CATAPULT
High Value Manufacturing

Made possible

Stories of growth from UK manufacturing SMEs

Innovate UK · University of Sheffield AMRC · cpi · mtc where progress happens · ncc innovating for industry · NMIS National Manufacturing Institute Scotland · WMG THE UNIVERSITY OF WARWICK

Introduction

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Manufacturing SMEs matter.

They are the backbone of the UK's industrial economy, representing around 250,000 of all manufacturing businesses – around 90% of the sector – and supporting a manufacturing base that delivers £220–£279 billion in output and 2.6 million high-quality jobs nationwide. SMEs' determination, ingenuity, and roots in supply chains make them essential to national resilience and long-term prosperity for the UK.

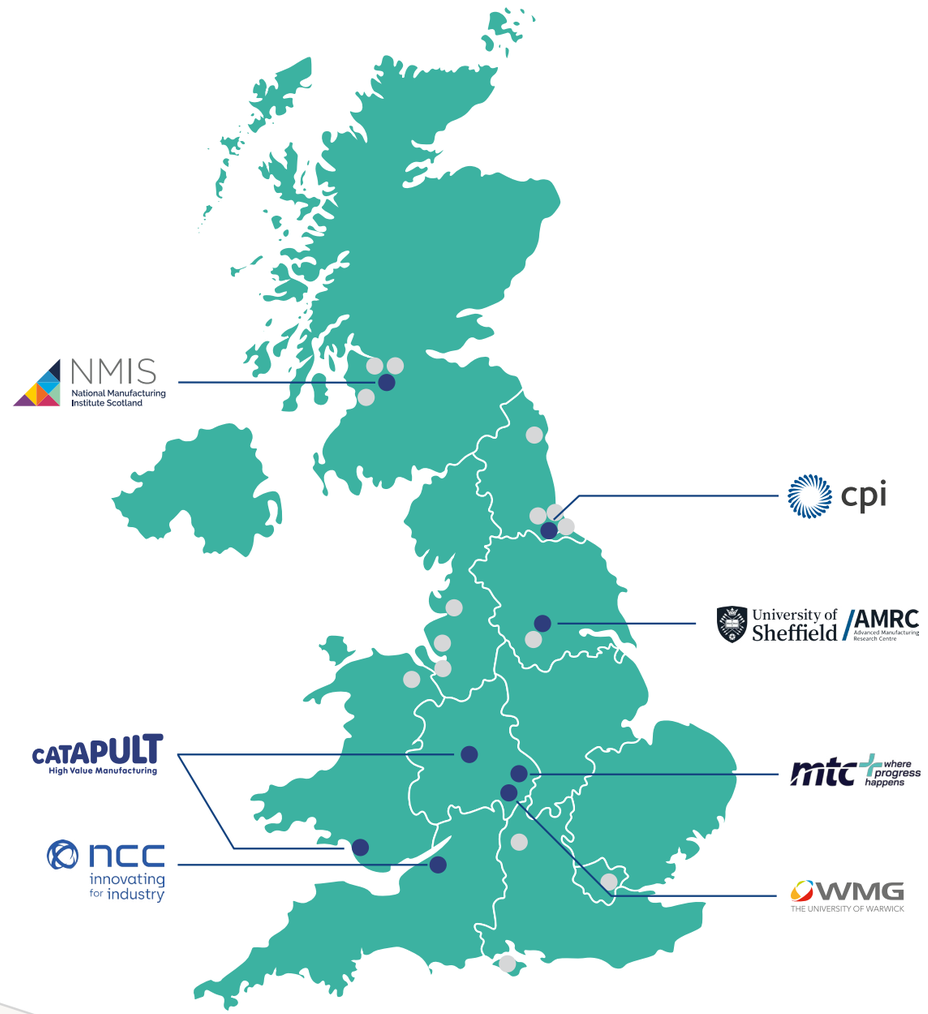
Despite challenging conditions – rising input, energy and labour costs, skills pressures and volatile order books – what stands out is SMEs' constant appetite for innovation. Across the High Value Manufacturing Catapult, we see their determination to adapt and grow. The role of the High Value Manufacturing Catapult is to cut through complexity, widening access to advanced technologies, and ensuring every business – regardless of size, region or maturity – has the opportunity to succeed and flourish.

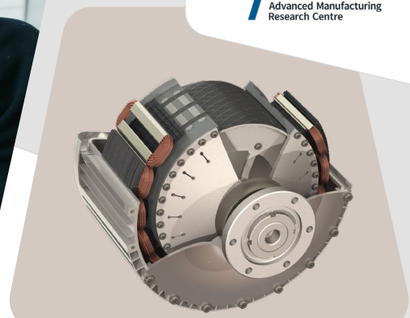
We take a "technology plus" approach, combining digitalisation, automation and AI with new business models, fresh market opportunities, and stronger supply chains. Crucially, we make innovation stick. By understanding each company's processes, suppliers, markets and customers, we tailor solutions that deliver tangible value and clear returns on investment. HVM Catapult's support is practical, inclusive and built around the real needs of SMEs.

Each year, Catapult centres work with more than 3,000 SMEs, helping them adopt new technologies with confidence and improve productivity at pace. Since 2011, we have supported over 30,000 manufacturers, enabling thousands to bring new products to market and strengthen their competitiveness.

The success stories in this brochure reflect the diversity of the UK's SME community and the impact unlocked when ambition meets the right expertise. What follows showcases SMEs modernising operations, scaling innovative ideas, and building resilience. These examples demonstrate how inclusive, focused, high value support accelerates progress – not just for individual firms, but for the strength and future of UK manufacturing as a whole.

Our network of centres have sites across the UK





Magnomatics and AMRC develop breakthrough motor casing for the future of air taxis

Flying taxis are moving from science fiction to reality and British engineering is helping pave the way. Sheffield based Magnomatics has partnered with the University of Sheffield Advanced Manufacturing Research Centre (AMRC) to create a radically lightweight electric motor casing designed specifically for vertical take-off aircraft.

To make air taxis viable, every component must be as light and efficient as possible. Magnomatics wanted to test whether a motor casing with integrated internal air-cooling channels — impossible to make using traditional manufacturing — could be produced as a single 3D printed aluminium structure.

AMRC engineers carried out advanced airflow simulations and produced a polymer prototype to validate sensor placement and thermal behaviour. Together, Magnomatics and AMRC developed an intricate additive manufactured design containing thousands of internal surfaces, all self-supporting and fully sealed from the external environment. This approach eliminated dust ingress, improved heat transfer and allowed features impossible with standard casting.

The resulting motor weighs under 15kg, achieves a torque density twice that of comparable motors, and delivers an impressive heat transfer coefficient of 250 W/m²K — critical breakthroughs for the emerging air mobility sector. The integrated ducting also allows particles such as dust, snow and rain to pass through harmlessly without affecting reliability.

This super lightweight motor was made possible due to three main areas, advanced additive manufacturing casing and air cooled design, precision placement copper stator winding and ultra high tension carbon fibre rotor banding.

The project has pushed the boundaries of additive manufacturing and given Magnomatics a lightweight, high performance motor casing ready for next generation air taxis. It has also strengthened skills in the region: a student who worked on the project has since joined Magnomatics full-time, now presenting the innovation worldwide.

With AMRC's support, this work brings the UK one step closer to a future where air taxis become a practical, everyday transport option.

Magnomatics®

AMRC helps tilt angle drones cut production time from six weeks to six hours with advanced additive manufacturing

Tilt Angle Drones, a Blackburn based specialist in custom unmanned aerial vehicle (UAV) systems, partnered with the University of Sheffield Advanced Manufacturing Research Centre (AMRC) to redesign a crucial rotor arm bracket used on its drones.

The company's original fixture required machining and polymer 3D printing, resulting in long lead times, significant material waste and a user-unfriendly bolt mechanism that customers struggled with.

With support through the UK Shared Prosperity Fund, the AMRC reengineered the bracket using Design for Additive Manufacturing principles. Engineers carried out advanced topology optimisation to reduce weight by 40% while ensuring the fixture could withstand more than 20kg of load per rotor arm. The team rebuilt the complex geometry into a manufacturable CAD model, added a lightweight internal lattice and incorporated a new quick release mechanism allowing drone arms to fold smoothly without removing bolts.

A prototype produced via laser powder bed fusion delivered a step change in performance and efficiency: four fully printed aluminium brackets were manufactured in under six hours — a dramatic improvement on the six-week turnaround previously needed to machine eight units. Testing confirmed exceptional stiffness, with deformations staying below 1mm even under maximum loads.

Tilt Angle Drones praised the transformation, noting that the AMRC delivered "a slim-line, quick release arm union that is cheap to manufacture and will withstand four times the amount of stress with minimal deflection of the original design."

The company can now move ahead with manufacturing its first medium lift multirotor platform for UK sales.

TILT ANGLE DRONES
CUSTOM DRONE SYSTEMS

Agreka Build turn eco-friendly straw insulation into a scalable manufacturing reality

Agreka Build, a green materials start-up developing fully organic insulation made from agricultural straw, turned to the University of Sheffield Advanced Manufacturing Research Centre (AMRC) to transform its early-stage innovation into a product ready for large-scale production.

Their material, designed as a recyclable alternative to conventional insulation, required a completely new manufacturing process, something no company had attempted before.

AMRC research engineers carried out a full technical review of Agreka Build's process, analysing how the material behaved and what equipment would be required for reliable, scalable production. The team mapped out potential manufacturing routes, recommended machinery for each stage, and provided detailed costings alongside guidance on midscale and mass production pathways. Crucially, they also connected Agreka Build to suppliers and equipment specialists, giving the start-up a practical route to building its pilot manufacturing line.

The support has already accelerated Agreka Build's progress. Cofounder My Linh Nguyen said the AMRC's input had been instrumental: "They gave us a very comprehensive presentation and all the possible tools and equipment we can use for each stage of the process. It was very practical help, and it has supported us with the set up of our pilot line."

With a clearer understanding of manufacturing options and an emerging supply chain, Agreka Build can now move from lab made samples to a viable production model — a major step toward bringing its sustainable insulation to the construction market.

agreka build

Ecodetect bring real-time wildlife monitoring technology to the marine renewables sector with help from AMRC Cymru

Ecodetect, a Welsh start-up founded in 2024 by David Gold, is using machine learning to transform how marine renewable energy providers monitor wildlife interactions with tidal and offshore wind devices.

Regulations require companies to review thousands of hours of underwater footage, but Ecodetect's algorithms automatically filter out seaweed and debris, leaving only genuine wildlife encounters, saving operators huge amounts of time.

To take the technology further, David wanted to explore whether the system could run directly onsite using edge computing, allowing real time monitoring and reducing the volume of data that must be stored or transmitted. He turned to AMRC Cymru for a feasibility study.

