



Digital twins and model-based systems for hydrogen propulsion

Cutting cost, time, and carbon in development and O&M

From Simulation to System

Mechara is a UK systems-engineering company developing **digital twins** and **model-based design, control and optimisation tools** for the hydrogen transport sector.

We specialise in **fuel-cell propulsion, balance-of-plant (BoP) design, and thermal management**, supporting systems **from kilowatt to megawatt scale**.

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Learn more about Mechara,
explore our website, and get in
touch with our team.

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Our Capabilities

Simulation libraries and digital twins

Interoperable models and virtual sensors for hydrogen systems, connecting simulation to real hardware for faster verification and validation.

Diagnostics and optimisation tools

Hybrid physics-data algorithms that detect faults, reduce sensors, and enables optimum control for higher efficiency and reliability.

Procurement and traceability tools

Integrated sourcing of anode, cathode, and thermal-loop components, digitally modelled within our design workflows, all traceable to requirements. TCO and ROI.