CATAPULT
High Value Manufacturing

Annual report 2026



Innovate UK
University of Sheffield AMRC Advanced Manufacturing Research Centre
cpi
mtc where progress happens
ncc
NMIS National Manufacturing Institute Scotland
WMG THE UNIVERSITY OF WARWICK

Foreword



Steve Bagshaw CBE, Chair
High Value Manufacturing Catapult

For the first time in a generation we have an industrial strategy that matches ambition with investment, immediate action, cuts to regulation, a commitment to emerging technologies like AI and clarity on where innovation is needed most.

It sets us on a course toward economic growth with sector plans that detail where the targeted support will land and clear actions to hold us all to account.

We need to ensure large scale programmes that present the next economic opportunity for the UK – whether it is floating wind farms, narrow-body aircraft or nuclear small modular reactors – are delivered by a UK supply chain.

But we cannot flick a switch to make that happen.

It needs a 10-15 year, multi-partner commitment that embeds automation, harnesses AI, reduces the cost of energy and unlocks private investment for start-ups and scale-ups. That is why the industrial strategy is so important and why innovation is critical to industry competitiveness.

Our measure of success will be UK growth underpinned by UK content and supply chains with the associated economic dividend of a domestic manufacturing base, high-value jobs and industrial capability, creating a global competitive advantage.

The industrial strategy defines how we can get ahead through the eight priority sectors, using innovation to drive growth and create jobs in all UK communities.



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CEO’s statement



Katherine Bennett CBE HonFREng, CEO High Value Manufacturing Catapult

The High Value Manufacturing Catapult celebrates its fifteenth anniversary in 2026.

Through political change and global turbulence we have continued to be the engine of economic growth across the country.

In that time, we have invested £1.2bn of UK government funding to generate over £5bn in cumulative GVA – the equivalent of £142,000 additional GVA per company assisted. Put simply, every pound invested by government generates four pounds for the economy.

In these pages we see how that translates into results for manufacturers up and down the country – from using AI to overhaul production processes and efficiencies to helping artisans transform their businesses through manufacturing innovation.

Companies working with HVM Catapult during 2024-25 raised £117m in private investment and won £18m in public grants during 2025-26. SMEs working with us since 2023 reported an average 26% increase in turnover and 14% increase in headcount by 2026.

That is economic growth driven by a commitment to support businesses from research and development to industrialisation and commercialisation.

Our ambitions for 2026 and beyond are even bolder. In the year ahead, HVM Catapult and the six research centres which make up our network will sharpen our focus to embed the modern industrial strategy in our work, strengthening our programmes and partnerships and continuing to demonstrate the real-world impact we deliver across the UK’s manufacturing sector.

Our programme of work for 2026-27 builds on our achievements with a renewed focus on helping manufacturers large and small improve the products they sell, the way they make them and the skills of their workforce. We will remain focused on our priorities in industrial sustainability, healthy living, the clean energy transition, national security and the critical enablers that support them – place, access to finance, strengthening supply chains, AI and digitalisation, and people and skills.

And we will reinforce our position as a partner to government through our work to implement the modern industrial strategy’s objectives (P14-15), our alliance with the Ministry of Defence to grow the defence industrial base (P16-17), our ten-year nuclear strategy (P18-19), and our development of key technologies in nuclear, wind, engineering biology and personalised healthcare.

Guided clearly by the government’s modern industrial strategy, there is no reason why the next 15 years cannot eclipse the previous 15 as we continue to work with Innovate UK to drive growth.



An innovation hub for UK industry

The High Value Manufacturing (HVM) Catapult helps drive economic growth across the country by keeping UK manufacturing innovative, productive and globally competitive.

Each year, thousands of businesses come to HVM Catapult seeking solutions to a particular problem or looking for ways to improve the products they sell, the way they make them and the skills of their workforce, which could help them attract inward investment and prosper in the global marketplace.

HVM Catapult's national network of centres and 3,800 employees provide companies with access to world-class facilities and expertise that would otherwise be out of reach.

As part of the Innovate UK Catapult Network, HVM Catapult is the link between academia and industry to apply research, commercialising the UK's most advanced manufacturing ideas. Working at scale and across the UK, our six centres are a strategic research and innovation hub for UK industry, collaborating to accelerate industrial transformation by tackling key objectives in support of clean energy, healthy living, national security and industrial sustainability.

As a delivery partner to government, we help shape industrial strategy and are working to ensure the UK has the people, the places and the potential to be globally leading in manufacturing.



Our network of centres have sites across the UK



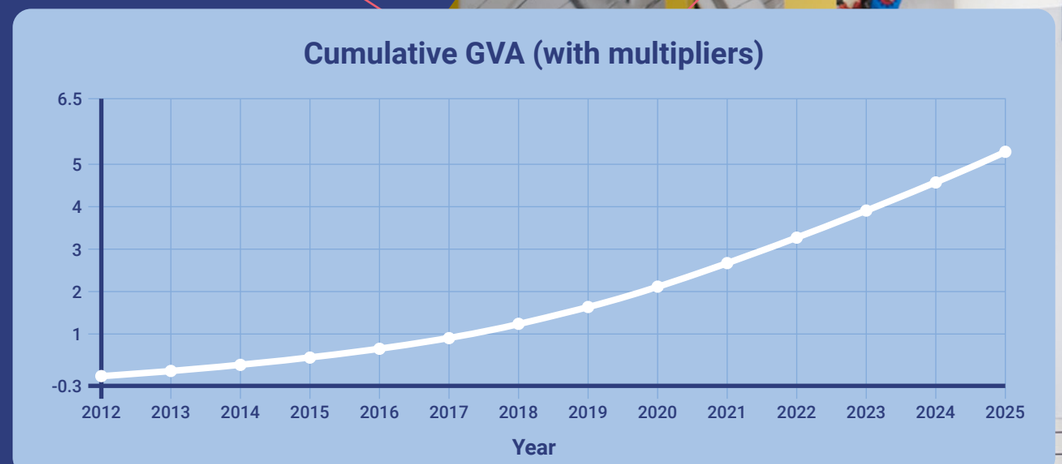
Our impact since 2011

£1bn+

of UK government money invested

£5bn+

of cumulative GVA for the UK economy



16% average increase

in turnover per company assisted

£142,000 additional GVA

per company assisted

We worked with...

