Water4Cities: An ICT platform enabling Holistic Surface Water and Groundwater Management for Sustainable Cities

Stamatia Rizou, Klemen Kenda, Dimitris Kofinas, Nikos Mellios , Petra Pergar, Panagiotis Ritsos, John Vardakas, Kostas Kalaboukas, Chrysi Laspidou, Matej Senožetnik and Alexandra Spyropoulou

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 734409 WATER4CITIES

Presentation Outline

1. Motivation
2. Project Goals and high level architecture
3. Stakeholder Analysis
4. Case Studies Needs & Expected Benefits

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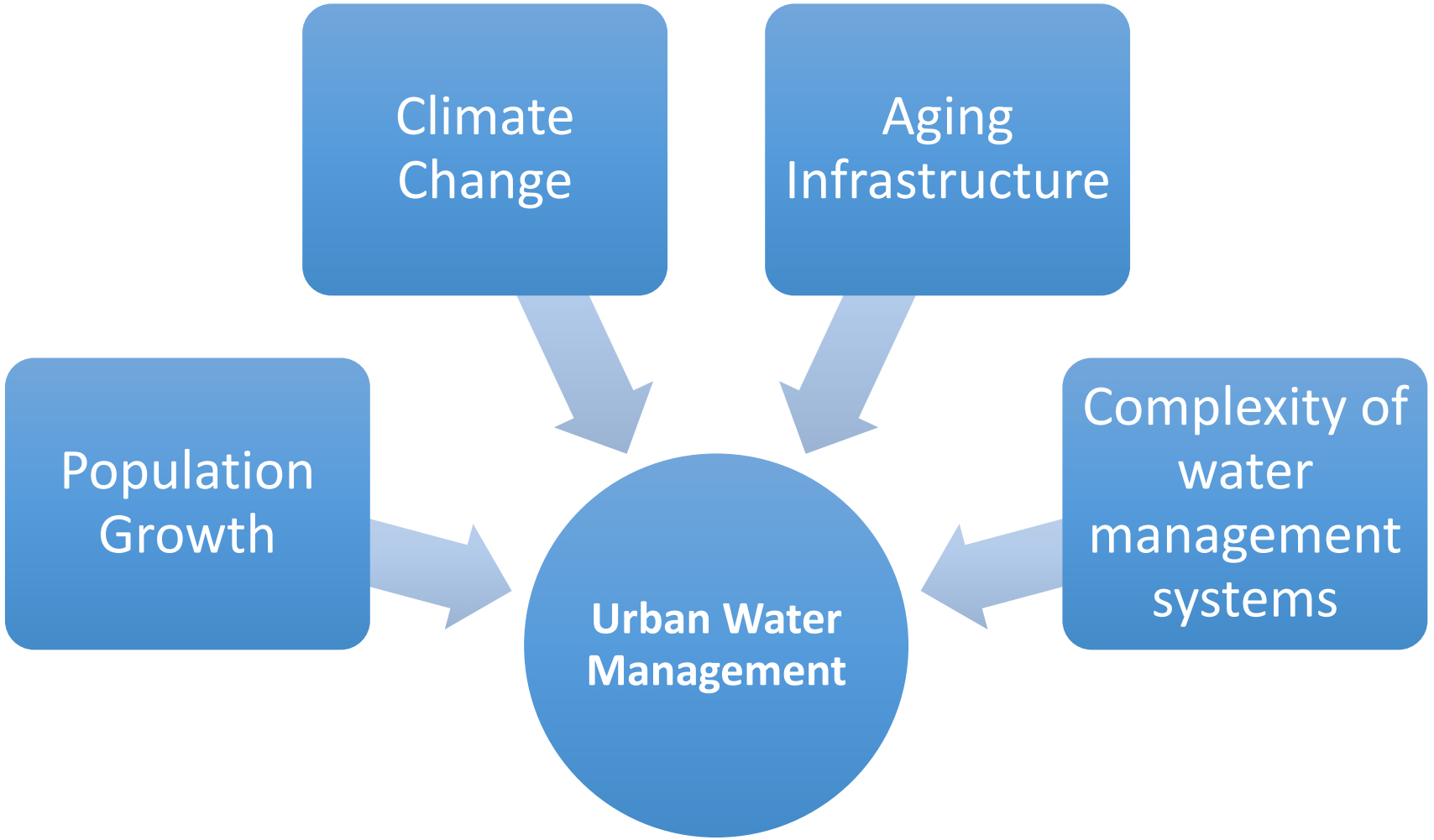
Urban Water Management