AMRC research engineers assessed Ecodetect's machine learning code and evaluated whether it could be deployed on ruggedised edge devices suitable for marine environments. Their analysis confirmed it was achievable, outlining the technical steps, design considerations and partnerships needed to turn the idea into a market ready product. The team also provided connections across the Welsh business ecosystem to help accelerate development.

The study has had a major impact on the start-up's direction. As David explains: "The biggest benefit from the project was fleshing out the product development. This work has really helped me to focus on this strategy, the benefits and the route to market."

With a clear plan, strengthened network and confidence in the technical feasibility, Ecodetect is now preparing prototypes and pursuing research funding, placing the company firmly on track for a successful product launch in the fast-growing marine renewables sector.

ecodetect

Iothic strengthens its digital security product and unlocks new commercial opportunities

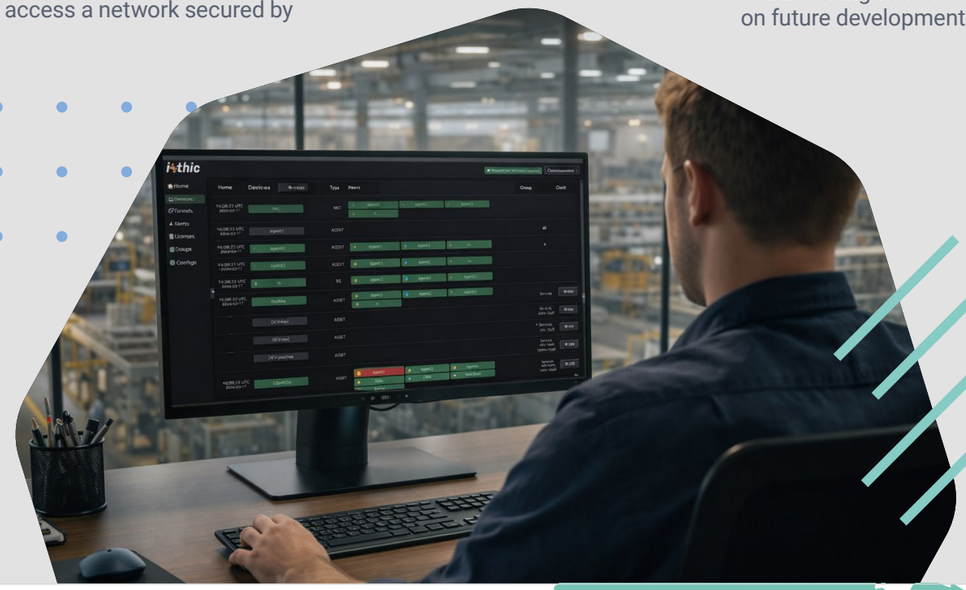
Iothic Ltd, an international digital security company developing a new decentralised authentication protocol known as (d)OISP™, turned to the University of Sheffield Advanced Manufacturing Research Centre (AMRC) to validate and refine its breakthrough technology.

(d)OISP™ enables machines to authenticate one another within a decentralised zero trust model. As Head of Engineering, Dave Bray explains: “With our product, even if you have access to stolen valid credentials, you still can’t access a network secured by (d)OISP™ from an authorised device.”

Through a project funded with HVM Catapult core grant support, AMRC engineers conducted a series of rigorous tests examining latency, data integrity, and network performance. Their independent assessment highlighted areas where installation and maintenance processes could be improved, and Iothic used this feedback to strengthen documentation, streamline deployment, and enhance overall usability.

The partnership delivered more than technical validation. The AMRC also connected Iothic to several major organisations in its industrial network, opening up new commercial routes and partnerships that the start-up would not have reached on its own. Bray described the collaboration as transformative: “The AMRC are easy to work with, proactive, knowledgeable, and professional. They are quick to suggest solutions and come up with ideas of how to improve things.”

With strengthened product performance, improved deployment processes, and new industrial connections, Iothic is now well positioned for its next phase of growth — and eager to continue collaborating with the AMRC on future developments.



CPI helps NeoBand create groundbreaking wearable to protect newborns from life threatening hypothermia

NeoBand Ltd, a UK start-up developing lifesaving technology for newborns, partnered with CPI to turn a clinical idea into a fully functioning prototype that could transform emergency neonatal care.

The company set out to address a major gap: newborn babies transported outside hospital settings often experience dangerous drops in body temperature, yet current monitoring methods are intermittent, invasive or too slow to detect rapid changes.

Through the European Regional Development Fund (ERDF) funded SONNET programme, CPI provided the technical expertise NeoBand needed to develop a safe, skin friendly, continuous monitoring wearable. CPI specialists in materials science and flexible electronics identified suitable components, including a miniature temperature sensor, NFC computer chip, battery and LED indicators. The team designed flexible printed circuits, encapsulated them in medical grade silicone, and refined the device through multiple iterations to ensure it could withstand repeated flexing on a newborn’s chest.

CPI also created a mobile app for real-time data visualisation and validated the device’s accuracy against the TempaDOT™ thermometer used by paramedics. In two years, NeoBand’s concept progressed from early concept (TRL 2) to a functioning prototype (TRL 4) capable of wireless data transfer and storing continuous readings.

Coinventor Helen McAdam said CPI’s support was pivotal: “I was looking for people to help me out, struggling, thinking this is never going to happen. CPI listened, they got it, and they've made it a reality.”

NeoBand now has a robust pathway to clinical testing and a device with the potential to save newborn lives worldwide.

CPI helps RNAssist develop breakthrough technology to store RNA vaccines without freezers

A collaboration between CPI and RNAssist has led to a major breakthrough that could transform global vaccine distribution.

RNAssist set out to solve a challenge exposed during the COVID-19 pandemic: RNA vaccines are extremely sensitive to heat and typically require storage at −50°C, far colder than the cold chains used for conventional vaccines. These ultra-low temperature requirements make it wasteful, difficult and costly to deliver vaccines to remote or resource limited regions.

With Innovate UK funding, CPI supported RNAssist in developing TheraPHIX™, a thermostabling formulation that allows RNA vaccines encapsulated in lipid nanoparticles (LNPs) to be stored in a liquid form at ambient temperatures. Using deep eutectic solvents (DES), CPI created two innovative workflows — one embedding DES inside the LNPs and another adding DES externally after LNP formation. Both approaches significantly improved thermal stability, with external DES LNPs maintaining RNA integrity even after three months at 37°C.

CPI's formulation, analytical and biologics specialists also scaled up production sixfold, optimised manufacturing conditions, and performed rigorous stability and potency testing. This work has enabled RNAssist to file new patents and launch TheraPHIX™ stabilisation reagents to market.

RNAssist CEO Andrew Goldsborough said the collaboration was transformative: "With CPI, we've shown that ambient liquid stable vaccine formulations are achievable… Their expertise has advanced us far faster than we could have managed alone."

RNAssist

CPI helps Heatleaf develop breakthrough wearable heating device for amputees

Heatleaf, an innovator focused on improving comfort for people living with limb loss, has partnered with CPI to develop a new wearable device that helps amputees manage severe cold sensations linked to poor circulation.

Cold discomfort is a persistent issue for many amputees and can contribute to phantom limb pain, yet existing solutions are bulky, impractical and not designed for daily life.

CPI brought together design, electronics and software engineers to refine Heatleaf's concept into a workable, testable prototype. Through collaborative workshops, the team ensured the device would integrate seamlessly with prosthetics and meet real use case scenarios. CPI then developed multiple prototypes including custom heater arrays, encapsulated control electronics and a 3D-printed limb model to test different heating technologies and configurations.

The result is a compact, safe and power efficient heating system that can be embedded directly into prosthetic devices. A closed loop control system ensures consistent temperature regulation, while the slim, user-friendly design marks a major improvement over existing options. Early demonstrations have already attracted interest from stakeholders and opened the door for future commercialisation.

Heatleaf Director Joanna Newton, herself an amputee, said the partnership has been transformative: "With the invaluable help of CPI, we're working to create a device that will have a tangible impact on people's lives."

With working prototypes and a clear development roadmap, Heatleaf is now significantly closer to bringing lifechanging comfort to millions of amputees worldwide.

HeatLeaf

CPI supports major breakthrough in greener, more efficient chemical manufacturing

A pioneering collaboration between NiTech Solutions, Croda Europe, CPI and the University of Cambridge's Institute for Manufacturing has demonstrated how advanced continuous flow manufacturing can significantly boost efficiency and sustainability in the chemicals sector.

The project explored whether Croda could replace a traditional batch process with NiTech's patented Continuous Oscillating Baffle Reactor (COBR) — a safer, greener and more cost-effective alternative.

To make this possible, CPI provided state-of-the-art facilities and specialist process development expertise. CPI helped design the project team, supported a successful Innovate UK funding bid and worked closely with Croda to gather critical reaction kinetics data. This insight identified the optimum process window for converting the existing batch system into a continuous one. CPI then operated the COBR reactor using Croda's hazardous raw materials, proving the feasibility of scaling the process and generating essential data for the design of a pilot reactor at Croda's site.

The results were striking. Integrating COBR technology increased Croda's production capacity for core functional molecules and surfactants by more than 50% without expanding its facility footprint. The project also improved sustainability performance, reducing energy use and waste while delivering more consistent product quality.

NiTech CEO Kevin Bathgate said: "Croda, NiTech and CPI worked together to develop the necessary process… and successfully implemented it on Croda's site at industrial scale. Now we have novel UK developed technology deployed in the industry to manufacture everyday products more efficiently."

The work now serves as a blueprint for wider adoption of continuous manufacturing across the UK chemicals industry.

NiTech SOLUTIONS

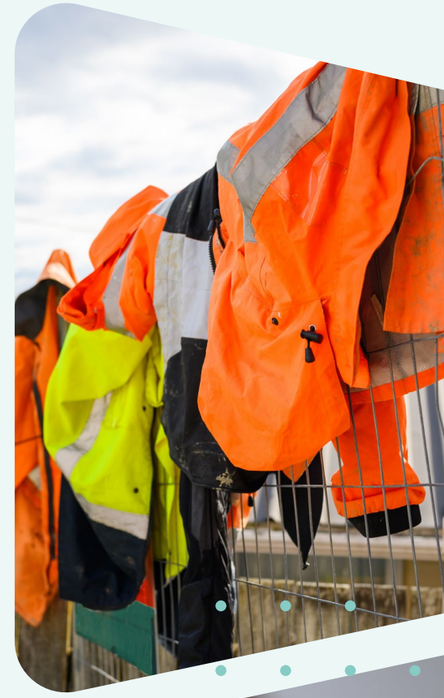
Teesside innovation turns old workwear into new opportunity

A pioneering project on Teesside is helping turn old workwear into valuable new materials, thanks to a breakthrough partnership between SME Stuff4Life and CPI.

With more than 33 million polyester workwear garments supplied in the UK each year, most ending up in landfill or incineration, Stuff4Life set out to tackle this growing environmental challenge by developing a chemical recycling process.

