Engineering and Physical Sciences Research Council (EPSRC): Place Based Impact Acceleration Accounts: Early-Stage Review

Evaluation Report - Case Studies

September 2025

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Developing a Southwest England supercluster to accelerate the impact of clean hydrogen energy research and innovation

Introduction

The consortium: The Great Western Supercluster for Hydrogen Impact for Future Technologies (GW-SHIFT) is led by a consortium of seven universities: Bath, Exeter, Bristol, Cardiff, Swansea, South Wales, and Plymouth. It is co-created with civic partners including the Great South West, and West of England Combined Authority, and supported by seven major industry players.

The cluster: GW-SHIFT is an emerging cluster than spans South West England and South Wales, a region rich in hydrogen-related assets and testbeds across urban, rural, and coastal environments. The cluster is uniquely positioned to lead the UK's green hydrogen transition, with uses across aerospace, maritime, rail, road transport, power, heating, and industrial manufacturing. The supercluster aligns with regional strategies, such as the West of England Mayoral Combined Authority's ***'Climate Emergency Action Plan'***, the Great South West's ***'Speed to the West'***, and the Welsh Government's ***'Hydrogen in Wales pathway'***. GW-SHIFT builds on the region's existing hydrogen ecosystem and aims to evolve it into a globally recognised supercluster.

The governance: GW-SHIFT gains advice and support by a cross-sector strategic advisory board with representation from academia, local authorities, and industry. The programme is structured around co-creation, with stakeholders actively shaping project themes, funding calls, and strategic direction.

Objectives

GW-SHIFT will deliver impact through **4 key pillars**: i) **Supercluster Growth** – Establishing a sustainable hydrogen supercluster through policy engagement, secondments, and network building, ii) **Collaborative Projects** – Funding 20 short-term sprint projects and 8 longer-term collaborative projects to develop new technologies, spinouts, and policy impacts, iii) **Capacity Building** – Delivering training, mentoring, and upskilling programmes for researchers, local authority and other public body leaders, and industry to prepare for the hydrogen economy, and iv) **Public Engagement** – Raising awareness and acceptance of hydrogen through outreach in schools, communities, and policy forums.

"The focus with all the activities is jobs and growth. We want to have a very good return on the £2.5 million [PBIAA] investment. Over the four years, we want to bring more hydrogen jobs, activities, products and infrastructure across the region."

Early activities and outcomes

Large supportive and engaged board: GW-SHIFT has established a highly engaged and diverse Strategic Advisory Board (SAB) of over 30 members from academia, industry, and civic society. Through co-design, the SAB has been instrumental in guiding the programme's direction, influencing funding calls, training design, and public engagement strategies.

"We've got fantastic co-chairs and a really engaged board. They bring ideas, resources, and challenge us to make this work. It's not just advisory—it's genuinely strategic."

This Board has helped GW-SHIFT maintain momentum despite external challenges, such as the dissolution of Western Gateway.

The strength of the SAB is its **size and level of engagement** across the various stakeholders involved. This allows the majority of key actors in the cluster to influence the direction of the PBIAA to benefit the growth of the cluster, in line with the strategic priorities of academia, civic society and industry. Typically, a board of this size would be difficult to coordinate and effectively engage

Launching PRINT projects: GW-SHIFT has already launched **12 "SPRINT" projects**, with more in the pipeline. These short-term, high-impact collaborations between academia and industry are designed to address specific hydrogen-related challenges across the South West and South Wales. Examples include **Hydrogen sloshing in tanks** – improving storage safety and efficiency, and **Hydrogen use in forges and blacksmithing** – exploring decarbonisation in traditional industries.

"We've been amazed by the diversity of the SPRINT projects. They're already showing strong potential for impact and follow-on funding."

All SPRINT projects are required to demonstrate tangible benefits for the region, ensuring that place-based impact remains central to GW-SHIFT's mission.

GW-SHIFT's first completed SPRINT project explored the **feasibility of using ammonia to reduce carbon emissions in steel production**. The SPRINT found that two hydrogen-based fuels demonstrated a reduction in carbon emissions. Following this, the SPRINT also detailed the cost-effectiveness of using the different fuel options tested.

Setting up for the future: As an emerging cluster, GW-SHIFT has focused heavily on ecosystem development. This includes.

- **Cross-regional collaboration** across seven universities from aerospace innovation in the Southwest to heavy industry and steel production in South Wales.
- **Capacity building** through training for researchers and entrepreneurs and secondment schemes to support policy development and alternative energy understanding in Local Authorities. A pilot training programme for researchers and entrepreneurs launched in July 2025, with plans to scale based on feedback.
- **Public engagement** planning, including deliberative engagement to understand public perceptions of hydrogen.

This groundwork has already attracted international interest and is actively shaping regional hydrogen strategy.

In line with targeted cluster needs, by 2028 GW-SHIFT aspire to…

Deliver **24** inward and outward secondments between industry, civic and industry	Delivery of **20** short SPRINT projects	Delivery of **8** 1–2-year collaborative match-funded impact projects
Attract **£1.5m+** cash/in-kind contributions	**8** patents filed **10** new products **50** new jobs created	**36** publications **4** new spinout companies registered **£100m** in additional GVA

Developing academia and industry collaborations to supercharge the growth of the bioeconomy in north-west England

Introduction

The consortium: The Industrial Biotechnology Innovation Catalyst (IBIC) consortium is led by The University of Manchester, and partners with Manchester Metropolitan University, University of Salford, University of Liverpool, Liverpool John Moores University, 18+ businesses, investors and science parks, the Greater Manchester Combined Authority and Liverpool City Region civic body.

The cluster: The established north-west biotechnology cluster builds on the foundations of its university's innovation facilities, including Liverpool's Centre for Materials Discovery, Microbiorefinery and Materials Innovation Factory (MIF), Manchester's Institute of Biotechnology and SISTER. There are strong connections between academia and industry within the cluster, demonstrated by **a combined grant portfolio of £250M, leveraged >£100M in industrial income and a strong track record of spin-out companies**.

