

# The Ideas to Industry Lab

## **Multi-material 3D Printing for Advanced Additive and Hybrid Manufacturing**

High-efficiency, reliable and customisable manufacturing to service the industries of aerospace, automotive and transport, water and energy

# The Vision

The Ideas to Industry Lab was established to create a bridge between world-class fundamental research and impactful, industry-ready solutions for some of the world's most urgent challenges. With a shared commitment to innovation, the partnership brings together German precision and ceramic excellence with Australian applied engineering and regional insight.

## Our vision is to create a flagship international collaboration that:

- Develops integrated, scalable solutions in water treatment, electrolysis and fuel cells, industrial testing (NDT), advanced manufacturing, and energy storage systems
- Accelerates translation of research and industry-led pilot projects into commercial technologies, public infrastructure, and clean energy ecosystems
- Provides shared access to laboratories, testing facilities and IP
- Trains the next generation of engineers, researchers and technical specialists via joint R&D and PhD programs
- Demonstrates how globally distributed collaboration can drive sovereign capability and environmental resilience



Multi-material 3D printing plant. © AMAREA Technology

# Why it Matters

From climate adaptation to critical minerals, industries and governments around the world face mounting pressure to transition to clean, intelligent and resilient systems.

Water scarcity, carbon emissions, and infrastructure degradation are not just technical challenges – they are global imperatives. By combining Fraunhofer IKTS's deep technology platforms with ECU's regionally relevant, industry-aligned research, The Ideas to Industry Lab delivers **Global Science with Local Solutions:**

- Practical, deployable innovations for Australian industries and communities
- High-tech exports of German–Australian IP to global markets
- Stronger economic and academic ties between Europe and the Asia-Pacific
- A collaborative blueprint for future international research alliances

This partnership is about more than research – it's about delivering impact that is local, sustainable and global.

# Advanced Manufacturing

## Fast, Flexible and Reliable Multi-Material 3D Printing

Multi-material printing opens up new possibilities for the production of complex, functionally integrated components. In The Ideas to Industry Lab, ceramic, metallic, and polymer-based materials are combined in a single process – for customised solutions.

Expertise:

- Up to six different materials can be used concurrently
- High-precision micro-dispensing system (MDS)
- Specialist hardware and software for process monitoring and automation
- Flexible and scalable product manufacturing

Impact: High-efficiency, reliable and customisable manufacturing. Serving the industries of aerospace, automotive and transport, electronics and consumer devices, jewellery, medicine, chemistry, defence, water and energy.





Department of  
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## Partner with us

The Ideas to Industry Lab is structured to foster deep, sustained, and outcome-driven collaboration with industry partners across Australia and internationally. It integrates ECU's strengths in systems engineering, clean energy and infrastructure with Fraunhofer IKTS's capabilities in ceramic systems, electrochemical technologies and material diagnostics.

Whether you're a start-up scaling clean-tech innovation or a large enterprise modernising your operations, The Ideas to Industry Lab offers structured pathways to research integration and technological advantage.

## Let's build a future together

### Coordinators

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