



CATAPULT NETWORK: GROWTH AND PROSPERITY STORIES



THE CATAPULT NETWORK – DELIVERING INNOVATION

Together we bring the sector expertise, specialist equipment, and market shaping abilities that UK innovators need to grow at scale. We form a crucial link in the UK's rich R&D ecosystem - helping innovators to de-risk their innovation strategies and enabling the investments that will create jobs, trade and sustainable prosperity.

WE HELP THE UK...

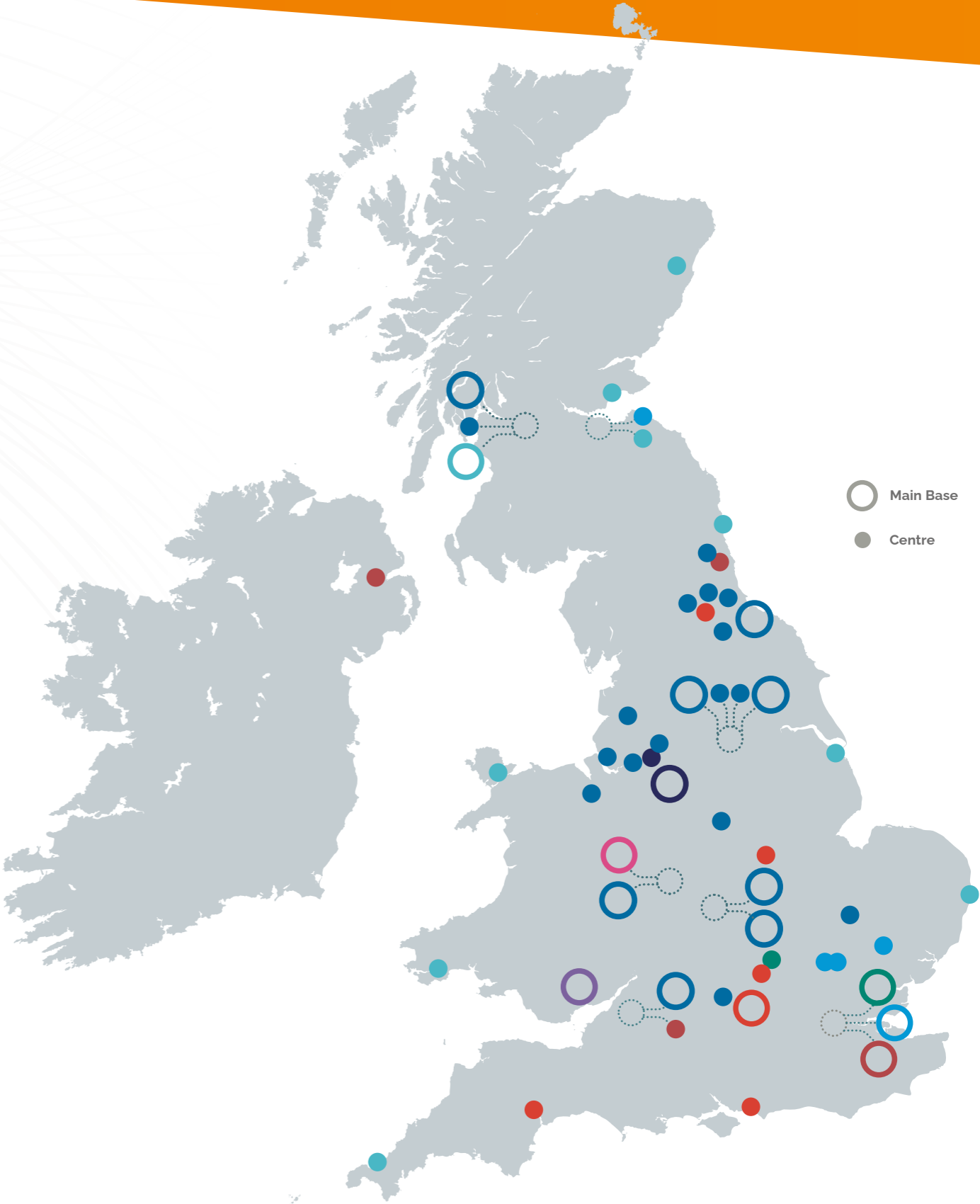
FIGHT DEMENTIA & CANCER // POWER ELECTRIC VEHICLES //
DEVELOP SKILLS // COMMUNICATE WITH 5G //
PROVIDE LOW-CARBON HEATING // TURN WIND INTO ENERGY //
CREATE OPPORTUNITIES FROM ORBIT //
GROW AMAZING PLACES TO LIVE AND WORK

AND SO MUCH MORE

Take a look inside for a glimpse into the incredible world of UK innovation - powered by the Catapult Network.



The Catapults were established by and work in partnership with Innovate UK as a critical long-term capability to drive innovation at the heart of the UK economy. Innovate UK invests in the core expertise and facilities of the Catapults and provides sponsorship of the Catapult programme across Government. Innovate UK is creating a better future by inspiring, involving and investing in businesses developing life-changing innovations. [Find out more >](#)



- Cell and Gene Therapy
- Connected Places
- Compound Semiconductor Applications
- Digital
- Energy Systems
- High Value Manufacturing
- Medicines Discovery
- Offshore Renewable Energy
- Satellite Applications



London
Stevenage
Braintree
Edinburgh

Operational since
Autumn 2012

Cell and Gene Therapy Catapult accelerates the translation of early stage research into commercially viable and investible therapies, helping businesses start, grow and confidently develop advanced therapies, delivering them to patients rapidly and effectively. Making the UK a global leader in the development, delivery and commercialisation of cell and gene therapies.

THE HEADLINES

1 CREATION OF ONE OF THE WORLD'S LEADING CELL AND GENE THERAPY CLUSTERS

2 THE UK'S FIRST CELL AND GENE THERAPY APPRENTICESHIP PROGRAMME

3 GROUNDBREAKING PROGRAMME CREATING NEW UK NATIONAL CAPABILITIES IN ADENO ASSOCIATED VIRUSES



£2.9bn investment collectively raised by companies from 2014 to 2022

Home to more than 45 cell and gene therapy companies

More than 1,000 employees in the Stevenage cell and gene therapy campus

ESTABLISHING STEVENAGE AS A GLOBAL LEADER FOR CELL AND GENE THERAPIES

In 2014, Cell and Gene Therapy Catapult recognised that a lack of UK capacity to support the development and manufacture of advanced therapy medicinal products (ATMPs) would stifle progression and investment, leading to UK companies leaving the country for other global centres.

In response, the Catapult secured £60 million of Government investment to build the Stevenage Manufacturing Innovation Centre (MIC), which underwent an expansion in 2020 supported by £12 million from the Medicines Manufacturing Industrial Strategy Challenge Fund and £3.36 million from European Regional Development Fund (ERDF).

The facility has gone from strength to strength supporting the leading developers of ATMPs to progress their products towards market and in FY21/22 alone Cell and Gene Therapy Catapult Stevenage collaborators raised £434 million in financing.

Today, the area is a globally recognised centre for cell and gene therapy businesses, supports over 1,000 jobs, and since opening in 2012, has hosted a total of 47 organisations with occupational leases and a further 24 with virtual leases.

Prior to 2017 and the opening of the Stevenage MIC, a total of £131 million had been collectively raised by companies on the campus, and by March 2022 a total of £2.9 billion has been collectively raised by companies on the campus.

Stevenage was designated a Life Science Opportunity Zone by the Office of Life Sciences (OLS) in February 2020 and as High Potential Opportunity area by the Department of International Trade (DIT) in October 2020.



With one of the world's leading cell and gene therapy clusters, the US is an ideal location for us to establish our Centre of Excellence for cell and gene therapy.