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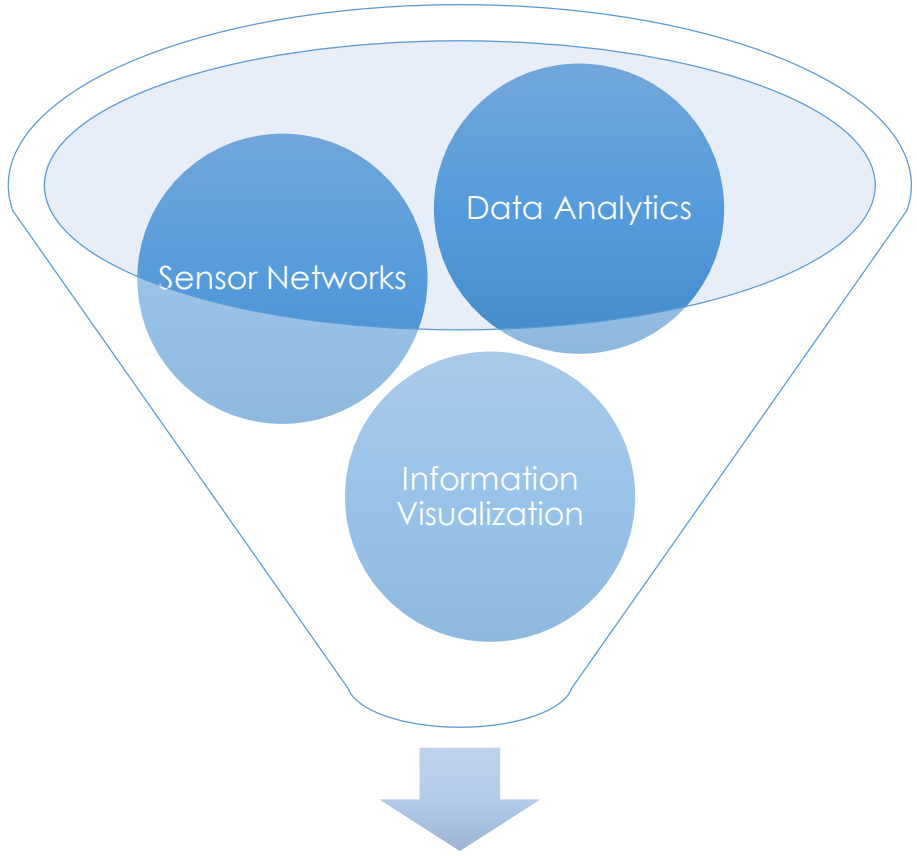
Smart water: Technological Enablers



Decision Support Systems

Support sustainable urban water management

- ✓ *Real-time monitoring of urban water resources*
- ✓ *Prediction of water availability and demand*
- ✓ *Optimization of urban water management*
- ✓ *Enablement of collaboration among stakeholders*
- ✓ *Support Urban Planning (NBS)*
- ✓ *Analysis of water-energy nexus*

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Challenges in smart water solutions

Deployment of advanced high-quality real-time water monitoring tools and services in urban settings is still far from being achieved

- ✓*Difficulties in collecting precise monitoring data*
- ✓*Lack of interoperability standards*
- ✓*Use of simple data mining and data visualization*

