

# Asset Intelligence: Maximising Operational effectiveness for the Digital Era

October 2019 - September 2022

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The primary aim of this project is to develop a structured, integrated and shared water asset management platform through advanced sensing, digital modelling and computational intelligence so as to maximise the planning and operational effectiveness of water utilities in maintenance, repair and rehabilitation. The research intends to address an important gap of isolated water data management by providing relational information, interoperability, and real-time capability. The expected outcome will be an innovative digital water asset management platform that is a single source of truth for centralised storage, access, analysis of structured water asset data to reduce the cost and time of information storage, retrieval and decision making.

## Objectives

The project will develop:

1. To holistically map the lifecycle asset information requirements of water assets, including not only the spatial structure of the asset, but also lifecycle information on inspection, performance and maintenance.
2. To develop an innovative and practical approach that can help transfer digital water asset data from one platform to another without the need to creating separate mapping for every model, platform and stakeholder.
3. To collect and integrate real-time water asset performance information into the digital platform
4. To develop a data-driven performance prediction model and a non-dominated sorting genetic algorithm (NSGA) for many-objective performance optimisation of water assets.

## Industry Outcomes

The primary aim of this project is to;

1. Develop a structured, integrated and shared water asset management platform through advanced sensing, digital modelling and computational intelligence so as to maximise the planning and operational effectiveness of water utilities in maintenance, repair and rehabilitation.
2. The research intends to address an important gap of isolated water data management by providing relational information, interoperability, and real-time capability.
3. The expected outcome will be an innovative digital water asset management platform that is a single source of truth for centralised storage, access, analysis of structured water asset data to reduce the cost and time of information storage, retrieval and decision making.



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