43,875

companies

Of which...

21,954

were SMEs

Our 2025-26 impact in numbers

Generated...

£326.7m

of income outside core grant

We provided...

9,563

companies with innovation/supply chain support

Of which...

43%

were SMEs (4,106)

After working with HVM Catapult in 2024-25, in 2025-26 SMEs raised:

£117m

of private investment

£18m

of public grants

SMEs that worked with HVM Catapult during 2023-24 reported, by the end of 2025-26, an average:

26% increase

in turnover

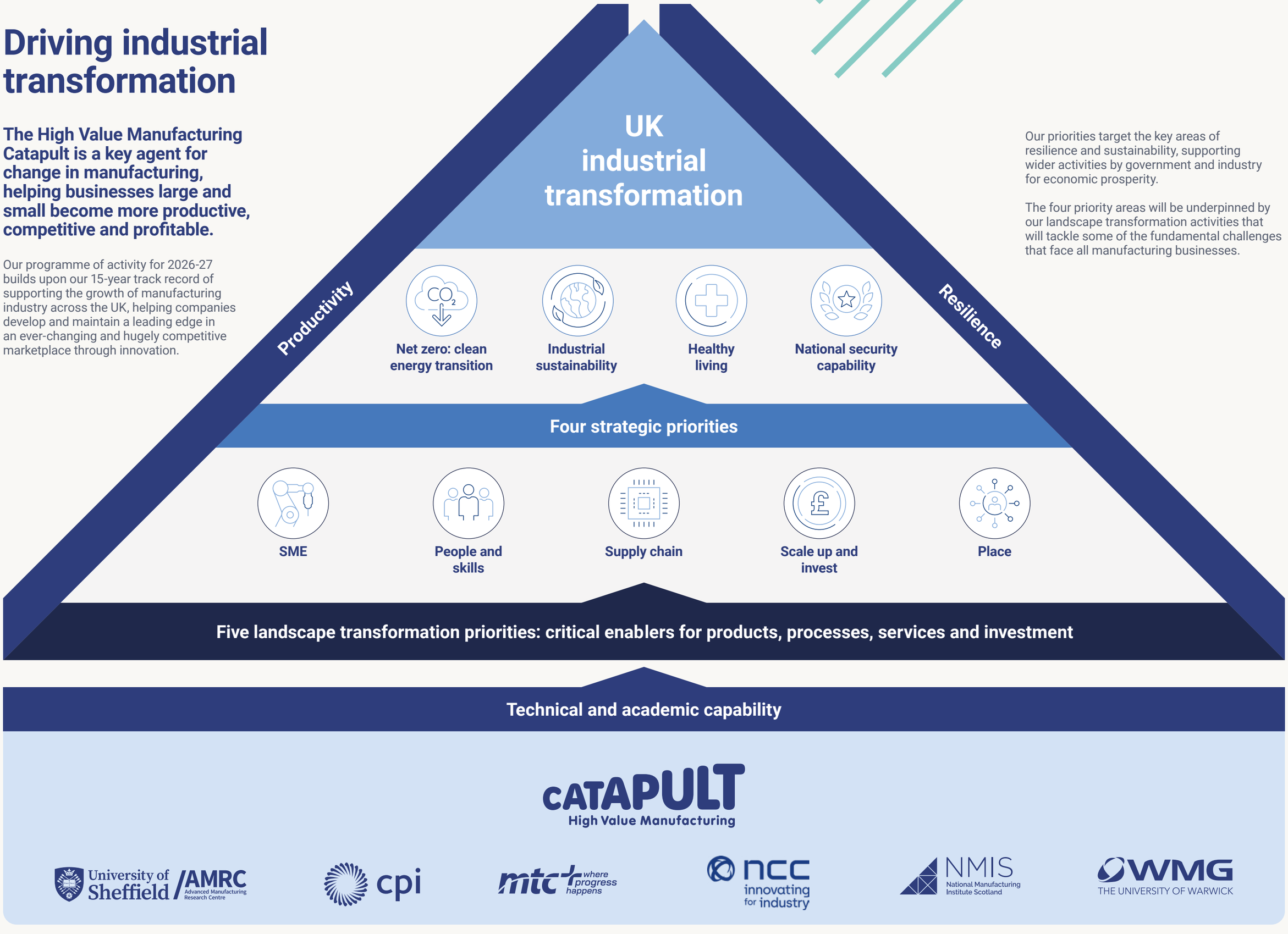
14% increase

in number of employees

Driving industrial transformation

The High Value Manufacturing Catapult is a key agent for change in manufacturing, helping businesses large and small become more productive, competitive and profitable.

Our programme of activity for 2026-27 builds upon our 15-year track record of supporting the growth of manufacturing industry across the UK, helping companies develop and maintain a leading edge in an ever-changing and hugely competitive marketplace through innovation.



Our priorities target the key areas of resilience and sustainability, supporting wider activities by government and industry for economic prosperity.

The four priority areas will be underpinned by our landscape transformation activities that will tackle some of the fundamental challenges that face all manufacturing businesses.

Our priorities for 2026

Healthy living

It is our ambition to make the UK the leading place to design, scale and manufacture technologies that enable healthier lives, spanning advanced medicines, personalised healthcare, bioengineering and sustainable agriculture.

By providing national-scale manufacturing capability, deep technical expertise and strong alignment with regulators and public services, we will bridge the gap between innovation and deployment – helping companies move rapidly from prototype to production.

