

Using Real Time Data to Clean the Lake



PRESENTERS

SORR
Managing Director
Rob Manning

NCS
State Lead
Marc Dimmick



#AOGENERGY2024



Our Evolution...



2019 SOR is created

Sustainable Oil Recovery was formed under the direction of Founder Captain Marc Kuhl in collaboration with the inventor.

2020 Sucoil® Sponge

Our revolutionary sponge was branded and trademarked as the Sucoil® Sponge and Provisional Patent: 2020901778 application filed for Australia.

2021 Climate Launch Pad

The world's largest green business ideas competition, SOR was an Australian National Finalist.

2022 Xtreme Tech Challenge

A non-profit organization behind the world's biggest startup competition for which SOR was a Global Finalist.

2022 Stormwater Solution Trial

Federal government grant awarded to SOR's Stormwater Solution & trial implemented with Central Coast Council For 3 months at Tuggerah Lakes, NSW. Proving successful results, the solution has been rolled out to multiple Central Coast Council sites.

2023 SORR created, partnership with Superlon & Deep Supplies

To meet critical demand, Sustainable Oil Recovery & Remediation entered into a joint venture partnership to develop sophisticated supply at volume of solutions and end of life for 100% Environmental Sustainability and Zero Landfill.



Collaborating with



What is SORR



SORR is a stand alone solution and in combination with other remediation approaches, SORR provides partial and turnkey solutions for:

- Stormwater Solutions
- Marina Solutions
- Civil Works
- Mining Solutions
- Oceanic Solutions/Oil Spills
- Environmental Impact Data Collection



Collaborating with




SORR Technology

We have developed a patent protected hydrophobic, hydrocarbon absorbing sponge technology that has a very high efficiency, with the ability to **capture over 1000 times its own weight during its life.**

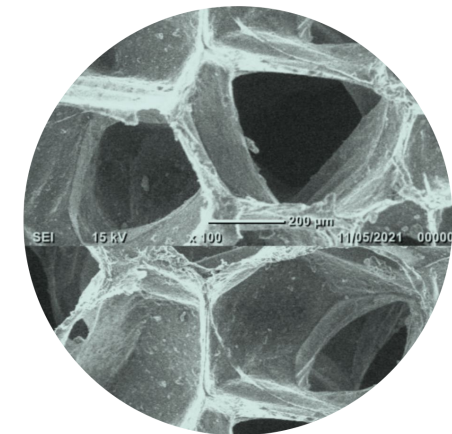
 **Fast uptake of oil with high capacity without sinking**
(When used as intended)

 **Uniquely reusable many times**
(Small material footprint)

 **Dual use option**
(Immediate remediation and retrospective pollutant detection)

 **Highly adaptable to different use scenarios**
(Enclosed granulate, fragments, self-supporting mats, etc)

 **Sophisticated supply at volume**
Oil & Gas solutions and end of life for 100%
Environmental Sustainability and Zero Landfill



This image represents the granular cell technology of the core of the Sucoil® Sponge.

Tuggerah Estuary Stormwater Trial

What started as a Community Lead Science Project led to a quantum leap in **protecting our environment**.

We used a revolutionary Australian Stormwater Filtration solution that is 100% Environmentally Sustainable and combined it with technology to data that allow **Real Time Monitoring** and management of deployed filters.

Collaborating with



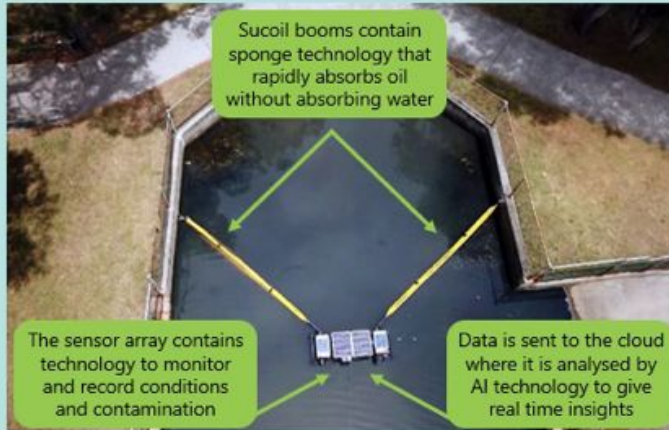
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Tuggerah Lakes Estuary Stormwater Trial

The Stormwater Solution being trialed here aims to capture and remove toxic hydrocarbons from runoff before it enters the lake.

These hydrocarbons include things like engine oil, fuel, pesticides, bitumen additives and oil-based paints which can be washed into gutters and drains from places like roads, petrol stations, industrial buildings and even your house or garden.



Since being installed this unit has been monitoring and extracting harmful hydrocarbons and providing us with important data on the water quality passing in.

