IPR and innovation management

Deliverable 7.4 (updated)

digital-water.city
digitalwater_eu

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

Deliverable N°7.4	IPR and innovation management
Related Work Package	7
Deliverable lead	Nicolas Caradot (KWB)
Author(s)	Nicolas Caradot (KWB)
Contact for queries	Nicolas Caradot (KWB)
Grant Agreement Number	n° 820954
Instrument	HORIZON 2020
Start date of the project	01 June 2019
Duration of the project	42 months
Website	www.digital-water.city
Abstract	D7.4 describes the innovation and Intellectual Property Rights (IPR) management procedures within DWC. It introduces the concepts of Intellectual Property (IP), the types of protection rights as well as the IPR rules in the project. It summarizes the key procedures introduced in the Grant Agreement and Consortium Agreement documents. Finally, it explains the role of the innovation and IPR manager and the detailed activities that will be carried out to foster innovation and secure the protection of our key results. Compared to the previous versions, the IPR repository has been updated.

Dissemination level of the document

X	PU	Public
	PP	Restricted to other programme participants
	RE	Restricted to a group specified by the consortium
	CO	Confidential, only for members of the consortium

Versioning and contribution history

Version*	Date	Modified by	Modification reasons
S	2022-11-30	Nico Caradot	Final version

* The version convention of the deliverables is described in the Project Management Handbook (D7.1). *D* for draft, *R* for draft following internal review, *S* for submitted to the EC and *V* for approved by the EC.

Table of content

digital-water.city
digitalwater_eu

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

1. Introduction

DWC's main goal is to boost the integrated management of water systems in five major European cities – Berlin, Milan, Copenhagen, Paris and Sofia – by leveraging the potential of data and smart digital technologies. 24 partners from 10 European countries will develop and demonstrate the benefits of a panel of innovative digital solutions to address major water-related challenges. These include the protection of human health, the performance and return on investment of water infrastructures and the public involvement in urban water management. DWC further integrates the development of digital solutions in a dedicated guiding protocol to cover the existing gaps regarding governance, interoperability and cybersecurity.

Aim of this document is to describe the innovation and Intellectual Property Rights (IPR) management procedures within DWC. It introduces the concept of Intellectual Property (IP), the types of protection rights as well as the IPR rules in the project. It summarizes the key procedures introduced in the Grant Agreement and Consortium Agreement documents. Finally, it explains the role of the innovation and IPR manager and the detailed activities that will be carried out to foster innovation and secure the protection of our key results.

This report is the final version of the deliverable. Previous versions have been submitted in M18 and M30. This report includes some changes compared to the previous version in M30

- Table 1 IPR repository updated with most recent information

2. IP

IP is any form of original creation that can be bought or sold (European IPR Helpdesk, 2015a). IP is protected by legal rights such as patents, trademarks, industrial designs and copyright. Intellectual property refers to creations of the mind: they are products of research, experimentation and creativity. Examples of IP commonly generated in H2020 projects are

- Invention (e.g. device, process, method)
- Software
- Scientific article
- Design
- Name of a technology/product
- Know-how
- Website

More information on IP can be found in European IPR Helpdesk (2015a).

3. IPR

Intellectual property rights (IPR) are the rights given to persons over the creations of their minds (WTO, 2018a). They usually give the creator an exclusive right over the use of his creation for a certain period of time.

The successful exploitation of research results depends on the proper specifications of IP. Research and demonstration outcomes might require additional substantial investments to reach the market, which are appealing only if the results are properly protected. IPR can give a competitive advantage on the market by protecting innovation activities from use by competitors. It can provide a temporary

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

technological lead, protect strong brands, help to establish a standard in the market or protect key components of the innovation (Texeira and Ferreira, 2019).

There are several types of Intellectual Property Rights (IPR), in particular patents and industrial designs, which demand novelty as a requirement for acquiring protection. An early disclosure may result in the loss of novelty of the creation, which would then place the chances of being granted a patent or an industrial design at risk. Consequently, the innovator would not be able to take advantage of the right to exclude others from using his/her creation and take full commercial advantage of it. By utilizing IP protection, the innovator is able to disclose his ideas more safely (European IPR Helpdesk, 2015b).

