

DIGITAL WATER ROADMAP FOR EDUCATION, RESEARCH AND INNOVATION

EXECUTIVE SUMMARY

"**Digital water**" is an important concept that underlies the vision of Water Europe, based on the projected development of a world in which networks that interconnect the control and monitoring systems of water-related processes, sensors, transducers, generate large amounts of data. The *DIGIWATER* project aims to develop new, innovative and multidisciplinary approaches to teaching and learning through the use of multidisciplinary curricula integrated with digital learning tools and virtual facilities such as shared labs / software with access to Cloud systems and Problem-Based Learning. Better training of graduates will stimulate the entrepreneurial spirit and skills of higher education and company staff who use innovation camps and facilitate the exchange, flow and co-creation of knowledge by creating stakeholder courses that integrate learning, academic, corporate and professional development for external specialists.

DIGIWATER focuses on how to achieve these goals by better training tomorrow's decision makers, innovators and engineers, using collaboration between universities and SMEs.

The current status of digital water transformation in academia, government and business is considered to be at a moderate level. There is a need for better training of specialists in the field of water, as well as candidates for positions in this field. Advanced monitoring technologies and smart equipment are largely needed to transform data into a digital format.

Thus, in order to increase the digital transformation of water in these sectors, the involvement of the educational sector is very important. The following actions are considered priorities:

- Increasing the level of staff training in support of digital water transformation in general seems to be higher in the Academy and Enterprise sectors.
- It is necessary to develop a strategic water education plan, modifying the curriculum from primary, secondary and college education. Within the study disciplines, water and information technology should be interconnected, thus achieving transition to the transformation of water digitization.
- Development of guides of good practices and behaviors in the field of water based on the development of new databases and new methodologies for their use starting from universities and their laboratories. Development of data platforms of processes that can be used in education, thus involving the education sector in the real issue of water systems.
- Use of geographic information systems, simulation tools and sensors in teaching issues. Completing the curriculum with topics that include new virtual reality technologies and artificial intelligence applied in the field of water.
- Involvement of students in EU funded projects such as Citizen Science by Students with a focus on the water sector.
- Inclusion in projects of separate work packages regarding education for the water sector

- Initiating discussions in schools and universities with pupils and students mainly, using global and digital area to attract the students and to transmit the information within educational systems.

Increasing the level of cooperation between different sectors has an important role in achieving the digital process of water transformation. This can be achieved through free access to environmental data as well as by sharing data and their availability. The actions required are the following:

- Development of a common environmental data collection platform, which can be managed by a public-private consortium.
- Establish anonymous sharing data systems to avoid conflicts with data confidentiality requirements, by selecting representative data samples. A data taxonomy and a priority of the first data sets for sharing must be defined.
- Defining requirements for data sharing at product, manufacturer, brand level. Development of data platforms as a result of local initiatives that can then be connected to national and even industrial level platforms.
- Defining a legal framework for data sharing.
- Develop funding mechanisms to enable the creation of open databases with free access for citizens.
- Establish well-defined data governance procedures
- Communicating open data policies and providing incentives, promoting business model prototypes based on Data sharing.
- Identify use cases involving cross – domain objectives and datasets.
- Generalize the publication of standardized APIs for data access, identification of data sources and data markets, collaborate with open data experts between sectors.

Planning and implementing an efficient digital transformation strategy will lead to benefits for each sector of activity. The actions designed in this case are:

- Creating a secure, multi-user data sharing platforms.
- Development of goal-oriented guides, integration of IT skills with the hydraulic ones at the level of education.
- Promoting Living Lab demonstrations and laboratories to increase confidence and trust.
- Promoting the use of digital solutions as a cost-effective strategy, the need for a cost-benefit approach to encourage digital adoption.