CPI played a central role in transforming the company's early laboratory concept into a commercially viable technology. At its Sedgefield formulation facility, CPI refined Stuff4Life's initial process before scaling it up to a pilot demonstration at its National Industrial Biotechnology Facility in Wilton. This pilot run successfully converted waste textiles back into terephthalic acid—the core building block of polyester—and provided the evidence needed to attract major investor interest. As Stuff4Life explains, CPI's support means "our ultimate goal remains the same – to make new polyester products from old polyester products… and deliver a circular economy for critical materials."

CPI also carried out detailed economic modelling and is now supporting the transition toward full commercial production for Stuff4Life. This work has laid the foundations for plans to build a polyester recycling plant in Teesside, creating an onshore supply chain that cuts waste, reduces reliance on virgin materials, and lowers carbon emissions. The project forms part of CPI's ERDF funded PROSPECT programme, helping SMEs across the North East bring new technologies to market.



stuff4life

CPI helps DEScycle accelerate clean, low-carbon metal recycling technology

DEScycle, a deep tech company building the next generation of metals processing infrastructure, has partnered with CPI to accelerate the development and validation of its decentralised, low-carbon metal recovery platform.

As global demand for critical materials continues to rise, existing recovery systems built around centralised, capital-intensive smelting, are increasingly unable to meet requirements for speed, resilience and sustainability. DEScycle addresses this structural gap through its proprietary ionometallurgy platform, enabling metals to be recovered from electronic waste at low temperature and with significantly lower energy intensity. This approach supports a shift toward modular, locally deployed processing that shortens value chains and unlocks domestic supply.

CPI has played a pivotal role in translating DEScycle's technology from early-stage concept into a scalable, system-ready solution.

Working closely with the company, CPI's specialists helped validate the underlying chemistry and, critically, supported the development of a fully integrated, closed-loop process aligned with industrial deployment requirements.

Beyond technical validation, CPI provided access to advanced facilities and infrastructure, enabling DEScycle to demonstrate its process at scale without the need for upfront capital investment in its own pilot assets. This significantly accelerated development timelines and reduced execution risk at a critical stage.

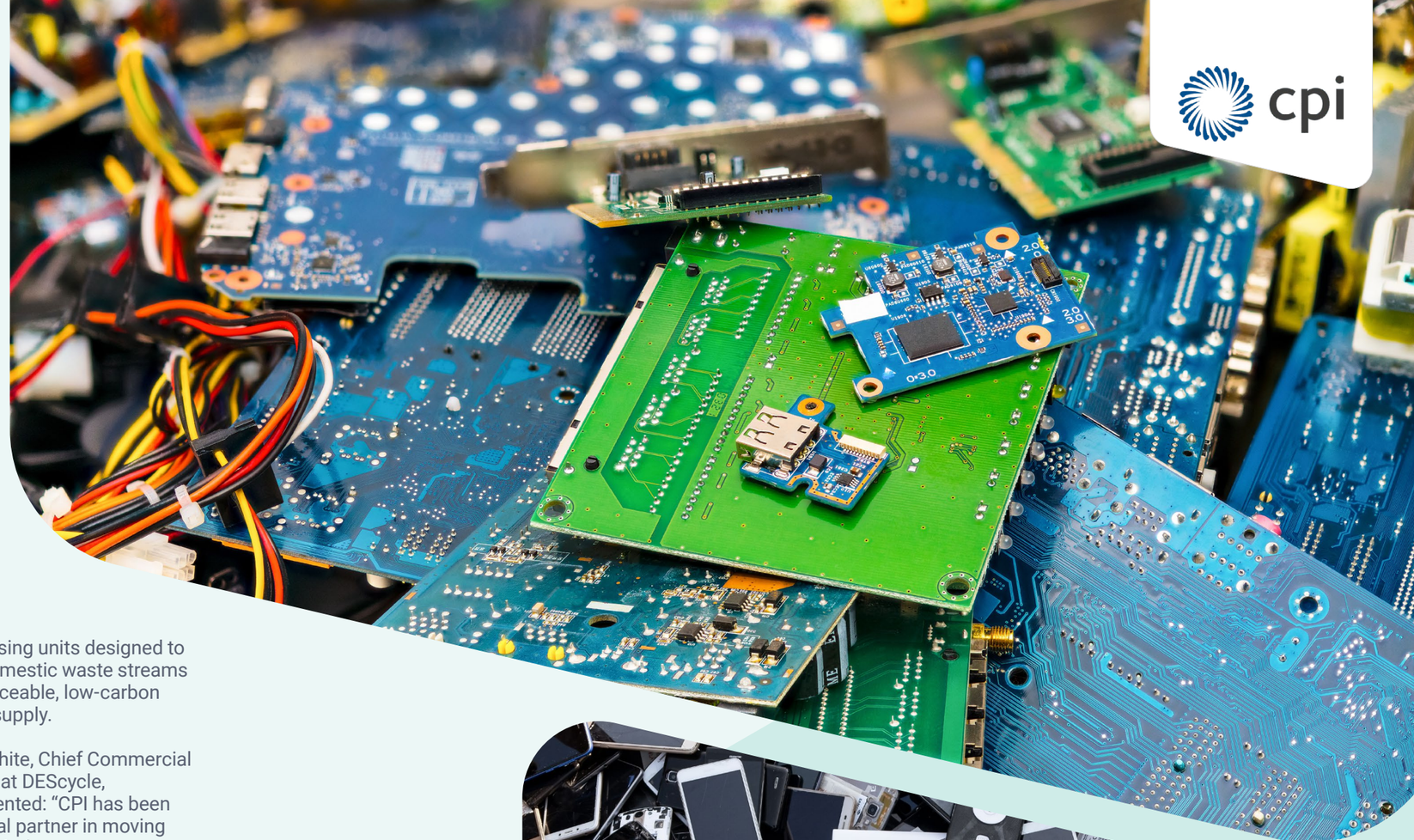
Through CPI Enterprises, CPI also supported DEScycle's growth through investment and strategic introductions, helping to strengthen commercial credibility and unlock further funding. This combination of technical, infrastructure and capital support has been instrumental in positioning DEScycle for its next phase of scale.

With a validated platform and growing investor backing, DEScycle is now progressing toward first commercial deployments. Starting with the global e-waste market, the company is building a distributed network of modular processing units designed to turn domestic waste streams into traceable, low-carbon metal supply.

Fred White, Chief Commercial Officer at DEScycle, commented: "CPI has been a critical partner in moving DEScycle from concept to commercial readiness. Their technical expertise, infrastructure and investment support have allowed us to accelerate development and focus on deploying a scalable platform."

DEScycle's progress demonstrates how targeted collaboration can accelerate the development of new industrial infrastructure, enabling a transition toward more resilient, capital-efficient and sustainable metals supply systems.

DESCYCLE



MTC helps Clearscope fast-track a new UV-C device designed to improve patient safety

Midlands medtech company Clearscope set out to tackle a longstanding problem in hospitals: most stethoscopes are not cleaned between patients, contributing to healthcare associated infections that cost the NHS billions each year.

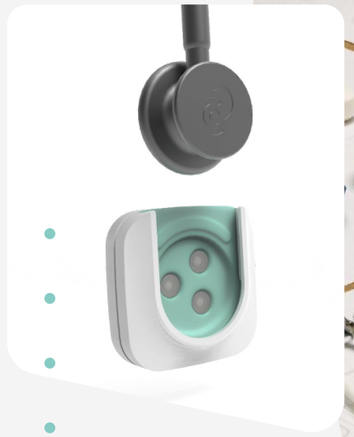
Their solution – a portable device that uses UV-C light to sterilise the stethoscope head – needed expert support to move from a promising prototype to a design suitable for real world clinical use.

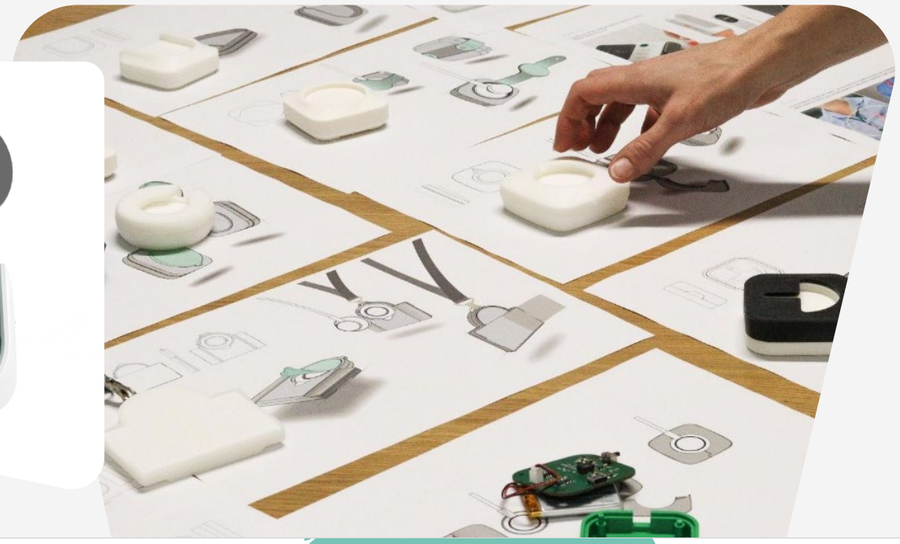
Through the West Midlands Health Tech Innovation Accelerator, supported by Innovate UK, the Manufacturing Technology Centre (MTC) stepped in to accelerate Clearscope's development. MTC began with a Design Discovery Workshop, speaking directly with medical professionals to understand user needs, before exploring materials and creating multiple design concepts. Six digital models were turned into 3D-printed prototypes, which clinicians tested and refined with the team.

MTC engineers then resolved technical challenges, from overheating in electronic components to durability issues, and shaped the device so it could be manufactured efficiently and repaired easily. High quality visual renders and a clear development roadmap were also produced to help Clearscope secure future investment.

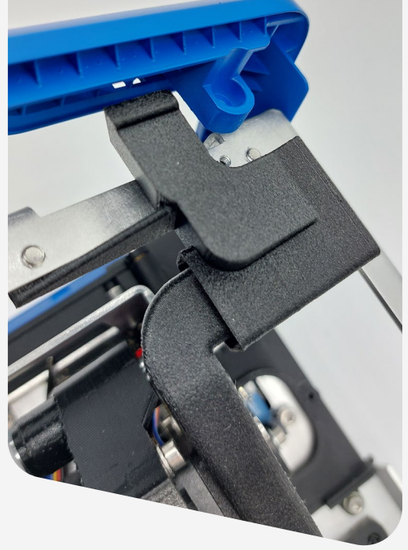
MTC's Simon Wilson said working with the founders was a highlight, noting: "Developing user centric products is my passion… this has been truly enjoyable to work on."

Delivered in just four months, MTC's support has significantly derisked the product and positioned Clearscope for its next stage of growth in the health tech market.





