Platforms EOI: Asset Performance Data Platform for Water Utilities and Local Government

<table>
<thead>
<tr>
<th>Project title</th>
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<td>Asset Performance Data Platform for Water Utilities and Local Government</td>
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<th>Field of Research code(s)</th>
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<tbody>
<tr>
<td>- 08 INFORMATION AND COMPUTING SCIENCES</td>
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<td>- 09 ENGINEERING</td>
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<td>- 10 TECHNOLOGY</td>
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<td>- 12 BUILT ENVIRONMENT AND DESIGN</td>
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<td>- 14 ECONOMICS</td>
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<tr>
<th>EOI Lead Name</th>
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<tr>
<td>Carol Boyle</td>
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<tr>
<th>EOI lead Research Group</th>
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<td>Infrastructure Futures</td>
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<th>EOI lead Organisation</th>
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<td>Deakin University</td>
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<th>EOI lead Email</th>
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<tr>
<th>Collaborator details</th>
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<tbody>
<tr>
<td>Name</td>
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<tr>
<td>B Millington</td>
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<tr>
<td>Dr. Christopher McAvaney</td>
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<tr>
<td>Prof David Halliwell</td>
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<td>Dr Adrian Panow</td>
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<td>Prof. Douglas Creighon</td>
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<th>Project description</th>
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<td>To undertake research on the value, performance, efficiency and cost of infrastructure, data that are current, verified and validated are required. Water corporations and local government are at a basic level of digitisation with poor quality asset and operating data held within various groups across the agencies and vary in formats and timescales.</td>
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This project will establish a cloud platform for a data lake of water utility and local government asset and sensor data. Stakeholders will be brought together to seek agreement on a framework which will set standards, protocols, rules and requirements around data management, verification, accountability, cybersecurity, IP, privacy and access. A common, agreed framework and protocols for the data lake will be established and tested using case studies. A business case for the long term management of the data lake will be presented to government,
identifying the best options for long term management of the data platform. The platform will enable research on infrastructure asset and data value and economics, analytics to assess performance, efficiency, cost benefit and predictive maintenance as well as IoT for smart infrastructure.

### Existing technology

#### Adopt

Adoption of current open-source tools, specifications and protocols used in relevant industries for data and asset management. Solutions will be predominantly cloud based, open access utilising current platforms.

- Year 1 - Engage stakeholders; identify existing tools, protocols and standards
- Year 2 - Agreed framework for standards, protocols, rules and open-source tools for cleansing, formatting, cybersecurity, privacy and access
- Identify and initiate case studies to evaluate and refine framework
- Year 3 – Finalise case studies and prepare business case for ongoing platform operation

#### Adapt

Open Source GIS projects that allow aggregation of data for analysis and discovery by researchers. Interoperability as a key principle for design of the platform due to the wide variety of data types from asset owners and contributors.

- Data quality protocols would be used to ensure the highest quality of data is being maintained.
- IoT hardware and related protocols would be exploited to feed the platform.
- Modelling tools for managing assets more efficiently leading to predictive maintenance approaches.
- Economic modelling tools would also be used to build better schedules for maintenance

#### Build

AI algorithms would be developed to understand the large volume of data from the data streams and to cleanse data for fit-for-purpose and determination of data value. These algorithms would then feed the predictive maintenance schedules asset managers require.

### Anticipated requirements

#### Annual funding

$200,000 - $299,000

#### Proposed length

3 years

### Terms

I agree to the terms

Yes