The 2015 regional Science and Innovation Audit highlighted industrial biotech as a core strength, with ***"fast-growth opportunities"*** within the Greater Manchester and Cheshire East areas, due to the concentration of industry, leading-edge science and innovation capabilities and demonstrated scientific excellence in the area[1].

Objectives

"A north-west region where industrial biotechnology is supercharging the growth of careers, skills, business and our regional economy, while delivering a low carbon economy"

As an established cluster, IBIC aim to scale the cluster's networking, knowledge exchange, innovation pathways and skills development, so that in the long-term IBIC can continue as a **not-for-profit innovation entity** to ensure the **long-term sustainability of the cluster**.

Early activities and outcomes

As set out below, IBIC has delivered a series of awareness and relationship building activities, as well as launching a number of funding scheme. These have helped to **grow the profile of IBIC** and **foster new academic-industry partnerships**.

Launch event and brand

To help gather early momentum, IBIC created new branding that would be used for the lifetime of the PBIAA.

This branding was used to help facilitate the IBIC launch event, held in May 2024.

Networking and relationship builder grants

IBIC run a cluster/networking funding scheme, aimed at building the IBIC ecosystem.

The University of Salford was successful in applying for this, and used the funding to hold a microbreweries workshop at

Co-branding initiatives

IBIC have found that co-branding and co-funding initiatives has been an effective way to build capability and encourage research and innovation within their cluster.

One example of this was sponsoring the North West

[1] See https://www.greatermanchester-ca.gov.uk/media/1136/science_audit_final.pdf

The event was well attended, with over 170 attendees from academic, industry and civic backgrounds.

The event had a mix of high-profile expert speakers from both within and outside of the IBIC consortium.

"The launch networking sessions saw people talking to each other and the team; they were really interested to know how IBIC was going to work, in our funding calls and how they might collaborate."

Early outcomes: Through the branding, launch event and other networking events, IBIC are well recognised within the north-west.

They have good traction and interaction on social media, with over 1,600 LinkedIn followers and feel they have built a wider, stronger and inclusive network, with new relationships constantly developing.

Forward look: To continue engagement and growth, IBIC hosts regular engagement activities and monthly webinars, with rotating speakers from diverse backgrounds, including early-stage innovators a platform they might not otherwise have.

their site for c.12 private sector companies. The workshop demonstrated academic research on how waste products from the brewing process can be turned into high value molecules to benefit the industry, using green, cost-effective methods.

Early outcomes: Three new partnerships were nurtured and funded by IBIC's Relationship Development scheme, which offers up to £10,000 for academics to foster new relationships with industry.

"This relationship builder was not just getting together and talking. Every time that we got together, we came up with an idea, and then we go to the lab."

One Salford researcher involved in this workshop has since had their PhD partially funded by an industry partner.

Forward look: The Salford team are looking to progress these new relationships to proof of concept work, via £30,000 IBIC awards, and have ignited a pipeline of interest in their work.

Biotech Initiative's (NWBI) 'Build a Biotech' competition.

The competition gives early career researchers external training to develop pre-accelerator ideas into early-stage value propositions for presentation to an external panel.

IBIC supported NWBI by providing advice on how to tailor the competition, helping them run the pitch day, which was hosted by IBIC partner SISTER, and awarding the best pitching teams with innovation prize funding to progress their ideas.

Early outcomes: Build a Biotech competition prize winners have seen success, including the incorporation of spin-out companies, attracting further funding and securing lab space for research.

"Participants learn how to turn a great idea into a real business opportunity!"

Forward look: IBIC are continuing to engage with the 2025 competition, to encourage entrepreneurship and innovation.

In line with targeted cluster needs, by 2028 IBIC aspire to…

Increase knowledge development through **80** proof of concept studies with industry	Increase skills through **36** secondments and staff exchanges between academia, FE colleges and partner organisations	Spin out **10** new companies and start-ups
Scale up **25** early-stage companies	Increase commercialisation through **20** commercial development awards	Reduce skills gaps by training **200+** students to enter careers in biotechnology

Developing a global Agri-Tech innovation hub through in farm testing in Lincolnshire and North Cambridgeshire

Introduction

The consortium: The Lincolnshire and North Cambridgeshire (LINCAM) consortium is led by the University of Lincoln in partnership with the University of Cambridge, Cambridgeshire and Peterborough Combined Authority, Lincolnshire County Council, West Lindsey District Council and nine other partners from research and industry backgrounds.

The cluster: The LINCAM region is the UK's major production centre for crop-based agriculture and its associated supply chain. It supports 88,000 jobs, generates £3.8 billion in GVA, and farms over 50% of the UK's grade 1 land. This has fostered an established, nationally significant Agri-Tech cluster which is recognised for its leadership in agri-food robotics and digital innovation.

The LINCAM region faces acute challenges: high greenhouse gas emissions from food production (24% of the UK total), biodiversity loss, social pressures from seasonal labour, and economic inequity in the supply chain. Despite its agricultural strength, the region experiences social deprivation. The PBIAA provides a unique opportunity to drive sustainable, inclusive growth by transforming the region into a global Agri-Tech innovation hub.

The governance: LINCAM is governed by a steering group comprising representatives from both lead universities and key civic and industry partners. The programme embeds co-creation and impact delivery at its core, with all funded projects subject to milestone-based go/no-go decisions and supported by mentoring throughout the project lifecycle.

Objectives

LINCAM aims to deliver a step change in Agri-Tech impact through **3 strategic pillars**: i) **Broadening Participation** – Opening the LINCAM cluster to all UK HEIs to scale Agri-Tech innovations, with co-creation, training, and milestone-based funding, to help create solutions to regional challenges ii) **Knowledge Exchange** – Working with civic and business partners to overcome adoption barriers and shape local industrial strategies, infrastructure, and investment, and iii) **Securing Legacy** – Embedding co-creation and human skills development to position LINCAM as a global gateway for Agri-Tech innovation and inward investment.

"The PBIAA has been great because we can deal with every university… [it has given us] the ability to access all Higher Education Institutions."

