EU DIGITAL WATER COALITION RECOMMENDATIONS FOR THE EU ACTION PLAN ON DIGITALISATION IN THE WATER SECTOR:

UNLOCKING THE POTENTIAL OF DATA & AI TO DELIVER EUROPEAN WATER RESILIENCE

Digitalisation is a key enabler to address the challenges identified in the recently adopted European Water Resilience Strategy, such as leakages, water efficiency, climate resilience, industrial water reuse, planning, and the need to identify resilience thresholds in pursuit of sustainable water use.

The potential of digitalisation to support EU water policy is immense but requires a structured approach coupled with a long-term roadmap. As a first step, the European Commission should lay the right foundation and building blocks to achieve its ambitious objectives: adapting EU funding and procurement rules to incentivise digitalisation; promoting open standards, as well as common metrics and methodologies; and accelerating the deployment of smart meters.

Over time, these building blocks will enable the scale and acceleration needed to expand a data-driven approach across the entire water cycle, providing better visibility on ongoing implementation of EU water legislation. This will, in turn, support key objectives that are yet to be fully realised at the national and local level, such as leakage detection, demand forecasting, and network optimisation. Digitalisation is an iterative and self-reinforcing process, with each milestone feeding the next, enabling better decisions by all stakeholders – including policymakers – and ultimately leading to better water resilience outcomes.

To kick-start this process, the upcoming Action Plan on Digitalisation in the Water Sector will need to simultaneously put these building blocks in place and ensure alignment with broader EU funding and policy frameworks relevant for water. The EU Digital Water Coalition – representing leading innovators from across the water management ecosystem – puts forward the following concrete recommendations for the Action Plan:

FUNDING

- **Focus on the long term with key performance indicators:** The Action Plan – in conjunction with the upcoming EU Water Initiative – should aim to fund and promote digitalisation of the water sector as a long-term transformation, not a short-term project. To reach this objective, the Action Plan should identify key performance indicators for water utilities and industrial water users, as digitalisation is not an end in itself but a powerful tool to reach those goals. Digitalisation efforts should focus not only on data collection, but also on the generation of actionable operational intelligence, transforming data into measurable outcomes, including improved resilience, reduced water losses, lower energy consumption, and more efficient operations.

- **Embrace a TOTEX approach:** Investments in the water sector, and digitalisation in particular, require a much-needed shift toward a TOTEX approach – one that recognises and evaluates the full lifecycle impact of digital solutions and infrastructure, with funding mechanisms appropriately addressing both initial investment and eligible operational expenditure. This should be complemented by appropriate investment-recovery frameworks for digitalisation, including software, sensors, connectivity and data platforms, allowing these investments to be assessed on their whole lifecycle value alongside traditional physical infrastructure.

- **Create the right policy incentives:** EU funding targeting water resilience should prioritise adoption of smart approaches including through digitalisation and set incentives for utilities and industrial water users linked to verified water, energy, and resilience outcomes. For example, this could involve rewarding deployment of digital solutions for critical measurable, lasting improvements – such as leakage reduction, water , efficiency, quality, climate resilience – and positioning AI-driven process optimisation, digital twins, and energy-management software as compliance enablers for objectives laid out in EU water legislation, such as the 2040 energy neutrality mandates set out in the Urban Wastewater Treatment Directive.

- **Align with the Long-Term EU Budget 2028-34:** Future National and Regional Partnership Plans under the next Multiannual Financial Framework (MFF) should provide dedicated funding for local authorities. Select EU funding calls under the new MFF should focus on supporting shared digital solutions that reduce duplication and lower the cost of entry for digitalisation, particularly for smaller utilities.

- **Create a European Digital Water Maturity Framework:** Digital investments should be supported by dedicated EU funding for capability building, training and organisational change. Digitalisation changes operational processes and decision-making, and utilities therefore need the skills and organisational capabilities required to integrate digital solutions into their day-to-day operations (with smaller utilities and mid-sized industrial users, in particular, needing technical support). A common European Digital Water Maturity Framework could help assess readiness, identify operational priorities, and define appropriate investment roadmaps – from basic monitoring and system integration to advanced analytics and AI-enabled decision support. EU and national funding instruments should recognise the various levels of digital maturity among water utilities and support tailored, step-by-step digitalisation pathways.

