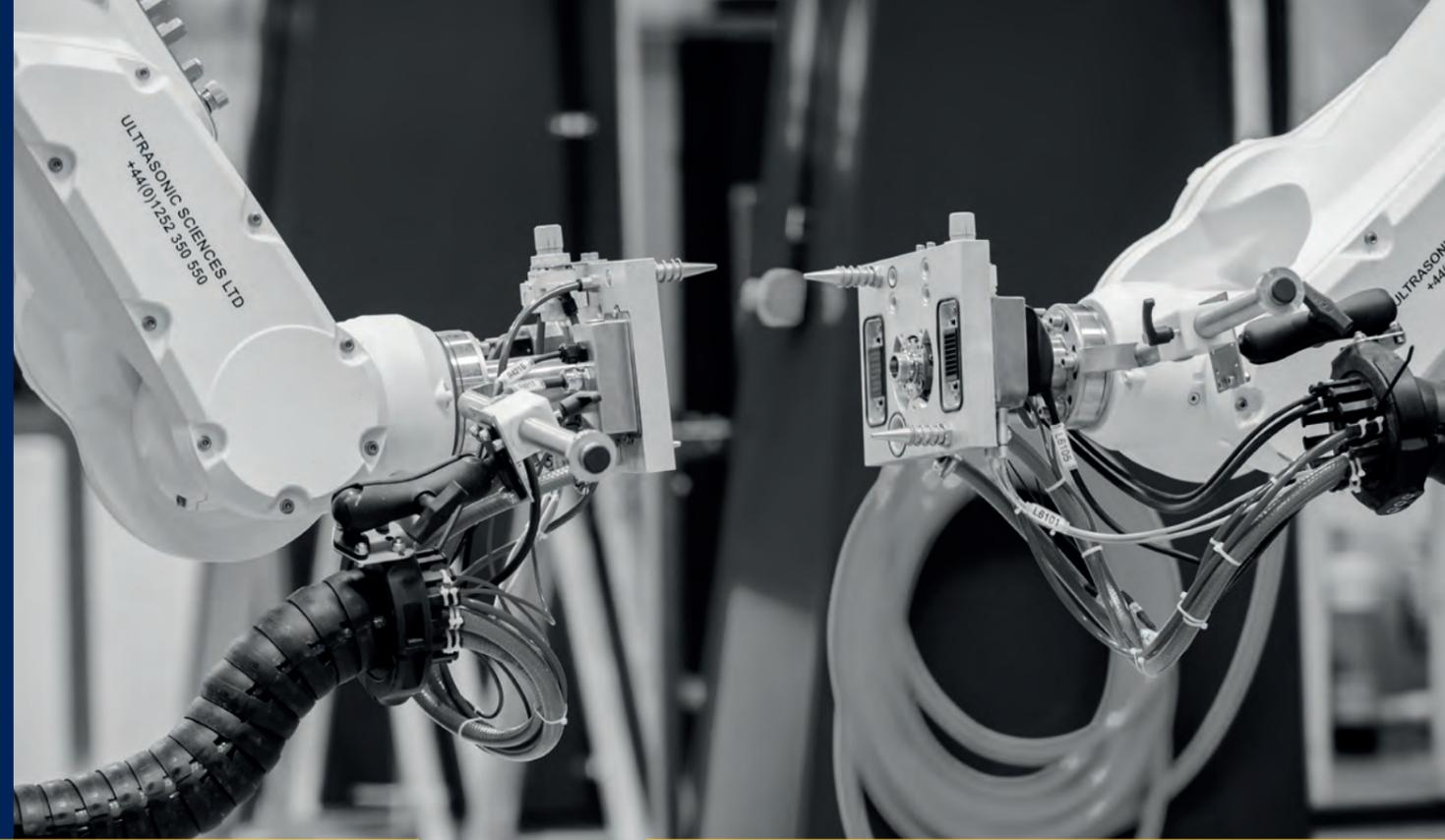


**POWERING
DIGITAL
ENGINEERING
TRANSFORMATION**

The need to embrace digital transformation to remain competitive and profitable has never been stronger. The challenge is how to harness digital technology to fuel innovation, agility and stimulate growth.

New business models, customers and markets are within reach. From IT, to product development, design and manufacturing, all need the power to radically transform. This is where the National Composites Centre (NCC) Smart Factory Innovation Hub Test Bed helps organisations to test quick-fire projects and early stage technologies in a secure, industry-like environment with expert support and skills. A virtual and physical digital test bed, it provides technology providers and industry end users with the opportunity to explore the value proposition of digital transformation.

Innovators always look beyond. So, when they want step change, they come to the National Composites Centre.



