

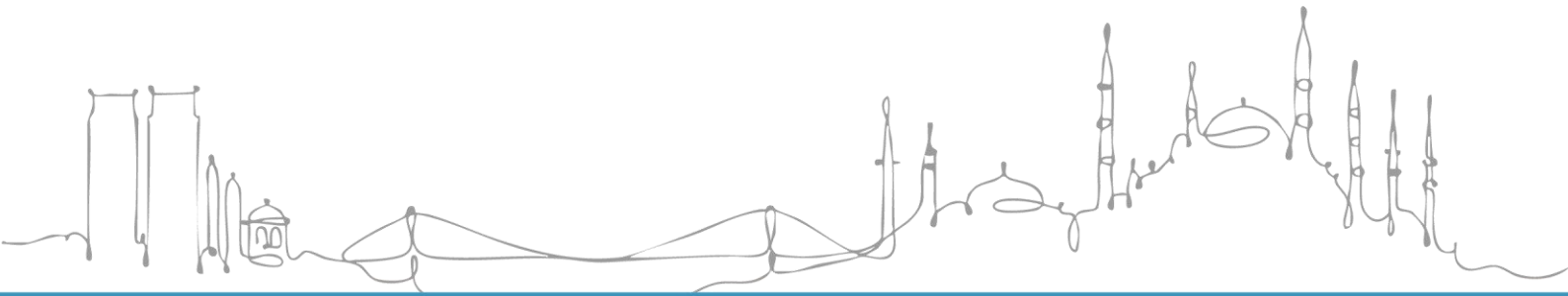
5th ISTANBUL INTERNATIONAL WATER FORUM

“Strengthening Water Resilience: Innovation to Action”

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Concept Note Special Session

Smart Water Management: Adapting to the Challenges of
Industrial Data, Biotechnological Solutions, and Artificial
Intelligence Applications



Special Session

Smart Water Management: Adapting to the Challenges of Industrial Data, Biotechnological Solutions, and Artificial Intelligence Applications

Water management is rapidly becoming a strategic domain, reshaped along the axes of data, technology, and innovation. Increasing water stress, climate change, and resource constraints necessitate the transformation of water into a more measurable, traceable, and optimizable system for both industry and cities. The startup ecosystem lies at the center of this transformation. Next-generation solutions demonstrate that water is not only a consumed resource, but also a data-generating layer, an optimizable system, and a source of recoverable value. Data-driven water management approaches in industry, the reuse of wastewater in cities through biotechnological methods, and the application of artificial intelligence in advanced treatment processes stand out as three critical transformation areas shaping the future of water. This panel aims to present the current state and near future of smart water management by bringing together the perspectives of three innovative startups operating across these domains.

Objectives and expected outcomes:

- To comprehensively present the data-driven and technology-enabled transformation of water management,
- To evaluate approaches for developing decision support systems through the generation and analysis of industrial water data,
- To address digital and predictive models for measuring and managing water-related risks (physical, operational, and regulatory),
- To reveal the potential for energy generation, resource recovery, and carbon reduction by reusing urban wastewater through biotechnological methods,
- To evaluate nature-based and sustainable water management solutions for cities,
- To present approaches for increasing process efficiency, reducing energy consumption, and optimizing operational costs through artificial intelligence applications in seawater desalination,
- To examine applications that strengthen decision support mechanisms through real-time data usage,
- To highlight the capacity of startup solutions to develop innovative, scalable, and transformative projects in the water sector.

Keywords: Smart Water Management, Water Risk Management, Digital Water Management, Water Data and Analytics, Decision Support Systems, Biotechnological Wastewater Treatment, Wastewater Reuse, Nature-Based Solutions, Seawater Desalination, Artificial Intelligence Optimization, Energy Efficiency.