Health tech

- **Next generation diagnostics and health tech devices:** delivering innovative medical products and advancing liquid biopsy technologies to deliver more precise cancer detection and personalised healthcare solutions.
- **Scaling-up health tech SMEs:** de-risking product development through sustainable digitisation and automation in manufacturing, and regulatory frameworks.

Food and drink

- **Novel foods:** enhancing efficiency, resilience and sustainability, positioning the UK as a leader in healthy, innovative food systems.

Pharmaceuticals

- **RNA-based therapeutics:** establishing the UK's first RNA Biofoundry to enable scalable, GMP-compliant production of advanced therapies and personalised treatments.
- **Therapeutic scale-up and sustainable medicines:** accelerating biologics and novel therapies while embedding greener, more efficient manufacturing processes.

Agri-tech

- **Innovation and digital transformation in agriculture and horticulture:** deploying AI, robotics and smart crop systems to improve yields, reduce resource use and boost resilience.
- **Sustainable agrichemicals:** developing bio-derived pesticides and soil health solutions to cut environmental impact and strengthen food security.



National security capability

Our national security depends on well-equipped armed forces, able to respond effectively to emerging threats. Manufacturing industry has a significant part to play in providing the equipment and supply, offering capability and crucial capacity to meet potential surges in demand.

Our vision for national security capability is to strengthen the UK's sovereign industrial base so it can innovate, scale and respond at pace to evolving threats, while driving economic growth and resilience.

The UK's defence sector utilises only 3% of the UK industrial base

Supply chain scaling for defence

- **Supply chain capability and capacity scale-up:** enabling SMEs and scale-ups to adopt secure digital manufacturing and developing regional manufacturing innovation clusters.

Defence innovation ecosystem

- **Creating a defence-focused manufacturing ecosystem:** bringing together advanced digital engineering, secure manufacturing and collaborative industry networks to accelerate SME industrialisation and build a future-ready defence workforce.

Engineering and manufacturing innovation

- **Defence technology applications:** AI-driven inspection standards, scaled dual-use technologies and embedded secure digitalisation that empower UK businesses to innovate, scale and compete globally.



Image: Ministry of Defence Copyright

Clean energy transition

The clean energy economy could be worth up to £1tn by 2030.

However, manufacturing, skills and grid challenges remain with supply chain constraints slowing progress and industrial capacity gaps hindering delivery.

Our work in this area will embed circularity, resource efficiency and lifecycle resilience at the heart of UK clean energy manufacturing, ensuring that sustainability is delivered as a source of competitive advantage.

Electrification

- **Batteries:** advancing material processing, recycling and validation to accelerate battery innovation and secure resilient UK supply chains.
- **Electrified transport:** scaling digital design and automation to enable rapid industrialisation of surface EV and aerospace platforms.
- **Power electronics, machines and drives:** industrialising electric machines and power electronics through cutting-edge packaging and testing.

Wind

- **Strategic supply chain development:** portside assembly simulation, investment evidence and supply-chain accelerators in blades, cables and deep-water foundations.
- **Large structures:** full-scale blade and composite demonstrators to validate industrial quality and route-to-rate for 100 m+ components.
- **Through-life for turbines:** maintenance, repair and overhaul (MRO), remanufacture and advanced recycling pilots.
- **Disruptive programmes:** updating a reference turbine model comprising key innovative sub-systems along with defined routes to commercialisation.



Nuclear

- **Mobilising UK supply chain:** gap analysis, codes and standards enablement, and pilot cohorts.
- **Technology to shorten build:** modular, automated, digitally-assured fabrication, and advanced materials and joining.
- **Decommissioning:** modular waste-containment, circularity and scaled remote handling.



Industrial sustainability

Sustainability is the cornerstone of a strong, successful and enduring industrial base and our vision is for a competitive, resilient UK manufacturing sector that supports new skills, good jobs and stronger communities.

By accelerating the adoption of low-carbon processes, circular economy principles, advanced materials, automation, AI and digital technologies, we will help manufacturers — particularly SMEs and critical supply chains — to reduce emissions and costs, improve efficiency and resilience, and remain internationally competitive.

Advanced materials and process innovation

- **Automation and robotics integration:** bringing forward next-generation automation technologies.
- **Next-generation materials and composites:** developing advanced, sustainable materials for high-performance applications.
- **Process innovation:** for speed, scalability, quality and efficiency.

Sector applications

- **Aerospace and defence:** driving technology adoption for next-generation aircraft and propulsion systems.
- **Cross-sector applications:** enabling innovation in sustainable materials, circular manufacturing and automation.

Artificial intelligence and digital

- **Digital infrastructure and connectivity:** building the digital foundations for industrial transformation.
- **AI and intelligent systems:** the deployment of AI across industrial applications from design to operations.
- **End-to-end design and digital thread solutions:** accelerating innovation across the product lifecycle.

Industrial decarbonisation and sustainability

- **Sustainable operations:** reducing emissions and improving energy and resource efficiency.
- **Sustainable lifecycle:** to recover, reuse and extend the life of materials and products.



SMEs account for 99% of all businesses and over half of private sector turnover

Landscape transformation

HVM Catapult is at the forefront of the shift to a future-ready, globally competitive industrial base. We want businesses to modernise and thrive, focusing on the practical foundations that underpin industrial success.

Our vision is for a resilient UK manufacturing sector that fosters high-quality jobs, nurtures new skills and strengthens communities. Achieving this vision relies on breaking down barriers to automation and data-driven systems, investing in upskilling and reskilling, and fostering collaboration across regions and supply networks.

SME

- **SME innovation and start-up acceleration:** supporting new manufacturing businesses with technical expertise, prototyping and commercialisation to speed up market entry.
- **SME competitiveness and technology adoption:** helping established SMEs adopt advanced technologies, improve competitiveness and build long-term resilience.

Scale-up and invest

- **Manufacturing investment readiness:** building robust business cases, preparing companies to secure growth capital and facilitating tailored investment opportunities.
- **Advanced manufacturing scale-up accelerator:** providing targeted technical and commercial support to help high-potential businesses scale rapidly and achieve measurable impact.

