

High Value Manufacturing news  
Issue 08 | December 2019

**CATAPULT**  
High Value Manufacturing

# HVM CONNECT

## SUPERCHARGING WMG'S ENERGY INNOVATION CENTRE

| PAGE 10



# WELCOME TO HVM CONNECT

## Your quarterly high value manufacturing update



**Rosa Wilkinson**  
Communications  
Director  
HVM Catapult

Congratulations! You've made it through another year, through the challenges your organisation has had to face and through the noise and hullabaloo of a general election. Some of you – though I confess I am not yet in this esteemed group - - will even have completed your Christmas shopping and got all of your cards into the post. Congratulations indeed!

But as we prepare for the festive season and look forward to time with friends and family, I suspect all of us are already reflecting on what 2020 might bring. Of one thing, I am certain: we will all be better placed to meet the year's new challenges if we make the best use of the technologies that are available to us. Those technologies and the power of innovation can help us deliver competition-beating goods and services to our customers, reliably and at affordable price points.

In this edition of HVM Connect we tap into a host of stories about how the HVM Catapult is helping companies harness new technologies on their path to success and share headlines from our annual review. We also focus in on the work of the extraordinary team at the WMG's Energy Innovation Centre to make sure that the UK stays at the forefront of pioneering energy research. Maybe now's a good moment to have a browse and reflect on whether the Catapult could help you take on 2020 and win.

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## KEEP UP TO DATE

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## NCC CEO elected as Fellow of Royal Academy of Engineering

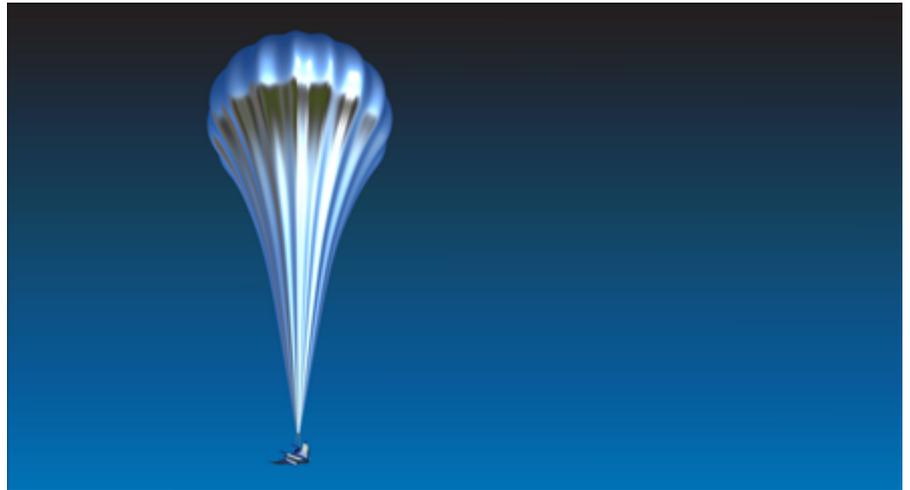
**R**ichard Oldfield, Chief Executive of the National Composites Centre (NCC) – the world-leading authority in composite innovation, design and manufacture – has been elected Fellow of the Royal Academy of Engineering in recognition of his outstanding achievements and continuing contributions to the profession.

Becoming a Fellow of the Royal Academy of Engineering is one of the highest honours that an engineer can receive in the UK. Richard is one of 54 engineers from around the world elected this year in recognition of their outstanding careers in engineering.

Richard said: "I'm absolutely delighted to be recognised by the Royal Academy of Engineering and to be joining a group of highly successful and inspiring engineering leaders."

Since joining the NCC a year ago, he is leading the development of composite technology solutions across a range of industrial sectors including aerospace, defence, automotive, rail, energy, renewables and construction.

[READ MORE](#)



## Satellite system ready for launch

**A** former soldier in the Parachute Regiment has taken a giant leap towards creating a novel launching system to put satellites into space following a collaboration with design engineers at the Advanced Manufacturing Research Centre (AMRC).

Sean Ardron set up Rotherham based Arkeik in 2017 to explore how high altitude balloons could be used to take a small payload up to an altitude, where they could be orientated and then launched into Low Earth Orbit (LEO).