Dr Frank Mathias | CEO of Rentschler Biopharma

UPSKILLING THE UK TO TAKE FULL ADVANTAGE OF THE POTENTIAL OF CELL AND GENE THERAPIES

Cell and Gene Therapy Catapult is a global leader in skills in a rapidly growing sector. Through a range of initiatives such as the UK's first apprenticeship programme for advanced therapies and a national training network it now supports a sector employing almost 7,000 people from across the UK, with the workforce predicted to grow to over 15,000 by 2026.

The Catapult coordinated the founding of Advanced Therapy Treatment Centres (ATTCs) in 2018. Its purpose was to form partnerships between academia, regulators, hospitals, supply chain experts and therapy manufacturers, to accelerate products out of the laboratory to the bedside, increasing the opportunity for companies to grow and expand.

Today the network consists of 114 organisations, including 25 NHS trusts/boards and 59 advanced therapy medicinal products (ATMP) industry partners, and supports 62% of the UK's ongoing ATMP clinical trials.



The ATTC network has enabled the UK cell and gene therapy industry to accelerate solutions to cell and gene therapy specific delivery challenges. The network is globally respected and a number of countries look to replicate similar supportive structures.

Kwok Pang | Chief Operating Officer, Autolomous

The training tools it has developed are widely employed, including an e-learning platform and an online 'NHS readiness toolkit', which has been accessed over 28,000 times.

Overall, the ATTC is globally recognised for its excellence in developing processes and infrastructure required to increase patient access to life-changing advanced therapies.

To support the skills and training required for ATMP manufacture, the Catapult has established the UK's first apprenticeship programme with the Advanced Therapies Apprenticeship Community (ATAC) and the Advanced Therapy Skills Training Network (ATSTN) with dedicated national training centres boasting industry-standard training facilities, and an Online Training Platform that combines both e-learning and in-person training providers to structure and provide a full range of industry approved and recommended skills.



ATTCs support 62% of the UK's ATMP clinical trials

Sector employing over 6,900 people in manufacturing jobs

Sector manufacturing employment forecast to more than double by 2026 to over 15,000



£45m of investment to create Purespring Therapeutic

24 companies in dedicated consortium

National capability established in Adeno Associate Viruses

DELIVERING SAFER ADVANCED THERAPIES, FASTER AND AT LOWER COST THROUGH TECHNOLOGY AND PROCESS INNOVATION

At its core, Cell and Gene Therapy Catapult is an innovation and technology company. Its work with industry in the development of novel processes and analytical techniques for cell and gene therapy manufacture has supported significant investment into startup businesses as well as attracting international manufacturers such as Rentschler to invest in manufacturing in the UK.

The Catapult is committed to ensuring the UK can effectively turn academic research into advanced therapy medicinal products (ATMP).

In 2015, a programme was launched to establish national capability in Adeno Associated Viruses (AAV), which has led to more investment, the creation of spin-out companies and therapy developers employing Catapult developed technology.

The Cell and Gene Therapy Catapult helped researchers in Bristol secure Series A funding investment of £45 million to create PureSpring Therapeutics, one of the largest single investments made to a UK university biotech spin-out.

In addition, work was carried out in bioprocessing systems innovation to develop manufacturing process controls and automated manufacturing systems to detect and correct variances in batch performance, reducing patient to patient and/or batch to batch variation – delivering ATMP production at high quality with lower cost.

The team has gone on to form a Process Analytical Technologies Consortium of 24 national and international companies, which will extend the work to deliver even greater value, productivity and patient safety.



One of the things which really pleased me about this collaboration was their shared excitement around our ground-breaking technology. Importantly we were able to access a diverse range of expertise that probably isn't available elsewhere. The Catapult interaction has gone way beyond the input originally envisaged. The support we have received from the team at Cell and Gene Therapy Catapult has been nothing short of fantastic.

Andrew Wilson | Senior Research Commercialisation Manager at the University of Bristol



Newport

Operational since
Summer 2018

The Compound Semiconductor Applications Catapult is working to make the UK a global leader in developing and commercialising new applications for compound semiconductors. Part of the world's first compound semiconductor cluster, the Catapult works with start-ups, academia and large companies to develop a range of next generation advanced electronic products, from electric vehicles to satellite communications.

THE HEADLINES

1 HOW SOUTH WALES BECAME A WORLD LEADER IN ELECTRONICS USED ACROSS THE GLOBE

2 PROVIDING CRITICAL SUPPORT TO THE FUTURE OF THE ELECTRIC VEHICLE INDUSTRY

3 COLLABORATING ON UK-INDIA RESEARCH AND INNOVATION FOR FUTURE TELECOM NETWORKS

PLAYING A PIVOTAL ROLE IN THE WORLD'S FIRST COMPOUND SEMICONDUCTOR CLUSTER

Compound Semiconductor Applications Catapult plays a pivotal role in bringing industry and academia together to create the world's first compound semiconductor cluster, CSconnected.

The consortium of 13 partners, including the Catapult, has turned South Wales into a world leading centre of excellence in compound semiconductor technologies.

CSconnected received a £25 million investment through UKRI's flagship Strength in Places Fund (2020-25) to further develop South Wales as a home to a compound semiconductor powerhouse and has accelerated collaborative research projects estimated to be worth more than £80 million in new partnerships and opportunities.

According to the Welsh Economy Research Unit the cluster contributed £277 million GVA per annum to the Welsh economy, with a 14% employment growth rate in 2021 despite the pandemic.

Average salary levels are 60% above the Welsh

average, and 25% of the workforce are engaged in research, development and innovation.

CSconnected provides thought leadership, expertise and promotes the role of compound semiconductors as a key enabling technology.

The Catapult's value add in CSconnected is unique – rapidly building the complex supply chains and delivering the complex supply chains and deliver vital expertise and infrastructure in evaluation and reliability testing services, some of which are not available anywhere else in the UK.

The initiative – and the Catapult – ensures the UK leads the world in the design and manufacturing of compound semiconductor technology.

Since 2015, the regional ecosystem has secured £700 million investment commitment for expansion in advanced semiconductor manufacturing.

CSconnected facilitates a talent pipeline that produces highly skilled, well-paid jobs, bringing social and economic benefits to South Wales.



...the Catapult played a pivotal role in securing £25 million support for the expansion of the cluster from the UKRI Strength in Places Fund, by creating the linkages to critical UK supply chains.

Prof Wyn Meredith | Chair of CSconnected Management Group

CREATING A NEW UK SUPPLY CHAIN IN AUTOMOTIVE POWER ELECTRONICS

Compound Semiconductor Applications Catapult is playing a critical role in the development of supply chains for electric vehicles in the UK and across the globe – a market in power electronics, motors, and drives (PEMD) predicted to be worth £5 billion in the UK by 2025.

The Catapult is delivering three projects – ESCAPE, @FutureBEV and Driving the Electric Revolution Industrialisation Centres – to create new UK supply chains and accelerate electrification and net zero.

ESCAPE, part-funded by a £9.7 million grant from the Advanced Propulsion Centre (APC), will produce game changing technology supporting the drive for electrification in the UK and worldwide.

It brings together 13 partners including Clas-SiC Wafer Fab, McLaren Applied, and Turbo Power Systems. The Catapult provided design expertise and modelling software. The ESCAPE project

created two markets, enabling Clas-SiC to benefit from economies of scale and proved the principle of a 800V SiC converter.

@FutureBEV is a £30.5 million project, part funded by a £15 million grant from APC and Innovate UK. Accelerated Technologies for Future Battery Electric Vehicles will ensure competitive powertrains in function and costs and enable UK technology transformation to zero emission mobility. BMW bring together a development team from industry and academia. Together the team will develop a new UK supply chain for sub-components and system capability for future electromobility. The technology drives battery electric vehicles from niche to mainstream.

The Catapult played a vital role in the creation of the £80 million 'Driving the Electric Revolution Industrialisation Centres' project, securing industry support of around £150 million to deliver the UK wide electrification challenge.