Supply chains

- **Building supply chain strength:** ensuring HVM Catapult has robust internal capabilities so we are equipped to effectively respond to the supply chain focused needs of UK industry.
- **Delivering supply chain impact:** mapping value chains, implementing targeted interventions and driving improvements in productivity, resilience and sustainability.

Place

- **HVM Catapult support for regions:** delivering targeted manufacturing interventions and collaborative programmes to drive productivity and resilience in local businesses.
- **Leveraging regional clusters on national challenges:** convening sector-focused partnerships to address strategic priorities, accelerate technology adoption and attract investment.

UK manufacturing businesses directly employ 2.6m people

People and skills

- **Future skills for industrialisation:** understanding workforce technology impacts to equip industry with the skills needed for industrial transformation.
- **Diffusion of technology capability across the skills landscape:** influencing skills strategies and accelerating provider network capability to deliver future fit skills.
- **Upskilling and reskilling through specialist provision:** specialist training provision to enable future-ready skills needed for innovation and growth.

A delivery partner to government

The modern industrial strategy

The High Value Manufacturing Catapult is a core delivery partner for the government's industrial strategy, announced in June 2025.



HVM Catapult is seen as a 'vital player' in the UK's advanced manufacturing landscape, with our network of centres mandated to drive high-impact, cross-sector innovation.

In the lead-up to the publication of the industrial strategy, our teams collaborated closely with stakeholders across Whitehall to ensure our technical expertise informed national policy.

As a result of our deep integration, we have identified several critical areas for partnership that align HVM Catapult's strategic priorities with government's long-term objectives, including:

- **Aerospace innovation:** Strengthening South Yorkshire's Advanced Manufacturing Park, centred around the University of Sheffield AMRC through its new £54m Composites at Speed and Scale (COMPASS) facility with Boeing as its first user
- **Lightweight fuel systems:** Supporting ZeroAvia's investment in the Advanced Manufacturing Innovation District Scotland (AMIDS), where the National Manufacturing Institute Scotland (NMIS) serves as the primary anchor facility
- **Energy storage and electrification:** Expanding battery innovation and supply chain activities delivered through the combined expertise of WMG and CPI
- **Advanced materials scale-up:** Accelerating R&D in composites, glass and carbon fibre manufacturing through specialised centres like NCC
- **Defence sovereignty:** Formalising the HVM Catapult – Ministry of Defence (MOD) Alliance to enhance sovereign manufacturing capabilities and military resilience.

Since the strategy's launch, we have worked closely with government on its implementation, including placing three HVM Catapult secondees into the industrial strategy unit. Simultaneously, our senior leadership team is refining our 2026 delivery programme to remain fully synchronised with the evolving policy direction, aligning with the new UKRI strategy and working with Innovate UK to drive growth through high-potential businesses.

As a core delivery partner, HVM Catapult's current and future projects within our grant work programme portfolio are designed to meet cross-departmental manufacturing goals including the Department for Business, Innovation, Science and Trade, the Department for Energy Security and Net Zero, the MOD and the Office of Life Sciences.

By bridging the gap between government and industrial application, we continue to anchor high-value jobs and sustainable growth across the UK.

MOD alliance helping to grow defence manufacturing supply chain



An alliance between the Ministry of Defence (MOD) and HVM Catapult is growing the defence industrial base to protect UK interests against emerging global threats.

HVM Catapult supports the alliance by providing access to state-of-the-art research and development facilities and market insights to harness new defence plans and deliver the ambitions of the defence industrial strategy (DIS) with industry and supply chains, academia and expert partners.



The alliance will help reduce risks and costs for the MOD and enhance industrial readiness.

The alliance is supported by a significant increase in R&D spend by the MOD, which will create more certainty for private investors to invest in the defence industrial sector in communities that are often overlooked in the UK, creating new jobs and regional economic growth.

Katherine Bennett CBE, HVM Catapult CEO, said: “UK manufacturing businesses – particularly SMEs – with clear ambitions to grow and prosper often face multiple challenges around capability and capacity. This means that competing for contracts in a major supply chain such as defence can seem beyond reach.

“We are partnering with MOD to help manufacturers grow by pioneering defence innovation through R&D, including developing dual-use technology that can serve both civilian and defence markets, supporting productivity and competitiveness.”

The initiative is part of government’s commitment to the biggest increase in defence spending in a generation, providing a step change in the UK’s defence industrial capability. The alliance will work to bring the benefits of this change to the wider economy.

It will also drive the development of dual-use technologies which can serve civilian and military sectors, including advanced materials, artificial intelligence and robotics.

The alliance will help reduce risks and costs for the MOD and enhance industrial readiness, using HVM Catapult’s national assets to help businesses solve major manufacturing and engineering challenges and develop new technology through innovation.

Building Britain's nuclear manufacturing future

The High Value Manufacturing (HVM) Catapult is helping UK industry capture the economic, industrial and strategic benefits of the nuclear renaissance ahead of the biggest period of investment in the sector in more than half a century.

More than £100bn is expected to be invested in the UK's civil and defence nuclear programmes over the next decade amid rising geopolitical instability, growing electricity demand and increasing energy security concerns. It provides UK industry with a narrowing window to secure a leading position in the global nuclear manufacturing race, strengthening UK manufacturing, energy security and economic growth.

The Catapult is developing a 10-year nuclear manufacturing strategy to maximise the value of the opportunity for businesses, setting out how it will work with government and industry to help build a globally competitive UK nuclear manufacturing ecosystem.

It proposes to be a system integrator, closing the gap between innovation and industrial deployment by scaling supply chains, supporting high-growth businesses, accelerating digital transformation and AI adoption and helping manufacturers enter new nuclear markets.

Ahead of the strategy launch, a national consultation with industry, government, academia and regional partners will determine where HVM Catapult's national network of innovation centres are best placed to strengthen manufacturing capability, skilled workforces, resilient supply chains, testing infrastructure, digital technologies and industrial capacity.