With the help of the AMRC, he now believes his innovative High Elevation Launch Platform (HELP) could be operational within 12 months and might even replace ground-based rockets to give UK industry a doorway into space exploration.

"Although my background is not in this industry, I had

worked on land based projects with BAE Systems while I was in the military, but I could not have got to this stage without the support of the AMRC in visualising the idea behind the launch system," said Sean, who was in the 1st Battalion Parachute Regiment.

Arkeik has already carried out test flights reaching 5km above sea level and the next step is to create a working prototype, which starts with a design the company can show to potential investors. The images produced by the AMRC will form an important part of Arkeik's marketing strategy as the company applies for funding and grants to pay for research into housing larger payloads, building fully reusable ballonets and developing their Unmanned Aerial System.

[READ MORE](#)

# Transform your business with Sharing in Growth

New places are available on *Sharing in Growth*, the award-winning business transformation programme that's endorsed by OEMs such as Airbus, BAE Systems and Rolls-Royce as well as both the AGP and DGP.

Valued at £300,000/year for three years, the programme helps companies tackle their individually-diagnosed barriers to growth and address a 20% cost gap and a 50% productivity improvement

so that they become more competitive, win more business, and can further invest in the skills, technology and equipment to drive more growth.

To qualify, companies need to be aerospace suppliers, have genuine ambition to grow and be able to release their teams for on-site coaching, training and mentoring. The training is publicly funded while the company's non-cash contribution equates to the



nominal value of individuals' time spent in development or training. To find out how *Sharing in Growth* can help your company grow, click below.



[FIND OUT MORE](#)

## CPI launches £2.3m SME access project

CPI has announced a new project offering flexible access to innovation facilities and expertise in commercialising new products and processes in the additive manufacturing and coating industries.

The IMPACT project is funded by the European Regional Development Fund (ERDF) and gives North East SMEs access to a £2.3 million funding pot for the development and proof of concept of new products and processes utilising additive manufacturing processes.

The project will run until the 31st March 2021 with the

aim of supporting SMEs in the North East Local Enterprise Partnership (NELEP) region which covers County Durham, Gateshead, Newcastle, North Tyneside, Northumberland, South Tyneside and Sunderland. CPI is interested in supporting SMEs to access facilities and expertise, enabling them to manufacture products using minimal processing to optimise the use of scarce resources. SMEs who have already benefitted from the project are from diverse industries such as healthcare, food and drink, subsea and construction.

A key aim of the project



is to increase the number of high-tech SMEs in the NELEP region, promoting the ambition to integrate SMEs using additive manufacturing into relevant supply chains. SMEs can apply for technical support to produce innovative products and processes that will enable these businesses to grow and increase employment opportunities and GDP within the area.

[FIND OUT MORE](#)

# WMG helps SME access an electrifying new market



**P**P Control & Automation (PP C&A) are the first company to benefit from the Ready for Electrification programme. Supported by the High Value Manufacturing Catapult's WMG Centre, Ready for Electrification is a package of support designed to offer practical and technical support to UK manufacturers that have an interest in supplying to the electric vehicle (EV) sector.

The domestic and export opportunity presented by the EV market is estimated to be worth over £6 billion by 2025. But the automotive industry is often seen as a 'closed shop', difficult for new entrants to access. For the UK to make the most of these opportunities, there is work to be done to help SMEs understand and access this complex sector.

Having built their reputation as a leader in electrical control systems and sub-contract manufacturing solutions over 50 years, PP C&A were the go-to firm for the machine

building sector. In order to grow the business, Tony Hague, Chief Executive of PP C&A, wanted to expand into the EV market. He realised the business had the capability in-house to produce parts and components for electric machines, but it was a market he and the management team weren't familiar with.

Through a series of interactive workshops and awareness sessions, our experts helped PP C&A to identify and overcome potential barriers, and understand where they could transfer their existing technology and engineering expertise into the electrification marketplace.



This has already enabled PP C&A to secure new contracts worth over £3m in the niche electric commercial vehicle sectors. These involve the manufacture and supply of electrical box builds and cable assemblies for electric motors.



"We're already delighted with the results. Two new contracts with niche vehicle manufacturers have been secured and there's another in the pipeline, it has been a great start."

