Water Europe
Technology & Innovation

# DIGITALIZATION & WATER

## Start with digital water and end with a water-smart digital sector

December 2021

Water Europe (WE) is the voice and promoter of water-related innovation and RTD in Europe. WE is a multi-stakeholder association representing over 230 members from academia, industry, technology providers, water users, water service providers, civil society, and public authorities. WE activities and positions are guided by its Water Vision “The Value of Water: Towards a Future-Proof European Water-Smart Society”.

# DIGITAL WATER & A WATER-SMART DIGITAL SECTOR
# For a resilient, inclusive, and competitive Europe in the digital age

## Water Europe Vision

Water Europe has set out a blueprint for a society in which the true value of water is recognised and realised, and all available water sources are managed in such a way that water scarcity and pollution of water are avoided, water and resource loops are largely closed to foster a circular economy and optimal resource efficiency, while the water system is resilient against the impact of climate change events.

**Multiple Waters** | **Digital Water** | **Value in Water** | **Hybrid Grey-Green Infrastructure**

## EU Digital Strategy: Shaping Europe's digital future

The EU digital strategy aims to shape Europe's digital future while benefiting everyone. This strategy will develop a fair and competitive digital economy and foster a European open, democratic and sustainable society that works for the people.

In its Vision, Water Europe supports the digitalisation of the water sector as a key enabler towards a Water-Smart society. Whereas digitalization benefits the water sector within its activities, the digital sector consumes water for its business, contributing to pressure on water sources.

Therefore, Europe must support the digitalization of the water sector but also support the consideration of the value of water in the digital sector. The digital sector particularly has to reduce its water consumption, multiply the sources of water and exploit the value in water.

## Digital Water

Important concept, based on the predicted development of a world where all people, "things" and processes are connected through the "Internet of Everything", leading to capillary networks and sensors, meters and monitoring of the water system all the way along to the individual user, as such generating large amounts of valuable data (big data) for innovative Decision Support and Governance systems.

**56%**

It the deficit in water supply expected by 2030 globally[1].

## 1 DIGITALISE THE WATER SECTOR FOR A RESILIENT AND GREEN ECONOMY

In line with the objectives to build a green and digital Europe, the innovative water sector has set up several commitments in its previous position papers, recognising the benefits of digitalisation for our society, economy, and environment[2].

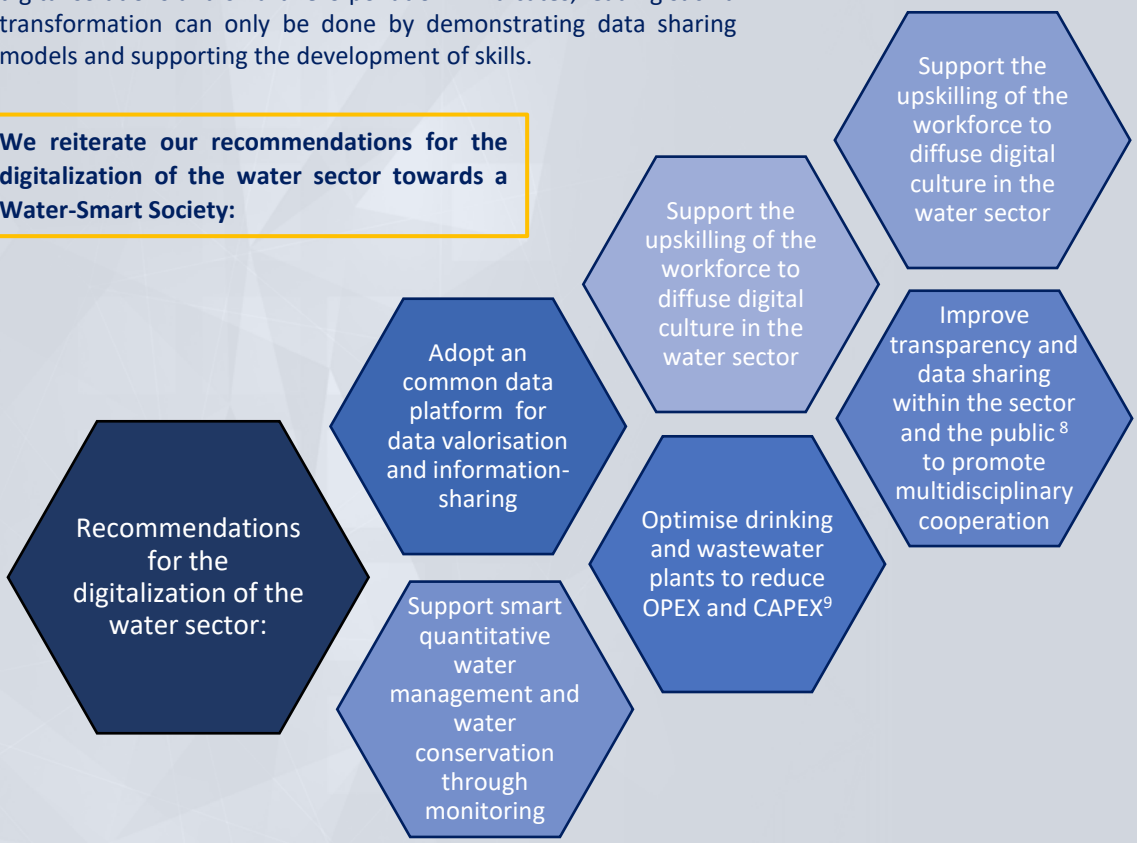
The COVID-19 crisis has been a catalyst for more, and new forms of digital collaboration. Many initiatives, including European collaborative research projects involving Water Europe members, are already under development[3] to digitalise the water sector[4].