We hope to add a more trial sites to the program soon and to use the results to guide future management decisions and future funding opportunities.



Meet Sustainable Oil Recovery

Their vision is to clean the waterways more efficiently and sustainably than ever before by removing pollutants before they enter our environment. They have developed an amazing sponge technology to target hydrocarbon removal from waterways and Council are proud to be partnering with them for this trial.

The captured oil is removed and recycled, and the sponge is reused and repurposed, creating a circular economy to close the loop on waste!

To prevent any risks of the booms contributing to flooding upstream they can release when triggered by heavy rainfall

No pollution/spill incidents have occurred, this is just a trial of a new stormwater filtration device



Meet Robert!

Robert is a passionate local community member who successfully completed Council's Changemaker's Course and was awarded a grant to conduct this project. Council are passionate about supporting community driven activities and Robert's positive environmental idea is helping to protect and restore the Tuggerah Lakes Estuary.

loveourwaterways.centralcoast.nsw.gov.au



How it was done before Digital Twin!

At the start of the project and to determine the effectiveness of the booms capturing Hydrocarbons, water samples were collected manually from before and after the booms in the stormwater channel and at a control point further in the lake.

The Process was time and labour intensive and necessitated water samples to be analysed in Labs to determine the effectiveness of the solution.




Introduction of AWS Digital Twin

AWS Digital Twin Sensors and data analysis provides a real time correlation of hydrocarbons captured on the surface of the lake.

Meaningful insights are generated from data collected which identifies pollutants in the environment, enabling SORR to find the **source of the problem**.

 Retrospective & real time reporting

 Chemical fingerprinting

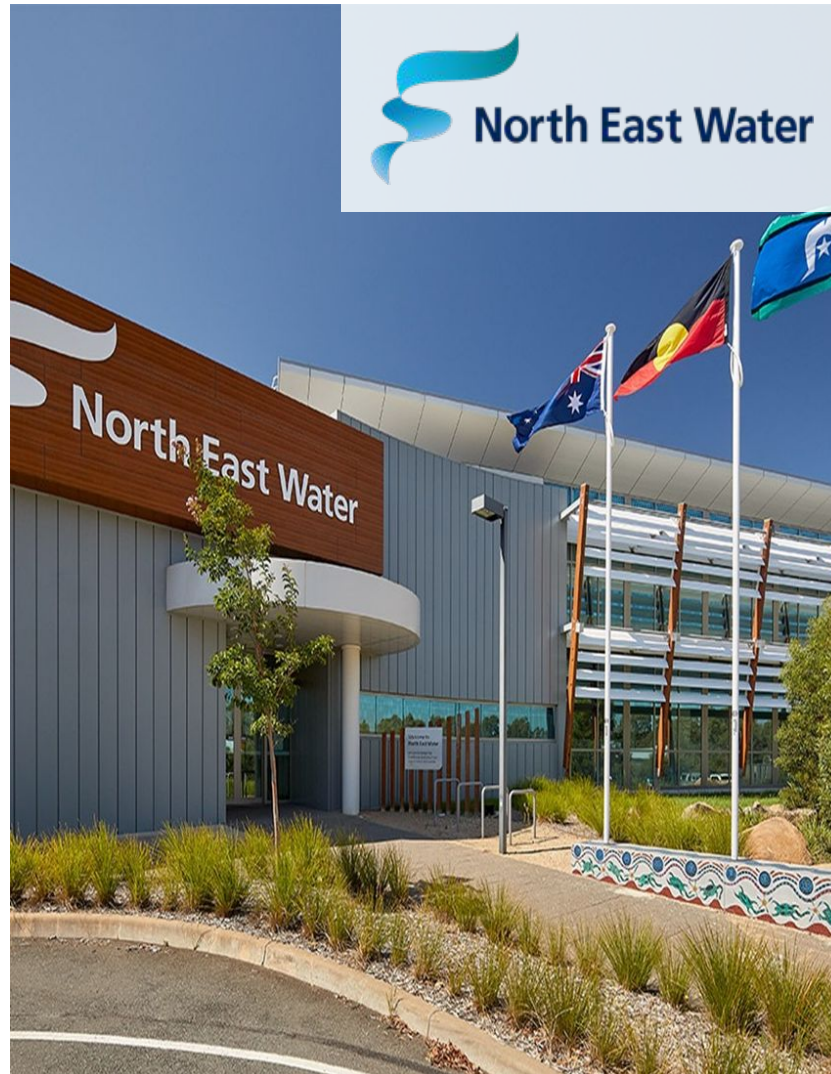
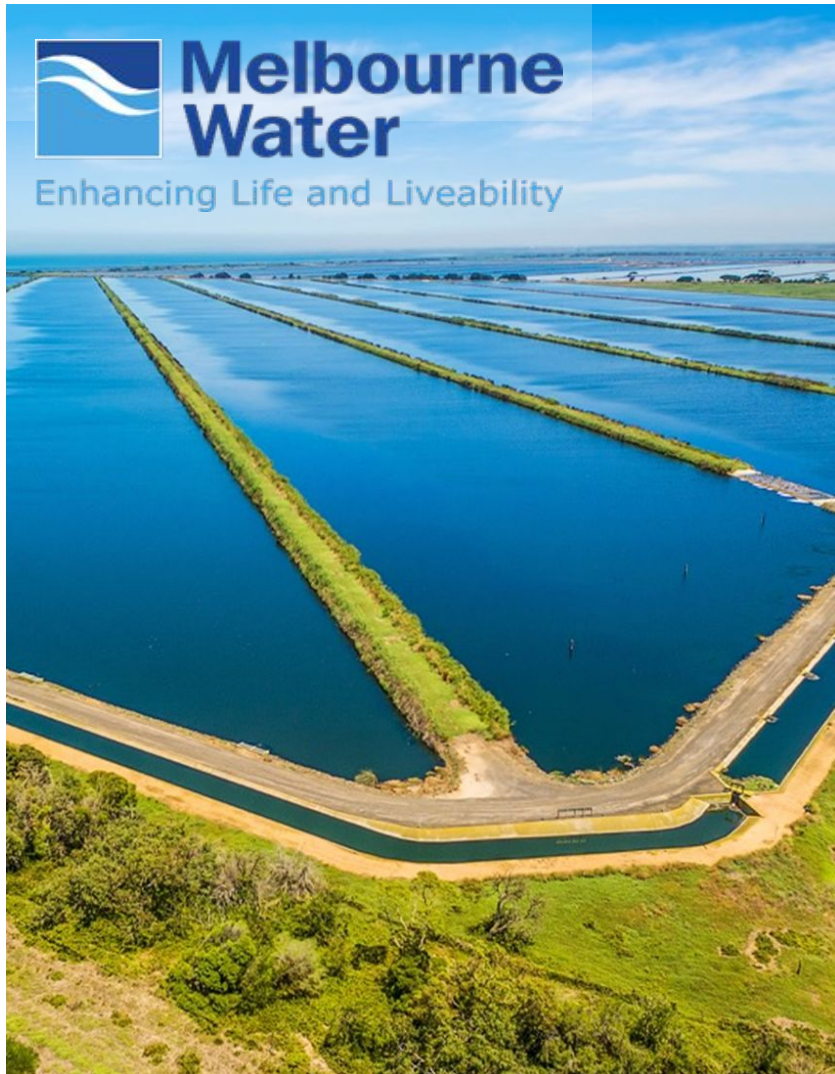
 Collects data using AI for the scientific analysis and pollution source tracking for identification