The following table shows the different types of IPR and their application depending on the type of IP (adapted from European IPR Helpdesk, 2015b). For the moment DWC

		Type of IPR						
		Patent	Utility model	Industrial design	Copyright	Trade Mark	Database right	Confidential Information
Type of IP	Invention							
	Software							
	Scientific article							
	Database							
	Design							
	Name							
	Know-how							
	Website							

Some IPR such as patent, industrial design and trade mark require a formal registration. Contrary to patents, copyrights and confidential information are protected without registration and do not require any procedural formalities for their protection. Confidential information is protected for an unlimited period of time, unless it is discovered or legally acquired by others and disclosed to the public (WTO, 2018b). When dealing with third parties or licensing their know-how, the enterprise signs confidentiality agreements to ensure that all parties know that the secret information must not be disclosed.

4. Access right to IP

In the scope of H2020, Access Rights refer to licenses and user rights to another participant's results or background. They allow beneficiaries to benefit from each other's resources, and consequently taking full advantage of the collaboration (European IPR Helpdesk, 2020).

A **license agreement** is a contract under which the holder of intellectual property (licensor) grants permission for the use of its intellectual property to another person (licensee) (European IPR Helpdesk, 2015c). Without such an agreement, the use of the intellectual property would be an infringement. One advantage of licensing is that the IPR holder can maintain its right to exploit his technology in a given geographical area while licensing it in another area.

An intellectual property **assignment** is a permanent transfer of ownership of an intellectual property right, such as a patent, trade mark or copyright, from one party (the assignor) to another party (the assignee). Consequently, the assignee becomes the new owner of the intellectual property right.

digital-water.city
digitalwater_eu

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

5. IPR rules and procedures within DWC

5.1. Development and project phase

Both, the Grant Agreement and the Consortium Agreement include descriptions of a number of rules related to IPR.

The Grant Agreement forms the legal basis for the implementation of the project. It is the EU standard contract setting out the key rules and conditions for the project implementation and financing. Although the core contract is signed between the EU and the coordinator of the project, all partners have become individual contract partners with the commission by signing the Accession Forms.

Section 3 indicates the rights and obligations of the beneficiaries related to background and results. The beneficiaries must identify and agree in writing on their **background**, meaning any IP (data, know-how, information) or tangible assets held by a beneficiary prior to the project and needed for the project implementation or exploitation. In general cases, the beneficiaries must give each other access - on a royalty-free basis - to background needed for the implementation of the project. This must be requested in writing (Request for access to background).

Results are any output of the project (same as background: data, know-how, information or tangible assets) and are **owned by the beneficiary that generates them**. Two or more beneficiaries own results jointly if they have jointly generated them and it is not possible to separate them for the purpose of applying for, obtaining or maintaining their protection. The joint owners must agree in writing on the allocation and terms of exercise of their joint ownership (Joint ownership agreement), to ensure compliance. In general cases, the beneficiaries must give each other access - on a royalty-free basis - to results needed for the implementation of the project.

It should be considered that access rights to another beneficiary's results or background are only to be granted if the requesting beneficiary needs such access in order to carry out its part of the project or to exploit its own results. This must be requested in writing (Request for access to results).

The Consortium Agreement forms the legal basis for the collaboration of all participating beneficiaries and contains their binding commitments. It recalls the main provisions as the Grant Agreement and specifies additional features. In particular, in Attachment 1, the beneficiaries have identified and agreed on the background needed for the project and have also, where relevant, informed each other that access to specific background is subject to legal restrictions or limits. Each beneficiary may add further own background to Attachment 1 during the project by written notice to the other beneficiaries and approval of the General Assembly.

5.2. Post project phase

As stated in the Grant Agreement, in general cases, the beneficiaries must give each other access - "under fair and reasonable conditions" - to background and results needed for the exploitation of their own results after the project.

Each beneficiary must assess the possibility of protecting its results and adequately protect them if the results can reasonably be expected to be commercially or industrially exploited. Each beneficiary may transfer ownership or grant licenses to its results given that this does not impede the compliance with the articles of the Grant Agreement.

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

The project deliverable D5.1 (Plan for exploitation of DWC results; confidential; M18 updated in M30) describes further the strategy and planned actions of DWC for exploitation of the results. In particular, it contains

- A comprehensive list of the results generated in the project
- The exploitation path for each marketable result including market study, competition assessment, market segmentation, added value and business potential. Several exploitation options will be considered such as license agreement, transfer of ownership, internal product development or spin-off company
- A transferability study on the potential of replication of the results

To complement this deliverable, an IPR repository has been created to precise the IP generated by the project and the planned protections considered by the innovators. The IPR repository contains a comprehensive list of the results generated in the project with the following fields for each result

- Type of IP: invention, software, database, know-how, etc.
- The need for and status of potential joint ownership agreements
- Beneficiaries involved in the development
- Background needed to use the results
- Use of third party components
- Type of IPR foreseen: patent, utility model, industrial design, copyright, trade mark, database right, confidential Information

The IPR repository is a living document, available on the project cloud. It is being updated by the innovation manager and the beneficiaries in parallel to project progress.

