of the main water-dependant activities and improve their resilience to climate changes and other environmental changes.***
  The project aims to adequately implement the objectives of the EIP (European Innovation Partnership) on Water. The main objective is to develop a digital platform for water resource and environmental safeguarding. The main goal ***is better quality and sustainability of water resources worldwide***, obtained by ***linking the physical and digital world for water solutions***.
  Characterization, simulation and optimization of the entire water cycle through a digital platform will lower waste and ensure ***better treatment of emerging pollutants***, ***improving the safeguarding of the water resources***, and consequently the ***resilience to socio-economic, climate and environmental changes***.



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