Visualisation of AWS Digital Twin

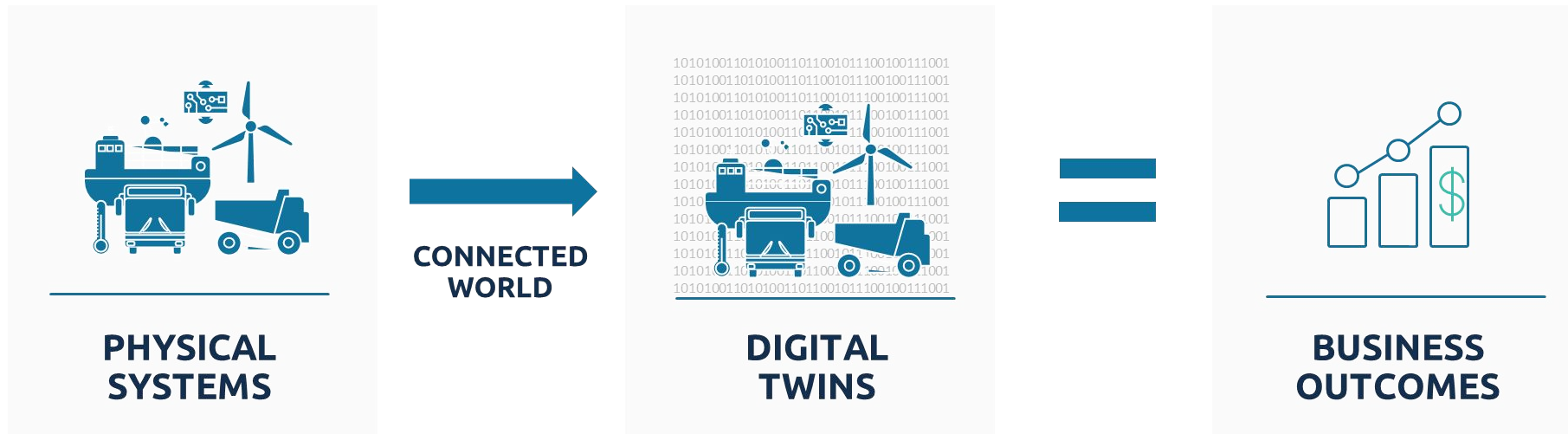
Digital Twin allows us to see what is happening. Using AI allows us to optimise SORR systems as one or across an entire network.