1. World Water Institute.
2. see: Oko-Institut e.v., impacts of the digital transformation on the environment and sustainability
3. PathoCERT, RIMA, Aqua3S
4. EASME, The need for digital water in a green Europe, ISBN 978-92-9460-404-0, file:///C:/Users/LOC~1/AppData/Local/Temp/EA0221028ENN.en.pdf

**To fully reap the potential, Europe needs an open data platform for data valorisation and facilitation of information-sharing among different stakeholders.** That would encourage proactive and collective engagement in the water agenda and enable free use and security. The platform should be open source, with a versatile and flexible architecture to enable water managers to exploit data in real-time and encourage collective engagement and co-creation processes.

As the European Commission's initiative "Living Labs for green digital solutions and smart zero pollution" [5] indicates, leading such a transformation can only be done by demonstrating data sharing models and supporting the development of skills.

**We reiterate our recommendations for the digitalization of the water sector towards a Water-Smart Society:**




## 2 CONSIDER AND EXPLOIT THE VALUE OF WATER IN THE DIGITAL SECTOR

There is a difference between smart water and a Water-Smart Society. The first contributes to the achievement of the second one: "smart water addresses the technologies implemented in the water sector to support the implementation of a strategic plan towards a Water-Smarter Society ".

A Water-Smart Society goes beyond the digitalisation of the water sector. The digital sector is part of an ecosystem consisting of providers, direct operations and customers, consuming immense amounts of water. The European Parliament think tank mentioned these two faces of the same coin in the specific context of Artificial intelligence: "*AI can be deployed for a wide range of applications to promote the goals of the European Green Deal. However, adverse environmental impacts of AI could jeopardize the attainment of these goals"* [6].

The public consultation on the Digital targets 2030 highlights that the concept of a Water-Smart Society is rather new for the digital sector. Digital water, water re-use and water efficiency are not included in the targets for 2030. A missed opportunity to contribute to the Green Deal, the Digital Europe Objectives and to move towards a Water-Smart Society.

5. Zero Pollution Action Plan, Flagship 7, page 17. The benefits of digitalisation of the water sector are also mentioned in the staff document of the European Commission https://ec.europa.eu/environment/pdf/zero-pollution-action-plan/swd-digital-solutions_en.pdf
6. https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU(2021)662906

## Objectives

1. **Assess and reduce the water footprint of direct operations.** Technology companies are major freshwater consumers, using most of the water for the cooling of their datacentres.
2. **More commitment and disclosure of water-related data is needed to achieve this objective.**
3. **Break the silo by collaborating with customers and providers towards a Water-Smart Society.** The digital sector needs to empower its customers, partners, and providers to identify, develop, test, and validate innovative water-smart solutions. Water-oriented Living Labs can play a key role in this objective, supporting the development and deployment of technical and non-technical solutions across the digital value-chain.

### Google

water withdrawal[8]
19,611,800 m3

*Equivalent to*[7]

OR

**373 131**
EU citizens

**Firenze**
Population

### Microsoft

water withdrawal[9]
7,618,089 m3

*Equivalent to*[7]

OR

**144 940**
EU citizens

**Grenoble**
Population

### Apple

water withdrawal[11]
4,384,643 m3

*Equivalent to*[7]

OR

**83 421**
EU citizens

**Toledo**
Population

### Facebook

water withdrawal[10]
3,833,000 m3

*Equivalent to*[7]

OR

**75 554**
EU citizens

**Kortrijk**
Population

### Main recommendations

- **Make water legislation "Digi-proof"**
- **Europe needs an open data platform for data valorisation and facilitation of information-sharing among different stakeholders.**
- **Make digital-related legislation water-smart**, to create incentives for investments in infrastructures reducing water pollution and consumption.
- **Support mandatory assessment of water consumption of direct operations.**
- **Set up targets which consider the value of water** particularly through energy efficiency and water conservation measures.
- **Encourage digital companies to disclose their water-related data**, via non-financial reporting systems.
- **Encourage clustering activities and the development of water-oriented Living Labs** to support projects developing and implementing innovative solutions.

7 calculated based on average daily withdrawals by EU citizens, https://www.eea.europa.eu/signals/signals-2018-content-list/articles/water-use-in-europe-2014
8 https://www.gstatic.com/gumdrop/sustainability/google-2020-environmental-report.pdf
9 https://www.microsoft.com/en-us/corporate-responsibility/sustainability/report#primaryR5
10 https://sustainability.fb.com/report-pages/water-stewardship/
11 https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2021.pdf

# EU Projects

## PathoCERT Project

The objective of the PathoCERT project is to strengthen the coordination capability in handling waterborne pathogen contamination events. Pathogen Contamination Emergency Response Technologies are used to quickly detect contamination from surface water, waste water and drinking water which enables first responders to better control and react to emergency situations. https://pathocert.eu/

## aqua3S Project

The aqua3S project steps in to combine novel technologies in water safety and security, aiming to standardize existing sensor technologies complemented by state-of-the-art detection mechanisms. The objective is to enable authorities to detect and tackle water-related crises in a timely manner of qualitative and quantitative manner. https://aqua3s.eu/

## Stop-IT Project

The Stop-IT Project focuses on the strategic, tactical and operational protection of critical water infrastructures against physical and cyber threats. It is based on a collaboration between solution providers and challenge owners. The two frontrunner Aigües de Barcelona (Spain) and Mekorot (Israel) have published a factsheet with the results of the implementation of STOP-IT tools they have tested at their facilities. https://stop-it-project.eu/

## AquaSPICE Project

AquaSpice aims at materializing circular water use in European process industries. The goal is the development and validation of water efficiency management and optimization methodologies, technologies and tools that will carry process industries forward to a near-zero water footprint target with minimum freshwater consumption and water-borne emissions. https://aquaspice.eu/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