Katherine Bennett CBE, Chief Executive of HVM Catapult, says the countries that succeed over the next decade will not simply build nuclear power stations; they will build the advanced manufacturing ecosystems that sit behind them.

She said:

"Nuclear is both fundamental to the UK's future energy security and one of the biggest industrial opportunities this country has seen in decades. It is a once in a generation moment to build a globally competitive manufacturing ecosystem that supports clean energy, strengthens defence, creates high-value jobs and delivers long-term economic prosperity across the country.

"Much of the capability needed to support the next generation of nuclear technologies already exists within UK manufacturing. The challenge is identifying it, connecting it to opportunity and giving businesses the confidence to invest.

"No one organisation can achieve that alone. This consultation is an invitation to government, industry and academia to help shape the future together."

The consultation began at the National Nuclear Manufacturing Conference at HVM Catapult's Manufacturing Technology Centre (MTC) in July. It is being followed by a series of regional engagement events in major nuclear and advanced manufacturing clusters, giving manufacturers, SMEs, policymakers and regional partners the opportunity to help shape the UK's long-term nuclear manufacturing priorities.

The consultation will inform HVM Catapult's ten-year nuclear manufacturing strategy and contribute to wider discussions on how government and industry can work together to strengthen sovereign capability, improve energy security, maximise the value of future nuclear investment and deliver growth.

> **Nuclear is both fundamental to the UK's future energy security and one of the biggest industrial opportunities this country has seen in decades.**
>
> **Katherine Bennett CBE**
> CEO, HVM Catapult

Professor Ben Morgan, Chief Executive of the University of Sheffield Advanced Manufacturing Research Centre (AMRC), said:

"Future programmes based around small modular reactors (SMRs), advanced modular reactors (AMRs) and micro modular reactors (MMRs) will increasingly rely on modular, factory-based manufacturing, advanced digital engineering and repeatable production rather than the bespoke construction methods of previous generations.

"Combined with the UK's unique combination of growing civil and defence nuclear programmes, this creates an opportunity to strengthen domestic capability through shared skills, infrastructure, technologies and supply chains, helping improve productivity, reinforce national resilience and support long-term energy security."

Industry, government, academia and regional partners are invited to contribute to the consultation through written submissions, stakeholder workshops and a programme of regional engagement running throughout 2026.

Further information and details of how to participate are available at: hvm.catapult.org.uk/nuclear





> **Future programmes based around small modular reactors (SMRs), advanced modular reactors (AMRs) and micro modular reactors (MMRs) will increasingly rely on modular, factory-based manufacturing, advanced digital engineering and repeatable production.**
>
> **Professor Ben Morgan**
> Chief Executive of the University of Sheffield Advanced Manufacturing Research Centre (AMRC)



A technology strategy shaped by industry

The High Value Manufacturing Catapult technology strategy gives UK industry unprecedented clarity on how we will prioritise taxpayer investment to pull through technologies in response to long-term industry needs.

Launched in April 2026, it goes beyond a conventional roadmapping exercise. It is a direction-setting framework to guide our capability development and the advanced manufacturing innovation ecosystem around shared technology priorities for the next 15 years.

The strategy supports the delivery of HVM Catapult's strategic priorities and the UK's modern industrial strategy by identifying practical technological solutions, including the pathways to translate novel technologies into market-ready products.

It responds to the Innovate UK Materials and Manufacturing Vision 2050 and key sector plans such as those from the Aerospace Technology Institute (ATI) and Advanced Propulsion Centre (APC), before identifying where capability development is most needed to deliver against the industrial strategy's advanced manufacturing sector plan. In 2026, HVM Catapult will examine how developments in technology capability will impact people and skills.

The strategy consists of four key components: landscapes, technology capability roadmaps, priority pathways and connected technology platforms.

At the top sit six landscapes, corresponding to Innovate UK's Materials and Manufacturing Vision 2050's themes, which represent the strategy's market pull – innovation driven by clear demand, regulation or commercial need.

Building from this, we have co-designed with industry a set of technology capability roadmaps aligned to HVM Catapult's strengths and competencies. They provide a structured view of how specific manufacturing technology capabilities need to evolve to meet the industry demand identified by the landscapes.

The roadmaps have been developed in close collaboration with industry, academics and the wider innovation ecosystem. Critically, they are shaped by our industry partners who have helped identify capability priorities and the pathways to deliver them.

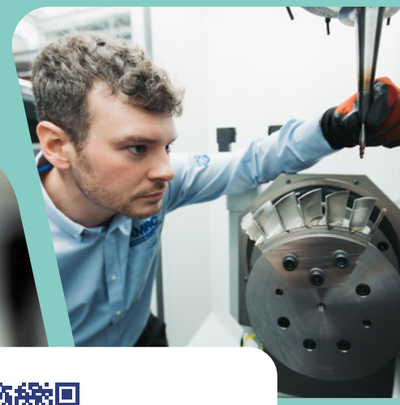
This is a living strategy, not a static one, designed to inspire ongoing discussion and debate. As the strategy evolves, a complementary set of frontier technology roadmaps will be developed – covering areas such as artificial intelligence, quantum and semiconductors – to ensure the framework continues to reflect the technologies most likely to shape future industrial competitiveness, capability development and investment priorities.

As an evolving strategic asset, the strategy will continuously test our priorities, align with our partners and shape our future direction.

The strategy is supporting the delivery of HVM Catapult's strategic priorities and the UK's modern industrial strategy by identifying practical technological solutions to tackle industry needs.







This technology strategy is not intended as a static plan, but as a living framework for industrial transformation that will evolve as technologies mature, markets develop and new challenges emerge.

Professor Chris Dungey
Chief Technology Officer
HVM Catapult



Follow the QR code or click here to read the technology capability roadmaps in detail.

HVM Catapult technology chief to drive AI adoption

UK government has announced plans to accelerate the adoption of artificial intelligence (AI) across UK manufacturing at scale, supercharging economic growth and productivity while making workers safer and focused on higher value tasks.