As the first of its kind, the ESCAPE project gives McLaren Applied a competitive advantage in the race to create a full UK supply chain for automotive power electronics. The Catapult's testing and validation capability is vital to this project, perfectly complementing the activities of the other 12 partners.

Steve Lambert | Head of Electrification, McLaren Applied Technology

IDENTIFYING NEW OPPORTUNITIES TO INCREASE INTERNATIONAL TRADE IN TELECOMS

In 2020, Compound Semiconductor Applications Catapult identified sizeable markets for the UK compound semiconductor industry to address, from the immediate opportunity for rapid rollout of 5G and the longer term prospects in quantum and satellite communications.

The Catapult worked with the then Department for Digital, Culture, Media & Sport (DCMS) on preparing the case for a £250 million investment in telecom diversification, which was announced in November 2020.

To support the UK Government's ambition for a UK-India free trade agreement, the Catapult led an India-UK Future Telecom Programme, which identified priorities for India-UK bilateral collaboration in telecom networks.

The programme was launched by the then Foreign Secretary and DCMS Minister, the DCMS

Minister and their counterparts in India. The Catapult consulted over 180 senior telecoms executives from the UK and India, leading to detailed plans for collaboration.

In March 2022, the Catapult led a UK delegation to India to discuss the programme with Government officials, industry, and academia to identify five areas for future collaboration.

In June, the Catapult brought a delegation of senior Indian telecom executives to meet with UK Ministers and the UK telecom industry to cement the plans.

The Future Telecom Programme complements a similar programme led by the Catapult to identify bilateral opportunities with India for the electrification of transport.



The Catapult's Future Telecom Programme provided strong foundations for bilateral collaboration involving key companies and academics from India and the UK.

Debashish Bhattacharya | Senior Deputy Director General, Broadband India Forum (BIF)
Professor K V S Hari | Chief Project Executive BT India Research Centre (BTIRC), Indian Institute of Science, Bangalore



ESCAPE is a £20m project, incorporating 12 partners, creating, or safeguarding 66 jobs in engineering and 137 jobs in Engineering and Manufacturing

Successful exploitation of ESCAPE will result in over £66m further UK investment in SiC R&D and capital expenditure

@FutureBEV will develop next generation EV technology



13 partners and 2,390 jobs supported

£55m of high-value, commercially exploitable research, and development activities by 2025

£121,000 GVA per employee and 14% employment growth since 2021



Consulted with more than 180 executives in India and the UK in collaboration

Prepared the case for £250m investment in telecom diversification

Supporting the ambition for India-UK Free Trade Agreement



London
Milton Keynes

Operational since
merger in Spring 2019

Connected Places Catapult is the UK's innovation accelerator for cities, transport, and places. They provide impartial 'innovation as a service' to public bodies, businesses, and infrastructure providers to catalyse step-change improvements in the way people live, work and travel.

THE HEADLINES

1 'WORLD FIRST' PARTNERSHIP AIMS TO DECARBONISE UK CITIES

2 UK INNOVATIONS ARE CATALYSING THE FUTURE OF FLIGHT

3 £150M INVESTMENT IN BELFAST CITY REGION PREDICTS 10,000 NEW JOBS AND £2BN GVA



Research estimates that investing in net zero projects across the eleven Core Cities and London represents a £206bn investment opportunity

This opportunity is spread across six different asset classes, for which domestic retrofit represents almost a third

Lucrative assets supporting less profitable areas, resulting in investment with over 5,000 individuals

STIMULATING INVESTMENT IN DECARBONISATION OF UK CITIES

The Connected Places Catapult is leading a world-first alliance across the UK's major cities to secure the long-term finance necessary for achieving net zero. The Cities Climate Investment Commission (3Ci) is helping cities to attract public and private sources of financing for a £300 billion+ market opportunity for a multi-intervention place-based net zero transition.

The programme is partly funded by BEIS and is in partnership with London Councils and Core Cities and other UK local authorities aimed at stimulating investment in the decarbonisation of UK cities. Research undertaken by the Commission estimates that currently identified net zero projects in the Core Cities and London represent a £330 billion investment opportunity.

3Ci is accelerating the speed of collaboration between local and national Government, industry and financial institutions by convening partners, promoting best practice and advocating for changes in approach to investment across local and national Government.



London boroughs and the UK's 11 Core Cities have a huge responsibility as economic and population centres to create solutions to reach net zero targets.

Mayor Philip Glanville | Chair of London Councils' Transport and Environment Committee

Phase I developed a place-based approach using a blended finance model, where revenues from more profitable assets can support those from less profitable areas featuring investment with over 5,000 individuals. Phase II, funded by BEIS, defined the business case for securing long-term development finance to support project identification, design and financing in Phase 3.

On the ground, 3Ci initiatives will bring business, finance, and local communities together to accelerate change through innovation that is fair to all. We are creating new financial partnerships with fund managers and banks, so they can invest with confidence in local net zero projects. These include the retrofit of homes and commercial properties, the integration of renewable energy, shifts to sustainable transport networks, circular waste management, and the enhancement of green spaces and waterways. Initiatives include a national net zero project pipeline and technical assistance programme, regional investor events, local integrated investment pilots and the dissemination of local and regional innovations.

CATALYSING THE FUTURE OF FLIGHT

Connected Places Catapult is working at the leading edge of opportunity and innovation in aviation, spanning areas such as unscrewed air mobility, digitising airspace management and Zero Emission Flight.

Connected Places Catapult's COO, Rachel Gardner-Poole, was recently invited to chair the Zero Emission Flight (ZEF) Delivery Group under the Jet Zero Council. This aims to put the UK at the forefront of innovation in green aviation and support the development of zero-emission planes and the airport infrastructure required to facilitate them.

In parallel to this, the Catapult is also leading the way by bringing together Government, business, airport operators, airlines and innovators to support the rollout of Zero Emission Flight Infrastructure. This includes supporting the first off-grid solar charging flight of an electric plane, as well as developing infrastructure to support hydrogen fuel.



The Government has supported this research into Zero Emission Flight Infrastructure at our airports and airfields. I am passionate for this to be a strong and innovative sector which has sustainability at its heart.

Robert Courts MP | Former Minister for Aviation



£2bn impact on GVA forecast

10,000 new jobs

£150m private sector investment into the digital and innovation economy

More than 200 firms have taken part across 47 Civic Innovation Challenges since 2016, demonstrating innovative solutions in live settings and connecting with customers

SPARKING AN INNOVATION CLUSTER IN THE BELFAST CITY REGION

Connected Places Catapult has been supporting place leaders in Belfast to create new opportunities for businesses since 2016, resulting in a successful bid for a City Region Deal which is forecast to deliver £2 billion in additional GVA and 10,000 new jobs.

In 2016, the Catapult began equipping local leaders to harness public procurement as a lever to spark innovation and private sector investment. The first collaboration identified innovative ways to maximise business rates collection leading to the development of innovative tools by two UK firms and the identification of approximately £1 million additional annual revenues for the council. Both firms subsequently scaled their products to new customers.

The Smart Belfast Framework, developed by the Catapult for the city, outlined five further challenge-based commercial opportunities. Belfast has now run 47 challenges covering urban mobility, healthy living, air quality, tourism,



To fulfil our ambition to make Belfast a more vibrant and prosperous city for all, we need the active support, involvement and contributions of many partners. We welcomed working with Connected Places Catapult to explore and develop the technologies, services, expertise, projects and ideas that could contribute to this.

Deborah Colville | Manager, Belfast City Council



Drone services are estimated to add £45bn to the UK economy by 2030

Demonstrated the first off-grid solar recharge and flight of an electric aircraft

Developed the first operational blueprint for the introduction of zero emission aircraft into airports and airfields

Developed the first Droneport Design and Development Framework

economic development and the pandemic.

More than 200 businesses have been engaged, benefitting from access to customers, product demonstration and commercial contracts.