As an established, nationally recognised cluster, LINCAM aim to promote further growth of the Agri-Tech cluster through the above strategic pillars. As a result of this growth, LINCAM aspire to become a globally recognised cluster, which can effectively attract inward investment that benefits the economic standing of the region.

Early activities and outcomes

Workshops with academics and farmers: LINCAM is making significant strides in translating academic research into real-world agricultural impact. A core part of this has been helping researchers understand the practical challenges faced by farmers and growers.

"We find that academics don't really understand agriculture... so we've run workshops with industry experts on potatoes, cereals, and field vegetables. We even take researchers out into the field to test their ideas in real-world conditions."

All funded projects are required to **demonstrate on-farm testing and deliver tangible economic or environmental benefits to the LINCAM region**. This approach has helps to:

- Give early career-researchers a better **understanding of challenges** faced by growers in the region. This understanding helps ensure projects are commercially viable and address real world challenges that users within the sector face.
- Foster stronger relationships between researchers and end users, to help ensure that solutions developed are **user-friendly**.
- Promote **spin-outs in the region** as projects are tailored to region specific needs.

Mentoring to support commercialisation: LINCAM has developed a robust commercialisation support programme, including weekly national training sessions open to all UK academics. These cover topics such as IP, licensing and company formation. The programme also includes one-on-one mentoring to help researchers develop pitch decks and business plans.

"We've trained over 380 academics so far. We co-create pitch decks, take them through milestone-based funding, and help them understand what investors are looking for."

This approach has a track record of promoting a**a pipeline of spinouts**, including one in autonomous vehicles and another in water purification. By expanding this tried-and-tested mentoring to more early-career researchers through the PBIAA, LINCAM aim to accelerate the rate of spin-out companies in the region, to bring economic benefit.

Cultivating civic partnerships: LINCAM integrates civic partners across governance and delivery, enabling coordinated regional development, policy influence, and inward investment.

"It's really good to show investors that we've got this combined approach. The University, County Council, Barclays Eagle Lab, and District Councils all come together. That's a strong message."

LINCAM members were invited to be part of the Agri Science week in the House of Lords. They were also invited to the British Embassy in the US to input into the UKUS AgTech policy. The civic-university-industry partnership is also laying the groundwork for a nationally significant Agricultural Growth Zone at Riseholme, showing indications of attracting investment.

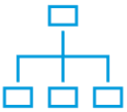
"When discussing the region with businesses looking to invest, they always discuss the different streams of support [including the PBIAA]…It shows that if you come to this region as an Agri-Tech business and you want to settle here, there is support available …there's a long term confidence for businesses to invest here because we've put backing behind it."

In line with targeted cluster needs, by 2028 LINCAM aspire to…

Spin out **10** new AgTech companies	Create or safeguard **150** jobs	Embed AgTech innovation skills across **20** institutions
Attract over **£15 million** in investment	Support **40** secondments / internships and **5** KTPs	Improve access to university AgTech facilities worth **£2m+**

Developing resilient space communication technology companies in North East England

Introduction



The consortium: NESCA is led by Northumbria University and is supported by academic partners Durham University and Newcastle University, civic partners Space North East England (SNEE) and the North East Combined Authority (NECA), as well as 14 industrial partners.

The cluster: The Space Communications cluster is an emerging cluster in the North East of England. Research and Innovation in the space sector has been catalysed in the North East of England in recent years, with NECA highlighting the sector in one of their five strategic priority areas. NESCA view the growth potential of the cluster as high due to the existing infrastructure available, with more than **1,300 people employed** in the space sector in the North East and over **40 North East based companies** developing technologies for space or solutions utilising satellite applications[1].

"The North East of England has a proud industrial heritage and is historically recognised as a major manufacturing region. A key part of our ambition is to support businesses that are already manufacturing advanced technologies to pivot or expand into the growing space sector and capitalise on the opportunities it presents"

The governance: NESCA has an operations board, with representatives from academic and civic partners, supported by working groups, responsible for strands of delivery. Supporting these, NESCA also has an advisory board, comprised of senior leaders from academia and industry, to advise on the strategic direction of NESCA.

Objectives

"We want [the cluster] to become self-sustaining in the future. Our aim is to enable strong networks to form. Networks that understand and can tap into the expertise within our universities. That way, businesses can collaborate to access funding, innovate together, and ultimately generate enough revenue to invest in their own R&D [budgets] without relying on government support…. [We want] people to have the skills to meet the skills gap"

Setting up a PBIAA

NESCA uses working groups, coordinated by a Main Working Group, to ensure timely delivery. Through stakeholder feedback at the application stage, NESCA defined a series of Innovation Themes, which the working groups are integrating into their activities. These include **technologies, space sustainability, in-space opportunities, terrestrial applications, and smart and resilient networks**. All NESCA activities will focus on **People, Innovation and/or Place**.

Operations Board: The Operations Board is responsible for overall delivery of the PBIAA. It has representatives from the three university partners and SNEE, meeting fortnightly. The Operations Board has prioritised establishing branding, launching the PBIAA at the North East Space Conference, and preparing the innovation calls for launch.

[1] See https://www.spacenortheastengland.com/why-north-east

"SNEE have been part of our working group from the very beginning. They've played a key role in shaping our ambitions and connecting us with their networks. Most importantly, they gave us a major platform by hosting the official launch of NESCA at the North East Space Conference, putting us in front of industry leaders, innovators, and policymakers from across the region and beyond. Their support has been vital to getting NESCA off the ground"

The North East Space Conference was held in late June 2025 and was attended by 360 delegates. The NESCA call for proposals was announced at the university panel and expanded on in a well received, standing room only breakout session.

"It was a great stage for NESCA to promote the funding they've got…NESCA did a really great job in attracting SMEs. I think everyone is really excited about it."

Innovation Fund Working Group: The Innovation Fund Working Group has focused on designing the first funding call, which was launched at the North East Space Conference. Interest in Round 1 has been high, and the fund has been very well received by potential applicants. Innovation funding calls are split as follows:

A) Launch-pad Fund, TRL 2-4, £1k-15k, up to 6-months - Seed corn funding for idea translation, first steps toward commercialisation and starting new relationships between academic and external organisations leading to new policies, practices or ideas generation for regional impact. Funding for higher-risk activities, including feasibility studies, early-stage prototyping and proof-of-concept, while the project can also be focused on policy development.