**TONY HAGUE**  
CHIEF EXECUTIVE, PP C&A

**FIND OUT MORE**

# ANNUAL REVIEW



## Innovation impact in action Our Annual Report

**A**mid all of the noise in the run up to last week's General Election, readers may have spotted the a new CBI report 'Don't Wait, Innovate' which called on government to spur a national R&D movement to capitalise on areas of existing and burgeoning strength by establishing a series of new 'Catapult Quarters' throughout the country.

A look at the HVM Catapult's Annual Review, published last week and charting its activity and impacts through 2018/19 makes the reason for the CBI's interest in the Catapult model all too plain. As CEO, Dick Elsy, comments in his introduction to the review, there is "clear evidence that we

are delivering overwhelmingly positive impacts that often flow far from the manufacturing sector". He's absolutely right. As the review reports, the Catapult's benefits include not only significant GVA impacts - independent evaluation suggests the HVM Catapult's work will deliver nearly £16bn of GVA into the UK economy over the next 10 years from its 20 most substantial interventions alone – but include a host of wider benefits from attracting high value inward investment projects to helping companies reduce their impact on our environment.

In total, the Catapult worked on some 4,650 projects with companies across the

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**by Rosa Wilkinson**  
Director of Communications  
High Value Manufacturing (HVM)  
Catapult



4,650

innovation  
support  
projects

Up 24%

2,469

projects with  
SME clients

Up 22%

4,804

SME  
engagements

Up 9%

UK. As you'd expect, the review makes frequent mention of projects with globally recognised businesses at the top of major supply chains, but over half of the Catapult's projects were with smaller businesses – the sorts of firms that are the lifeblood of British manufacturing and the engines of community prosperity. Companies like Harris RCS in Coventry, a family-owned precision aerospace supplier which, thanks to its work with the Catapult saw orders increase by 10% and made double-digit productivity gains or like Scotland's Bravest Manufacturing Company – a social enterprise set up to provide quality jobs for armed forces veterans which produces signage for some of the UK's biggest buyers. When the company needed to find a new home it tapped into the Catapult's Advanced Forming Research Centre in Strathclyde to help plan and get its new factory up and running. The AFRC was able to use visualisation technology to demonstrate how the factory would look prior to its

opening and it helped train the company's team on the new technologies that will allow it to expand their service range.

The breadth of the Catapult's activity, its sectoral reach and the range of technologies at its fingertips is breath-taking. Yes, the Annual Review document includes stories from the traditional pillars of manufacturing in aerospace and the automotive sector, but it's clear that the HVM Catapult's scope goes much wider with reports of work to advance treatments for rare cancers, action to transform construction practice, even projects to bring the robotics revolution to farming.

In every page of the Annual Review, there's a strong sense of the Catapult's absolute determination to help manufacturers not only strengthen their bottom lines, but also to tackle the principal challenges of the day. Perhaps the best examples of this come through in a myriad of stories that describe how the

Catapult's seven centres have been helping companies of all shapes and sizes reduce their environmental impacts by saving the amount of waste going to landfill, reducing energy consumption, driving carbon emissions, and even projects that are helping to tackle the scourge of plastics pollution through the production of bioplastics.

It's heady and inspiring stuff. At its core is a very simple philosophy: if we can help UK manufacturers harness the potential of new technology, they will thrive supporting the prosperity of communities across the country. With 10% of UK GVA and 45% of our exports coming from manufacturing, it matters that we succeed. The HVM Catapult's Annual Review document, gives confidence that we will. ■

[READ IT HERE](#)

## LAUNCH PAD

# New capacity in Liverpool with MTC expansion

The North West is an historic area of manufacturing innovation in the UK, with arguably the world's first assembly line operating in the region. Building on this industrial heritage, the MTC has established a new facility in Liverpool, sitting at the heart of the Knowledge Quarter.

Launched on Wednesday 13<sup>th</sup> November, MTC Liverpool will have more than 60

staff working supporting manufacturing growth and innovation in the region.

Dr Charlie Whitford, associate director for strategic development at the MTC, said: "We are excited to be expanding our footprint in Liverpool and broadening our services and support for the wider North West, supporting skills, productivity and growth in the region."