Belfast asked the Catapult to drive the development of an ambitious, robustly evidenced plan for the economic development of the region. Whereby, six local authorities, two universities and the private sector came together alongside Connected Places Catapult to develop the City Region Deal securing £500 million of investment in the region's digital and innovation economy, including over £150 million of private investment from Catalyst Inc, Caterpillar, Ryobi, Bombardier, GSK, Belfast Harbour, BAE Systems and others.

Connected Places Catapult is now scaling its support to more parts of the UK through the Place Innovation Leadership Network and strategic partnership with the Innovation Districts Network.



📍 London
Bristol
Belfast
Tees Valley

Operational since
Summer 2013

Digital Catapult is the UK authority on advanced digital technology. Through collaboration and innovation, it accelerates industry adoption to drive growth and opportunity across the UK economy - breaking down barriers, de-risking innovation, opening up markets and responsibly shaping the products, services and experiences of the future.

THE HEADLINES

1 ADVANCING CREATIVE INDUSTRIES WITH EMERGING TECHNOLOGIES

2 HELPING HUNDREDS OF BUSINESSES DIGITISE THEIR SUPPLY CHAINS

3 POSITIONING NI AS A GLOBAL LEADER IN DIGITAL MANUFACTURING

DIGITAL CATAPULT BOOSTS UK CREATIVE INDUSTRIES WITH SUPPORT FOR ADVANCED DIGITAL TECHNOLOGIES

Digital Catapult supports companies in the creative industries to take advantage of emerging technologies such as augmented and virtual reality. These technologies are increasingly being applied to new forms of production tools and new kinds of content and experiences. Digital Catapult's internationally recognised programmes support creative organisations to develop and adopt advanced digital technologies to increase productivity, drive new business models, create new experiences and reduce emissions.

Digital Catapult's StudioUK initiative is a cross-sector collaboration to discuss R&D and skills in film and TV, which led to the creation of two Virtual Production Test Stages, funded by Innovate UK and backed by the creative industry, as well as Digital Catapult's nationwide network of Immersive Labs.

StudioUK has led to the CoSTAR programme being established, a major UKRI-AHRC investment of £75.6 million over six years to research the development and use of technologies in the creative sectors.

Two of Digital Catapult's other flagship programmes are pushing the boundaries of technology in the UK's creative industries.

My World, led by the University of Bristol and supported by 30+ partners, will catalyse

the development of creative technologies to cement the West of England's position as a creative powerhouse. The cross-sector programme will create over 700 jobs and boost the economy by £223 million. Digital Catapult's work will support creative technology projects that demonstrate clear advancements and novel applications of technology to new and emerging industry challenges.

And our metaverse accelerator programme in partnership with Niantic is supporting small businesses with up to £100,000 funding each, to work with the world-renowned Studio Wayne McGregor and global TV brand Cartoon Network to develop socially engaging AR experiences.

To date previous immersive accelerator programmes for the creative industries have delivered:

- CreativeXR with Arts Council England supported 60 projects with £2 million investment, match funded with £1.32 million from industry
- Augmentor supported 30 companies with £4.3 million in funding – cohort companies went on to secure £7.5 million in investment as a result
- Venice Grand Jury Prize win and Emmy award nomination

60 projects with £2m investment, match funded with £1.32m from industry

30 companies with £4.3m in funding with a handful going on to secure £7.5m in investment as a result

Venice Grand Jury Prize win and Emmy award nomination

DIGITAL CATAPULT TRANSFORMS UK MANUFACTURING THROUGH DIGITALLY EMPOWERED SUPPLY CHAINS

The Made Smarter Innovation | Digital Supply Chain Hub led by Digital Catapult is a £25 million initiative funded by a £10 million grant from Innovate UK and matched with £15 million from industry to transform UK industry through digitally empowered supply chains that are more efficient, resilient and sustainable.

The Hub is developing new solutions for digitising supply chains, building new use cases and accelerating adoption-ready innovations. Beginning with flagship projects in last mile logistics, and developing collaborative understanding of engineering information across global organisations, the programme will address challenges such as building end-to-end resilience, scope three emissions, supply and demand sensing, governance and collaboration across supply chains with sponsorship from organisations including Nissan, Sainsbury's, and the Food Standards Agency.

- **Connected Tempest:** Tackling transparency challenges in the aerospace supply chain and associated collaboration culture, the project uses engineering data to address the problem of non-universal understanding of standards around model-based definition, supply chain collaboration and software agnostic data communication. Partners include High Value Manufacturing Catapult, Rolls Royce, BAE Systems, NPL and Siemens Digital Industries.

- **Logistics Living Lab:** Working with Microsoft, Vodafone, Incept, Yusen Logistics and Fuuse, Digital Catapult will develop, demonstrate, and test a shared digital infrastructure aligned to real manufacturing supply chain challenges, to improve logistics, reduce emissions and congestion, through more effective collaboration.

- **Future of Supply Chain Lab:** Supporting SME manufacturers to develop a roadmap for digitisation, showcasing technology projects and benefits achieved, whilst utilising a benchmarking tool to show supply chain digital readiness.

Tools developed by the Hub include:

- The Supply Chain Directory – a free database providing detailed information on all UK manufacturers across all industries. Built from publicly accessible and user-provided data, it allows businesses to better target new suppliers and customers.
- The Digital Supply Chain Readiness diagnostic tool – enabling manufacturers to measure their digital technology maturity to achieve their supply chain objectives. The diagnostic takes 30 minutes to complete and helps manufacturers identify their specific digital supply chain strengths and development areas.



To date, the Digital Supply Chain Hub programme has seen:

£15m leveraged investment

Over 100 businesses engaged

45 collaborations

16 projects including six flagships, nine open call projects and the virtual hub

Six business cases developed

DIGITAL CATAPULT ENHANCES NORTHERN IRELAND MANUFACTURING FUTURE THROUGH UPSKILLING AND TRANSFORMATIVE INNOVATION

Digital Catapult Belfast is the first part of the Catapult Network based in Northern Ireland, and has invested heavily in the region with the support of the Department for the Economy and important industrial partners. Recent project wins, including the Smart Nano NI programme, have doubled the size of the Belfast team.

Smart Nano Northern Ireland is led by Seagate Technology, a world leader in data storage and management solutions. Its facility in NI is recognised as one of the foremost 200mm wafer fabrication plants in the world, and the Smart Nano NI programme is of global strategic importance in helping ensure the UK remains a key player in the future manufacturing of hard disk drives worldwide.

The consortium shares a niche capability around nano-manufacturing and world-leading knowledge in photonics, aiming to support innovation-led economic growth, both locally and nationally, as well as enhancing research and innovation collaborations. The consortium brings together leading organisations from across Northern Ireland: Analytics Engines, Causeway Sensors, Cirdan, Digital Catapult, North West Regional College, Queens University Belfast (QUB), Ulster University, and Yelo.

Digital Catapult is working with small and medium sized businesses in the manufacturing sector across Northern Ireland to boost the implementation and understanding of smart technologies (from data analytics using machine learning to 5G connectivity), that will allow these businesses access to make smarter, faster decisions ultimately boosting the efficiency, profitability and safety of their entire operations. This includes building and running a 5G test bed, providing photonics expertise and delivering the Smart Nano accelerator programme.

To date these activities have delivered:

- £63.9 million investment including £42.4 million from the UKRI's Strength in Places Fund (SIPF) in addition to leveraged funding from other sources.
- A collaboration of eight leading organisations from across Northern Ireland including SMEs, tech companies, academia and large corporations.
- 12 SMEs currently participating in the first FutureScope Smart Manufacturing cohort.
- 50% growth in the Digital Catapult Northern Ireland team year on year.

£63.9m investment in NI in addition to leveraged funding from other sources

12 SMEs in the first FutureScope Smart Manufacturing cohort

8 leading organisations collaborating across Northern Ireland

50% growth in the Digital Catapult Northern Ireland team year on year





 Birmingham

Operational since
Autumn 2015

Energy Systems Catapult accelerates the UK to a net zero energy system across homes, sites, places, networks and whole systems. They do this by helping design a net zero energy system that drives clean growth and by turbo-boosting clean tech innovators to thrive in that future.