Clearscope



BG Research prepare breakthrough molecular analysis device for scaled production

BG Research, the company behind the portable CENOS molecular analyser, turned to the Manufacturing Technology Centre (MTC) when they needed expert support to move from a laboratory prototype to a design ready for commercial manufacture.

CENOS can carry out rapid PCR-level disease testing directly from crude samples e.g. blood, plasma, saliva, swab under 30 minutes—technology with major potential for early detection of High Consequence Infectious Disease (HCID) and pandemic preparedness. To make large-scale deployment commercially viable, MTC redesigned the unit to deliver efficient, cost-effective manufacturing.

Through the West Midlands Health Tech Innovation Accelerator, funded by Innovate UK and DSIT, MTC reviewed the full design and identified dozens of components that required re-engineering for manufacturing methods such as injection moulding and laser cutting. This involved simplifying complex 3D-printed parts, reducing material use and ensuring the device could be assembled quickly and consistently. MTC also produced new CAD models, tested prototypes and mapped a UK-based supply chain to support local manufacturing.

Managing Director Nelson Nazareth said MTC's involvement was pivotal: "It became clear that the deep expertise embedded within MTC would be critical… their willingness to engage proactively has been a critical factor in getting product to release far sooner than originally hoped."

Over a four-month project, MTC made 104 design improvements, giving BG Research a realistic pathway to produce 1,000 units a year. The work has reduced risk, accelerated their route to market and strengthened future growth opportunities for both the company and the regional health-tech supply chain.

BG RESEARCH .....innovate

Dufaylite and MTC partnership helps boost production by 400% and strengthen its sustainable packaging mission

Dufaylite, a long established manufacturer of recycled paper honeycomb packaging, turned to the Manufacturing Technology Centre (MTC) when rising demand exposed bottlenecks in its lamination line.

Despite strong market momentum, industrial challenges such as slow drying times, rework and inconsistent output were limiting production and threatening delivery times at the company's St Neots site.

MTC specialists began by immersing themselves in Dufaylite's operations, mapping the full process and working closely with employees to understand day-to-day challenges. A detailed value stream map identified where mechanical improvements and layout changes would have the biggest impact, while building strong workforce engagement around the planned transformation.

MTC then sourced and tested new technologies to improve drying performance and streamline the flow of material through the factory. The team also guided Dufaylite through the Innovate UK Reach SME grant scheme, helping secure funding to accelerate the upgrade.

The results were dramatic: production speed increased by 400%, annual output rose from 300,000 to more than one million linear metres, and factory relocation was avoided thanks to a more efficient layout.

Managing Director Ashley Moscrop said the partnership was transformative, noting:

"The enthusiasm and drive from everyone is fantastic… we wanted people pushing innovation and looking to drive things forward."

The success has sparked a series of follow on projects, with Dufaylite now working with MTC on future automation and AI driven improvements as it targets new markets and continues to drive operational improvements and sustainable growth.

Output speed increased by **400%** **400%**

More than 3x increase in annual output **3x**

> **Working and dealing with the MTC has been really simple for us. There's always somebody on the end of the telephone. There's always people who can answer questions, and it's just been a pleasure. The enthusiasm and drive from everyone is fantastic.**
>
> **Ashley Moscrop**
> Managing Director, Dufaylite

DUFAYLITE

Q5D Technologies and MTC take major step toward automating wiring harness assembly

A manufacturing task often hidden from view — the painstaking, manual assembly of harnesses for wiring — is being transformed through a collaboration between Q5D Technologies and the Manufacturing Technology Centre (MTC).

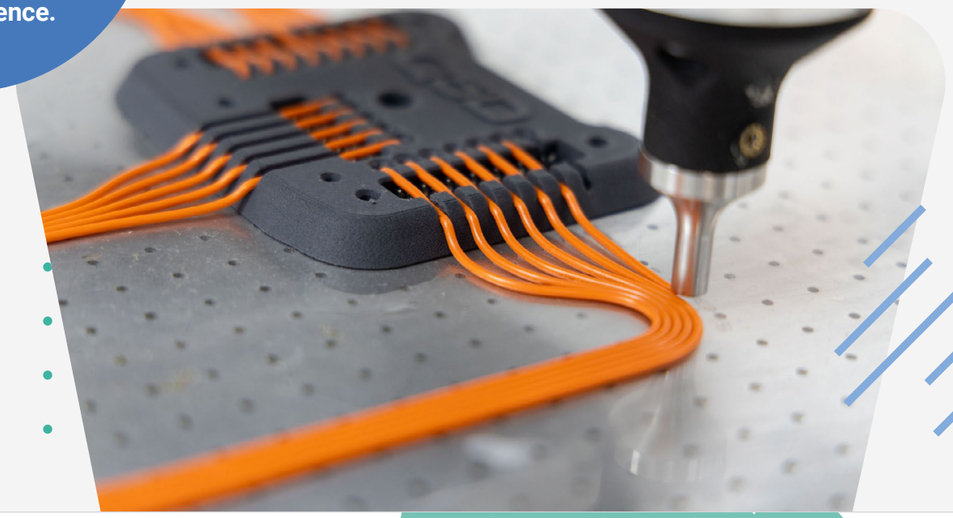
Delivered in 12 months, the project shows how the HVM Catapult network supports SMEs to scale breakthrough technologies and strengthen UK supply chain resilience.

Wiring looms remain one of the few components still largely built by hand, often overseas, adding cost, time and risk to supply chains. Q5D Technologies set out to change this with its CY10 platform, designed to automate the process and make onshore production viable.

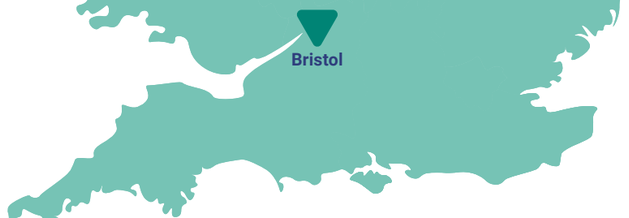
Through the Innovate UK funded AMWire project, the MTC helped take the technology from prototype to a system ready for real world factory environments. MTC engineers integrated Q5D Technologies' robot with industry standard robotics, added accurate measurement and inspection capabilities, strengthened cyber security, and created data interfaces needed for advanced analytics. They also drew on their wider membership network to ensure the design matched industry needs, culminating in a live demonstration of the automated cell at an MTC showcase day.

The impact has been significant, paving the way for higher quality, lower cost wiring harness manufacturing and building the case for reshoring production back to the UK. The strengthened platform has already helped Q5D Technologies secure $13.5 million in new investment.

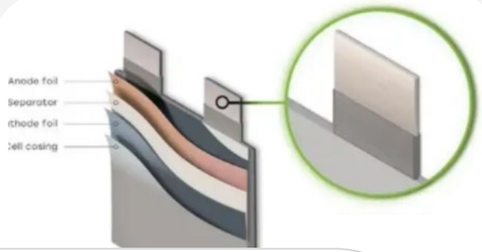
Q5D Technologies' Simon Baggott said the collaboration marked a major milestone: "Working with the MTC has enabled us to demonstrate our systems are ready to integrate into the latest factory environments."



Q5D



> **The MTC's expertise in the field of laser surface treatments has been instrumental to the project and we have achieved greater results than we were hoping, surpassing performance results for current state-of-the-art components.**
>
> **Martyn Brown**
> Research and Development Lead, ABM



Cheshire manufacturer leads charge on battery technology

A Cheshire SME has opened the door to bringing key elements of battery manufacturing back to the UK thanks to pioneering innovation developed with the Manufacturing Technology Centre (MTC) using funding from Innovate UK and the Faraday Challenge.

Current demand
Global annual battery demand >1TWh in 2024

Supply chain
Expected US$250bn global revenues for battery cell components by 2030

Market
Forecast UK battery demand of 110 GWh per year by 2030

Avocet Battery Materials (ABM), based in Crewe, makes battery tabs – connectors made from copper or aluminium that carry electricity into and out of the cell.

They approached the MTC about creating a chemical-free laser surface treatment, replacing previous processes which involved a type of chrome that posed a risk to the health of those involved in manufacturing, in addition to environmental issues around end-of-life battery disposal.

These chemicals have now been effectively banned in the UK, EU and a number of other regions.

Cleaner, faster, smarter

This new laser process is the first of its kind globally and is both faster and more repeatable which allows for high-volume production to meet increasing demand. It improves battery life and resilience and has also reduced production costs for the company.

ABM worked on the 18-month project with the MTC, who have proven expertise in laser surface engineering. The new process was developed and extensively tested, including a life cycle assessment to evaluate its environmental impact. A model was also created to demonstrate how this approach could work at scale.

ABM is now working on a route to market for this technology, and it comes at a time when the UK's industrial strategy sets out a clear path for increased electrification in both industrial and domestic settings.

GE Spares and MTC transform productivity through lean, visual manufacturing practices

Global Equipment Spares (GES), a fast paced supplier of industrial wear parts, turned to the Manufacturing Technology Centre (MTC) after rising complexity in its factory made it increasingly difficult to maintain flow, manage lead times and keep welding operations running smoothly.

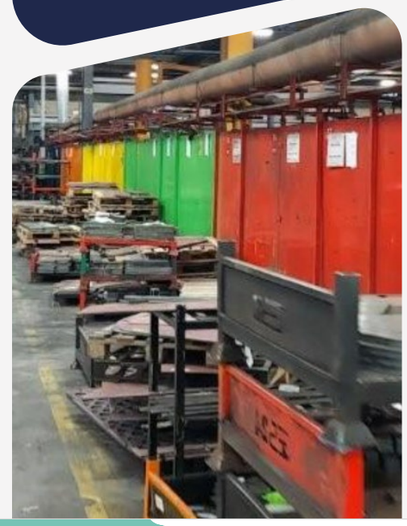
With dozens of jobs moving through different processes at once, even a small delay could halt production and impact customer delivery.

Over a three-month project, the MTC carried out a detailed analysis of the facility, identifying where clearer workflow visibility and stronger process control would unlock immediate gains. The team introduced colour coded job tickets to highlight delayed work, redesigned the factory's visual layout so staff could instantly see part locations and routes, and created a simple way to track delays at the welding stage. These changes were reinforced through "leader standard audits" to ensure improvements were maintained every day.

The shift to a visual, easy to navigate factory floor has made bottlenecks far more visible and empowered staff to fix issues quickly. Delays feeding work into welding and shipping have been eliminated, downtime has dropped and delivery performance has improved significantly. Crucially, employees are now driving further improvements themselves.

The project has laid strong foundations for future transformation as GES prepares for its next phase of growth.

> **A lot of what we have done we would not have done without the support… this has given us a real push to make big change. People are now suggesting improvements because they see there is a better way.**
>
> **Patrick Rabbett**
> Production Team Leader,
> GE Spares



Solar tile technology wins major UK contract

A North East clean-tech firm has moved a step closer to transforming UK rooftops after crucial engineering support helped turn its invention into a market-ready product.