B) Lift-off Fund, TRL 4-7, £15k-65k, 6-18 months - Projects requiring sustained funding to deliver a defined impact. Funding for advancing the commercialisation of research technologies, policies or partnerships.

Place Based Working Group: The Place Based Working Group will be the final working group to start delivery, focussing on a regional strategic project, secondments and fellowships.

Events Working Group: The Events Working Group has focused on the launch of the PBIAA, including branding and a regional events strategy.

Continuing Professional Development (CPD) Training Working Group: This Working Group has initially focused on training development that will support the emerging cluster. This has included a Responsible Research and Innovation (RRI) webinar, which aims to support potential NESCA Innovation Fund applicants to embed RRI into their proposals. The group has launched funding for academics to develop space focussed CPD courses which meet regional skills needs. The first of these courses is set to begin in late September 2025.

In line with targeted cluster needs, by 2029 NESCA aspire to…

Facilitate **40** collaborative projects with non-HEI partners	Spin out **2** new companies	Provide training to **100** people	Influence **5** internal and external policies
Publish **20** academic journals	Deliver **25** new processes, products, prototypes or techniques	Facilitate **14** inward/outward secondments and fellowships	

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Integrating clean growth technologies and accelerating net zero in the North East

Introduction

The consortium: The consortium is led by Newcastle University, and partners with Durham University, University of Hull, Northumbria University, University of Sunderland, and Teesside University, the North East Combined Authority, and a range of industry partners.

The cluster: The net-zero innovation cluster is an established cluster that spans across the North East, Teesside and Humber (NETH) region. The cluster has a strong pre-existing ecosystem, with historic links between the North East and Teesside in the EPS thematic area, such as through the North East Centre for Energy Materials, as well as the Humber through the Aura Centre for Doctoral Training. NNZA spans from Blythe down to Hull to integrate expertise surrounding offshore renewables into the cluster.

Geographically, the NETH region has a major contribution to the UK's industrial carbon emissions, which gives the cluster greater potential for place-based impact on carbon emissions. The NETH region has common civic goals relating to ***"clean growth strategies"***.

Objectives

The NNZA PBIAA focusses on three key strategic areas:

Low carbon energy generation	Energy storage and distribution	Integration into end use sectors

To build on the existing capabilities of the established cluster, NNZA will look to provide additionality by:

"Building skills that can assist the region with the net-zero push. We will also try to generate socio-economic value within the region"

Early activities and outcomes

The NNZA aim to create growth in their selected strategic areas through four key workstreams.

Promotion: The promotion workstream aims to increase awareness of the NETH net-zero cluster and the cluster's activities. The NNZA PBIAA has started to gather initial momentum in this area through early activities, such as creating branding, a website and stakeholder engagement.

"We exhibited at the Net Zero North East Annual Summit…we had a lot of feedback from stakeholders, which brought in interest in what we are doing. It coincided with the launch of our website. We received interest from about 25 parties…that translated into at least two projects that we funded."

Partnerships: The partnerships workstream aims to promote partnerships and interconnectedness within the cluster, in line with theme-specific areas. To achieve this, NNZA will facilitate both outward and two-way **secondment opportunities**. In addition to this, NNZA will run **'sandpits'** and **'hackathons'** to engage the public, private and third sector in the cluster area.

People: The people workstream aims to build **capacity and capability** within the cluster through training and secondments with both academia and industry. In the early stages of the PBIAA, providing support and training to early career researchers (ECRs) has been a priority. This has included offering **mentoring to applicants from all university consortia partners**. The mentoring helps applicants form their ideas, make sure that ideas are tailored/fall in the remit of the three key strategic priorities, and ensure that their proposals address call requirements. This will be particularly beneficial for ECRs who have not had access to IAA or impact funding previously. Going forward, NNZA will also deliver bespoke training to industry, which will equip them with the skills and knowledge to implement clean technology solutions.

Projects: The projects workstream aims to support R&I projects relating to NNZA's three strategic areas, with a focus on partnerships and co-creation. NNZA run two calls for proposals per year, with three funding pots available for each call:

- **Ideas translation –** 6-month projects with awards up to £30k for projects at Technology Readiness Level (TRL) / System Readiness Level (SRL) 1-4;
- **Commercialisation of ideas –** 12-month projects with awards up to £55k for projects at TRL/SRL 5-6; and
- **Fostering partnerships –** 12-month projects with awards up to £65k for projects that are designed to engage with partners, and do not directly seek to commercialise an idea/innovation.

Funded project topics to date include technologies such as underwater monitoring systems for offshore renewable energy, hydrogen production using electrolysers, and advanced lithium-sulphur solid-state batteries.

Recognising the potential difficulties of running a call for proposals across six universities, with different established funding procedures, NNZA looked to create a **standardised approach** prior to launching their call for proposals. This included providing **training to professional support teams** from consortia universities, so a standardised level of support was available to all applicants, regardless of university. NNZA also developed an **application platform** to be used by all applicants regardless of university. This ensures a standardised experience for all applicants, as well as functionality to allow real-time reporting on KPIs for successful applicants. This new application platform contributed to a successful review process of the first round of proposals.

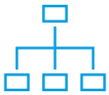
NNZA have offered support to help applicants develop their proposals. The NNZA PBIAA team cited examples where they received proposals that were unlikely to be funded, as they lacked robustness. However, through mentoring and feedback mechanisms, the applicants were able to update their proposals to demonstrate robustness, resulting in their projects being funded.

In line with targeted cluster needs, by 2028 NNZA aspire to…

Collaborate with **50+** private sector organisations	File **5** patents and develop **19** pilots / prototypes	Publish **28** academic journals / media articles
Establish / register **8** spinout companies	Establish **9** new license agreements	Create / safeguard **100** jobs (internal and external)

Academic collaboration with SME food manufacturers to achieve Net-Zero in West London

Introduction



The consortium: The consortium is led by Brunel University of London, who have partnered with Harper Adams University, West London Business, the Food and Drink Federation, West London Chambers, West London Waste Authority and a range of industry partners.