Their team is already working on a wide range of projects, including a cutting edge laboratory. This will allow businesses to test processes in exciting areas including tracking human behaviour when working with advanced manufacturing technology.

[READ MORE](#)

# First Welsh centre opened by AMRC

The £20m Advanced Manufacturing Research Centre (AMRC) Cymru opened for business this November in Broughton – the first High Value Manufacturing Catapult location opened in Wales.

Providing businesses with a new level of research and development opportunities, the state-of-the-art centre will be a catalyst for growth and jobs in Deeside; across North Wales and the wider cross-border and Northern Powerhouse region. It is predicted we could increase GVA in Wales by as much as £4bn over the next 20 years.



# Big investment in aerospace additive

In a significant advance for the UK, the MTC has launched a new innovation and knowledge hub for metal additive



manufacturing in the aerospace sector. By leading research, development and collaboration on metal additive manufacturing, its launch underscores progress in the £15 million MTC-led DRAMA (Digital Reconfigurable Additive Manufacturing facilities for Aerospace) project which encourages suppliers to the UK aerospace industry to adopt additive manufacturing. The hub is among the first such centres in Europe.

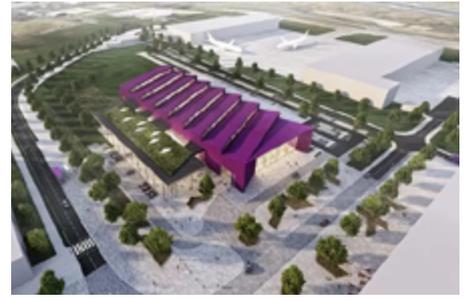
# NMIS seeking planning approval for £65m facility

A planning application has been submitted for the development of the National Manufacturing Institute Scotland (NMIS) situated at the centre of the Advanced Manufacturing Innovation District Scotland (AMIDS) in Renfrewshire.

Building on the success of our Advanced Forming Research Centre (AFRC), NMIS is a £65 million, industry-led international centre of manufacturing expertise

led by Scottish Government in partnership with its enterprise and skills agencies, University of Strathclyde and Renfrewshire Council. Operated by Strathclyde, as a national facility for Scotland, it is where research, industry and the public sector work together to transform skills, productivity and innovation to attract investment and make Scotland a global leader in advanced manufacturing.

The new, energy carbon



neutral, facility will include a skills academy, a fully digitalised factory of the future and collaboration hub for manufacturers of all sizes to work together with research partners and the public sector to innovate and grow their businesses.

[READ MORE](#)

# Green light for new AMRC North West

The AMRC has been given the green light to build a dedicated facility in the North West of England which will boost Lancashire's reputation as one of the UK's most innovative regions for advanced manufacturing and act as a powerful magnet for inward investors.

Planners at South Ribble Borough Council and Ribble Valley Borough Council granted permission to build and equip this £20m state-of-the-art facility in a landmark location at the heart of the

Samlesbury Aerospace Enterprise Zone, one of four zones that make up the wider Lancashire Advanced Manufacturing and Energy Cluster.

James Hughes, Research Director at the University of Sheffield AMRC North West, said, "We are delighted that work can now begin on an applied research facility that will equal the best in the world, consolidating the reputation of Lancashire and the wider Northern Powerhouse as the go-to-place for innovation expertise and skills in advanced manufacturing."

The new 4,500 m<sup>2</sup> facility will have a focus on vehicle electrification, battery assembly and lightweighting technologies, key components in de-carbonising our transport infrastructure. It will house



capabilities including machine tooling, additive and hybrid manufacturing, automated assembly, robotics, and autonomous manufacturing processes and systems.

"Our mission is to ensure that Lancashire and the North becomes the engine room of the fourth industrial revolution" says Melissa Conlon, Commercial Director for AMRC North West.

[READ MORE](#)



## FEATURE

# Supercharging WMG's Energy Innovation Centre

**W**MG's Energy Innovation Centre (EIC) was already the biggest, most ground-breaking battery research labs in the UK. But, now, thanks to £20m of investment received via the Government's Energy Research Accelerator (ERA) programme, it has been able to dramatically improve its capacity and capabilities. This has catapulted the EIC into an entirely different league – one which will ensure the UK stays at the forefront of pioneering energy research.

