



Digital Twinning

METS IGNITED & QUANTUMTX PROGRAM CASE STUDY

“Using the industrial metaverse efficiently, via digital twin technology, will ensure that assets will be operated and maintained to their optimal operational capability, delivering on key industrial performance metrics, as well as key environmental carbon data resulting in actionable insights and clearer foresight.” Genéne Kleppe, Founder and CEO

Digital Twinning Australia’s technology is a proprietary tech platform supported by a passionate team with deep knowledge working in the resources and infrastructure industries in mining, energy, ports and ESG technology.

Beginning with data discovery and define phases, the technology provides decision making competitive advantages applied to critical assets. The Synchronising Digital Twin platform contextualizes critical asset or operating data with the 3D digital replica and enables collaborative decision making and remote operation.

How the Product Works

The Platform digitally visualises assets and their data connected across the value chain. The client accesses the digital twin application on a computer, tablet, or smart phone device.

Digital Twinning builds services using off-the-shelf software and produces Industry 4.0 technology, that can receive operating data from sensors in a self-managed Digital Twin Platform (DTP) and can be extended to include a complete network, to visualise core operating systems through to smaller critical units.

The executive level and operations level benefit from DTA’s product

- The Executives can see the source of KPI drivers, best value processes and impact of sustainable innovation activities and be well prepared.
- Asset Owners receive targeted access to data that delivers capital and operating insight which leads to value cost reduction.
- Operators can get real time insight into asset performance giving them faster and more accurate decision-making capability.

**DIGITAL
TWINNING**
AUSTRALIA

Digital twin technology copies physical items by way of a digital duplication that includes sensor data and delivers meticulous operating information about condition and risk in real time. This provides a greater knowledge of reliability, lifespan and uptime of equipment, machinery, and system processes, and that can lead to the reduction of maintenance costs and lessen break-fix cycles that impair workflow.

The DTP can import live data from machines, pipes, and structures via cloud-based technology for companies to access through their digital replication of a physical asset.

Engineers located anywhere in the world can all be looking at the same information. Asset owners can harness the power and value of data that is already there. The Digital Twinning Australia product, in combination with their services, can target their value chain to improve profitability, productivity and safety.

DTA activities in resources and infrastructure have included

- A Port and container terminal
- Renewables into a brownfield
- A greenfield mixed use precinct
- Utility master planning transformation
- Capital planning

The technology has received numerous awards recognising the innovative digital twin technology and potential impact on the resources sector. Actual impacts of applications at live mine sites have included the reduction of cost to deliver product by \$2 per tonne and in another case the decreasing annual works program cost by 13%

The QuantumTX METS Program

DTA is on a high growth trajectory that will have grown to 200+ staff in the next 3-5 years. Their core platform will continue to be refined and automated, while intelligent support services will be expanded to further assist clients to accelerate their digital journey.

“The QuantumTX program has been beneficial in providing new contacts and connections with potential clients looking to optimise their Internal Rate of Return, and Return on Capital through data intelligence. Through the business skills training and introductions to business area experts, we have broadened the knowledge base of our teams and are better prepared for rapid expansion.”

The problem the company is addressing through their solutions

- Human Optimised Autonomy
- Remote Operation
- Interdisciplinary Collaboration
- Optimised Asset Lifecycle
- Value Chain Optimisation
- ESG Tracking and Control
- Enhanced Corporate Governance

The COVID-19 pandemic accelerated adoption of digital twin technology solutions as a virtual counterpart to a real-world mine impacted by global shutdowns and staff shortages. Preventative insights enable staff to be directed to priority activities, optimising production and preventing costly shutdowns. For example, maintenance service providers using DTA are proactively planning remediation, rather than being left stranded due to a breakdown where resources are otherwise deployed.