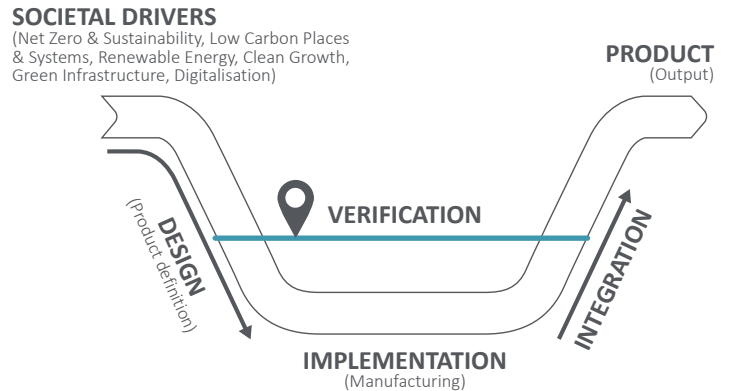# Using **disruptive technology** to streamline product verification

CHALLENGE

Disruptive technologies offer the opportunity to accelerate innovation, providing us with new digital tools and processes to develop through-life product sustainability, and shorten product development time. Everything that we design and manufacture needs to be verified to prove that it conforms to the requirements and specifications that it was built for. Ensuring that there are no defects or inferior quality levels, it safeguards manufacturing investment and high-quality output. Undertaken at all stages of the product lifecycle, verification is traditionally a manual process which involves the inspection of a product, process or system.

SOCIETAL DRIVERS
(Net Zero & Sustainability, Low Carbon Places & Systems, Renewable Energy, Clean Growth, Green Infrastructure, Digitalisation)

PRODUCT
(Output)

VERIFICATION

DESIGN
(Product definition)

IMPLEMENTATION
(Manufacturing)

**INTEGRATION**

RESULTS AND THE DIGITAL OPPORTUNITY

Focused on demonstrating the use of Augmented Reality (AR) in an industrial verification process, an AR application has been developed and applied to show the benefits of immersive technologies. The project demonstrates the digital verification of a Liquid Resin Infusion (LRI) process where live data is captured through sensors, transferred wirelessly through a 4G network and visualised through a smart device.

The application developed uses a gaming engine that allows for 3D environments to be created, and real-life 3D visuals of an object to be placed inside it. This allows the user to view the simulated object on a smart device and rotate it to enable different views.

A number of different software solutions were used to develop the AR application which is hosted on a tablet device. A HoloLens 2, a wearable head mounted device also enables the user to see the AR environment through the glasses.

The use of digital tools in this process will enable faster decision-making and greater traceability, creating a connection between physical and virtual systems that will enhance the certification process. We will continue to embed the techniques and technology into further applications and to train engineers to use the system developed. The deeper understanding available to manufacturing by visualising the normally hidden behaviour supports existing skills and knowledge, and enables the full exploitation of new manufacturing techniques.
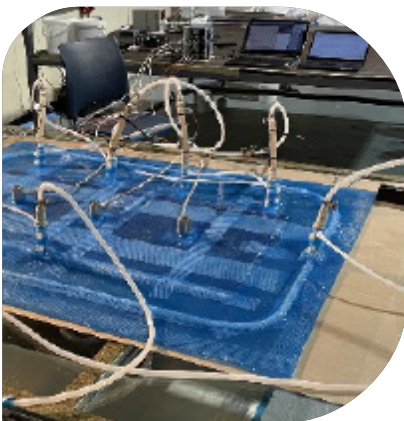
Live process on the left, showing the simulated/visualised environment on the right

Partners

CATAPULT Digital

NATIONAL COMPOSITES CENTRE