Explore efficiencies in product & technology development

Targeted towards technology organisations focused on product, process and technology development, the physical and virtual test bed environment can be used to explore technologies and determine efficiencies; reduced risk, increased innovation opportunities, lower product development costs, and accelerated time to market.

The NCC Smart Factory Innovation Hub Test Bed



The NCC Smart Factory Innovation Hub Test Bed provides access to a virtual and physical test bed environment that concentrates on the Automated Preforming Cell (APC), a state-of-the-art facility for automation of the preforming process of composite component manufacture. It is specifically focused on the manipulation, forming and consolidation operations related to the preforming of dry fibre.

Targeted towards manufacturers, technology organisations, SME's and academia, organisations can use existing cell hardware and/or provide their own technology which can be integrated and tested through industry use cases. Virtual access to the test bed allows the digital investigation of how manufacturing technology can help to de-risk transformation projects and achieve efficiencies in product, process and technology development. It can also be used as a DevOps space for analytics, coding and modelling, etc. and can include some hardware aspects.

Investigate & de-risk transformation projects

The NCC Smart Factory Innovation Hub Test Bed provides a secure, state-of-the-art industry environment for manufacturers, technology providers and SMEs, to explore and digitally investigate how to de-risk transformation projects. As a physically accessed test bed, organisations can provide technology and hardware which can be integrated into the test bed and tested through industry use cases.



How to engage

Access to the NCC Smart Factory Innovation Hub Test Bed can be initiated through a number of routes; direct funding, collaborative or academic research through to industry funded initiatives. For organisations engaging through the Made Smarter Smart Factory Innovation Hub, funded by UKRI's Industrial Strategy Challenge (ISCF) fund, there is no cost to participate. The NCC digital transformation engagement process will determine the best fit with your project and organisation goals.

The NCC is part of the High Value Manufacturing Catapult, established by Innovate UK. By engaging with the NCC, organisations across the south of England can also access the services of the other geographically spread centres that make up the Catapult. The HVM Catapult has an established record as the UK's principal agent of industrial transformation. Through 17 centres, it is working to create the conditions for UK economic growth by enabling UK manufacturers to investigate new technologies and processes and achieve performance and productivity improvements through innovation.

To access the NCC Smart Factory Innovation Hub Test Bed and discuss your requirements, visit; www.nccuk.com/work-with-us/cross-catapult-projects/smart-factory-innovation-hub/ or email madesmarter@hvm.catapult.org.uk

Access to the UK's world leading research & development centre

As the UK's world leading research and development centre focusing on Composites, Digital Engineering and Sustainability, the NCC brings together the best minds and technologies to help solve the world's most complex engineering challenges. Investment of over £250m in ten new digital capabilities for advanced automated composites manufacturing will **revolutionise the way the UK will design, engineer and manufacture.**

As a recognised test bed for industry, the NCC is part of the UK's first quantum secure industrial network and hosts a private industrial 5G network. It also delivers Digital Engineering Technology & Innovation (DETI), a strategic programme of the West of England Combined Authority (WECA).



Features and Technical Specification

The Automated Preforming Cell (APC) enables the fabrication of parts using diverse processes and is capable of developing complex geometries in a fully automated process to create highly repeatable parts up to 3m x 5m. It consists of a Kuka robotic arm, automated manipulation systems for dry fibres and preform samples, and cutting edge-inspection hardware. The focus of this advanced technology is the drive towards Smart Manufacturing, featuring extensive sensors for a continual adaptive process for optimised manufacture, process control, analysis and waste minimisation.

- **Open interface software application layer** - technology providers can access virtual machines hosted at the machine edge where they can implement their software solutions: Machine Learning/Artificial Intelligence application, Digital Twin, advanced process simulation, process control modes, PLM and MES, etc.
- **IoT platform** - tech providers can access an IoT platform where they access and route machine/process data to the application layer, IoT platform providers install their own IoT platforms
- **Sensor interface** - users can access existing sensors or install new sensors through the sensor interface: machine vision sensor systems, advanced metrology sensors, temperature and humidity sensors, 5G sensor network
- **Hardware** - users can access all existing cell hardware and deploy it on their own preforming process by bringing their tooling to the NCC: Kuka KR500 on 16m track, Kuka KR230 on 16m track, embedded preform heating system, tension forming system, high flow vacuum and control, preforming setup



Funded by



The Made Smarter Smart Factory Innovation Hub is delivered by the High Value Manufacturing Catapult and allows businesses to test quick-fire projects and early stage technologies in a safe, industry-like environment with expert support. For more information visit: www.hvm.catapult.org.uk/innovation-hub