The state-of-the-art EIC facility, based at WMG, University of Warwick, opened in 2016 at a cost of £50m to support the development of cheaper, higher energy density, safer batteries and provide knowledge in three key areas: energy storage, energy management and complex electrical systems. It works with a variety of industrial partners – everyone from automotive manufacturers to high-end motorsport supercar

manufacturers, technology firms and aerospace companies.

The extra £20m funding awarded three years ago, enabled a range of new equipment and facilities to launch at the EIC in June this year. These include new laboratories, a dry room for cell assembly, equipment for characterisation work at cell, module and pack levels, innovative charging infrastructure and second-life evaluation facilities, a material scale-up line and the UK's first openly accessible 1MW pack test facility to support larger testing projects for motorsport and aerospace companies. ▶



## CASE STUDY

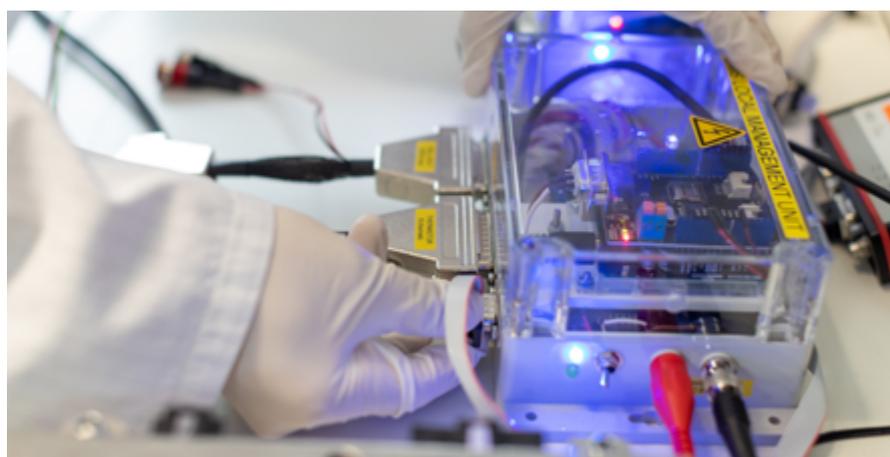
WMG are supporting Rolls Royce, electric motor and controller provider YASA and high integrity energy storage solutions provider Electroflight to provide battery development expertise on the ACCEL project. Part funded by the Aerospace Technology Institute (ATI) the project will design, build and fly a high-performance electric aircraft. Using the EIC's unique, newly upgraded facilities, our battery technology experts are providing battery characterisation and validation, at cell, module and pack level. WMG's Mike Richardson, Principal Consultant, Energy Innovation Centre, also sits on the ACCEL advisory board which includes senior technical representatives from each of the project partners. This work is an excellent example of how the facilities of the EIC are helping to drive development of low emissions technology, transferring our expertise in automotive battery systems to other UK manufacturing sectors.

Mark Amor-Segan, Principal Engineer, EIC, likens this expansion to putting the last piece of a jigsaw in place. “We already had a reputation as a centre of excellence and a leader in battery research,” he says. “But the ERA funding has enabled us to link all the different parts of the process that are involved in developing an energy storage system, so that we can present an entire service to our industrial partners.”

Crucially, it also means the EIC can do things that other battery research centres can't. “We now have 20 different laboratories working side-by-side,” says Mark. “We have electro-chemists working with thermal-modelling experts and mechanical engineers working with power electronics and motor specialists. Having all these different disciplines under one roof within the same group is absolutely pivotal to moving the whole energy storage agenda forward.”

Professor Martin Freer, Director of the Energy Research Accelerator, said: “The aim of ERA funding is to leverage industrial co-investment. That's exactly what the EIC does. It's a dynamic and professional organisation which has been incredibly successful. It has worked with industry to drive technology to market and develop advanced processes for manufacturing batteries and second-life electrical energy storage.