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Water4Cities Goals

1. To build a **robust, energy efficient monitoring infrastructure** for the collection of real-time data across the water lifecycle
2. To deploy advanced **data mining and information visualization** tools for the analysis of data
3. To develop **decision support services** and applications, catered for different stakeholders in the Water4Cities process chain
4. To test and validate **the proposed ICT platform** in two relevant complementary case studies

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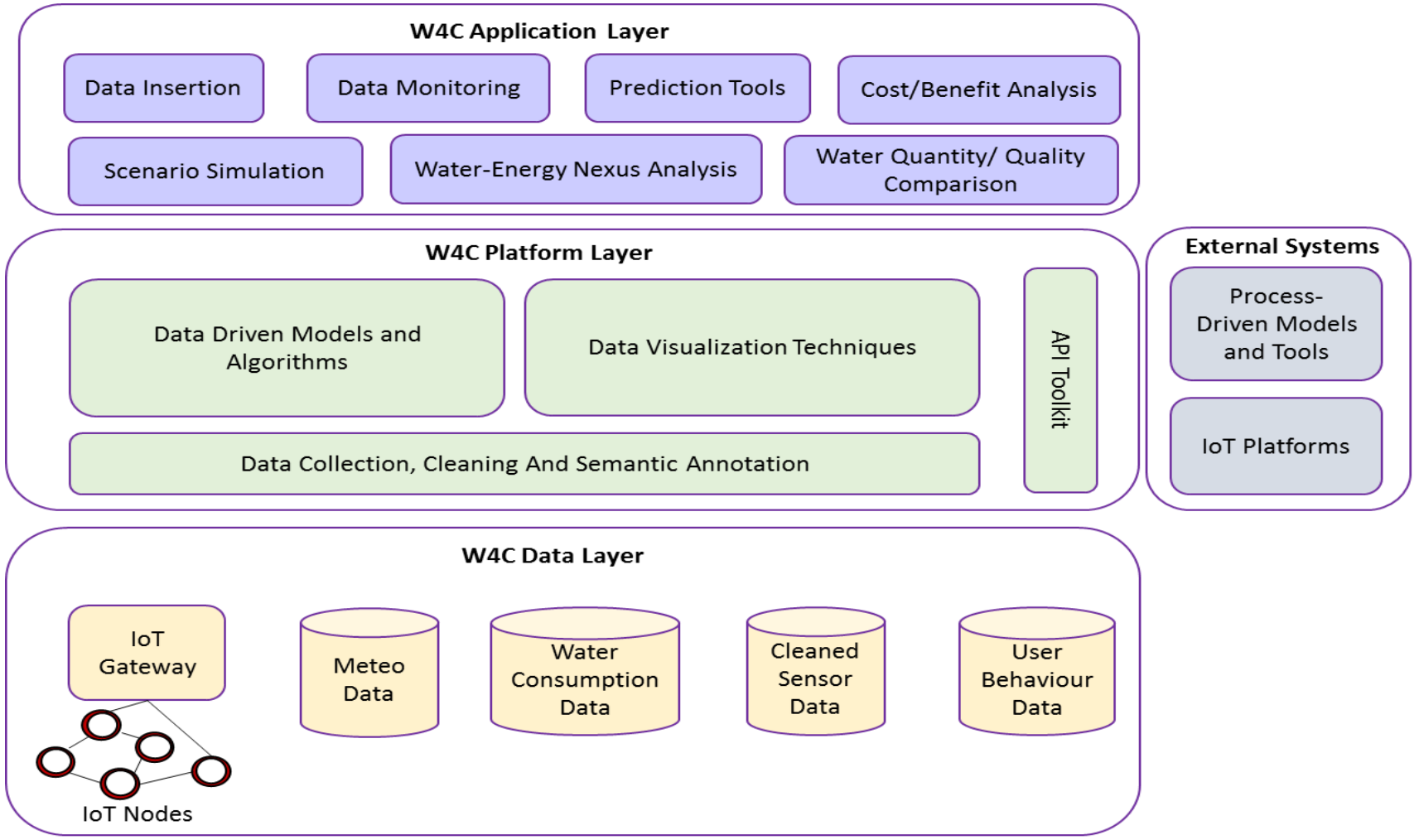
Water4Cities High Level Architecture