Solar Capture, which has developed a roof tile that generates electricity while looking like a standard tile, partnered with NCC, part of the High Value Manufacturing Catapult. The centre's engineers tested and strengthened the tile's internal structure, refined the design for reliable factory production, and ensured it could withstand fire and harsh weather.

This work gave the company the evidence needed to secure key UK safety and performance certifications – essential for selling into housing and retrofit markets.

The impact has been swift. Installers report the tiles are easy to fit, developers are showing interest, and production is now scaling up. In a major boost, Solar Capture has also won a multi-million-pound, four-year contract with the General Lighthouse Authorities for UK and Ireland to supply solar panels for marine navigation sites.

With NCC's backing, Solar Capture has shifted from early prototype to credible supplier in the fast-growing clean energy sector.

- **The UK had around 19 GW of installed solar PV capacity by late 2024** (source: Government's Solar PV deployment statistics published by the Department for Energy Security and Net Zero (DESNZ)
- **Solar produced around 14–15 terawatt hours (TWh) of electricity in 2024** (UK government energy trend statistics)

Solar Capture

From food waste to flowerpots: UK start-up cracks plastic-free gardening

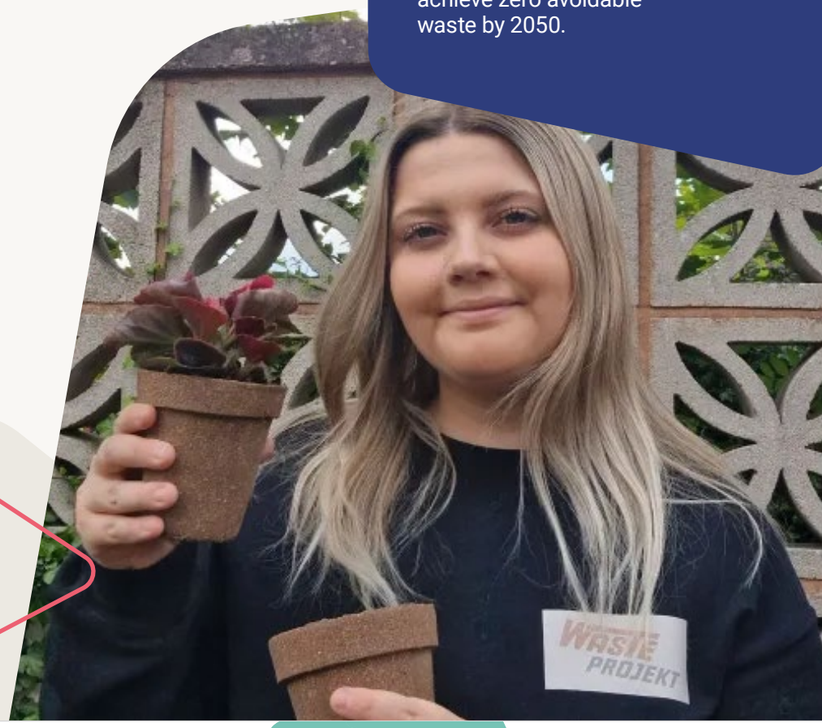
A small business in the West Midlands has moved closer to replacing plastic plant pots with a greener alternative after specialist engineering support helped turn a fragile idea into a product ready for real-world production.

Waste Projekt, an SME developing plant pots made from recycled food waste, teamed up with NCC to solve a key problem: how to make its fully biodegradable pots reliably and at scale. Early versions were hand-shaped, thick, and prone to shrinking and sticking in moulds — issues that would make mass production impossible.

Engineers studied how the new material behaved, fine-tuned the recipe, and used 3D-printed moulds to test improvements quickly. The results were dramatic. Wall thickness was cut by more than half, shrinkage dropped sharply, and the pots became stronger and more consistent. The team also created a dependable process covering moulding, drying and oven curing, and improved drainage design so the pots work like traditional plastic ones.

Waste Projekt now has a proven manufacturing method, better tools and a clear route to larger-scale production — turning food waste into a practical, low-plastic option for gardeners.

- A UK Parliament briefing, citing data compiled for government reporting, states that while about 73 % of plastic bottles were collected for recycling in 2020/21, the **recycling rate for plastic pots, tubs and trays was only around 47%**
- The UK's Resources and Waste Strategy set out ambitions for all plastic packaging to be recyclable, reusable or compostable by 2025, alongside broader goals to eliminate avoidable plastic waste by 2042 and achieve zero avoidable waste by 2050.



WASTE PROJEKT

NCC validates breakthrough composite process for next generation clean maritime vessel

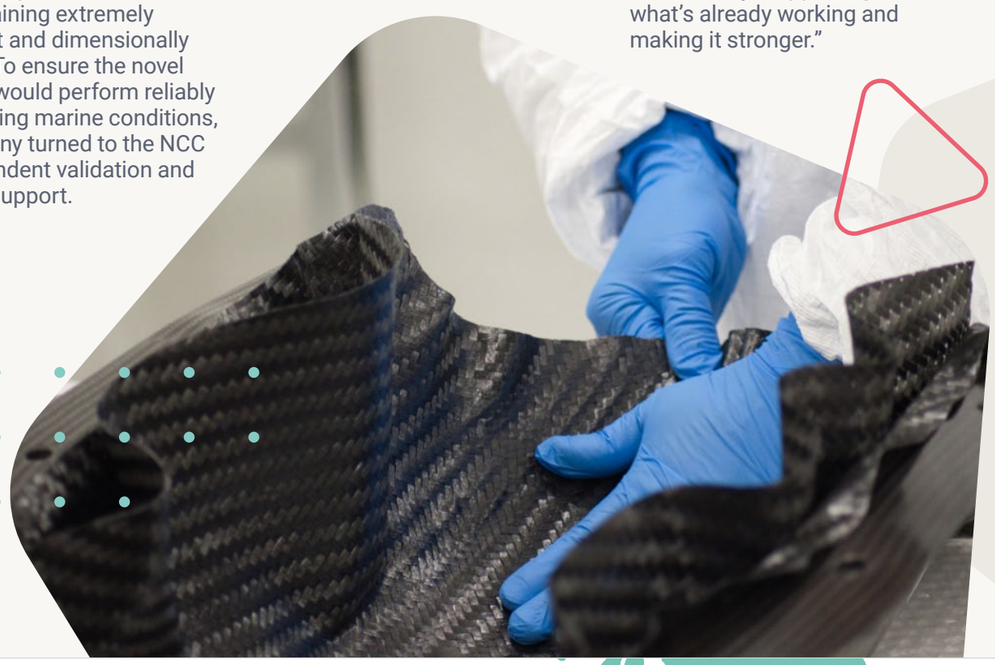
A partnership between Creative Composites and NCC has helped advance the manufacture of a critical hydrofoil component for a new electric vessel, strengthening the UK's position in clean maritime innovation.

Creative Composites had developed an ambitious single shot lay up process for producing a high precision hydrofoil control surface, an essential structure that must withstand significant loads while remaining extremely lightweight and dimensionally accurate. To ensure the novel approach would perform reliably in demanding marine conditions, the company turned to the NCC for independent validation and technical support.

NCC specialists reviewed the proposed manufacturing route, confirming its robustness and identifying opportunities to improve fibre placement and material handling. They also assessed repeatability to ensure the process could deliver consistent, first time right manufacture and provide a foundation for future scale-up. The focus was not on reinventing the method, but on strengthening what already worked. As Creative Composites put it, NCC helped them "validate and optimise the process," providing confidence in a high profile programme.

With NCC's applied R&D support, Creative Composites successfully demonstrated that its technique met stringent performance and accuracy requirements. The company also established a validated process definition for similar components and delivered the hydrofoil part on time and to specification.

The project reinforces Creative Composites' growing capability in advanced marine structures and shows how independent expertise can accelerate innovation in sectors from automotive to aerospace, and now clean maritime, by "supporting what's already working and making it stronger."



Creative Composites

Cambridge SME turns heads in the skies thanks to hands-on support from NCC

Limosaero has developed a solar-powered unmanned aircraft designed to stay airborne for exceptionally long periods, gathering data for environmental monitoring, mapping and land surveys. Early test flights proved the idea worked. The challenge was turning a clever prototype into a reliable, money-making business.

That is where NCC, part of the High Value Manufacturing Catapult, stepped in. Its engineers built new flight-critical parts for the aircraft using detailed manufacturing instructions, ensuring each component was made the same way every time. This gave Limosaero confidence the aircraft could be produced consistently, not just as a one-off.

The centre also carried out a study on how the firm could grow, weighing up whether to sell aircraft or provide surveying services using its own fleet. The result was a clear decision to focus on data services.

Since then, Limosaero has completed environmental mapping projects with the UK Centre for Ecology & Hydrology and surveyed algae blooms at Lough Neagh, a shift from experiment to real-world business.

LIMOSAERO

I-CAGE: reimagining rail electrification with composites

Steel has served rail electrification for over 60 years – but the demands of cost, carbon and installation safety have changed. Traditional cantilevers remain heavy, complex to install, and expensive to maintain. And while the rest of the network is evolving, this part of the system has largely stayed the same.

Furrer+Frey UK saw an opportunity to rethink it – and turned to NCC to help make it real.

Together, they developed and delivered I-CAGE (Innovative Cantilever for Greener Electrification) – a modular composite cantilever that is lighter, self-insulating, and designed for fast, low-impact installation.

From early design feasibility to full-scale prototype manufacture, NCC supported the technical development and helped build the case for adoption.

Engineering progress – from concept to proven solution

The first step was to prove it could work in practice – not just on paper.

NCC engineered and manufactured a fully functional composite cantilever, using a modular architecture of four injection-moulded components and interchangeable GFRP (glass fibre reinforced polymer) tubes. The system removed the need for separate insulators or metal fasteners, offering a cleaner, simpler structure that met installation and performance requirements.

But building a prototype wasn't the end goal – deployment was.

NCC supported Furrer+Frey to evaluate production scalability, optimise the installation process, and assess long-term cost and carbon savings across the system's lifecycle. The result – clear evidence that I-CAGE could deliver meaningful benefits at network scale.

The impact: cost, carbon, and confidence

Compared with traditional steel systems, the I-CAGE prototype delivered:

- 53% cost savings
- 64% reduction in structural mass
- 60% lower CO_2 footprint
- Reduced foundation depth
- Simpler logistics and installation
- Fewer people required on site
- No insulators, bolts or pins

These improvements aren't hypothetical. They were achieved with a first-generation prototype – and further gains are possible through optimisation and industrialisation.

A new benchmark for future infrastructure

Electrification needs to accelerate, but upgrades must be smarter – not just more frequent. I-CAGE shows what's possible when composites are applied with purpose: lighter structures, safer working conditions, lower whole-life costs, and a reduced carbon footprint.

It's also a wider proof point – that with the right engineering support, novel concepts can cross the gap from innovation to infrastructure.