The cluster: The cluster looks to develop and implement net-zero solutions for the benefit of the food and drink industry located in Park Royal Industrial Estate in West London. This is an emerging cluster.

Park Royal is an industrial estate in West London. The industrial estate, one of the largest in Europe, is nicknamed ***'London's Kitchen'*** as the food manufacturing businesses on the site produce 30% of London's food[1]. Amongst these food manufacturers there is a high concentration of SMEs, which are experiencing a range of barriers preventing them from achieving net-zero. These SMEs have had limited historical interaction with academics – ***"I've not yet met a business [at Park Royal] that is working with another university".***

Objectives

"The focus is mainly on industry, but then you also have other social enterprises, you have schools, and the area is a little bit deprived. So [we are also exploring] how you help their development"

"There are initiatives to develop [food manufacturing] skills, but they are far outside London. Therefore, we're trying to work with local colleges to have an apprenticeship programme. The colleges can do the basic training, then we at the university can do more advanced training on the environmental, energy and digitalisation aspects."

Early activities and outcomes

Business development has been a key priority for the Park Royal PBIAA in the first year of delivery. The Park Royal PBIAA has been conducting outreach work to form new connections with businesses, explore their challenges, and propose tailored solutions.

Business development: The Park Royal PBIAA is taking a varied approach to business development. There is a team of two Business Development Managers that are researching and reaching out to businesses in the industrial estate to form relationships and discuss potential collaborations. Additionally, through their project partner West London Business, the Park Royal PBIAA are promoting their activities to gather interest from industry.

Once connections have been facilitated, businesses will meet with an academic from the consortia to discuss their challenges and scope potential steps forward.

"Sometimes academics don't know the [industry] problems very well, particularly early career academics and researchers. Then you try to produce fundamental research, but the

[1] Park Royal PBIAA Net-Zero Food Supply Chains application

application is not there. I think the [PBIAA] scheme gives us the opportunity to talk to companies, understand their problems, and understand their challenges"

Within the first year, **the Park Royal PBIAA has engaged 15-20 businesses**.

Energy and innovation audits: Through collaboration with their project partner West London Business, the Park Royal PBIAA can access energy usage data from energy distribution companies. With permission from Park Royal businesses, the Park Royal PBIAA team can conduct an energy audit to analyse patterns in businesses' energy usage and suggest steps that can be taken to make their energy usage more efficient, reduce energy spending and introduce tailored sustainable energy usage systems. So far, the Park Royal PBIAA has conducted a few of these energy audits, and have suggested costed solutions, such as introducing photovoltaic systems.

Projects: The Park Royal PBIAA is working with a variety of food manufacturing businesses to explore and develop solutions to specific challenges. Whilst still in the early stages of scoping, testing and development, a selection of the projects the Park Royal PBIAA are summarised below:

Flatbread manufacture: The Park Royal PBIAA is working with a flatbread manufacturer to explore two project areas identified during initial scoping: high gas consumption from the baking process and significant waste heat generated at high baking temperatures. **Forward Look:** The Park Royal PBIAA is scoping potential solutions, considering factors such as the limited floor space available, and the 24/7 production schedule of the business.

Ice cream logistics: The Park Royal PBIAA is collaborating with a rapidly growing ice cream manufacturer. Through scoping discussions, the Park Royal PBIAA identified logistics as a key issue for the business. Due to the nature of the site, it is not possible to position a lorry next to the factory so that cooling does not escape when loading. This creates issues with wasted cooling and creates a risk of ice cream spoiling when loading. **Forward look:** The Park Royal PBIAA team is developing solutions to reduce cooling waste, with plans to test in a university lab before scaling to a full-size demonstration.

Mango stones and circular economies: The Park Royal PBIAA are working with three businesses to conduct a feasibility study to explore whether a circular economy can be created. One business generates tonnes of waste mango stones a week. The Park Royal PBIAA team identified that mango stones can be processed to use in plastics to increase their biodegradability. However, the waste mango stones are wet and coated in pulp, which means they are not biostable. **Forward look:** The feasibility study is exploring whether anaerobic digestion technology developed by a Harper Adams University spin out could be used to address this problem, to help generate a circular economy, where the waste products of one Park Royal business are used by other businesses.

In line with targeted cluster needs, by 2028 the Park Royal PBIAA aspire to…

Support **40+** businesses	Conduct **10** secondments	Generate **5** patents	Launch **2** spinouts

Additionally, the Park Royal PBIAA aspire to increase the absorptive capacity of the food and drink businesses on Park Royal, and co-ordinate their partners supporting those businesses, so that innovation and research diffusion increases and the estate can better address the twin challenges of productivity and net zero.

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Increasing commercialisation, skills and knowledge of the Photonics industry of Scotland's Central Belt

Introduction

The consortium: The consortium (PQA) is led by the University of Glasgow, who partner with the University of Strathclyde, Heriot-Watt University, the University of St Andrews, West Lothian Council, Glasgow City Council, The City of Edinburgh Council, Fife Council and 10+ companies/research organisations in Scotland's central belt (SCB).

The cluster: The established photonics (PT) cluster comprises ~70 companies and seven universities. Scottish universities have a strong track record, securing >25% of academic PT funding in the UK - third highest in the world in terms of publications per capita. PT underpins much of modern technology, including high-speed optical communication, fabrication of integrated circuits, and a range of medical and life science applications. The PQA and partners have identified a clear opportunity to accelerate growth.

Technology Scotland operate a cluster network, called Photonics Scotland. Photonics Scotland is the main representative body for Scotland's photonics sector. It facilitates collaboration through events and workshops, advocates for the industry to government, and supports strategic growth.

The cluster, which contributes more than £1.3bn to the Scottish economy, is also engaging stakeholders internationally to strengthen the PT sector in the region, e.g., VC networks and deep-tech investors.