THE HEADLINES

1 UNLOCKING THE POTENTIAL OF DIGITAL TECHNOLOGY FOR THE ENERGY SYSTEM

2 CREATING A LIVING LAB OF ALMOST 2,000 HOMES TO TEST INNOVATIONS FOR NET ZERO

3 LOCAL AREA ENERGY PLANNING – A PIONEERING WAY FOR LOCAL AUTHORITIES TO CONFRONT THE CLIMATE EMERGENCY



Over 300 individuals throughout the energy sector engaged in the Energy Data Taskforce (EDTF)

55 projects resulting from EDTF recommendations

DIGITALISING THE ENERGY SYSTEM

Energy Systems Catapult has been at the centre of a huge collaborative effort with industry, Government and the regulator to unlock the potential of digital technology and data to transform the energy system. This includes introducing an open data approach and harnessing digital technology to create jobs, growth and new consumer-friendly market propositions.

Over the last decade or more, energy has lagged behind other sectors in the move towards a 'modern, digitalised system'.

Commissioned by the then Department for Business, Energy and Industrial Strategy, Ofgem and Innovate UK, Energy Systems Catapult launched the Energy Data Taskforce (EDTF). Convening and engaging with over 300 companies, organisations and individuals from the energy sector and beyond to understand the potential of data in addressing the barriers to innovation in driving the energy system towards a net zero, flexible, low carbon future.

Described as "game changing" by the energy sector, the EDTF had wide-reaching impact, with recommendations to Government, regulators and

other energy sector actors, that would result in a vibrant market for energy system innovation. This included asking energy networks to focus on "opening-up data" – enabling researchers and innovators, as well as local and central Government to develop new products, services and business models that will help tackle big net zero issues.

For example, network data covering topography, capacity, demand, congestion, etc. enables a quick understanding of the most useful low carbon energy assets in a particular area, the deployment challenges, and likely return on investment.

The success of the EDTF has so far spawned 55 innovation projects across the energy sector, many working with Energy Systems Catapult to develop, test and launch before scaling up, raising investment, and growing their businesses.

This also led to Energy Systems Catapult leading both the Energy Digitalisation Taskforce and the Offshore Energy Digital & Data Taskforce.



I would strongly recommend the Energy Data Taskforce report. To be honest, it was game changing.

Randolph Brazier | Head of Innovation, Energy Networks Association

DECARBONISING HOMES: SMART, LOW CARBON HOMES

Energy Systems Catapult has pioneered the use of digital technology to help companies develop innovative low carbon heating offers that work for consumers. This has led to the creation of a 'Living Lab' of almost 2,000 homes where companies can rapidly test their smart home innovations with real consumers.

Energy Systems Catapult leveraged the Government-funded Smart Systems and Heat (SSH) programme to accelerate innovation to decarbonise heating and homes – one of the hardest challenges on the way to net zero.

This work kickstarted the development of innovative energy services (including Heat-as-a-Service, Comfort-as-a-Service) by established energy suppliers, heating manufacturers and emerging innovators, including:

Shell and Passivsystems launched B-Snug, a smart hybrid heat pump proposition to help consumers decarbonise. The smart heating system switches between an air source heat pump, which Passivsystems will install, and a conventional oil or LPG boiler, reducing carbon and energy bills.

EDF launched a low-carbon, hybrid heating offering for households that are not on the gas-grid and use oil or LPG heating.

Baxi Heating UK successfully trialled selling 'heat-as-a-service'. Baxi successfully sold a Heat Plan that bundled a new heating system, servicing, maintenance and energy for a fixed monthly price.

Ventive developed a smart, whole house retrofit solution, all in one box. Energy Systems Catapult helped Ventive in developing a "Comfort-as-a-Service" business model that makes their innovation more affordable for both tenant and landlord. Ventive recently announced a new manufacturing facility in Worcestershire creating 40 new jobs over the next 18 months, with 7,500 systems for UK homes within 18 months, rising to 100,000 by 2025.

The Scottish Government announced Heat-as-a-Service (HaaS) as a policy option and has set up a working group to explore financing mechanisms. Several more energy suppliers (as well as Local Authorities) are progressing with their HaaS offers (supported by the Catapult), including Danfoss, Bristol Energy, EDF and Bridgend County Borough Council.



'Living Lab' consisting of almost 2,000 homes to test and scale net zero heating solutions

Kickstarting the emergence of innovative energy services such as Heat-as-a-Service, and Comfort-as-a-Service

Working alongside Governments and Local Authorities to support the implementation of flexible heating for UK homes



Almost 50 local councils have now completed or commissioned LAEP

All 10 Greater Manchester boroughs now have LAEP, which have identified £3.5bn of low carbon investment opportunities to 2050

The Welsh Government has officially adopted LEAP

DECARBONISING LOCAL PLACES: LOCAL AREA ENERGY PLANNING

More than 80% of local authorities in the UK have declared a climate emergency, with most targeting net zero before 2050. Yet only a few have a clear plan on how to get there.

Energy Systems Catapult pioneered the development of Local Area Energy Planning (LAEP) – a data driven and whole energy system approach that identifies the most cost-effective route for a local area to cut carbon emissions.

LAEP considers: electricity, heat, gas networks, future potential for hydrogen, the fabric and systems of built environment (industrial, domestic and commercial buildings), flexibility, energy generation and storage, and decarbonising transport e.g. electricity to electric vehicles and charging infrastructure.

The results are a fully costed, spatial plan that identifies the change needed to the local energy system and built environment to meet carbon targets.

This includes identifying the priority projects for investment, as well as helping consider the need for new low carbon skills.

LAEP is being implemented by several local authorities in England, has been officially adopted by the Welsh Government and is being considered by the Scottish Government.

It has been referenced in multiple reports, including the Climate Change Committee's 'Reducing UK Emissions 2020'.

Northern Powergrid and Northern Gas Networks have partnered in creating a charter for how they will support Local Area Energy Plans in Yorkshire and North East region and Ofgem included LAEP in their recommendations for the latest RIIO-2 Business Planning Guidance for energy networks.



The LAEP work undertaken is powerful because it identifies not just the type of technologies which will be needed for the net zero transition but their scale, indicative location and costs.

Mark Atherton | Director of Environment, Greater Manchester Combined Authority



Comprised of seven centres including: AMRC, CPI, MTC, NCC, NMIS, Nuclear AMRC, WMG

Operational since Autumn 2011

High Value Manufacturing Catapult helps grow the UK's advanced manufacturing value-add by helping industry to develop new manufacturing technology. They create the conditions for economic growth by enabling UK manufacturers to achieve significant improvements in their performance and productivity.

THE HEADLINES

1 CATAPULT-LED CONSORTIUM PRODUCED MORE THAN 13,000 VENTILATORS IN RESPONSE TO THE PANDEMIC

2 BOASTS ONE OF THE UK'S LARGEST APPRENTICE POPULATIONS

3 OUTSTANDING IMPACT REGENERATING AREAS LEFT BEHIND BY INDUSTRIAL CHANGE



Ventilator peak production exceeded 400 devices a day

Shortest time ever recorded to achieve 1,000 ventilators = 3 days

Furthest distance travelled by a part in the ventilator supply chain = 5,226 miles

VENTILATORCHALLENGEUK (VCUK) CONSORTIUM

Led by the High Value Manufacturing Catapult, the Ventilator Challenge UK combined the knowledge and skills of 33 UK technology and engineering businesses to deliver 13,437 ventilators to the NHS in response to the anticipated escalation in COVID19 cases.

The Consortium established, from scratch, seven new large-scale manufacturing facilities at Airbus AMRC Cymru in Broughton, Ford in Dagenham, GKN Aerospace in Luton and Cowes, McLaren in Woking, Rolls-Royce in Filton and STI in Hook, as well as restructuring existing sites Smiths Medical in Luton and Penlon in Abingdon.