I-CAGE is more than a product – it's a step towards modernising the way we electrify rail.

Furrer+Frey
Overhead contact lines

Digital support helps GingerBeard's Preserves scale up miniature jar production

Bristol condiment maker GingerBeard's Preserves has unlocked a new phase of growth after receiving targeted support through the Made Smarter programme, delivered in partnership with NCC. The award winning SME, known for its craft sauces and collaborations with local breweries, had seen demand surge for its 40g miniature jars, but its existing equipment couldn't fill the small jars efficiently, forcing the team to hand fill every unit.

As the business expanded to more than 200,000 jars a year, this manual step became a significant bottleneck, limiting capacity and slowing production of white label orders. Seeking a practical solution, GingerBeard's Preserves took part in a Digital Acceleration session with NCC, where specialists helped review digital tools, compare filling equipment options and quantify time and cost savings. The structured support gave the team the engineering insight and independent advice they needed to make an informed investment decision, expertise they "wouldn't normally have access to."

Following the session, the company secured a Made Smarter grant to purchase a semiautomated depositor designed for 40–50g jars. The new system integrates with the existing production line and replaces the slow, labour-intensive piston funnel process.

The upgrade is expected to speed up filling, improve consistency, cut labour requirements and lower the cost of small batch runs. Crucially, it gives the business the confidence and flexibility to take on more private label and seasonal work.

By resolving a single high friction challenge, the programme has helped the SME scale its craft production with confidence.

GingerBeard's Preserves

New remanufacturing breakthrough could cut wind turbine waste by 42kg per component

A collaboration led by the National Manufacturing Institute Scotland (NMIS) has demonstrated how advanced remanufacturing could dramatically reduce waste and emissions in the wind energy sector.

Working with Renewable Parts Ltd and SSE Renewables, NMIS helped trial new repair techniques that could transform how worn turbine components are restored.

Yaw gearboxes, which are critical parts that help wind turbines rotate, contain pinion shafts that wear down over time and are usually replaced, creating up to 42 kg of steel waste per unit. RPL saw an opportunity to remanufacture these parts instead but needed specialist facilities and technical expertise to prove the method could meet the same standards as a brand new component.

Through the ReMake Glasgow programme, NMIS designed and delivered a structured set of trials using friction welding and arc based additive manufacturing to rebuild worn material. NMIS engineers then supported precision machining and carried out rigorous mechanical, metallurgical and non-destructive testing to compare the repaired parts with original components.

The results were highly promising, showing that the remanufactured shafts matched original performance standards while significantly reducing waste and carbon emissions. The work has now progressed to developing a full scale demonstrator, with verification continuing ahead of planned field trials on operational turbines.

Renewable Parts Ltd's Ryan McCuaig said the collaboration "helped de risk the technology," noting that the trials showed the potential to "reduce steel waste by up to 42 kg per unit" and cut emissions by up to 84 kg of CO_2 equivalent per component.

The progress gives industry confidence to pursue wider adoption across the UK wind sector.

Renewable Parts

Malin Marine Consultants and NMIS demonstrate breakthrough in low-emission shipbuilding

A Clyde-based collaboration has shown how advanced manufacturing could significantly cut the environmental impact of shipbuilding.

Working with local SME Malin Marine Consultants, the National Manufacturing Institute Scotland (NMIS) has helped develop lightweight ship components using large-scale additive manufacturing (LSAM), achieving weight reductions of up to 53%.

Malin Marine Consultants wanted to explore whether new digital design methods and automated manufacturing could replace traditional steel-heavy fabrication. Reducing vessel weight is a key challenge for a sector responsible for around one billion tonnes of CO_2 each year, and which faces strict global emissions-reduction targets.

Through the Clean Maritime Demonstration Competition, Malin led a research project with NMIS, Altair Engineering, BAE Systems and Lloyd's Register. NMIS used topology optimisation, a technique that removes unnecessary material, alongside wire-arc additive manufacturing to redesign three ship components: a bilge pump foundation, a windlass foundation and a bulbous bow.

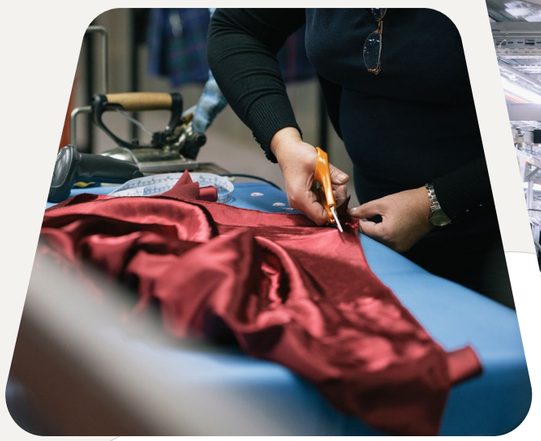
NMIS then manufactured and tested a demonstrator bilge pump foundation section. The part underwent strength and performance assessments witnessed by Lloyd's Register, giving industry-level assurance. A validated computational model was also created to predict how the component would behave during manufacturing, supporting future scale-up.

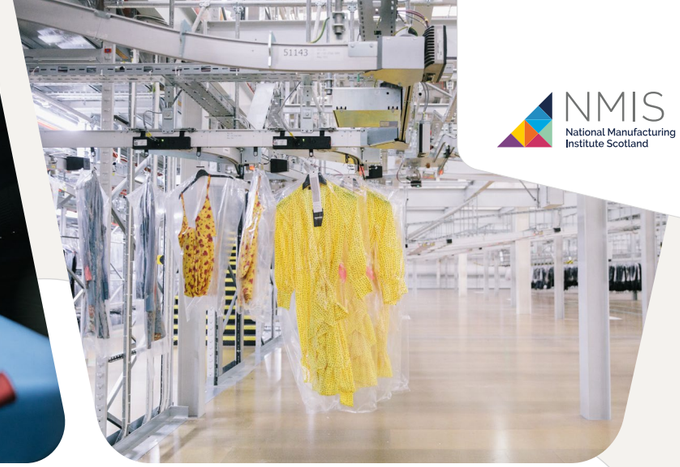
The results showed weight reductions of 24-53%, and modelling suggests that applying this approach across vessels could cut ship weight by around 16% and significantly reduce material use and emissions.

The next phase will focus on printing full demonstrators and preparing for real-world deployment.

> **We're really pleased with the progress we're making… it's been a privilege to collaborate with the team at NMIS and we look forward to building on this partnership.**
>
> **Chris Dunn**
> Managing Director, Malin

Malin Group





ACS cuts emissions by 58% with NMIS support, securing £10m to scale circular fashion

Motherwell based circular fashion specialist Advanced Clothing Solutions (ACS) has cut its emissions by 58% since 2019 and unlocked £10 million of investment after a multiphase collaboration with the National Manufacturing Institute Scotland (NMIS). The work has strengthened ACS's environmental performance, digital capability and readiness for new industry regulations.

As ACS grew its garment rental, resale, repair and recycling operations, the company needed robust emissions data, clearer decarbonisation pathways and better lifecycle traceability. Without this, it could not fully evidence its environmental impact or scale its circular services for major retail partners.

NMIS supported ACS across three linked programmes. Under the EXTEND initiative, NMIS specialists carried out detailed carbon accounting, analysing processes, materials, facilities and travel to produce a verified emissions baseline aligned to the Greenhouse Gas Protocol. Through the Innovation Accelerator's Co Lab project, NMIS helped redesign ACS's operational workflows, improving garment intake, inspection and refurbishment to increase efficiency and scale. In the ReMake Glasgow Extension project, NMIS then helped ACS prepare for Digital Product Passports by mapping lifecycle data, standardising repair records and improving end-to-end traceability.

The combined support has delivered significant results: a 58% reduction in emissions since 2019, 25% lower water use, and zero textile waste to landfill. This strengthened environmental and digital foundation helped ACS secure £10 million from Circularity Capital to expand its UK facilities and European operations.

Chief Operating Officer Anthony Burns said NMIS's expertise "has given us the clarity and evidence base to accelerate our transition… and helped shape our contribution to Scotland's circular economy."

ACS continues its progress toward net zero by 2030.

ACS

Scottish medtech spinout advances robotic surgery innovation with help from NMIS

A pioneering robotic surgery technology developed by Glasgow spinout Nami Surgical has taken a major step forward thanks to hands-on support from the National Manufacturing Institute Scotland (NMIS).

The fast-growing SME needed a safe, reliable and industry compliant way to test its miniaturised ultrasonic scalpel, which is an essential requirement before engaging major robotic surgery partners. Technology developed by Glasgow spinout Nami Surgical has taken a major step forward thanks to hands-on support from the National Manufacturing Institute Scotland (NMIS).

To meet strict medical grade standards, Nami Surgical had to validate its latest prototype using a specialised vessel sealing test. However, designing the required test rig inhouse would have been costly and technically complex, so the company turned to NMIS after receiving Innovate UK EDGE growth funding.

NMIS engineers worked closely with the team to understand technical, commercial and safety requirements. They proposed a modular rig that could be partly produced using Nami's own 3D printing facility, reducing costs while ensuring each component met industry standards.

With NMIS's support, Nami Surgical built a fully compliant rig that allowed it to rigorously assess performance and demonstrate reliability to partners and investors. The work helped the company progress to the next stage of development and secure its first commercial partnerships.

Founder Nico Fenu said NMIS "helped us realise an in-house testing rig which has instilled confidence in both customers and investors, demonstrating the reliability of Nami Surgical's prototypes."

Since the collaboration, Nami Surgical has continued to grow, securing £1.9 million in new investment to accelerate commercialisation.

Aluminium Surface Engineering cuts energy use and boosts sustainability with WMG help

Aluminium Surface Engineering (ASE), a long-established Coventry manufacturer specialising in hard anodising, turned to WMG for support as rising energy costs and sustainability pressures placed increasing strain on its operations.

Because anodising relies on electricity intensive electrolytic processes, ASE's critical machines were consuming large amounts of power, driving up bills and limiting the company's ability to meet its environmental goals.

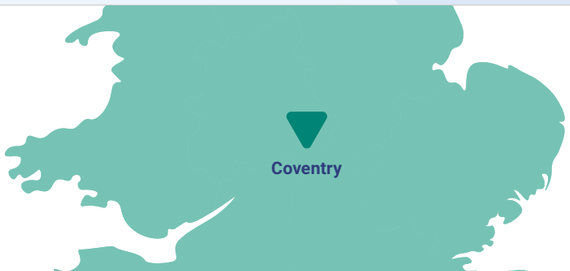
WMG's SME Group worked closely with ASE through two programmes — the Net Zero Innovation Network and the Manufacturing Energy Toolkit — to identify where energy was being wasted and how efficiency could be improved. Using cloud-based monitoring tools and on machine sensors, WMG engineers tracked the consumption of six major pieces of equipment, pinpointing idle energy use, load imbalances and opportunities to switch off or optimise machines without disrupting production.