The governance: The PQA led by a steering committee with representation from each of the four universities in the consortium and oversight from an Executive Group, comprising the civic partners. An international Advisory Board also supports the project goals. PQA has hired a 'Professor in Practice', a unique role that creates linkages between universities and the industrial photonics sector in Scotland.

"[The Professor in Practice role allows us] to delve into technology and research across four institutes and create something bigger than the sum of its parts."

Objectives

Prior to the PBIAA scheme, a gap analysis was conducted on the PT cluster in SCB to identify how the established cluster could grow further. The gap analysis highlighted entrepreneurialism and skills as areas that the PT cluster could strengthen to promote growth.

PQA seeks to address these gaps via **3 pillars**: i) **Commercialisation** – increased funding and investment in the PT economy, ii) **Workforce** – increased PT industry capability through improved entrepreneurial skills for researchers' and growing PT skills at all levels, and iii) **Public outreach** – increased awareness of PT in the general public and education settings.

Public outreach activities

PQA has undertaken multiple activities to grow awareness and interest in the PT industry within Scotland, with a focus on

Funding innovative projects

PQA has committed £3.4m to fund up to 60 R&D projects that would de-risk PT technology through initiatives that promote secondment

creating a pipeline of skilled workers for the industry.

"The curriculum [for PT] is very academic…little about technology. If I'm a 16-year-old and I want to know what I can do for my job, I'm not really aware of what photonics is."

PQA also co-organised an event attended by Members of the Scottish Parliament (MSPs) to launch the critical technologies super cluster across Scotland (which includes the photonics cluster).

Early outcomes: PQA distributes PT kits that can be used to interactively demonstrate PT technology in an engaging way in schools.

PQA now has a consortium member tasked with supplying information into the Scottish Scientific Advisory Committee on Semiconductors, Photonics and Quantum.

Forward look: PQA are working with Glasgow Science Centre to develop 'Learning Labs'. Learning Labs provide 8 week learning programmes for upper primary and lower secondary pupils, including teacher training, *'meet the expert'* sessions and science centre visits. The Learning Labs will launch in the 2025/26 academic year.

PQA is also working on an initiative to encourage studentships and secondments between academics and industry partners to encourage cross-pollination of ideas and make ECRs (Early Career Researchers) more prepared to enter industry.

opportunities between academia and industry, increase the economic impact of PT, increase the number of partnerships between academia and external partners, and enhance EDI in PT and quantum technologies.

Early outcomes: There have been three funding calls so far, with 88 applications resulting in 17 projects funded to date, for 6-9 months each. In an exciting new initiative, Scottish Enterprise will partner with PQA, accelerating suitable projects into its High Growth Spinout Programme, potentially bringing additional funding and support towards new PT opportunities . This is expected to create more value-for-money for the PQA grants and provide a pipeline of further funding for projects.

One such project funded by PQA is working with libraries across SCB to develop a low-cost method of identifying 19th century books that contain poisonous arsenic. The pre-existing method is high-cost and requires trained operators to perform. This project looks to develop a user-friendly, handheld device that can be used by libraries and collections themselves to detect poisonous books.

Forward look: PQA seeks to engage VC networks in the UK and abroad to encourage investment in the PT sector in Scotland. This includes the European Union as well as the deep-tech sector in the. This engagement would help PQA better understand what VCs expect from companies which would in-turn influence its capacity building approach to entrepreneurship skills.

In line with targeted cluster needs, by 2028 PQA aspire to…

Increase partnerships in PT by **50%**	Increase public awareness of PT by engaging **25,000** people	Create or safeguard **50** jobs
Spin out **5** new companies and start-ups	Increase skills through **25** secondments/ internships and **3** Knowledge Transfer Partnerships	Improve industry access to university research facilities worth **£1m+**

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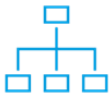
Increasing commercialisation, perception and skills in the semiconductor cluster of South Wales

Introduction



The consortium: The South Wales Compound Semiconductor (SWCS) consortium is led by Cardiff University, with partners from Swansea University, Cardiff Capital Region City Deal, Swansea Bay City Deal, and the compound semiconductor (CS) cluster organisation CS Connected.

The cluster: The CS cluster in South Wales is an established cluster. The cluster benefited from significant infrastructure and research funding support (including from UKRI), which allowed the cluster to grow into an established cluster. The cluster leverages research infrastructure from the Cardiff University Institute for Compound Semiconductors and the Swansea University Centre for Integrated Semiconductor manufacture. In 2024, the cluster supported approximately 1,806 direct jobs and contributed £255 million in direct GVA to the Welsh economy[1].

South Wales has an existing manufacturing infrastructure, which could be leveraged for the growth of the CS cluster.

Objectives

Despite being an established cluster, SWCS PBIAA have identified a set of weaknesses in the cluster, which they will see to address through the PBIAA funding:

"We are looking at correcting weaknesses in our ecosystem. Three things really stood out. 1) There is a relatively small number of startup companies operating in the region, therefore one of the principal aims of our PBIAA is to support company formation and pathways to impact and commercialisation. 2) There is an opportunity to widen the [CS] community to people involved in all organisations in the region, the general public and schools, leveraging the support CSconnected is already delivering by creating an ecosystem in which everyone who works in the area, all at levels, feels involved and part of a connected community. 3) There is a significant skills shortage – inevitably limiting growth – to be addressed and supplemented by our virtual and in-person PBIAA skills training programmes, upskilling and reskilling people both within and outside of the industry."

Early activities and outcomes

The SWCS PBIAA has made early progress to target these areas for development:

1) Encouraging startup companies

SWCS has held three calls for proposals for early-stage commercialisation projects. These commercialisation projects will run for 6-months, with £35,000 of funding available. Successful projects will also be able to apply for a further 6-months of follow-on funding at £50,000.

To achieve SWCS PBIAA's goal of encouraging startup companies, a key requirement of proposals was to ***"detail how they will set up a company and innovate in South Wales"***.