In a sector that contributes £234bn annually to the UK economy, evidence shows that industrial AI deployment could boost productivity by 2.5% and add a further £5-6bn in GVA each year in the manufacturing sector if adopted at scale.

The UK has world-class strengths in AI capability and innovation, but adoption in manufacturing businesses and supply chains remains uneven and slow. While three-quarters of manufacturers have trialled AI pilots, most struggle to achieve scale and sustainable operational impact, stalled by legacy systems, limited data, access to testing environments and workforce capability gaps.

The announcement forms part of an AI adoption plan, which was authored by the government-appointed national AI Champion for Advanced Manufacturing, Chris Dungey, who is the Chief Technology Officer of HVM Catapult. The plan recommends a national pilot, which aims to help businesses use AI to predict equipment failures and maintenance needs, improve quality control and run systems more responsively, while enhancing safety and skills.

It sets out a pathway to demonstrate the positive impacts of AI on businesses, with a three-phased approach co-designed with industry primes, their supply chains and SMEs:

- **Scan** – expert guidance and support helps businesses identify data requirements and design and implement the right AI solutions
- **Pilot** – as part of the pathway, SMEs progress from testing AI technologies safely in testbeds to real-life programmes
- **Scale** – deployed across production operations and systems.

Former Business Secretary, Peter Kyle, said:

"Thanks to this new Action Plan from DBT's AI champion Chris Dungey, we're ramping up the adoption of AI to give businesses the boost they need, turbocharging productivity and economic growth.

"Our Modern Industrial Strategy is giving investors the certainty they need to plan not just for the next year, but for the next 10 years and beyond. By ensuring the UK remains a leader in AI, we're setting ourselves apart globally while making sure advanced manufacturing is a sector fit for the future."

Chris is one of eight national AI champions within the priority sectors in the modern industrial strategy tasked with drafting a comprehensive AI adoption plan by the government.

Professor Chris Dungey, HVM Catapult Chief Technology Officer and the government's AI Champion for Advanced Manufacturing, said:

"This is not about inventing new AI, but rather scaling existing, world-class solutions across the economy. While AI capability is advancing rapidly, adoption across UK manufacturing is uneven and slow. We need a clear national pathway to connect innovation, workforce capability and deployment at scale.

"If the UK moves too slowly, it risks weaker productivity growth, slower uptake among SMEs and supply chains and falling behind countries already turning AI capability into industrial advantage. This investment will help businesses across the UK build the understanding and confidence to adopt these revolutionary technologies."

The government-backed proposal will harness existing UK strengths within an established infrastructure, including the HVM Catapult network, Made Smarter, BridgeAI, Innovate UK and MakeUK who have co-authored the plan.

The plan targets the early build-out of the AI front door, regional and sector-based deployment pilots, targeted workforce capability activity and initial validation projects in real manufacturing environments as part of five key interventions:

- Trusted data environments and improved validation processes
- A national 'AI front door' to simplify access to support and funding
- Scalable adoption pathways for SMEs that take affordable, incremental steps to improve efficiency, and reduce energy costs and carbon footprint
- Targeted workforce capability programmes, co-designed with employees for optimal impact
- 'AI lighthouse' sites – designated factories which can demonstrate real-world benefits of industrial AI at scale.

Accessibility and skills will be central to the adoption pathway, positioning AI as a tool to help employees work more productively and safely. It recognises that businesses must actively support their employees by signposting AI training and skills to build confidence and capability from early awareness through to embedding AI in everyday operations.

The plan also champions inclusive adoption that reaches all employees regardless of seniority or qualifications as a delivery requirement, as well as using AI tools in professional workflows – such as procurement, supply chain planning and management systems – as a practical bridge towards wider industrial AI deployment.





From wind innovation to industrial scale

The High Value Manufacturing (HVM) Catapult is turning the UK government's wind energy ambitions into industrial delivery by reducing rate, unit cost and scrap to anchor supply chain capability in the UK, including in next generation floating offshore wind.

Our research and technology centres are supporting industry to advance and scale the wind sector technologies that will reshape the UK's energy landscape, capturing the £25bn of additional GVA and 10,000 additional jobs over the next ten years set out in the Offshore Wind Industrial Growth Plan.

HVM Catapult is helping deliver the Industrial Growth Plan amid a global market surge for blades, towers, cables and foundations, with programmes that advance portside assembly and flow modelling, full scale composite blade demonstrators, blade repair and recycling routes, time to rate reduction, and unit cost and scrap reduction.

Alongside the Clean Energy Industries Sector Plan, which aims to double clean energy investment to more than £30bn a year by 2035, we are supporting faster deployment, lower lifecycle costs and a UK-anchored, investment-ready wind manufacturing and maintenance base for high-value components.

A fundamental partnership is the Wind Innovation Hub, a collaboration between NCC and the National Manufacturing Institute Scotland (NMIS), both part of HVM Catapult, and the Offshore Renewable Energy (ORE) Catapult.

As the industrialisation engine for the UK's offshore wind industry, the hub will accelerate innovation in the five priority areas of opportunity outlined in the Industrial Growth Plan: advanced turbine technology, industrialised foundations and substructures, future electrical systems and cables, smart environmental services and next-generation installation and operations and maintenance (O&M).

Funded by Innovate UK, it brings together industry, government and academia to define technology priorities and identify knowledge gaps, in addition to aiding the design, development, de-risking and demonstration of next-generation technologies to accelerate their transition from advanced R&D into industrial deployment.

Minister for Energy, Michael Shanks MP, said:

"Offshore wind is the backbone of our future energy system. By backing British innovation, we can go further and faster in building a system that protects families and businesses from fossil fuel price shocks.

"This is an exciting new initiative that will help businesses grow, support jobs, boost manufacturing and speed up the transition to clean, homegrown power we control."