The team produced new dashboards giving ASE real-time visibility of energy use and recommended practical actions, from improving insulation on anodising tanks to switching strategies.

The results were significant, with WMG estimating that ASE could save up to 75,700 kWh of energy and 15,700 kg of CO_2 each year.

ASE's Business Improvement Manager, Elise Smithson, said the collaboration had reshaped their approach: "We started the programme with some ideas but now have so many more actionable things to take forward. Our mission is to become a business that is as sustainable as possible."

WMG experts added that the project showed how "small changes to equipment usage can make a big difference to efficiency."



WMG graduate internships help Data Image Group accelerate innovation and strengthen its market position

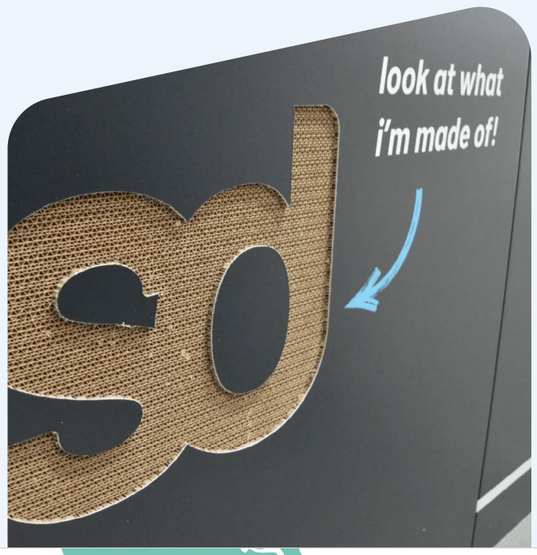
Data Image Group, a major print manufacturer serving global brands, partnered with WMG to fast track its ambition to become a UK leader in innovative print production. With a rapidly evolving industry and increasing pressure to modernise operations, the company sought fresh ideas, digital skills and support in identifying where to invest for future growth.

WMG's SME Group connected Data Image Group with top graduate talent through WMG's Internship Programme, originally aiming to place one intern within the business. After attracting nearly 100 applicants, the quality of candidates sourced by WMG was so strong that CEO Robert Farfort made the decision to recruit three interns instead. The interns, supported by WMG experts, analysed production processes, assessed equipment capabilities, identified opportunities for cost savings and developed a detailed roadmap for future investment and operational improvement.

The impact was immediate. Guided by WMG's experts, the interns' insights helped Data Image Group achieve market-leading profit margins and uncover new growth opportunities. This work led to an Innovate UK–funded Knowledge Transfer Partnership with WMG to embed long term cultural and operational transformation.

WMG's Katy Wilson highlighted the value of the collaboration: "Pairing the right intern with the right business can be transformational… businesses gain valuable support on strategic projects and often uncover new opportunities for growth and innovation."

Collaborating with WMG not only strengthened Data Image Group's operations but also launched the interns into long-term innovation roles, demonstrating the lasting impact of WMG–SME partnerships.



dataimage

Eco Smart Systems and WMG bring energy saving boiler innovation to the market

Eco Smart Systems, a company specialising in eco friendly heating solutions, partnered with WMG to accelerate the development of an invention designed to make traditional boilers far more energy efficient.

The company had envisioned an isolation plate that could be retrofitted into any boiler to create separate heating zones within a hot water tank.

WMG's manufacturing experts worked closely with the business to turn this concept into a validated product. Dr Tony Zeng designed the plate in CAD and ran thermal simulations to compare options, while Dr Kylash Makenji identified suitable materials and assessed their performance. Together, they proved the design could successfully create thermal separation between zones and reduce heat loss.

Once validated, WMG supported the development of a working prototype with West Midlands boiler manufacturer Integras, enabling Eco Smart Systems to move quickly through safety checks and bring the product to market.

The results have been transformative. The final design could reduce boiler energy use by up to 50%, improve a home's EPC rating by up to 11 points, and generate an estimated £6–13 million in additional annual turnover as the company scales production.

CEO Tony Gayden praised the partnership: "Working with WMG has massively accelerated our prototyping process, cutting new product development time and costs by at least 75%."

The company is now exploring further innovations with WMG, including more efficient shower systems and Net Zero initiatives.

EcoSmart™ Systems
Eco Friendly, Efficient & cost Effective

Fixit Medical turn groundbreaking medical device into manufacturable product

Fixit Medical, a company founded by NHS consultant Dr Robert Ward, set out to solve a long standing clinical problem: catheters becoming dislodged during drainage procedures, often leading to serious complications.

Their solution, Cingo, uses a unique force-dissipating mechanism to keep catheters securely in place while improving comfort and ease of use for patients. But transforming this complex concept into a product that could be manufactured at scale — and at a price suitable for NHS procurement — required specialist support.

Through the West Midlands Health Tech Innovation Accelerator, Fixit Medical partnered with WMG's SME Group to refine the design and remove manufacturing risk. WMG experts ran plastic flow simulations, assessed manufacturability, and optimised Cingo's three interdependent components for injection moulding — a crucial step in ensuring precision, quality and affordability. Led by Dr Tony Zeng, the team refined CAD designs, recommended suitable medical grade materials and ensured the product could be produced reliably without costly tooling errors.

WMG also connected Fixit Medical with specialist moulding companies capable of producing the device to the required standards.

The collaboration saved Fixit Medical "tens of thousands of pounds" in avoided tooling mistakes and gave them confidence to progress to full-scale production. Director Peter Solomon said WMG's input had been "groundbreaking… and will make Cingo compete on price with current market leaders," while Managing Director Paul Johnson praised the partnership: "The team at WMG understood the problem and set about solving it with great efficiency and skill."

Cingo is now on track for release in mid-2026.

fixitmedical

WMG helps the Muzzle Movement cut lead times by 80% and scale up nationwide

The Muzzle Movement, an East Midlands start-up reinventing dog muzzles through better design and positive messaging, partnered with WMG to turn early momentum into scalable growth. Founded in 2022 by CEO Clara Hewson, the company had a strong vision but lacked the structured processes needed to expand production and meet rising demand.

Through WMG's SME Group and WMG's Internship Programme, the business received targeted support to streamline operations and build a structure for long-term growth. WMG helped recruit two skilled graduate interns, who were guided by specialists in productivity improvement, leadership and product development. Together, they analysed the entire value stream, redesigned workflows and used 3D modelling to optimise the shopfloor and warehouse layout.

This flexible, hands-on support allowed The Muzzle Movement to adapt processes as the company evolved. Improvements focused on reducing waste, standardising operations and increasing capacity — helping the start-up shift from ad hoc working to a fully structured manufacturing model.

The results were dramatic. In just one year, the company achieved a 54% increase in Q1 shipments, an 80% reduction in manufacturing lead time, and a projected 90% uplift in annual turnover, worth more than £108,000 within two years.

Head of Operations George Cassapi said WMG's support had transformed the business: "Everything that they've done for us has helped us be probably 1000% more functional."

With structured processes now firmly in place, The Muzzle Movement is growing from a local start-up into a nationwide, award winning brand.

the MUZZLE MOVEMENT

ProtectaPet streamlines ordering and unlocks £1.6m in projected growth

ProtectaPet, the award-winning Staffordshire business known for its innovative cat enclosures, turned to WMG to simplify its complex ordering process as demand grew across the UK and Europe.

While the company's modular fencing solutions were widely praised, resellers found it difficult to configure and order complete garden proofing kits due to the number of components involved. This complexity risked slowing growth and limiting international expansion.

Through the Innovate UK Business Growth programme, WMG's SME Group carried out a full review of ProtectaPet's IT systems and business processes. The team mapped existing workflows, identified inefficiencies and worked with software providers to determine which steps could be automated. Crucially, WMG helped define the requirements for a new distributor portal and configuration tool that would allow partners to design, quote and order full solutions without needing specialist knowledge.

These changes have transformed ProtectaPet's ability to scale. Quotation times have been cut by 56%, exports are expected to rise from 10% to 35%, and projected turnover is set to increase by £1.6 million over three years. The business can now integrate automated ordering with its ERP system, reducing manual work for staff and resellers alike.

Communications Director Eve Davies said WMG's support fundamentally reshaped their approach: "The expertise provided by WMG was instrumental... enabling us to achieve the best possible outcome."

The company is now using grant funding secured with WMG's help to build a second configurator for consumers, paving the way for even stronger UK and EU growth.

ProtectaPet

Samuel Heath and WMG build a future-ready, data-driven factory

Samuel Heath, the Birmingham based luxury fittings manufacturer with more than 200 years of heritage, is modernising its operations through a major digital transformation supported by WMG via the Made Smarter West Midlands programme.

With hundreds of products and a shift from make to stock to make to order, the business needed better insight into its factory performance — especially real time data from its diverse set of machines.

Manufacturing Director Martin Harrison recognised the risk of relying on delayed information: "If we don't get full productivity information straight away, we don't know if we are using the machines to their full capacity." Samuel Heath approached WMG for impartial guidance on how to capture and use live machine data to drive efficiency.

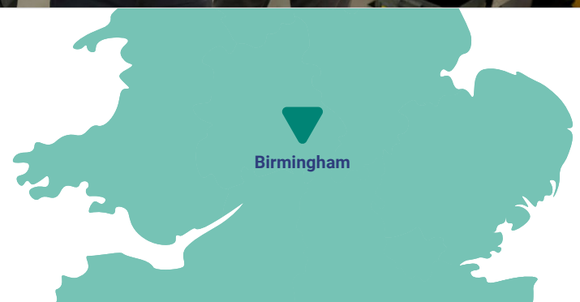
WMG began with an in-depth diagnostic workshop to assess business maturity and digital readiness, then developed a digital strategy and a clear transformation roadmap. The team also helped the business apply for a £20,000 Made Smarter grant, enabling the purchase of a machine monitoring system that integrates directly with Samuel Heath's ERP.

A trial is now underway, giving the company visibility of machine downtime, maintenance needs and set-up delays. The data will soon support factory floor dashboards and inform automation investments, with several opportunities already identified.

Martin says the partnership has been crucial: "Working in collaboration with Made Smarter and WMG meant we were dealing with people who really take the time to understand... we have introduced a digital system that will meet our requirements now and in the future."

Samuel Heath is now firmly on its path toward a fully connected, future-ready factory.

SAMUEL HEATH
Handmade in England



WMG helps Sonotu cut manufacturing costs by 50% and bring affordable hearing aids to market

Sonotu, a University of Warwick spinout dedicated to improving access to hearing aids in low-and middle income countries, partnered with WMG to turn its 3D printed prototype into a product ready for large scale, affordable manufacture.

Founded by Professor Nigel Stocks, the company aims to deliver high quality devices at a fraction of typical market prices. As he explains, “Now we have taken control of our manufacturing, we have been able to reduce that cost by over 50%.”