The current version (February 2022) of the IPR repository is shown in Table 1.

At this stage of the project, IPR agreements are still under discussion (see orange fields in Table 1, for open topics). In a nutshell, we have identified 18 results with their IPR detail. 8 results have been jointly generated by several project partners and have shared IP. Joint ownership agreement are being currently drafted and discussed. 8 results have a clear definition of IPR, with foreseen protections such as open-source, copyright or patent. Further discussions and negotiations are needed and planned in 2022 to finalize the IPR repository.

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

Table 1: IPR repository

Results	N°	Main contacts	Email	Joint IP	Joint Ownership Agreement	IPR holder(s): who has the intellectual property ?	Type of IP	Background needed to use the results	Use of third-party components	Type of protection (IPR) foreseen	Already registered protection (IPR) ?	Title of the protection	Last modified by [XX] on [YY]. Indicate your name and date after modifications
Sensors for real-time in situ E.coli and enterococci measu	1	Dan	d.angelescu@fluidion.com	No	Not needed	FLUIDION	Invention	Bacterial measurement data	No	Patent	Yes	EP3628999A1 FIELD-DE	Dan Angelescu on 3/1/2022
Machine-learning based Early Warning System for bathin	2	Wolfgang	wolfgang.seis@kompetenz	No	Not needed	KWB	Software, mobile app	None	No	Open-source	/	/	Bodo Weigert on 3/1/2022
Early Warning System for safe reuse of treated wastewat	3	Francesco, Susanna	f.fatone@univpm.it	Yes	Not needed	UNIVPM-(ISS-CAP-UNIMI)	Software, know-how	Know-how processes and risk	No	No	No	/	Marco Bernardi on 3/2/2022; Francesco Fatone on 16/03/2022
WebGIS platform for improved decision making in water	4	Marco	Marco.Bernardi@gruppocap.it	No	Not needed	CAP	Software	None	No	Open access	/	/	Marco Bernardi on 3/2/2022
Active unmanned aerial vehicle for analysis of irrigation e	5.1	Gian Battista, Claudio, Ludovi	bischetti@unimi.it; ludovica.belfi	Yes	Not needed	UNIMI-UNIVPM-CAP	Web-application (front-e	None	SWAP agro-hydrological model +	No	No	/	Adriano Mancini on 28/11/2022
Match making tool between water demand for irrigation	5.2	Gian Battista, Claudio, Ludovi	bischetti@unimi.it; ludovica.belfi	Yes	Not needed	UNIMI-UNIVPM-CAP	Web-application (front-e	None	SWAP agro-hydrological model +	No	No	/	Adriano Mancini on 28/11/2022
Serious game on the water reuse-carbon-energy-food-clii	6	Francesco, Adriano	f.fatone@univpm.it	Yes	Not needed	UNIVPM-UNIMI-CAP	Mobile app	None	No	Open access / open source with mention +	/	/	Francesco 16/03/2022
Mobile application for data collection of drinking water w	7.1	Alex, Stephan	alexander.sperlich@bwb.de; stan	Yes	Under preparation	BWB/VRAG	Database/Software	BWB DB2 instance with provided	No	Potentially copyright, otherwise no protection	No	N/A	Stephan Gensch 29/06/22
Forecasting tool for strategic planning and maintenance c	7.2	Michael	michael.rustler@kompetenz-was	No	Not needed	KWB	Software	None	No	Open source	No	/	Nico 28.11.2022
DTS sensor for tracking illicit sewer connections	8	Remy		No	Not needed	P4UW	Know-how	Experience with in-sewer	DTS equipment	No protection	No	/	Remy on 8/3/2022
Sensors and smart analytics for tracking illicit sewer conn	9	Caco, Gali	caco@kando.co.it; gali@kando.c	No	Not needed	KANDO	Invention	Kando's IoT units; Kando's cloud	No	Patent	Yes	Various patents	Caco/Gali on 10/3/22
Augmented Reality (AR) mobile application for groundwa	10	Alex, Stephan, Christoph	alexander.sperlich@bwb.de; stan	Yes	Not needed	VRAG-KWB-BWB	Software	None	No	No protection	No	/	Stephan Gensch and Christoph Sprenger 28/11/22
Sewer flow forecast toolbox	11	Sten, Dennis	sl@dhigroup.com; dewa@dhigro	No	Not needed	DHI	Software	Requires integration with SCADA	Licensed components	Embedded in licensed software	No	/	Sten Lindberg, 29. November 2022
Interoperable DSS and real-time control algorithms for st	12	Sten, Dennis	sl@dhigroup.com; dewa@dhigro	No	Not needed	DHI	Software	Requires integration with SCADA	Licensed components	Embedded in licensed software	No	/	Sten Lindberg, 29. November 2022
Web platform for integrated sewer and WWTP control	13	Sten, Dennis	sl@dhigroup.com; dewa@dhigro	No	Not needed	DHI	Software	Requires integration with SCADA	Licensed components	Embedded in licensed software	No	/	Sten Lindberg, 29. November 2022
Low-cost temperature sensors for real-time CSO monitor	14	Oriol, Neus	namela@iotsens.com;	Yes	Under preparation	IOTSENS - ICRA	Invention, software	None	No	Industrial design, trade secret	No	/	Oriol Gutierrez, 29/11/2022
Smart sewer cleaning system with HD camera and wirele	15	Martin	mstuempfle@dexcorp.com	No	Not needed	IPEK	Invention	None	No	Patent	Yes	Various patents	