It set up new parallel supply chains and acquired around 42 million parts and electronic components from over 22 countries through a complex logistics network that saw DHL design and implement an end-to-end supply chain in only 1.5 weeks.

Full MHRA approval for the Penlon ESO 2 device was achieved in just three weeks, making it the first newly adapted ventilator design to be given regulatory authorisation as part of the UK Government's fight against COVID19.

To do this, the consortium recruited and trained a 3,500 strong front-line assembly team in a new age of social distancing, balancing speedy delivery with absolute adherence to the regulatory standards needed to ensure patient safety, going on to secure the international quality seal of approval by way of CE marking.

The Consortium was awarded the Royal Academy of Engineering's President's Special Awards for Pandemic Service for exceptional engineering achievements.



The Ventilator Challenge has shown that UK manufacturing always rises to the challenge at a time of national need. Everyone involved is truly a hero of the coronavirus crisis.

Michael Gove | Speaking at the time of being part of the UK Government Covid response team.

ONE OF THE NATION'S LARGEST PROVIDERS OF APPRENTICESHIPS

With more than 1,700 apprentices across seven centres, the High Value Manufacturing Catapult boasts one of the largest apprentice populations in the UK.

Apprenticeships combine practical, on-the-job training with studying towards a nationally recognised qualification. Apprentices earn while they learn and work alongside experienced staff, gaining job-specific skills.

Apprentices are not the only part of the skills picture. To meet the aims of turning the UK into an industrial superpower, reducing greenhouse gas emissions and spurring industrial digitalisation, future skills gaps must be identified and filled through appropriate training courses now.

Funded by £2.5 million from the UK's Department for Education, High Value Manufacturing Catapult also led work in 2021-22 to prepare the future skills system for emerging technologies, trialling their Skills Value Chain approach.



The training at the MTC has exceeded my expectations! The knowledge and experience I've gained as part of my Amazon apprenticeship is beyond anything I had imagined. It's an amazing opportunity.

Camila Rey da Rosa | MTC Engineering Apprentice

Working closely with Institutes of Technology, High Value Manufacturing Catapult developed 51 modular training units for crucial technologies, including additive manufacturing, industrial digital technologies and electrification. These units were made publicly available for use across the entire education sector, helping to ensure accessibility of these skills to new learners.

Once units were complete, High Value Manufacturing Catapult's technical experts delivered guided training to 139 teachers in further education and 635 direct learners. Currently in the review phase, there is future work across the Catapult Network to build on this success and create a better skills system for offshore renewable energy, space applications, and many other key sectors for the UK.



More than 700 apprentices at WMG

Almost 600 apprentices in total at University of Sheffield AMRC and Nuclear AMRC

Approximately 400 Apprentices at MTC



More than 3,200+ engagements with SMEs across the UK in 2021/22

Worked on 2,216 and 461 commercial and collaborative R&D projects in 2021/2022

Ambition to double UK R&D expenditure in engineering and manufacturing

INDUSTRIAL TRANSFORMATION

The High Value Manufacturing Catapult and its centres provide the largest advanced manufacturing research capability in Europe and are the driving force behind a profound transformation of the UK industrial landscape.

Examples include High Value Manufacturing Catapult's Advanced Manufacturing Research Centre (AMRC) and Nuclear AMRC, both part of the University of Sheffield, which have transformed the site of the former Orgreave colliery and coking works into an international hub of industrial collaboration, and the £600 million inward investment hotspot which has developed around the Manufacturing Technology Centre at Ansty Park, Coventry.

Both centres have generated new high-quality jobs and company growth in local supply chains.

The Advanced Forming Research Centre (AFRC) led the creation of Scotland's first

major advanced manufacturing park and a £100 million investment in the new National Manufacturing Institute Scotland (NMIS).

The National Composites Centre in the South West is also enhancing UK capabilities in engineering and delivering world-class research and development of composites.

The CPI has had a major impact in North East England, advancing the national capability for advanced vaccine development and contributing significantly to healthcare resilience in the UK.

These are illustrations of exactly the sort of innovation-driven transformation the UK needs to level up and the High Value Manufacturing Catapult is determined to transform at least five more past industrial landscapes by 2030.



Sheffield is particularly appropriate (for the launch of the innovation strategy) given its history of engineering, manufacturing and high-level innovation; indeed, Made in Sheffield is a hallmark around the world of strength, quality and innovation.

Rt Hon Kwasi Kwarteng MP | Speaking at the time as Minister of State at the then Department of Business, Energy and Industrial Strategy



Cheshire
Manchester

Operational since
Autumn 2016

Medicines Discovery Catapult supports the medicines R&D sector by applying technologies and techniques that improve predictability and productivity. These help innovators access private sector funding, drive national R&D collaborations in areas of unmet patient need and improve the business environment for biotech. Medicines Discovery Catapult also harnesses existing UK infrastructure to enable the drug R&D community to make their mark on the industry and patients. In its first four years it has leveraged over £400 million in private funding, helped 200 companies across the nation, translated biotech SME products from concept to market, driven the adoption of preclinical PET imaging and coordinated the largest diagnostics project in UK history.

THE HEADLINES

1 PRIVATE FUNDING SECURED FOR NEW TREATMENTS FOR NEURODEGENERATIVE DISEASES AND CANCERS

2 PRIVATE SECTOR CONSORTIUM CONFRONTS URGENT NEED FOR NEW MENTAL HEALTH MEDICINES

3 KEEPING THE UK WORLD-LEADING IN MEDICAL IMAGING TECHNOLOGY



Significant private funding secured for Alchemab's unique drug discovery platform

Collaboration extended to focus on Alzheimer's Disease

ALCHEMAB THERAPEUTICS SECURES £60 MILLION FUNDING FOLLOWING COLLABORATION

In 2021, Alchemab and Medicines Discovery Catapult collaborated on a Huntington's disease focused project, which supported Alchemab in securing significant private investment.

Alchemab pioneers a data-driven approach to antibody therapeutics by identifying highly resilient subjects and learning how their antibodies overcome or resist disease. It uses them to develop therapeutic products for broader use in patients who lack the protective response.

This funding enabled Alchemab to exploit its target-agnostic drug discovery platform further, focusing on developing novel therapeutics for hard-to-treat neurodegenerative diseases and cancers.

The Alchemab and Medicines Discovery Catapult collaboration was extended in 2022 to functionally characterise antibodies from

resilient patients with Alzheimer's disease and frontotemporal dementia.

Alchemab's approach, developing new therapeutics founded on natural resilience to disease rather than the disease itself, combined with Medicines Discovery Catapult's technologies and expertise, significantly improves understanding of the pathophysiology and treatment opportunities for Huntington's disease and Alzheimer's disease. This approach has great potential to be applied to many other areas of currently unmet patient needs.



We are very pleased to extend our collaboration with Medicines Discovery Catapult. After great success in our Huntington's disease program, we are positioned to continue to discover and develop potentially transformative therapies.

Dr Young T. Kwon, PhD | Chief Executive Officer, Alchemab Therapeutics

THE PSYCHIATRY CONSORTIUM - EXPLORING NEW TREATMENTS FOR MENTAL HEALTH CONDITIONS

Medicines discovery for challenging diseases requires a collaborative approach with a patient focus. In 2019, Medicines Discovery Catapult established the Psychiatry Consortium as one of its Syndicates. It is a strategic collaboration of two leading medical research charities and seven international pharmaceutical companies, focusing on the unmet therapeutic needs of people living with mental health conditions.

The scale and impact of mental illness are huge. One in ten children and one in four adults (approximately 15 million people) experience mental illness each year, affecting their wellbeing, relationships, and potential ability to work. The economic and social cost of mental illness has been estimated as £105 billion a year in England alone. There have been no new, effective types of treatment for over 30 years and modern treatments are needed urgently.