“For example, part of the challenge of manufacturing is



that batteries are made of cells which then have to be assembled into packages. To be able to do that in a reproducible way so that none of those cells are lost is highly problematic — but EIC scientists have developed a technique for doing just that. Other research the EIC is involved in includes inductive charging, where electric vehicles automatically charge while parked over a pad at the traffic lights, or in a car park or loading bay. That type of innovation is going to drive the electric vehicle sector in the years ahead.”

Mark Amor-Segan admits that battery science needs to speed up to get to where the world needs it to be if we are to move to a low emissions future. The ability to understand why batteries fail is a key part of this. “It has been very difficult to predict the chemical behaviour of battery cells and how they age and degrade,” he says. “In fact, a lot of battery technology is developed through empirical methods, which is basically trial and error. But now, with the ERA investment allowing us to link all the different parts of the process together, we can more easily understand why a battery fails.” ►

## CASE STUDY

When automotive batteries reach the end of their lifespan in a vehicle, they often retain enough energy and power capability for ‘second-life’ applications, such as static energy storage. Manufacturers and reprocessing centres are under pressure to come up with grading processes to evaluate the possibility of repurposing used Li-ion batteries, instead of disposal and recycling.

We partnered with Nissan, AMETEK and Element Energy on the ‘UK Energy Storage Laboratory’ project, funded by BEIS. Our battery technology experts developed a safe, robust and fast methodology for grading used automotive battery packs. Then, novel algorithms for battery modules were developed by WMG for use in specialist equipment supplied by AMETEK. This methodology reduced grading time for batteries from four hours to less than five minutes per module, with a proven accuracy of  $\pm 3.2\%$  in State of Health (SOH).

The process is now being trialled for grading of battery modules at Nissan's second-life pilot facility. Nissan hopes this will enable them to re-use the vast majority of packs currently assembled in EVs in Europe.

“Our aim in the years ahead will be to model a recipe in a computer, build a prototype cell, then test it to confirm the model is correct. As part of the ERA investment, we now have a new mechanical testing centre which, for the first time, will allow full mechanical testing of live lithium-ion batteries — such as torsion, twist and fatigue-type testing — at a range of states of charge and cycling conditions. That’s a fantastic capability that will give us a whole new data set which will help to improve those models and simulations.”

Mark finds it reassuring that the UK Government and funding bodies are investing so much money into energy storage technologies. “The ERA funding has certainly helped push us over the finish line,” he says. “We now have everything we need to move forward. We’ve had a battery facility at WMG for over a decade, so completing the picture is very satisfying.” ■

[FIND OUT MORE](#)



## Nuclear AMRC welcomes new UKAEA facility

The Nuclear AMRC has welcomed a new £22 million fusion energy research facility to be built at the Advanced Manufacturing Park in Rotherham.

The facility will see the UK Atomic Energy Authority (UKAEA) working with industrial partners to put the UK in a strong position to commercialise nuclear fusion as a major source of low-carbon electricity.

Located at the heart of the UK’s advanced manufacturing region, the UKAEA base will bring 40 highly-skilled jobs to South Yorkshire. It will foster increased collaboration with research organisations including the Nuclear AMRC and its sister centre, the University of Sheffield Advanced Manufacturing Research Centre (AMRC), both of which are based on the

Advanced Manufacturing Park.

Andrew Storer, Chief Executive Officer of the Nuclear AMRC, said: “We’re delighted to welcome UKAEA to the Advanced Manufacturing Park, and to the Sheffield region’s world-leading cluster of applied innovation. We look forward to working with UKAEA at their new facility to develop manufacturing techniques for fusion power plants and help UK manufacturers win work in this growing global market.

“This development has the potential to create many jobs in the local supply chain as fusion technology matures. This is a huge deal for Sheffield and the North, and we are really pleased to have played a part in this and to be working with UKAEA.”

[READ MORE](#)



## CPI wins IMechE Global Biotech Award

CPI has been announced as the winner of the Global Biotechnology Award at the prestigious Institution of Chemical Engineers (IChemE) Global Awards 2019.

CPI won the 2019 award for the successful delivery of the collaborative BioStreamline project. This Advanced Manufacturing Supply Chain Initiative (AMSCI)-funded project aimed to accelerate biotherapeutic drug discovery by improving development

and manufacture, and involved Lonza Biologics, UCB Celltech, Sphere Fluidics, Horizon Discovery and Alcyomics Ltd, as partners.

