

Water Pipe Failure Prediction

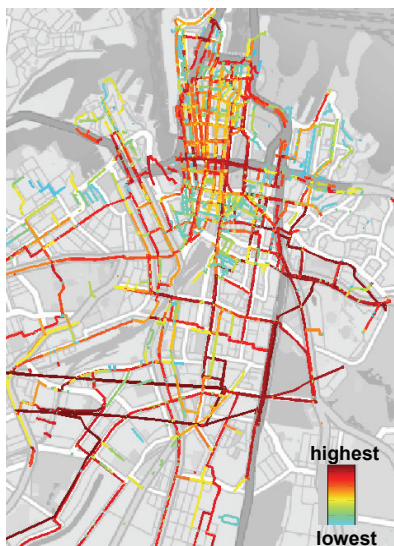
NICTA is using data-driven techniques to improve prediction of pipe failures for water utilities. Intelligent predictions reduce maintenance costs, prioritise capital spend and minimise disruption to water supplies and the community.

The Challenge and NICTA's Approach

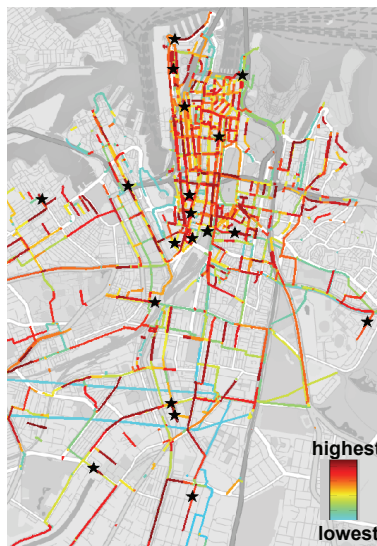
Australian water utilities currently spend \$1.4 billion per year on reactive repairs and maintenance, including the consequence cost of social and economic impact. Focusing the asset maintenance efforts on preventative repairs has the potential to save the water industry \$700 million on reactive repairs and maintenance.

Condition assessment of water pipes is an expensive and disruptive

process with water utilities typically inspecting only 1% of their network assets per annum. NICTA has developed an advanced failure prediction tool using non-parametric machine learning techniques; with this we expect to double the precision of prediction within that 1% of the network that is inspected.



Consequence Map

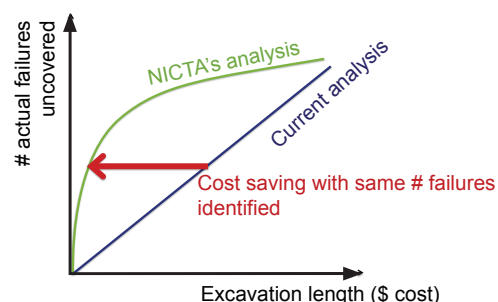


Risk Map

Industry Engagement

Data analysis completed for:

- 23 global utilities
- 700,000 failure records
- 9 million pipe assets
- 525,000 kms of pipes.



Our Partners:

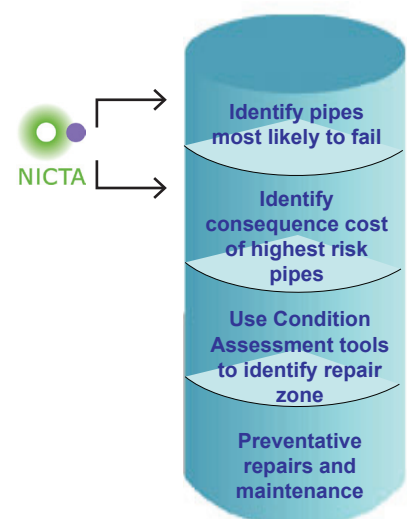
Sydney
WATER

UKWIR

This project is part of NICTA's Infrastructure, Transport and Logistics Business Team, which delivers innovative ICT solutions that transform the efficiency, safety and sustainability of transportation systems and infrastructure networks.



Condition Assessment Process



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Research Excellence in ICT
Wealth Creation for Australia

Leading the Way

NICTA is Australia's Information and Communications Technology (ICT) Research Centre of Excellence, driving innovation through high quality research, research training, commercialisation and contract research.

NICTA has the largest concentration of ICT researchers in Australia. Our research focuses on use-inspired basic research that benefits industry, the community and the national interest.

Since NICTA's inception in 2002, NICTA has built strong research capability in:

- Software Systems
- Mobile Systems
- Machine Learning
- Computer Vision
- Optimisation.

Our Business Teams are the market focus of our research capabilities:

- Broadband and the Digital Economy
- Infrastructure, Transport and Logistics
- Security
- Environment.

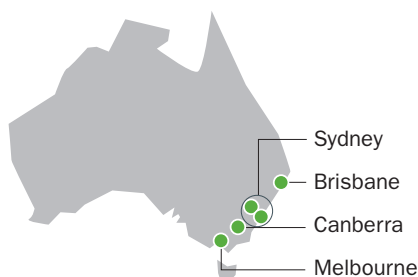
NICTA researchers work on Business Team projects supported by:

- An Engineering and Technology Development Team
- IP, Legal and other professional support.

Our work as a world-class research institute and Centre of Excellence in science and innovation brings together many of Australia's and the world's top ICT researchers. NICTA provides them with the facilities and support they require, making imagination to impact a reality.

NICTA's unique approach fosters and develops ICT research. We work closely with both industry and other research institutions to solve problems and make breakthroughs in ICT with real impact. NICTA's focus on use-inspired research means our projects have direct relevance to the challenges faced by business, government and individuals around the world. The result is breakthrough technologies that provide commercial opportunities and have a positive impact on Australia's export earnings.

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