- **Establish an EIB Digital Water Facility:** To overcome the initial capital barrier and make digital and Internet of Things (IoT) projects bankable for institutional lenders, the European Commission – in cooperation with the European Investment Bank (EIB) – should establish a dedicated Digital Water Facility providing blended finance and risk-sharing mechanisms for utility scale-up. The recently launched EIB Water Programme was a much-needed and welcome development, and this approach can now be built upon further with a view to increased digitalisation of the water sector specifically tailored to smaller, OPEX-heavy deployments.

- **Align with key industrial policy initiatives:** The Commission Recommendation on Tax Incentives to support the Clean Industrial Deal (C(2025) 4319 final) should be extended to water enabling accelerated depreciation and tax credits. This will effectively lower the financial barriers for companies that invest in digital water solutions and boost lead markets for technology investment.

INTEROPERABILITY, STANDARDS, AND DATA GOVERNANCE

- **Promote open, industry-supported standards:** The Action Plan should promote adoption of open, industry-supported, and internationally recognised standards for observations, model data and metadata, common vocabularies and APIs, in line with FAIR principles[1] to enable interoperability across utilities, authorities, river basins and national borders linking Earth Observation, monitoring IoT, and modelling systems. Standards should remain technology-neutral and avoid becoming unintended barriers to innovation.

- **Prioritise international standards and develop common European specifications only when needed:** Standards should enable data to be findable, machine-readable, and directly consumable by models, digital twins, and AI applications. Common European specifications should build on existing international standards, such as the Open Geospatial Consortium's WaterML, GroundWaterML and relevant ISO/OGC standards wherever possible, rather than create competing frameworks. Common European specifications should be developed where genuine gaps remain[2], particularly to enable interoperable modelling workflows and AI-ready data at scale, including shared benchmark datasets for water. In addition, common European methodologies are needed for defining, calculating, and validating KPIs, including non-revenue water, energy consumption and operational efficiency. This is needed to ensure reliable benchmarking and meaningful comparison of digitalisation outcomes across utilities and Member States, building on existing internationally recognised frameworks.

[1] Data and model outputs should be FAIR (Findable, Accessible, Interoperable, Reusable), including when access is restricted. This requires, among other things, common definitions, vocabularies and standards, as well as high-quality metadata on data quality, provenance and uncertainty, including for forecasts and model outputs. This is essential if data is to be used directly in automated modelling and AI workflows, and if users are to assess how much confidence they can place in the results.

[2] For instance, AI-ready benchmark datasets: common, curated datasets for training and, especially, validating and benchmarking AI models for water. This could, for example, be supported through relevant EU programmes and infrastructures such as Horizon Europe, Destination Earth and EDITO.

- **Establish clear governance principles for water data:** Clear governance principles are needed for water data, distinguishing between open data, data that can be shared under agreed conditions, and commercially, security- or privacy-sensitive data. Industry, utilities, and public authorities should jointly identify priority datasets for sharing and define appropriate access rights, aggregation requirements, and safeguards. Interoperability should extend beyond data discovery and access to operational use across utilities, authorities, and technology providers. Common, open standards for data models, semantics, metadata, and APIs should enable water data to flow seamlessly into modelling, digital twins, AI and decision-support applications. The architecture should support federated data sharing and ensure portability and vendor neutrality, allowing data owners and users to retain control of their data and change platforms and service providers without costly re-engineering or creating new technology dependencies.

- **Seize the potential of digital to address water quantity and quality challenges:** The Action Plan should take steps to establish a common water accounting architecture at catchment, sub-catchment, and aquifer level, connecting Copernicus, meteorological, abstraction, discharge and reuse data with site-level IoT data. Common definitions should distinguish withdrawals from consumption and reflect water quality, reuse, seasonality, and local water stress. This should support sustainable-use thresholds, early warning, and operational decisions. The current lack of a clear process for quantifying sustainable water use is preventing the investments needed to secure a water-resilient future. Having a framework that provides a single view of truth on headline water quantity and quality objectives is necessary to achieve this, and it is vital to build strong, cross-sectoral collaboration at the local level leading to effective governance.