The IChemE Global Awards celebrate excellence, innovation and achievement in the chemical, process and biochemical industries from around the world. Now in its 25th year, they are widely considered the world's most prestigious chemical engineering awards and this year attracted over 240 applications from leading engineering organisations.

The winning project focussed on accelerating the discovery and development of monoclonal antibody biotherapeutics and aimed to overcome key bottlenecks in the biologics supply chain. By improving biologics development and manufacture, the project will enable novel, effective biotherapeutic treatments to be identified earlier and consequently accelerate patient access.

[READ MORE](#)

## MTC helps project to treat Parkinson's disease

A cure for Parkinson's disease may be a step closer thanks to a collaboration between a PhD research student from Loughborough University and engineers at the Manufacturing Technology Centre (MTC), part of the High Value Manufacturing Catapult.

Laurissa Havins, PhD student at Loughborough University, is researching new ways to create, maintain and isolate functional neurons for clinical use that can replicate neurons affected by such

diseases as Parkinson's. By harvesting stem cells from patients, researchers can replicate them in the laboratory and manipulate cells which can be differentiated into the type of neurons lost during the onset of the disease.

To be successful the research requires a device housing multiple materials for chemical modification, made out of a material resistant to the corrosive chemicals used in the process.



So she turned to experts at the MTC who helped design and manufacture a system for her to use, using 3D printing in a high-stress polymer capable of withstanding the chemicals used in the process. A clear demonstration of how advanced manufacturing techniques can be used to make a beneficial impact on society.

[READ MORE](#)

## Current Innovate UK funding opportunities

### Work with US partners on wind farm innovation: apply for funding

Registration closes:  
Wednesday 15<sup>th</sup> January 2020  
12:00pm

The aim of the competition is to reduce technical barriers facing offshore wind farms including cutting costs.

### Transforming foundation industries: apply for a fast start project

Registration closes:  
Wednesday 5<sup>th</sup> February 2020 12:00pm

The aim of this competition is to bring businesses from different foundation industries together to work on common resource and energy efficiency opportunities.

### Work with Israeli partners on business ideas: apply for funding

Registration closes:  
Wednesday 19<sup>th</sup> February 2020  
12:00pm

UK businesses are being encouraged to work with partner businesses in Israel on ideas for innovative products and services in all areas of the economy.

[FIND OUT MORE](#)

The HVM Catapult has a wealth of quantitative and qualitative data on the impact it is having on the companies we work with. Our case studies give a good impression of the value we have added to many companies across all sizes and all sectors. Maybe we could help your business? There is a cost involved, but we can signpost sources of funding, for example, through Innovate UK. Email us at [info@hvm.catapult.org.uk](mailto:info@hvm.catapult.org.uk) if you'd like more information or to discuss working with us.



## WMG drives ground-breaking efficient electric motor concept forward

Worcestershire-based The Smart Actuator Company Ltd were looking for a way to develop an actuator solution at an affordable price point for the consumer, but that could be operated and maintained remotely via an app. Our team at WMG were perfectly situated to help.

Our materials experts quickly understood their needs, and used our 3D printing capabilities to design and produce the bespoke prototype container for the actuator to a short deadline. We also recommended a UK manufacturing partner to help the company get their automotive motor production-ready.

James O'Donnell, Managing Director of The Smart Actuator Company, said: "We now have a manufacturing partner on the South Coast, they already make millions of electric motors, but none like this one! We're starting with a small motor suitable for light utility vehicles such as autonomous pods, before we scale it up to passenger vehicles."

As a result of getting the prototype ready and securing the manufacturing partner, Rift Technologies were awarded a £221,000 grant from the Niche Vehicle Network to bring their first small traction motor to production readiness.



## Dates for your diary

### Introduction to Composites (Webinar)

7<sup>th</sup> January 2020

Many people in the composites industry, don't work with composites on a day-to-day basis. The NCC will help you get to grips with key knowledge for your business in this webinar.

[FIND OUT MORE](#)

### Make UK National Awards

29<sup>th</sup> January 2020

East Wintergarden, Canary Wharf, London

Now in its eleventh year, the esteemed Make UK Manufacturing Awards acknowledge and reward the world leading organisations that thrive within the UK's manufacturing sector.