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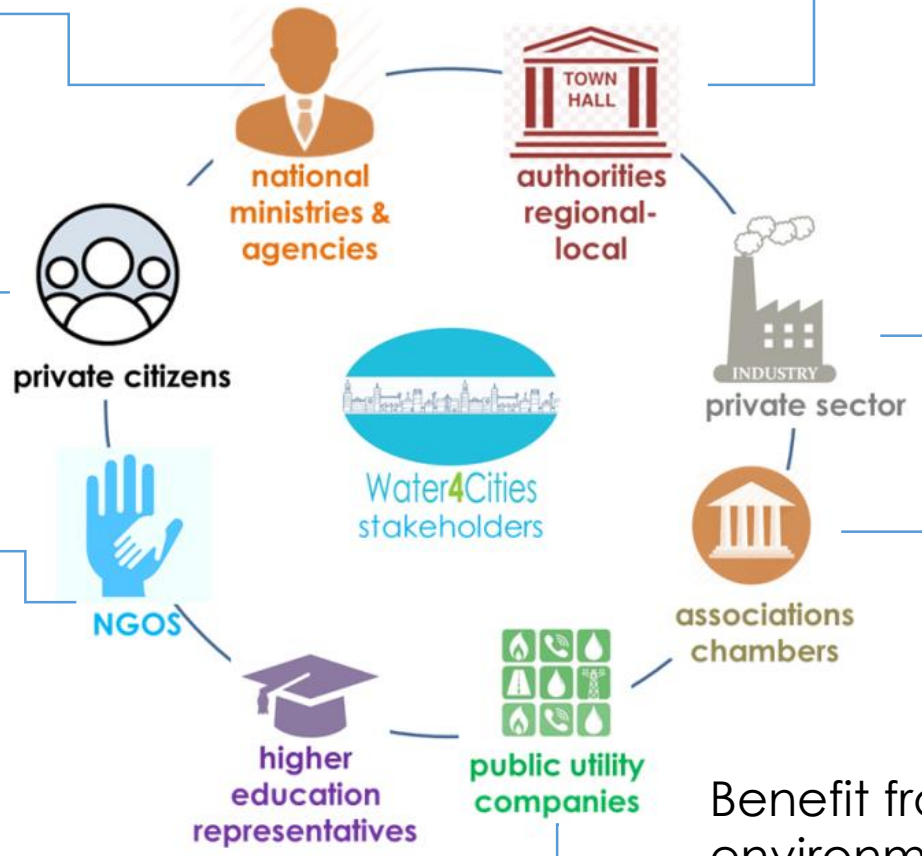
Water4Cities Stakeholders

Responsible for policy coordination, guidance

Guide the implementation of practices aiming at the sustainable exploitation

High interest for households in receiving adequate supply of piped water to their homes

Need reliable supply of good quantity and quality water in order to operate their businesses



NGOs put pressure on local and national authorities to adopt environmental-friendly water management practices

Increase awareness concerning the protection and sustainable exploitation of water resources

Gain knowledge and deeper insight on issues related to water sustainability

Benefit from lower operating costs, environmental-friendly practices, and improvement in their water services

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Conflicts among stakeholders

National Ministries & Agencies

NGOs

Short term interests (political or financial gains, meeting coverage targets etc.) conflicting with long term interest of sustainability and as a consequence with NGOs which fight for this purpose

Local Authorities

National Ministries & Agencies

Local authorities' economic differences with national agencies may arise in the direction of not funding them to invest on innovative and optimized water supply solutions due to poor economical national status

Private sector

Urban water supply interests competing with other interests including water for food, water for industry, water for tourism, water for domestic use, and water for nature