While Sonotu had a functional prototype, they lacked the expertise to transition to injection moulding — the process needed to produce thousands of units reliably and cost-effectively. Through the West Midlands Health Tech Innovation Accelerator, WMG’s Technology Transfer Engineer Dr Tony Zeng carried out a detailed assessment of the design, refining the CAD models and running rigorous simulations to test moulding conditions, identify potential defects and optimise the components.

Dr Zeng’s work produced a fully validated, manufacturing ready design with clear moulding specifications, allowing Sonotu to move into production with confidence. The collaboration also connected the company with external manufacturing specialists to strengthen the integrity of the final product.

The new hearing aid is set to launch in India, with an estimated market impact of 50,000 units per year. Sonotu’s team credits WMG’s rapid support for accelerating their route to market. As Design Manager Martin Millson said: “The intervention was beneficial to the project progress… a vital sanity check for our design.”

Sonotu is now preparing to scale internationally, supported by a robust, low-cost manufacturing pathway.

Sonotu

WMG partnership helps char.gy scale up from start-up to national EV charging provider

char.gy's decade-long partnership with WMG began with a shared ambition: to make electric vehicle ownership accessible for the millions of UK households without driveways.

A founding story

char.gy was founded in 2016 by entrepreneur Richard Stobart, who set out to solve a major barrier to electric vehicle adoption: the lack of convenient charging for people without off-street parking. His solution was both innovative and grounded in real-world practicality, transforming existing lamp posts into public EV charging points.

To bring this idea safely and reliably to market, char.gy required specialist engineering expertise to design, test, and certify its early hardware. WMG's SME Group supported the development and validation of the first electronic components, enabling char.gy to progress through early certification and prepare its first units for deployment.

Richard Stobart reflected on the importance of this early work:

"They understood what we needed and turned around a turnkey solution very quickly that cut our manufacturing costs and allowed us to get into the certification schedule early."

During the long-term partnership, supporting char.gy's scale-up journey, WMG also worked closely on Collaborate R&D projects, co-funded by Innovate UK, on areas that included developing interoperable wireless EV charging.

This initial phase of collaboration later expanded into structural testing, electronics development, and support across multiple product generations. WMG also facilitated regional connections, including introductions to Coventry City Council and the University of Warwick, helping char.gy install some of its earliest charge points and build operational confidence.

Where char.gy is today

A decade after its inception, char.gy is now a vertically integrated UK manufacturer, with its full production, assembly, and testing operations based in Coventry within the West Midlands. This UK-based manufacturing model provides tight control over quality, supply-chain resilience, and innovation cycles, enabling faster development and deployment of new cost-effective scalable charging technologies.

char.gy has grown into one of the UK's leading public charge-point operators. Backed by over £100m in private-equity investment, the company now operates more than 5,000 charge points nationwide, with tens of thousands more scheduled for installation across the country in the near term. This expansion is driven by char.gy's long-term partnerships with numerous London boroughs and a growing portfolio of major tier-one local authorities across the UK.

char.gy

Brandauer and WMG: powering innovation and electrification

Founded in 1862, Birmingham-based Brandauer has evolved from a fountain-pen nib manufacturer into a global specialist in precision metal stamping, serving customers in 26 countries across 15 sectors.

Since 2011, its partnership with the High Value Manufacturing Catapult through WMG at the University of Warwick has helped accelerate innovation, productivity and market diversification.

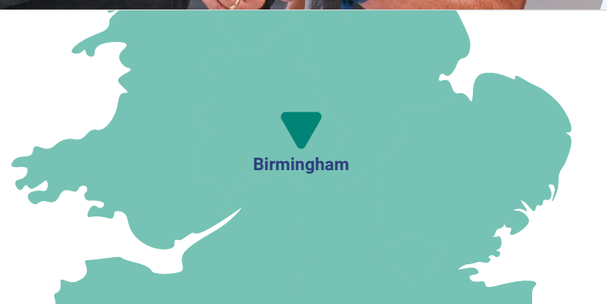
Through collaborative R&D and SME innovation support, Brandauer has secured **nearly £1.5m in Innovate UK funding** and benefited from **£100k+ of targeted innovation support**. These projects have delivered **15%+ productivity improvements**, enabled **£1m+ annual sales growth**, and supported the company in **doubling turnover from £4m to £9m**.

A key outcome has been Brandauer's entry into the **electric vehicle supply chain**. Working with WMG, the company developed new electric motor lamination capabilities—including stamping, stacking, bonding and welding—transforming its expertise into new electrification technologies. From starting with no electrification experience, Brandauer now supplies **15 clients across five sectors**.

Joint projects have also delivered **£250k in new business** through an e-machine stack programme with Jaguar Land Rover and reduced packaging emissions by **over 60% (9.5 tonnes CO_2e)** while cutting costs by **15%**.

The partnership has strengthened UK supply-chain capability and helped Brandauer secure both the **Queen's Award for Export (2019)** and the **King's Award for Innovation (2024)**.

BRANDAUER



CATAPULT
High Value Manufacturing

University of Sheffield AMRC
Advanced Manufacturing Research Centre

cpi

mtc where progress happens

ncc
innovating for industry

NMIS
National Manufacturing Institute Scotland

WMG
THE UNIVERSITY OF WARWICK

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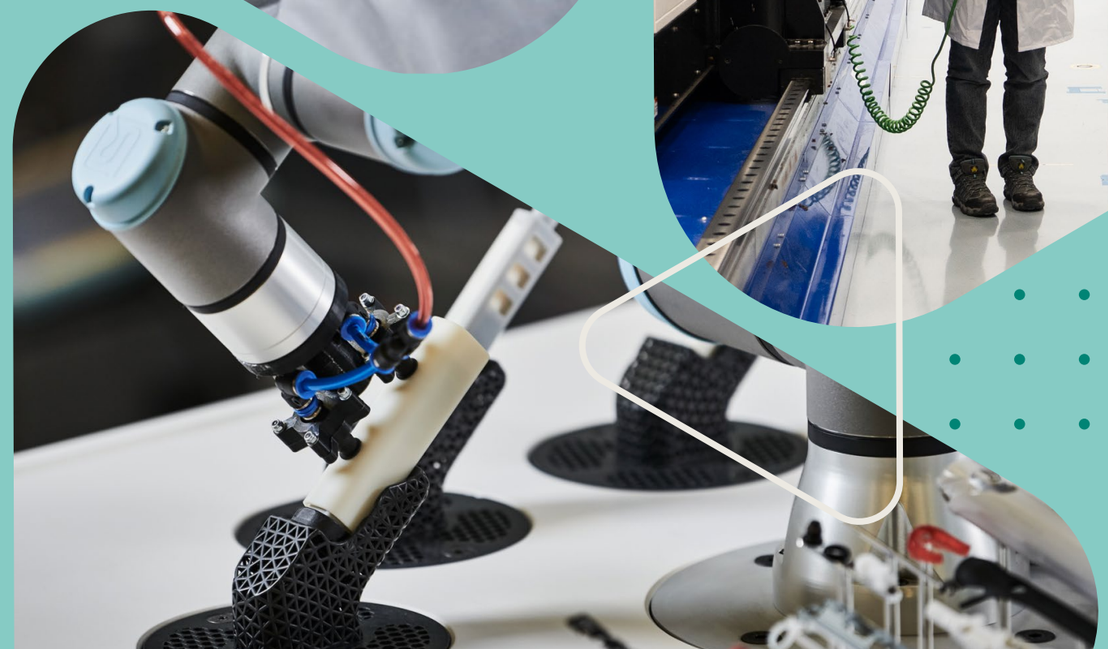
Business	Location	Centre	Sector	SME type	Page
Advanced Clothing Solutions (ACS)	Motherwell, Scotland	NMIS	Circular fashion	Scale-up	32
Agreka Build	Cheshire	AMRC	Sustainable construction materials	Start-up	7
Aluminium Surface Engineering (ASE)	Coventry	WMG	Surface engineering	Supply chain	34
Avocet Battery Materials (ABM)	Crewe, Cheshire	MTC	Batteries / electrification	Scale-up	21
BG Research	Kimbolton, Cambridgeshire	MTC	Diagnostics / medtech	Scale-up	18
Brandauer	Birmingham	WMG	Precision metal, EV	Scale-up	45
char.gy	Coventry	WMG	EV charging	Scale-up	43
Clearscope	Birmingham	MTC	Medtech	Start-up	17
Creative Composites	Lisburn, NI	NCC	Composites / maritime	Supply chain	25
Data Image Group	Leicester	WMG	Print manufacturing	Supply chain	35
DEScycle	Wilton, Teesside	CPI	Metal recycling	Start-up	15
Dufaylite	St Neots	MTC	Sustainable packaging	Supply chain	19
Eco Smart Systems	Stourbridge	WMG	Energy-efficient heating	Scale-up	36
Ecodetect	Anglesey, Wales	AMRC	Marine renewables / machine learning	Start-up	8
Fixit Medical	Poole / Bournemouth	WMG	Medical devices	Scale-up	37
Furrer + Frey	Nottingham	NCC	Rail infrastructure	Scale-up	27
GE Spares	Cheshire	MTC	Industrial wear parts	Supply chain	22
GingerBeard's Preserves	Bristol	NCC	Food and beverage	Start-up	29
Heatleaf	Guisborough	CPI	Wearable health tech	Scale-up	12
Iothic	Birmingham / Harwell	AMRC	Industrial cyber security	Start-up	9
Limosaero	Cambridge	NCC	Aerospace / UAV services	Scale-up	26
Malin Marine Consultants	Glasgow	NMIS	Clean maritime	Supply chain	31
Magnomatics	Sheffield	AMRC	Electric motors	Scale-up	5
Nami Surgical	Glasgow	NMIS	Robotic surgery	Start-up	33
NeoBand	Newcastle upon Tyne	CPI	Neonatal medtech	Start-up	10
NiTech Solutions	Edinburgh	CPI	Flow chemistry	Supply chain / Scale-up	13
ProtectaPet	Staffordshire	WMG	Consumer manufacturing	Scale-up	39
Q5D Technologies	Bristol	MTC	Automation	Scale-up	20
Renewable Parts Ltd	Renfrewshire	NMIS	Wind remanufacturing	Supply chain	30
RNAssist	Cambridge	CPI	Vaccine formulation	Scale-up	11
Samuel Heath	Birmingham	WMG	Luxury manufacturing	Supply chain	40
Solar Capture	Northumberland	NCC	Building-integrated solar	Scale-up	23
Sonotu	London	WMG	Hearing aids	Scale-up	41
Stuff4Life	Teesside	CPI	Textile recycling	Start-up	14
The Muzzle Movement	Melton Mowbray	WMG	Consumer manufacturing	Scale-up	38
Tilt Angle Drones	Blackburn	AMRC	UAV manufacturing	Start-up	6
Waste Projekt	Wolverhampton / S. Staffs	NCC	Bio-materials	Start-up	24



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