[FIND OUT MORE](#)

### Make UK Manufacturing Conference 2020

25<sup>th</sup> February 2020

QEII Centre, London

This conference brings together industry and thought leaders along with key policy makers for a day of analysis, debate and inspiration so make sure you're clued up and business ready.

[FIND OUT MORE](#)

### MACH 2020

20<sup>th</sup>-24<sup>th</sup> April 2020

National Exhibition Centre, Birmingham

Come and see the HVM Catapult at this years' MACH. The event brings together expertise, ideas and opportunity - the UK's showcase for advanced manufacturing.

[FIND OUT MORE](#)

# WORK WITH US

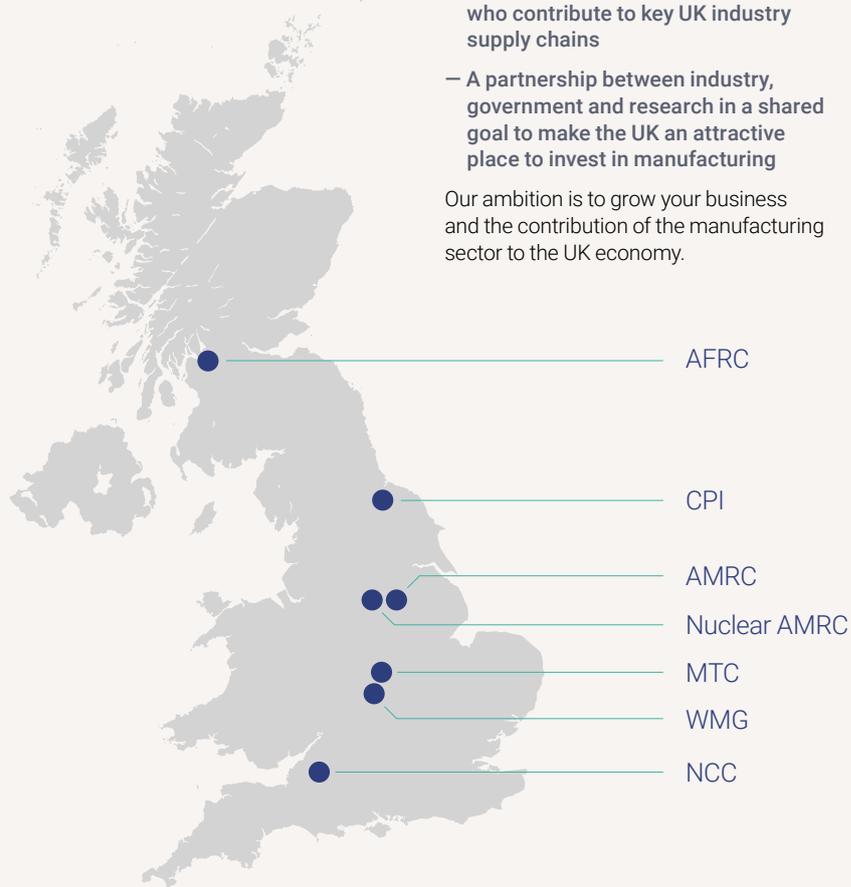
The High Value Manufacturing (HVM) Catapult is here to help UK businesses of all sizes accelerate new concepts to commercial reality.

Working through seven world-class centres of industrial innovation, we provide access to the specialist equipment and expertise you need to help investigate new technologies and processes and test their application. We can also help you to improve existing processes. We're here to help you strip away the risks of innovation and make investment decisions when you are confident that an idea can be scaled up to deliver on a commercial scale.

Our services are available to firms of all shapes and sizes, from FTSE-listed companies to SMEs deep in the supply chain. They include:

- Capability which spans from basic raw materials through to high integrity product assembly processes
- World-class facilities and skills to scale-up and prove high value manufacturing processes
- A network of leading suppliers who contribute to key UK industry supply chains
- A partnership between industry, government and research in a shared goal to make the UK an attractive place to invest in manufacturing

Our ambition is to grow your business and the contribution of the manufacturing sector to the UK economy.



For more information or to discuss working with the HVM Catapult, please contact:

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