Joint IP agreement
Not needed
Under discussion
Signed

Types of IP
Invention
Software
Mobile app
Scientific article
Database
Design
Name
Know-how
Website

Types of IPR
Patent
Utility model
Industrial design
Copyright
Trade Mark
Database right
Confidential Information
Open access
No protection

6. Role of the innovation manager

The innovation manager is in charge of the IPR and innovation management within the project. He will work closely with all beneficiaries to assess end-user needs, review the state of the art and add to the market analyses performed within work package 5 to ensure that the planned activities will deliver high quality results addressing the market needs.

In order to be aware of ongoing developments, the innovation manager participates to the monthly Steering Committee meetings and works closely with the leaders of WP5 (exploitation) and WP6 (communication).

His main tasks in managing IPR are to

- ensure the appropriate access and usage rights to key background necessary for the implementation of the project and the exploitation of the results
- secure agreements for the use of results for each beneficiary and between beneficiaries in case of joint ownership
- review the need and support the beneficiaries in engaging actions for the adequate protection of each result

The innovation manager might update the Appendix 1 of the Consortium Agreement with additional background upon request of the beneficiaries. He can advise the beneficiaries on the need to request access rights in written form such as Request for access to background or Request for access to results.

The innovation manager is further in charge of creating, updating and maintaining the IPR repository on the cloud and to contribute to the exploitation plan (D5.1) with the current IPR status in the list of DWC results. This document is prepared with the beneficiaries and reviewed regularly by the Steering Committee and during the annual General Assembly.

For DWC, the innovation manager is Nico Caradot.

7. Summary

DWC's main goal is to boost the integrated management of water systems in five major European cities – Berlin, Milan, Copenhagen, Paris and Sofia – by leveraging the potential of data and smart digital technologies. 24 partners from 10 European countries will develop and demonstrate the benefits of a panel of innovative digital solutions to address major water-related challenges. These innovations will support the digitalization of the water sector and have a significant impact on the performance and quality of service provided by utilities.

This document describes the innovation and IPR management procedures within DWC and explains the role of the innovation and IPR manager. It serves as a guidance for the project partners during the project to set up and adapt their innovation and IPR strategy. This deliverable is a living document and is related to deliverables D5.1 (Plan for exploitation of DWC results) and D5.5 (Business plans for DWC spin-offs and their IPR distribution).

8. References

European IPR Helpdesk, 2015a, Fact Sheet Defending and enforcing IP, report July 2015

European IPR Helpdesk, 2015b, Fact Sheet IP issues in brokerage events, report July 2015

European IPR Helpdesk, 2015c, Fact Sheet Commercializing Intellectual Property: License Agreements, report November 2015

European IPR Helpdesk, 2020, http://www.iprhelpdesk.eu/node/3255, accessed on 31.05.2020

Teixeira A. and Ferreira C., 2019, Intellectual property rights and the competitiveness of academic spin-offs. *Journal of Innovation & Knowledge*, Volume 4, Issue 3, pages 154-161

WTO, 2018a, website https://www.wto.org/, accessed on 31.05.2020

WTO, 2018b, website https://www.wipo.int/tradesecrets/en/tradesecrets_faqs.html, accessed on 31.05.2020

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.

Digital Water .City

Leading urban water management to its digital future

digital-water.city
digitalwater_eu

digital-water.city has received funding from the European Union's H2020 Research and Innovation Programme under Grant Agreement No. 820954.