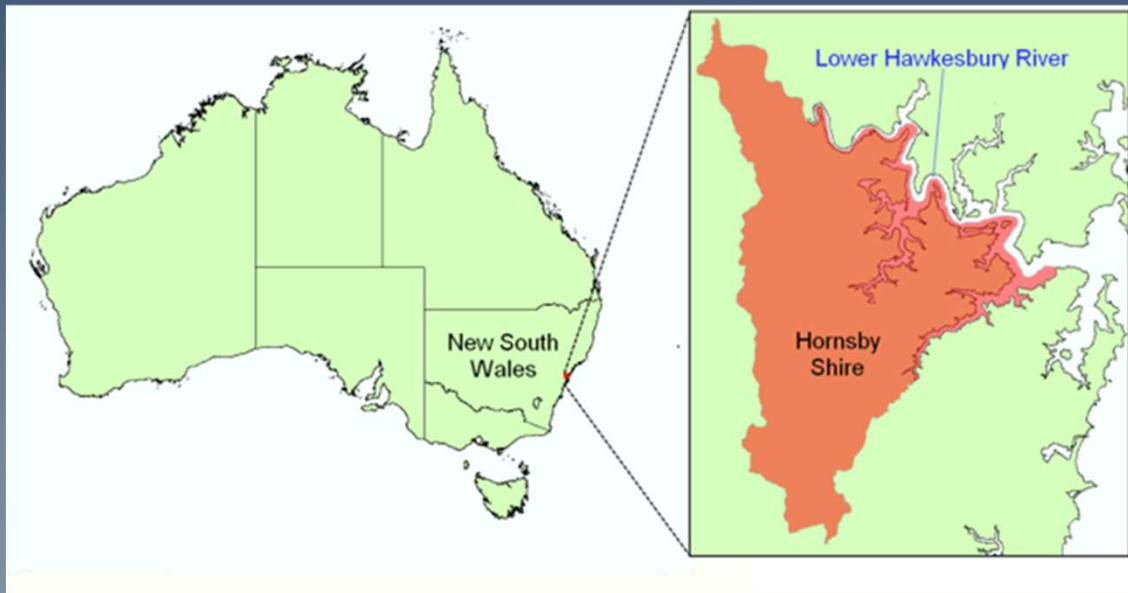


Conceptualising digital twins to inform water quality managers



Dr Peter Coad
Manager, Environment
Hornsby Shire Council

What is a digital twin?

- Abstraction - Virtual representation of a physical system
- Real time - Updated and responsive to real time data
- Decision support – embeds simulation and machine learning

What makes them (potentially) useful?

- Fit for purpose – not exact replicas
- Autonomy – AI enabled control with less human intervention
- Learning – Overtime, with AI, the twin will improve decisions **and** *learns to make* better decisions
- Ensemble learning – multiple models/simulations
- Digitisation – landscapes, people's behaviours, built environments, etc.

An example for swimming, algal blooms, oyster harvests, etc.



Live
Monitoring



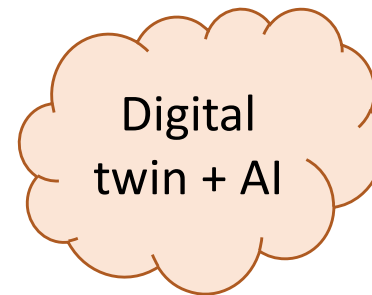
Weather
portal



Digital
behaviour



Health
portal



Applying the concept elsewhere

- Ecosystem health
- Habitat restoration and management
- Resource allocation
- Stakeholder engagement
- Regulatory compliance
- Emergency response and preparation

Thank you