2) Widening involvement in the CS ecosystem

[1] See https://csconnected.com/media/t52dosq5/weru-csconnected-sipf-2024-annual-report.pdf

To help increase awareness of the CS ecosystem and appetite to engage in the ecosystem, SWCS PBIAA has held and taken part in multiple events and meetings that were open to members of the general public. This has included exhibits at CS focused conferences, such as the Semiconductor and Integrated OptoElectronics (SIOE) Conference, as well as school outreach events.

Consistent engagement in ***"regular drum-beat events"*** was highlighted as a key strategy to grow and gather momentum in increasing engagement in the CS ecosystem.

3) Developing skills in the CS ecosystem

Supporting skills development is a key aim of the SWCS PBIAA.

"We want to support those companies that are expanding so rapidly, it is difficult for them to meet their staff's training needs and demands themselves."

Consequently, SWCS are rolling out a programme of training, aimed at different beneficiary groups. One of these beneficiary groups is staff in the CS sector, which the SWCS PBIAA aims to upskill. Targeting this beneficiary group, SWCS developed a five-day intensive training programme. The training programme utilises academic expertise from the CS cluster alongside local research infrastructure (Cardiff University's Queen's Cleanroom) to provide a combination of theory and practical training. The training programme aims to promote the following outcomes:

- Understanding of the steps involved in fabricating an electronic semiconductor device;
- Knowledge of CS design, nanofabrication, and testing;
- Experience of the technologies and techniques used in fabricating a CS device;
- Knowledge of essential skills needed for working safely in cleanroom environments; and
- Practical exposure to semiconductor device processing.

Reflecting on the skills training, the staff that took part in the training said:

"The PBIAA skills course has helped me learn a lot about semiconductor processing… The course has been incredibly useful to my professional development as I have re-learned processes, studied a long time ago at the start of my career, whilst also introducing me to new processes which I will need to consider in future."

The SWCS PBIAA is also delivering online and in-person skills training to younger people to develop the talent pipeline into the CS cluster. Going forward, SWCS aim to provide CS skills training to people in unemployment, or adjacent industries to further bolster the CS workforce.

In line with targeted cluster needs, by 2028 SWCS aspire to…

Identify and fund **15** first stage innovation projects, and **7** follow-on projects	Upskill a minimum of **80** staff in existing companies, including high level specialist practical skills for at least **40** staff	Train at least **160** new entrants to the CS workforce
Create at least **10** prototype manufacturing routes and demonstrate at least **6**	Provide high-level upskilling to at least **2** partner companies	Inspire greater number of entrants to the CS workforce by inspiring at least **10,000** people in the region about science, technology and manufacturing

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Development and introduction of equitable community healthcare technological solutions in Tayside

Introduction

The consortium: The consortium is jointly led by Heriot-Watt University and University of Dundee, and partners with **academic partners:** University of Glasgow, Edinburgh Napier University, University of St Andrews, **civic partners:** Dundee City Council, Angus Council, as well as five partners from industry, NHS and education backgrounds.

The cluster: The Tay Health Tech cluster is an emerging cluster based in the Tayside region. The cluster focuses on the development and introduction of equitable community healthcare technological solutions. The Tayside region was selected for this PBIAA due to the **diverse population and communities** within the region, which will allow the PBIAA to explore a variety of **community health challenges and solutions**. Consortia members highlighted a large disparity between affluent and disadvantaged populations in Tayside, as well as specific challenges for certain populations, such as substance abuse.

Objectives

Tay Health Tech aims to explore four 'Grand Challenges':

Hospital at home	***Rehabilitation and prehabilitation***	***Testing***	***Prevention and prognostics***

Early activities and outcomes

Patient and public involvement and engagement (PPIE) has been a key practice, which is embedded in all aspects of the Tay Health Tech PBIAA.

"It's important to reconnect with the public and have a re-understanding of the benefits of science and technology for the greater good. We see PPIE as one way to achieve that"

Application stage: Tay Health Tech were keen that PPIE was embedded within their proposal:

"We decided we would not do anything until we knew exactly what healthcare professionals and the public wanted."

To ensure that the PBIAA design reflected the needs of healthcare professionals and the public, Tay Health Tech held multiple workshops to gather feedback on their approach. These workshops included consortia members (from academic, civic and industry backgrounds) as well as members of the public. From these workshops, the consortia were able to crystalise an approach which considered the viewpoints of these various stakeholders.

Grand challenge development: To re-confirm and refine the direction of the PBIAA, Tay Health Tech undertook another round of PPIE to arrive at a set of ***'Grand Challenges'*** for the PBIAA to explore. This round of PPIE was conducted closely with **SHARE**, who are a Tay Health Tech project partner. SHARE is a register of over 300,000 adults and children in Scotland aged 11 years and over, who are willing to be invited to take part in medical research projects.

"They're a perfect partner for recruitment because one of the key challenges with PPIE is getting the right people."

Utilising SHARE's register, Tay Health Tech conducted five workshops. Four in-person workshops were held in various locations across Tayside, as well as one online workshop. Working with SHARE, different demographic and geographic groups were targeted for each workshop in line with the unique themes covered in each workshop.

Through the collation of over ***600 comments*** from ***118 members of the public***, Tay Health Tech reduced **52 possible directions** of travel into **four grand challenges** all having the goal of shifting healthcare from the hospital towards the community – ***"a shift left"***. Project applications were categorised into these four Grand Challenges. Nine projects to the value of £1million were selected from 23 high calibre applications requesting £2.5million, and cover fields including cancer, cardiovascular disease, diabetes, mental health, physiotherapy and Parkinsons' disease.

Citizen's Assembly: Keen that PPIE was not a one-off activity, Tay Health Tech set-up a Citizen's Assembly, in collaboration with SHARE. The Citizen's Assembly builds on the PPIE conducted as part of the Grand Challenges workshops by addressing gaps in demographics recruited in previous PPIE. Consequently, younger people have a greater representation compared with previous PPIE engagement in the **30 strong Citizen's Assembly.**

The Citizen's Assembly will have ongoing engagement with Tay Health Tech, helping to inform various aspects of the PBIAA. This will include feeding into technical projects, and leading sessions at conferences.