Academia universities

National Ministries & Agencies

Local Authorities

Higher education representatives conduct research over efficient and environmental-friendly water management practices and thus come in conflict with national and local authorities who persist in old practices and often reject the proposed new approaches

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Case Study 1: Skiathos Island (Greece)

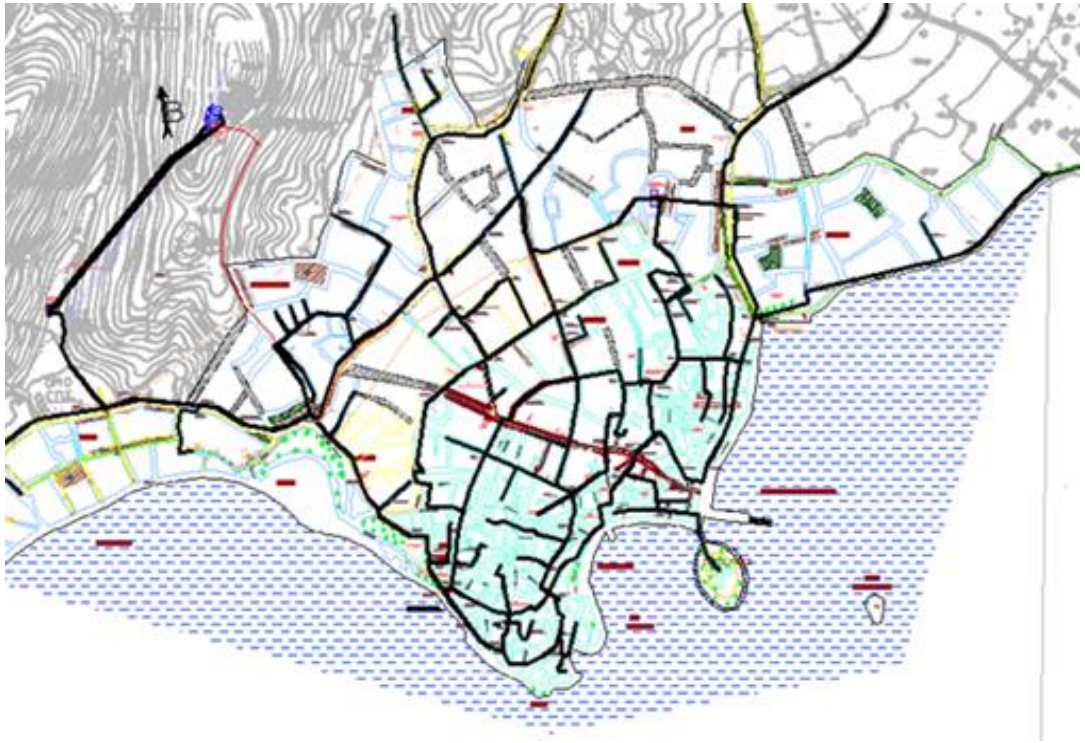
Focus: Water demand management

Characteristics of pilot area

✓Small hilly town of 5000 inhabitants
✓Main sectors: tourism and agriculture
✓Water supply served by groundwater
✓High seasonal variability

Water4Cities contributions

✓Monitoring services
✓Analysis of data quality
✓Water demand forecast
✓Analysis of water balance



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Case Study 2: Ljubljana City (Slovenia)

Focus: Water Reuse &NBS planning

Characteristics of pilot area

✓Surrounded by two rivers
✓Almost 500.000 Slovenian inhabitants
✓Vulnerability to flooding
✓Intensive Urbanization
✓Climate Change

Water4Cities contributions

✓Analysis of monitoring data e.g., Rivers Data, Soil Data, Underground Water Level Data, Slope Data…
✓Ground water levels prediction
✓Analysis of possible NBSs
✓Empowerment of citizens through crowdsourcing capabilities.