The lack of novel drug targets combined with the challenge of validating them pre-clinically

and the high failure rate in clinical trials have led to reduced investment in drug discovery and development in the last decade.

The Psychiatry Consortium partners provide funding, collaboration, and knowledge exchange, to revitalise drug discovery in psychiatry by strengthening collaborations across the sector – committing approximately £4 million in research funding to deliver high-impact drug discovery projects.

The Psychiatry Consortium has launched seven calls for research projects and engaged with over 400 research institutions in 75 countries worldwide. It has created a partnership to investigate a new drug target for the treatment of schizophrenia, an international collaboration that seeks to define a new pharmacological approach to treat depression and a unique collaboration to further investigate a new class of drugs for the treatment of post-partum depression.



At the moment, too many people living with a mental illness are going without the effective help they need. This Psychiatry Consortium is an important step in stimulating much-needed advances in the area.

Lea Milligan | CEO, MQ: Transforming Mental Health



2019: Integrated regional imaging services into Medicines Discovery Catapult

2021: Established UK PET Network with leading academic centres of excellence

2021: Relunched radiochemistry at the Wolfson Molecular Imaging Centre (WMIC)

TRANSFORMING UK MEDICAL IMAGING

Medicines Discovery Catapult is working to ensure the UK remains a world leader in Positron Emission Tomography (PET) Imaging, a data-rich non-invasive imaging modality that offers huge potential across the life sciences and is highly amenable to advances in AI.

In April 2019, Medicines Discovery Catapult integrated *in-vivo* imaging services into its pre-clinical portfolio. It promoted and drove adoption of these advanced techniques through collaborative research programmes across a range of disease areas, accelerating drug R&D for UK SMEs.

Medicines Discovery Catapult's contribution of PET Imaging expertise and infrastructure has supported two of these UK SMEs in securing over £12.5 million of private investment.

In 2021, Medicines Discovery Catapult created the UK PET Network with leading academic centres of excellence. The network will leverage

UK innovation, expertise, and infrastructure to keep the UK at the leading edge of this important and valuable technology. This has led to the creation of a multi-million pound national PET transaction platform co-supported by industry and UK Research & Innovation (UKRI).

Adding to these PET Imaging capabilities, Medicines Discovery Catapult relaunched radiochemistry at Manchester's Wolfson Molecular Imaging Centre (WMIC) in August 2021. WMIC houses a multi-million pound cyclotron that allows Medicines Discovery Catapult to supply hard-to-make radiochemicals to drug discovery biotechs and academic innovators – increasing the UK's potential to discover new and better therapies for patients faster.



The University has had a very positive working relationship with Medicines Discovery Catapult for a number of years, and we are looking forward to seeing the impact of this new development on pre-clinical research.

Peter Clayton | Deputy Vice-President & Deputy Dean, Faculty of Biology, Medicine & Health, University of Manchester

Psychiatry Consortium



£4m new private funding for psychiatric drug discovery

UK charities, SME and international pharma coordinated

400 research institutions in 75 countries engaged



📍 Glasgow, Blyth, Grimsby,
Suffolk, Cornwall,
Pembrokeshire,
Anglesey, Aberdeen,
Levenmouth, Edinburgh,
Shandong Province

Operational since
Spring 2013

Offshore Renewable Energy Catapult creates clean growth opportunities by accelerating the creation and development of UK companies in offshore renewable energy. Their mission is to enable the transition to a low carbon economy and expand the sector by becoming the world's leading offshore renewables technology centre.

THE HEADLINES

1 CATAPULT AND GE DELIVER
RECORD LOW PRICES
AND UNLOCK BILLIONS OF
INVESTMENT

2 BRINGING PIONEERING
TECHNOLOGY TO MARKET
TO DRIVE DOWN COST OF
OFFSHORE WIND

3 UNIQUE TESTING
EQUIPMENT HELPS SMEs
CREATE JOBS AND GROW
TECHNOLOGY



Lowest ever cost of offshore
wind enabled by accelerated
technology development

£9bn in project finance unlocked to
deliver world's largest wind farm
and enable UK net zero

£9m R&D collaboration, 'Stay
Ashore', focusing on priorities
that drive technology and supply
chain improvements in offshore wind

COLLABORATION DELIVERS RECORD LOW OFFSHORE WIND ENERGY PRICES AND ECONOMIC STIMULUS

Offshore Renewable Energy Catapult – collaborating to bring the most powerful offshore wind turbine in the world to market, enabling accelerated deployment of offshore wind to meet the UK's net zero ambition, record low energy prices, unlocking billions in investment, thousands of green jobs and research, product and service development.

In March 2018, GE announced an ambitious plan to bring its disruptive Haliade-X offshore wind turbine to market in little over two years, which they achieved thanks to the pivotal role of the Offshore Renewable Energy Catapult and its world-leading test and validation facilities in Blyth.

This enabled supply of the turbine to the world's largest wind farm, Dogger Bank, unlocking over £9 billion in project finance and delivering record-low energy prices for the project in 2019 – the lowest ever seen for a UK offshore wind farm.

Developments like Dogger Bank provide the foundation from which the UK can achieve net zero, creating momentum for a strong UK supply chain, thousands of jobs and paving the way for

large-scale, indigenous manufacturing.

The long-term partnership between the Catapult and GE has delivered a £6 million combined investment in the Catapult's unique Grid Emulation system, enabling integration of offshore wind into future energy systems; a £9 million R&D collaboration, 'Stay Ashore'; £500k investment over four years in UK academia, and access and direct benefit to UK SMEs in the development and commercialisation of innovative products and services for the offshore wind industry.

As a direct consequence of the success of the market entry of Haliade-X, Equinor announced their Operations and Maintenance (O&M) base will be in the North East, less than 30 minutes from Blyth, creating 200 jobs.

Offshore Renewable Energy Catapult and GE's 'Stay Ashore' R&D collaboration is pioneering technology innovation for safer and more reliable operation of offshore wind farms and developing the UK supply chain in areas such as robotics, artificial intelligence and digitalisation.



Turbine innovation has played a huge role in bringing down the cost of offshore wind, and these world-leading turbines will help us deliver renewable electricity at the lowest cost possible for millions of people across the UK.

Halfdan Brustad | Vice President for Dogger Bank, Equinor

R&D PARTNERSHIP DELIVERING GLOBAL EXPORTS AND £130 MILLION UK MANUFACTURING INVESTMENT

In 2016, with an already well-established technology development partnership, the Offshore Renewable Energy Catapult worked with JDR Cables to bring its pioneering 66kV cable technology to market, providing electrical testing throughout its development, qualification and testing programmes.

As JDR looked to break into the renewables market from oil and gas, the scaling up of cable voltage from 33kV to 66kV was essential in response to the increase in size and capacity of offshore wind farms, placing greater demands on the subsea cables that connect the turbines and substations. By doubling the voltage of the industry-standard 33kV inter-array cable, JDR's technology allows increased transmission between turbines at higher-capacity wind farms – a vital factor in reducing the cost of offshore wind and essential to JDR's ability to compete in the global market and expand its UK operations.

Offshore Renewable Energy Catapult's high voltage laboratory in Blyth is one of the few facilities in the world which can test 66kV systems.

As a long-term test partner of JDR Cables, the Catapult developed a bespoke facility to validate and de-risk the new cables, giving the Northeast-based firm – and its potential clients – the confidence that this first-of-its-kind technology can withstand the higher loads and harsh conditions offshore.

JDR's subsequent UK and global market success, with orders for almost 1000km of 66kV cables, has been pivotal to their announcement of a £130 million investment in a new North-East cable manufacturing plant, creating 170 highly skilled jobs and safeguarding 270 more.



Offshore Renewable Energy Catapult plays that pivotal role in enabling us to get our technologies out there and satisfy our customers that we have the product assurance in place to make sure our product is successful in their offshore wind projects.

