# IPR and innovation management

Deliverable 7.4 (updated)

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| Deliverable N°7.4 | IPR and innovation management |
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| 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.<br><br>Compared to the first version of May 2020, procedures and IPR management rules have not been changed and relation to WP5 (Plan for exploitation) has been specified. |

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 |



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Versioning and contribution history

| Version* | Date | Modified by | Modification reasons |
|---|---|---|---|
| D1 | 2020-05-12 | Nico Caradot | First draft |
| D2 | 2020-05-19 | Hella Schwarzmüller | Internal review |
| S | 2020-05-31 | Nico Caradot | Final version |
| S | 2021-11-23 | Nico Caradot | Final version updated for submission M30. Minor edits in last paragraph of section 5.2 |
| S2 | 2022-03-18 | Nico Caradot | New version considering reviewer comments |

* 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.


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# 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 a draft version of the final report that will be delivered in M42 (November 2023). This report includes some changes compared to the previous version in M30 due to external comments:

- Section 52 has been enhanced with more details on IP and IPR. It also includes the current full version of the IPR repository.

# 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


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on the market by protecting innovation activities from use by competitors. It can provide a temporary 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.


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# 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 taken into account 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.


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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.


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*Table 1: IPR repository*

| Results | N° | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sensors for real-time in situ E.coli and enterococci measurements | 1 | No | Not needed | FLUIDION | Invention | Bacterial measurement data | No | Patent | Yes | EP3628999A1 FIELD-D |
| Machine-learning based Early Warning System for bathing water quality | 2 | No | Not needed | KWB | Software, mobile app | None | No | Open-source | / | / |
| Early Warning System for safe reuse of treated wastewater for agricultur | 3 | Yes | Under discussion | UNIVPM-(ISS-CAP-UNIMI) | Software, know-how | Know-how processes and risk | No | To be decided | No | N/A |
| WebGIS platform for improved decision making in water reuse | 4 | No | Not needed | CAP | Software | None | No | Open access | / | / |
| Active unmanned aerial vehicle for analysis of irrigation efficiency | 5.1 | Yes | Under discussion | UNIMI-UNIVPM-CAP | Web-application (front- | None | SWAP agro-hydrological model | Copyright | No | N/A |
| Match making tool between water demand for irrigation and safe water s | 5.2 | Yes | Under discussion | UNIMI-UNIVPM-CAP | Web-application (front- | None | SWAP agro-hydrological model | Copyright | No | N/A |
| Serious game on the water reuse-carbon-energy-food-climatic nexus | 6 | Yes | Under discussion | UNIVPM-UNIMI-CAP | Mobile app | None | No | Open access | / | / |
| Mobile application for data collection of drinking water wells | 7.1 | Yes | Under discussion | BWB-VRAG | Software | None | No | Potentially copyright, otherwise no protection ? | No | N/A |
| Forecasting tool for strategic planning and maintenance of wells | 7.2 | Yes | Under discussion | BWB-KWB | Software | None | No | To be decided | No | N/A |
| DTS sensor for tracking illicit sewer connections | 8 | No | Not needed | P4UW | Know-how | Experience with in-sewer | DTS equipment | No protection | No | / |
| Sensors and smart analytics for tracking illicit sewer connections hotspot | 9 | No | Not needed | KANDO | Invention | Kando's IoT units; Kando's cloud | No | Patent | Yes | Various patents |
| Augmented Reality (AR) mobile application for groundwater visualisatio | 10 | Yes | Under discussion | VRAG-KWB ? | Software | None | No | Potentially copyright, otherwise no protection ? | No | N/A |
| Sewer flow forecast toolbox | 11 | No | Not needed | DHI | Software | Requires integration with SCADA | Licensed components | To be decided | No | N/A |
| Interoperable DSS and real-time control algorithms for stormwater moni | 12 | No | Not needed | DHI | Software | Requires integration with SCADA | Licensed components | To be decided | No | N/A |
| Web platform for integrated sewer and WWTP control | 13 | No | Not needed | DHI | Software | Requires integration with SCADA | Licensed components | To be decided | No | N/A |
| Low-cost temperature sensors for real-time CSO monitoring | 14 | Yes | Under discussion | IOTSENS - ICRA | Invention, software | None | No | To be decided (patent, copyright?) | No | N/A |
| Smart sewer cleaning system with HD camera and wireless communicatio | 15 | No | Not needed | IPEK | Invention | None | No | ??? | ??? | ??? |

| 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 |



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## 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).


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## 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

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