Chris Courtney, CEO, National Manufacturing Institute Scotland, said:

"Offshore wind represents one of the UK's biggest industrial opportunities. Success will mean more UK businesses securing work in offshore wind, more manufacturers developing the skills and capacity required to scale production, and a stronger domestic supply chain helping to deliver the energy transition."

Jo Dally, Managing Director for Civil Portfolio, NCC, said:

"The Wind Innovation Hub brings together expertise from across the sector to identify the most important innovation challenges, accelerate the solutions needed to address them and to anchor and scale companies across the supply chain. We are proud to be part of this collaboration and to help drive the next phase of growth for offshore wind in the UK."

The Hub's first initiative is the £2m 'Accelerating Innovations' programme, which will provide targeted technical support to high-potential businesses, helping them advance promising technologies, processes and products towards commercialisation and industrial adoption. Qualifying businesses will be able to access expert technical assistance, manufacturing and materials insight, testing and validation, commercial readiness support and stronger routes to investment.

Though central UK industrialisation focus points exist for other industries, including the aerospace and automotive sectors, the Wind Innovation Hub is a first for the wind sector in the UK.



Large Structures Innovation Centre

NCC is establishing the UK's first Large Structures Innovation Centre (LSIC) on the Isle of Wight, providing industry with the capability to design, develop and de-risk the next generation of large structures at full industrial scale.

The open-access facility will create a connected pathway from research and innovation to industrial application, combining specialist engineering expertise with advanced automation, process control and full-scale demonstration. With an initial focus on energy and wind, LSIC will help accelerate new technologies towards industrialisation, strengthen UK supply chains and anchor high-value manufacturing in the UK.

Each GW of offshore wind installed contributes £2-3bn in GVA to the UK economy.

The Clean Energy Industries Sector Plan aims to double clean energy investment to more than £30bn a year by 2035.

Find out how a new remanufacturing breakthrough led by NMIS could cut wind turbine waste by 42kg per component on page 39.

A national mission to transform how the UK builds

The High Value Manufacturing Catapult is the delivery partner for an £85m national challenge which is set to overhaul how Britain delivers sustainable social housing, schools, hospitals and public infrastructure.

Construction productivity remains around 23% below the national average and closing that gap could unlock up to £27bn in additional economic output over time, while creating up to 380,000 new jobs.

Liverpool City Region has been selected to host the first pilot as part of the government's Industrialising and Digitalising Construction Challenge. Working with Liverpool Combined Authority and HVM Catapult, the pilot will apply innovative digital manufacturing processes to standardise 'kits of parts', improve digital co-ordination and provide greater certainty of demand.

Lord Vallance, Former UK Science Minister, said: "The digital technologies and manufacturing methods developed here will help us speed up how we can build more homes, schools and hospitals right across the UK.

"This work will help us set the benchmark for how we deliver high-quality infrastructure more efficiently, directly benefitting communities. By supporting this initiative, we are backing more high-skilled jobs for Liverpool while also bringing our construction industry into the digital age."

Steve Rotheram, Mayor of the Liverpool City Region, said: "I'm incredibly proud that our area has been chosen as the first national pilot to modernise construction. Our region is home to pioneering expertise in modern methods of construction, advanced manufacturing and digital innovation, with the talent and political will to lead from the front.

"If we get this right, we won't just build the next generation of affordable social housing, schools and hospitals – we will strengthen UK supply chains, boost productivity and give manufacturers the confidence to invest in skills and capacity, helping to create good jobs and drive growth across the country."

The pilot is part of the largest programme within the R&D Missions Accelerator Programme (R&D MAP), funded by UK Research and Innovation (UKRI). Findings from Liverpool will inform how industrialised construction is refined, scaled and applied across the UK.

Starting with social housing schemes, the approach will lay the foundations for wider adoption across public infrastructure, including schools, hospitals and prisons.

Melissa Zanocco, UKRI Challenge Director, Growth Mission, said: "We already have strong examples of digitalised and industrialised construction delivering real benefits on individual projects. However, progress has been held back because incentives, pipelines and data remain fragmented.

"Industry transformation cannot happen through isolated adoption alone – the Industrialising and Digitalising Construction Challenge will drive integration across the sector by aligning demand, standards and delivery models."

The High Value Manufacturing Catapult is supporting the delivery of the challenge by bringing together manufacturers, digital specialists, housing providers and public-sector clients. By aligning standards, digital tools and commercial frameworks, the programme aims to give UK industry the confidence to invest in skills, technology and capacity, building a more resilient and productive construction sector.

Keith Waller, Director – Industrialised Construction, HVM Catapult, said: "We are proud to be the delivery partner for the Industrialising and Digitalising Construction Challenge. Working closely with industry and our manufacturing innovation centres we will develop the technology platform, business models and industry partnerships needed to make this vision a reality. I am keen that the Challenge builds on the many foundations already in place to ensure that together we create a more productive sector that can support new jobs, opportunities and growth."

The construction sector is worth more than £250bn a year to the UK economy, yet productivity is around 23% below the UK average. Click here for more information.

This work will help us set the benchmark for how we deliver high-quality infrastructure more efficiently, directly benefitting communities.

Patrick Vallance
Former UK Science Minister



Case studies



AI revolutionises manual production line

The AMRC has developed an AI-based quality inspection system that is helping one of Britain's leading automotive companies detect faults in its production line in seconds.

Leyland Trucks in Lancashire, which can trace its truck-building heritage back 130 years, had used a labour-intensive process to manually identify defects, requiring highly experienced craftsmen to move alongside chassis suspended from a conveyor.

As part of a new no-fault forward approach to its production line, the company worked with the AMRC to develop an AI-based inspection system which could spot manufacturing and assembly defects as they occur, eliminating them before the trucks roll out of the factory gates.

The AMRC developed a high-speed machine vision pipeline that can collect video and image frames from multiple camera feeds, and transport them to a powerful AI platform. The AI model can count and report the number of specific components within seconds, instantly identifying any missing parts.