James Young | Chief Strategy and Compliance Officer, JDR Cables



£130m investment in new UK cable
manufacturing facility

Creation of over 170 high-skilled
new jobs, safeguarding 270 more

Contracts resulting in supply
of ~ 1000km of cables from UK
manufacturing

ADDRESSING A MARKET FAILURE BY PROVIDING REAL-WORLD OFFSHORE WIND DEMONSTRATION OPPORTUNITIES

Offshore Renewable Energy Catapult has transformed the 7MW Levenmouth Demonstration Turbine (LDT) into the world's most advanced, open-access offshore wind turbine dedicated to research and development and a unique test and demonstration asset.

It plays host to some of the industry's most exciting new technologies and provides access to data from 800+ sensor outputs.

It advances technologies in robotics and autonomous systems, data and digitalisation and training and personnel transfer systems, as well as providing a hub for Science, Technology, Engineering, and Mathematics (STEM) and skills development.

It enables academics to develop new solutions and SMEs and other innovators to prove and de-risk their technologies for investors and end-users.

Since 2016, the LDT has attracted 137 SMEs for technology development, testing

or demonstration, enabled 71 separate international R&D programmes and leveraged over £25.6 million in additional funding.

Notable successes include Pict Offshore, which provides access, lifting and height safety solutions for the offshore wind energy sector. Through access to the facilities at Levenmouth they were able to attract significant investment from global offshore wind leaders, Ørsted, who acquired a 22.5% stake in the company.

Securing major UK and international export contracts, Pict have invested in new manufacturing facilities in Fife, creating over 20 highly skilled jobs.

And the LDT is playing a vital role in the development of new low carbon energy systems, providing the clean energy to generate green hydrogen for gas company SGN's 'H100' project, a ground-breaking demonstration project that will evidence the role hydrogen can play in decarbonising heat.



Having the turbine available at a site that we can access easily, compared to a genuine offshore site, is enormously valuable. It is of huge significance in terms of reducing the cost and time of bringing new systems to market.

Phillip Taylor | Pict Offshore



📍 Didcot, Glasgow,
County Durham,
Leicester,
Portsmouth,
West Cornwall

Operational since
Winter 2012

Satellite Applications Catapult fosters the growth of satellite applications through the exploitation of space. Their vision is to be a world-leading innovation and technology company, helping businesses of all sizes to realise the potential from space. They aim to support integration for a connected and information-centric world.

THE HEADLINES

1 KEEPING THE UK CONNECTED
TO A MULTI-BILLION POUND
SATELLITE MARKET

2 SPURRING NEW
INVESTMENT INTO THE
SPACE SECTOR

3 USING SATELLITES TO
PROTECT THE FISHING
INDUSTRY



Delivering a five-fold increase in
the size of the UK space sector

Harwell is now home to 100
space companies and over
1,400+ space jobs

The total private investment
in companies supported by
Satellite Applications Catapult is
is over £400m

STIMULATING A FIVE-FOLD INCREASE IN THE SIZE OF THE UK SPACE ECOSYSTEM

Satellite Applications Catapult's support for a UK-wide space ecosystem has led to a thriving national space economy, with five-fold growth in the number of UK companies actively involved in space. The sector now generates £15.8 billion for the UK economy, and employs 47,000 people. Companies supported by the Catapult have secured over £400 million in private investment.

In 2013, the Catapult was established to create and grow a space innovation ecosystem at Harwell. Nine years later, the Harwell Space Cluster has grown from a nascent 5 organisations to now house 100 space companies employing over 1,400 people, and forms the beating heart of the UK space sector.

And they haven't stopped there. From early on the Catapult sought to ensure the successes at Harwell were mirrored around the country. A regional programme has supported cluster growth from the South West to the North East, Scotland and the Highlands and Islands. The £2.8 million investment by the Catapult and UKSA has been shown to have leveraged £14.7 million for the centres and their regional partners, a 5x return. Nationally, the sector has grown from 234 companies in 2012 to nearly 1,300 today – a five-fold increase.

Just 45 minutes from Harwell, the Catapult has led investment of over £35 million from both public and private organisations into the complementary new space Cluster at Westcott. The Catapult's Business Incubation Centre, Future Networks Development Centre and Westcott Innovation Centre are soon to be joined by an In-Orbit Servicing and Manufacturing Facility, Health and Agri Living Labs and a Drone Test and Development centre. Westcott is fast becoming a globally significant centre for next generation propulsion systems, and advanced communications technology and applications. The site has ambitions to secure an additional investment of £380 million, delivering 2,260 highly skilled jobs and £1.9 billion NPV.

All around the country, the Satellite Applications Catapult's world-class facilities and approach to lowering barriers to entry has helped to create the space industry we see today. With Catapult support, UK space companies have secured over £400 million in private investment – over £300 million in the last two years alone.

CATALYSING PRIVATE SECTOR FUNDING FOR THE SPACE SECTOR

When the Satellite Applications Catapult was created, one of its first priorities was to address the lack of private finance in the sector. By working with the investment community to educate them about space, the need for a dedicated venture capital fund was established, and by working with the British Business Bank the Catapult stimulated the development of the first dedicated fund committed to investing in innovative companies in the UK Space Sector.

The Seraphim Space Fund, which was set up to invest in commercial applications in both software and hardware opportunities, as well as in technologies that have potential space applications such as artificial intelligence, robotics and nanomaterials, made its first investments in 2017.

Today, the Seraphim Space Fund has just completed an IPO, raising a further £178.4 million, and retaining its focus to invest in early and growth stage Space Tech businesses.



The Catapult has been instrumental in helping us achieve (the launch of Seraphim Space Camp), providing a huge amount of value to our start-ups. Furthermore, their sector specific knowledge and insight is essential to the growing UK & global space industries.

Matt O'Connell | Partner, Seraphim Space Camp

The fund continues to be a game changer for the sector, and its very presence in the financial ecosystem is a significant achievement, which gives confidence to a wider set of UK financial investors.

The success of the fund has also generated further financial interest in the sector with organisations such as UK Space Tech Angels joining the investor ecosystem. In April 2022, the Type One Ventures fund was launched in London with a \$50m initial fund size, looking to invest in innovative companies in the UK space sector.



Supported the establishment
of a dedicated, first-of-its-size
venture capital fund for the UK
space sector

Since launch, the fund has
completed an IPO, raising
a further £178.4 million and
focussing on early and growth
stage space tech businesses



OceanMind monitors tens of
thousands of vessels

It covers millions of square
kilometres of ocean

It benefits over 20 countries and
fights illegal fishing worth more
than \$10b

PROTECTING UK INTERESTS AND INDUSTRY AT SEA – FROM SPACE

Satellite Applications Catapult's spin-out, Oceanmind, powers marine enforcement and compliance to protect the ocean's ability to provide for human wellbeing. Using satellites and artificial intelligence it helps authorities enforce more effectively and industry work more responsibly.

This market-leading service uses observation of fishing vessels to help establish, monitor and enforce large-scale Marine Protected Areas (MPAs) across the British Indian Ocean Territory, Pitcairn Islands, Ascension, Tristan da Cunha, Saint Helena, British Antarctic Territory and South Georgia and the South Sandwich Islands.

With the value of losses to the global fisheries sector through illegal, unreported and unregulated fishing estimated at between \$10 billion and \$23.5 billion (WWF), the impact of this technology is significant.

The nature of the fishing industry makes effective monitoring a real challenge. Previously there was no cost-effective means to provide enforcement, which made the policy of establishing MPAs undeliverable.

However OceanMind has developed next-generation technology using satellites, cloud computing, and artificial intelligence to understand the compliance of maritime human activity and its impact on the ocean.

OceanMind continues to work on enforcement support for the British Blue Belt of marine protected areas. It also works on global supply chain challenges with international fisheries and global retailers.

By powering enforcement and compliance, OceanMind protects UK interests and the world's oceans.