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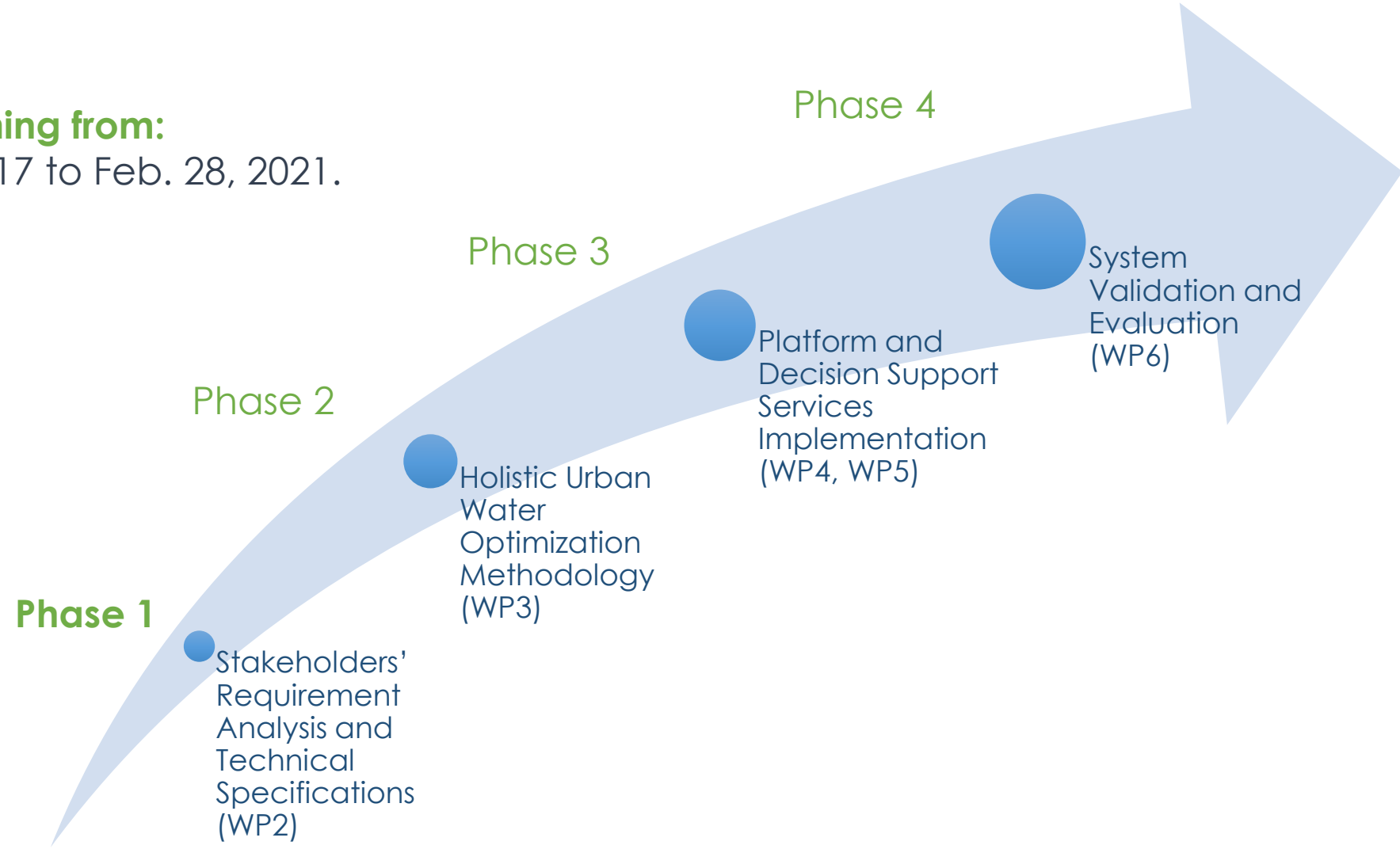
Current Status & Outlook

✓**Project Running from:**
March 1, 2017 to Feb. 28, 2021.



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