- **Create a dedicated industrial workstream for water resilience:** A dedicated industrial workstream, potentially within the Water-Smart Industrial Alliance, should bring utilities, industrial users, and technology providers together to exchange proven applications and develop sector-specific guidance. Citizen science and community monitoring schemes can also support professional monitoring to support multistakeholder collaboration at the local level. Sponsoring sensing systems is increasingly becoming a practical contribution to collective action.

[3] Source: https://environment.ec.europa.eu/topics/water/groundwater_en.

[4] SaaS: Software as a Service.

- **Make groundwater and the natural environment an integral part of how the Action Plan tackles digitalisation:** Groundwater supplies around 65% of the EU's drinking water[3], yet subsurface water information is still often managed separately from surface-water and other environmental data. Existing EU legislation, including INSPIRE, the Water Framework Directive and the Groundwater Directive, already establishes important requirements for groundwater and environmental data collection, monitoring, and reporting. However, significant gaps remain in the harmonisation, interoperability, accessibility, and reuse of subsurface water data across Europe. The Action Plan should therefore strengthen EU efforts in this field by accelerating the collection, standardisation and sharing of subsurface data and enable its integration with surface-water, climate, and water use data.

PROCUREMENT

- **Develop model procurement frameworks:** Develop EU model procurement frameworks for digital water solutions, including SaaS[4]-compatible terms and conditions, performance- and outcome-based contracting approaches, standardised performance metrics, and appropriate risk allocation. Such frameworks should facilitate the procurement of continuously evolving digital solutions while reducing unnecessary contractual and administrative barriers for utilities.

- **Adopt an end-to-end approach for IoT deployment:** When procuring digital solutions, large-scale IoT projects should be designed and procured with an end-to-end architecture in mind, rather than isolated meter or sensor deployments. Procurement should consider the complete chain — devices, connectivity, data collection and sharing, software platforms, automated control, modelling, integration with existing utility and industry control systems and long-term operation — so that technology investments translate into sustainable operational value and decision support. Technology-neutral procurement should assess lifecycle costs and verified water, energy and reliability outcomes.

- **Support compliance with the NIS2 Directive and AI Act:** The Action Plan should support the effective implementation of the NIS2 Directive and AI Act in the water sector. Procurement and deployment frameworks should support drinking water and wastewater operators in meeting applicable risk management and incident reporting obligations, including cybersecurity requirements related to supply-chain security, vulnerability management, business continuity, secure device management, access control, continuous monitoring, incident response capabilities, and clear responsibilities for secure lifecycle management. These frameworks should promote a risk-based and proportionate approach that takes into account utilities' different sizes, capabilities, and operational contexts. This should be complemented by practical cybersecurity guidance, shared capabilities and compliance support, particularly for smaller utilities with limited internal cybersecurity resources.

SMART METERS

- **Adopt a holistic approach in the Smart Metering for All initiative:** The Smart Metering for All initiative should not just target the installation of individual devices, but also promote the effective use of smart metering data for operational decision-making, including leakage detection, demand management and forecasting, network performance, customer engagement, regulatory reporting, and water efficiency. Smart metering infrastructure should also provide an interoperable and secure foundation for future AI applications, predictive analytics, and digital twins. Data governance and consumer access to water-use information should be integrated as core principles of this framework, to reinforce consumer awareness and reduce leak detection times.

- **Allocate EU funding to smart meter deployment:** Ensure funding for smart meter deployment, including through the National and Regional Partnership Plans and the EIB. EU co-funded smart meter programmes should consider not only the installation of meters but also the connectivity, data integration and analytics capabilities required to convert meter readings into actionable operational intelligence. A dedicated framework for the progressive deployment of smart meters in the EU should support this – using, for example, the precedent established in the electricity sector under Directive 2009/72/EC, which set a target of equipping 80% of consumers with smart meters by 2020.