It offers consistent performance, operating efficiently without fatigue and is expected to considerably reduce the number of faults progressing further along Leyland's production line.

Digital transformation unlocks time and revenue

NCC engineers helped an artisan bakery improve productivity by utilising digital technologies, releasing 45 hours of skilled labour each week and generating over £100,000 of increased annual revenue.

After a fire destroyed its central Bristol site, Pinkmans Bakery worked with the West of England Made Smarter programme and NCC to rebuild using targeted digital tools and a practical improvement plan.

Drawing from their experience with other bakeries, NCC helped identify where to focus investments to improve productivity quickly and effectively. Engineers presented Pinkmans with a bespoke digital transformation report, technology roadmap and summary of potential digital solutions.

The 45 hours of skilled labour gained each week is the equivalent of one full-time role and the project enabled the introduction of a new wholesale line for additional revenue.

NCC's detailed analysis of our procedures and equipment helped identify wasted time and unnecessary tasks. Now, our team can focus on what machines can't do – the things that give Pinkmans its identity.

Ross Gibbens
Co-Owner, Pinkmans Bakery

Unlocking global access to RNA vaccines

CPI worked with UK-based SME, RNAssist, to develop a revolutionary new method for storing life-saving RNA vaccines without needing a freezer.

Current methods require RNA vaccines to be stored and transported at temperatures as low as -50°C, making it practically impossible to get them to remote areas of the world. The World Health Organisation estimates that 1.3m more people would still be alive today if COVID-19 vaccines were distributed more evenly across the world.

Using deep eutectic solvents (DES), non-aqueous, non-organic solid solvents that form a compound liquid when mixed, CPI worked with RNAssist to develop a thermostable formulation to store RNA vaccines encapsulated in lipid nanoparticles (LNPs) without needing a freezer. With funding from Innovate UK, CPI also provided state-of-the-art facilities and formulation expertise to optimise and test the process.

The resulting TheraPHIX formulations will enable manufacturers to store RNA vaccines at ambient temperatures, with the potential to revolutionise vaccination campaigns and improve global vaccine equity. Following the project, RNAssist has been working with a large public health research institution in South America to test TheraPHIX to stabilise mRNA LNP vaccines.

Our collaboration with CPI and support from Innovate UK have been invaluable in bringing this innovation to life. Together, we are making strides toward a future where life-saving RNA vaccines can reach everyone, everywhere.

Andrew Goldsborough
CEO, RNAssist



Bringing health tech production to the UK

MTC helped relocate a health tech company's operations from Finland to the UK by developing a scalable manufacturing solution that derisked the migration of production.

Ortotec is a team of doctors, engineers and scientists developing accessible metal detection technologies to use within the human body. Currently, the only widely available tool for detecting these metallic particles is X-ray, but Ortotec's 'GetMet' offers a unique lightweight hand-sized metal detection device with a pen-like grip that can locate fragments with precision.

Through the West Midlands Health Tech Innovation Accelerator, MTC transformed Ortotec's operation from low-volume manufacturing in Finland to the potential for industrial volumes based in the UK.

Engineers identified replacement components to the ones only available in Finland and their suppliers, and identified alternative production methods, including additive manufacturing, to ensure the product met the same specifications and quality.

The project enabled MTC to support Ortotec towards establishing a manufacturing footprint in the West Midlands for the GetMet Mark II product and build the groundwork for potential future versions of the device in the future.

Working with MTC has been invaluable to the growth of our business and the development of our medical device, GetMet Mark II product and build the groundwork for potential versions of the device in the future. A truly scalable manufacturing solution was essential to meeting the ever-growing international demand for our devices, and this was MTC's most significant contribution.

Leo Osterback
Founder, GetMet



Coventry Very Light Rail

Pioneering research at WMG has enabled the development of the battery-powered Coventry Very Light Rail (CVLR): an affordable, efficient and sustainable solution to urban transport challenges, laying the tracks for global adoption.

Conventional light rail costs over £50m per kilometre (km) however WMG helped Coventry City Council reach its £10m per km target, an 80% cost saving delivering a transformative transport option for the city.

WMG led vehicle and track design, developing a battery-powered, autonomous-ready shuttle and an ultra-high-performance fibre-reinforced concrete track slab that avoids deep excavation and preserves underground utilities. Working with local supply chains, WMG helped establish demonstration sites and a 2.2 km test track replicating Coventry's tight city-centre curves, achieving rapid installation and charging.

WMG's innovation has enabled major cost savings, reduced disruption and proved how light rail can be deployed quickly and affordably worldwide. CVLR now stands as a global blueprint for low-emission urban transport.



Image: Coventry City Council Copyright

Transforming wind turbine repairs with advanced additive remanufacturing

Experts at NMIS have worked with a specialist in refurbished wind turbine components to extend the life of high-value parts, reducing waste and cutting carbon emissions.

This work forms part of NMIS's wider leadership in circular manufacturing, supporting industry to extend product lifecycles, reduce material use, and cut emissions across high-value sectors.

> **The collaboration helped de-risk the technology, giving Renewable Parts and SSE Renewables the confidence to explore broader adoption and future opportunities.**
>
> **Ryan McCuaig**
> Product Development Engineer,
> Renewable Parts

Working with Renewable Parts Limited (RPL) and in partnership with SSE Renewables, engineers trialled advanced additive repair techniques, including friction welding and arc based additive manufacturing, for worn yaw gearbox components, which rotate the turbine nacelle to face into the wind.

The trials showed that remanufactured yaw gearbox parts could reduce steel waste by up to 42 kg per unit while still matching original performance standards. Early modelling suggests up to 84kg of CO_2 equivalent could be saved per remanufactured component.

By combining NMIS expertise in additive manufacturing and inspection and cost modelling, the team demonstrated the potential for circular repair processes in high-integrity renewable energy applications.

If adopted widely, this approach could prevent thousands of tonnes of steel waste annually and significantly lower emissions across the wind sector.



CATAPULT
High Value Manufacturing

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