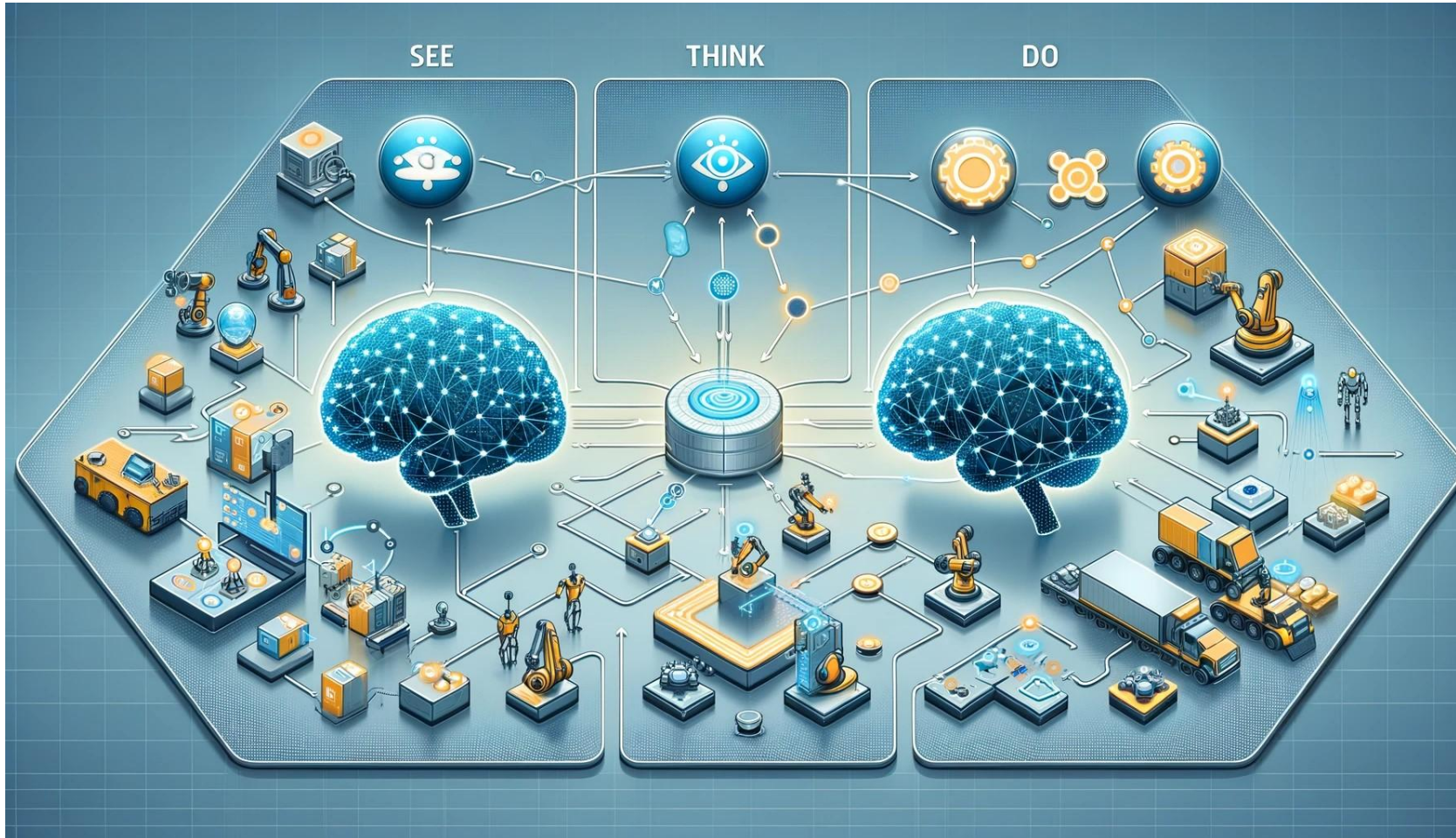
What is a Digital Twin

A living **digital representation** of a **physical system** that is **dynamically updated** to mimic the structure, state, and behaviour of the physical system to drive **business outcomes**



“True Value in DT is building the connections between things”

Digital Twin Framework Enables



NCS // Australia



NCS AIOT & Robot Manager platform and Artificial intelligence



Powered by Singtel 5G Technology



Extensive partner ecosystem with industry-leading solutions



Experts in sensors technology provide effective sensing of the physical world



100+ data scientists and specialists

40+ years of system integration experience, helping big enterprises to transform their business digitally

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