Supporting Grand Challenge projects: With a goal of accelerating the translation of MedTech projects to products that can make a real difference to the patients, public, and healthcare workers in Tayside and beyond, Tay Health Tech delivered a **series of webinars to Grand Challenge applicants** and the research community on the why, the how, and when to conduct PPIE. Tay Health Tech are now working within the Grand Challenge team to complement technical developments, verification and validation activities with the essential PPIE, regulatory, product development and commercial expertise required to bring a product to market. **Seminars from experts** in medical device regulation / in vitro diagnostic medical device regulations, creating and pitching business plans, plus procurement are complementing the hands-on assistance provided by Tay Health Tech.

In line with targeted cluster needs, by 2028 Tay Health Tech aspire to…

Expand the knowledge to academic researchers in what is required to take a product to market	Supercharge the ecosystem for patient and clinician focused MedTech product development within Tayside	Create at least **1** spin-out company with Consortium partners
Attract in kind and cash contributions with companies in the region of over **£250,000** plus license **3** developed technologies to established companies to commercialise these products	Assist up to **8** established companies to gain regulatory approval for products destined to improve the health of Tayside communities	Create up to **2** new jobs, up to **4** new projects beyond Tay Health Tech, secondments to and from companies, and attract up to **10** new partners

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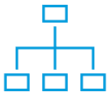
Innovating Medical Technologies (MedTech) across the Yorkshire Region

Yorkshire MedTech
Place-Based Impact Accelerator

Introduction



The consortium: The consortium is led by the University of Leeds, and partners from the University of Sheffield, West Yorkshire Combined Authority (WYCA), South Yorkshire Mayoral Combined Authority (SYMCA), two National Institute for Health and Care Research (NIHR) Biomedical Research Centres and a wider group of 15 regional businesses, investors, trade associations, and innovation support agencies.

The cluster: The MedTech cluster is an established cluster in the Yorkshire region. A Science and Innovation Audit highlighted a *'distinctive concentration'* of MedTech industry within the Leeds City Region[1]. For this PBIAA, Medical technologies are defined as devices, tools and machines used for the diagnosis, prevention, monitoring, treatment or alleviation of disease, injury, or disability. The cluster has particular strength in orthopaedic and dental devices, surgical instruments and diagnostics.

"Our particular focus is on the areas of medical technologies that are dominant in this region from an industry point of view, which is mostly high value medical technologies… Manufacturing is very strong, particularly around the Sheffield area...this is a known cluster of MedTech companies and strength in research…all of the regional universities have strength in this area"

Objectives

"The premise of the PBIAA is to bring about economic benefit in the region, in the area of MedTech…within the lifetime of the PBIAA, we know the economic benefit won't hit, but hopefully, we will have sowed the seeds with new technologies that are being developed and started to be manufactured in the region that can go on to have that longer-term impact"

"We already have a relatively mature ecosystem in the region of healthcare manufacturers, clinicians and academics. What I really want to see emerge from [the PBIAA] is a step up in how we work together in this community to make this [cluster] sustainable and durable."

Early activities and outcomes

The Yorkshire MedTech PBIAA has started delivery on various strands of their PBIAA. Delivery to date has had an emphasis on **encouraging high-quality submissions** to their calls for proposals through **building the capabilities** of early career researchers and providing them with a **comprehensive support system**. This is detailed further below.

Call for proposals: At this early stage, Yorkshire MedTech have opened three calls for proposals, with three types of impact funding available:

- Due diligence/proof of market projects (up to £10,000)
- Proof of feasibility projects (up to £40,000)
- Proof of concept projects (up to £100,000)

[1] See https://www.gov.uk/government/publications/science-and-innovation-audits-second-reports-published

Funded projects represent to a good spread of MedTech topic areas, including optimisation of hip replacement surgery, better imaging for heart disease, biomaterials for spinal surgery, biomaterials to promote bone healing, personalised dosing of penicillin.

Identifying capability gaps: After an initial call aimed at consortium partners, subsequent calls have been open nationally, with a requirement for projects to promote economic growth in the cluster. The distribution and outcomes of the applications have been used to identify where additional support is necessary. The following steps have been put in place to encourage high quality proposal submissions:

Research support team training: The Yorkshire MedTech PBIAA launched joint training for commercialisation teams at the Universities of Leeds and Sheffield to ensure consistent support for applicants. Delivered by project partner Medilink, the training covered the medical device translational pathway and funding stage requirements.

"[Medilink] really explained the 'nitty-gritty' of how [research] translation works in this space… that's upskilled everyone [who took part in the training]. Also, I think it has made the advice that comes back [to applicants] more uniform"

The Yorkshire MedTech PBIAA have brought together their knowledge exchange professionals to enhance understanding of the PBIAA's objectives and each university partner's specialisms, including orthopaedic and cardiovascular implants, biomaterials, and tissue repair.

Supporting applicants: Using the learnings from the first call for proposals, the Yorkshire MedTech PBIAA has taken multiple steps to better support their applicants, including:

- Launching their **secondment scheme**, which supports inwards and outwards secondments. Outward secondments aim to immerse academics in the medical technology settings to give them a better understanding of real-world needs and commercialisation. Inward secondments aim to give secondees a better understanding of cutting-edge research to help their businesses become more innovative;
- Delivered **online training** and produced materials tailored to the requirements of the calls, with support from project partner Medipex to provide sector, and region-specific support;
- Planned **in-person events** targeting specific gaps in understanding, such as regulation in the medical technologies field, which is critical due to its evolving nature.

Collaboration Fund: Supporting applicants regionally and nationally: The Yorkshire MedTech PBIAA recognised that whilst they have provided support to their academics to produce high-quality proposals, academics from other institutions may not have the same level of support when applying to the Collaboration Fund. Therefore, the Yorkshire MedTech PBIAA is working with the two regional mayoral combined authorities, regional NIHR Biomedical Research Centres and regional university commercialisation teams to provide support and guidance to facilitate competitive proposals.

In line with targeted cluster needs, by 2028 Yorkshire MedTech aspire to…

Support **130+** impact projects	Progress **30** new prototypes	Advance **15** products to higher TRLs through licensing or spin-out companies