



Innovate
UK



Llywodraeth Cymru
Welsh Government



Collaborative Innovation Plan for Wales

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Foreword By Indro Mukerjee



I am pleased to present this Collaborative Innovation Plan for Wales between the Welsh Government and Innovate UK.

Innovate UK is the UK's innovation agency, and our primary goal is to promote and support innovation and economic development in the UK by providing funding and support to businesses and organisations engaged in innovative projects. We do this by helping businesses to bring new products, services, and technologies to market, supported by an exceptional innovation ecosystem that is agile, inclusive, and easy to navigate, facilitating a route for collaborations to foster between industry, academia, and the public sector.

The RD&I funding landscape is ever-changing and needs to respond quickly to global challenges. For example, the drive to net zero and raising energy prices are just a few of the issues facing businesses and all of society today. Innovate UK strives to be at the heart of providing opportunities and support to allow organisations to innovate, and we will do this via the three axes of the Domains we support, the Products and Services we offer the innovation landscape, and the Places where innovation takes place.

Place is really important to Innovate UK and we recognised this by our commitment to deliver upon local partnerships within Innovate UK's Plan for Action.

We believe by partnering with the leadership of places across the UK, we can amplify the support we provide jointly to further benefit the UK economy as well as unlock new opportunities.

The Innovate UK team has been working with the Welsh Government and key stakeholders across business, research and academia. In April 2023 we signed and jointly launched a Memorandum of Understanding with the Welsh Government which set about three key priority areas that would be the building blocks of working together to enhance RD&I in Wales.

These key areas were; Connecting support, Stimulating Innovation and sharing Data for a Fairer and more prosperous Wales.

We committed then that we would work together to co create this collaborative Plan for Wales which would build on the commitments in our MOU. Wales is a nation of renowned industrial strength and an impressive innovative pedigree. I am looking forward to seeing how the delivery of our Plan will help shape success for innovation and business growth in Wales.

Indro Mukerjee
Innovate UK CEO

Foreword By Minister Vaughan Gething



I welcome the opportunity to present this Collaborative Innovation Plan between Innovate UK and the Welsh Government, the first document of its kind with a devolved nation.

From being at the forefront of the first Industrial Revolution 200 years ago to creating the world's first compound semiconductor cluster today, Wales has never lacked ambition.

But with a high proportion of its university research internationally recognised as excellent, and a strong innovation support system, Wales has great potential to access significant innovation support levers to turn these advantages into new and developed globally compelling products, processes and services.

Therefore, earlier this year, the Welsh Government published Wales Innovates, a new, genuinely cross-government strategy **Wales Innovates** with interdependent missions in i: education, ii: the economy, iii: health and well-being and iv: environment and climate change. Innovation progresses each, but they can only be achieved together, and not at the expense of each other.

A key message in Wales Innovates is that our innovation ecosystem is multi-faceted, with many diverse actors and stakeholders. The Welsh Government can only be one element of that landscape, but it uses its convening power to help that landscape achieve more than the sum of its parts, developing Research Development and Innovation (RD&I) propositions which serve not just Wales, but the whole United Kingdom.

One step towards this goal was to develop a stronger relationship with Innovate UK, with its remit to support business-led RD&I across the UK nations and a strong commitment to place-based investment.

In April, we signed a Memorandum of Understanding, which signalled a mutual effort to promote and develop high-quality innovation proposals across a range of stakeholders, sectors and regions with the aim of supporting Welsh innovators to increase our share of competitively awarded UK funding.

This Plan sets out how we will go about achieving that aim.

The Welsh Government is ready, willing, and able to work with Innovate UK to deliver on this Plan and I look forward to monitoring the impact of our enhanced collaboration over the coming years.

Executive Summary



Wales has been at the cutting edge of industrial innovation for over three centuries, and at the forefront in modern times, in key sectors such as MedTech, Aerospace, Compound Semiconductors, Creative Industries, Photonics and AgriTech. Building on this rich legacy and against an ever evolving and complex RD&I landscape. Welsh Government's **Wales Innovates** strategy sought to advance this, by presenting its first integrated, mission-based strategy.

Whilst the public sector is a key enabler and funder of RD&I activity, it is clear that investment in innovation is being made in many different parts of our society and economy, with the private sector having a key role. This is a collective ambition to embed a culture of innovation more widely within Wales.

A new partnership to boost innovation activities in Wales, between Innovate UK and Welsh Government was announced early in 2023 to pave the way for a stronger innovation economy. A Memorandum of Understanding was put in place to take action within three key themes: connecting support, stimulating innovation and data sharing in a Collaborative Innovation Plan for Wales.

Innovate UK and Welsh Government are collaborating strategically to progress the commitment to strengthen support for 'Place' in its operations, during this spending review period and beyond, contributing to the UK Government's Levelling Up missions, and its vision to become a hub for global innovation by 2025. Working in partnership with Welsh Government, Innovate UK is committed to helping drive and deliver

this mission by growing, developing and commercialising products, services and processes. It will do so by recognising, supporting and growing outstanding innovation ecosystems that are both agile and inclusive.

Wales has a well-established RD&I ecosystem, with the potential for innovation to bring further economic growth, productivity gain and societal impact. This Collaborative Innovation Plan reaffirms the commitment and collaboration between Innovate UK and the Welsh Government to achieve a coordinated approach in meeting our aligned goals and identify further areas to work together to create greater opportunities for Wales and the UK. It recognises the strengths, positive trends and opportunities for growth of the economy.

It aims to provide a strategic focus for innovation, and highlights our ambitions, commitments and programmes to grow stronger innovation clusters, and to tackle some of our greatest challenges.

Principles and Core Areas

We will work together, alongside leaders and wider partners across Wales, by drawing on the principles set out in Innovate UK's **Plan for Action** and the Welsh Government's **Innovation Strategy: Wales Innovates** to deliver our strategic priorities in this Collaborative Innovation Plan for Wales through three core areas:

- **Connecting Support:** We will work in partnership to bring the innovation support activities of Innovate UK and the Welsh Government into much closer alignment, and work together to ensure that innovation stakeholders (entrepreneurs, businesses, academia, public sector, third sector) in Wales have a simple, connected, visible and effective route to access innovation support mechanisms.

- **Stimulating Innovation:** We will work together to ensure that innovation stakeholders in Wales are aware of and engage with the opportunities available to them through Innovate UK and Welsh Government innovation stimuli. Collaboration in capability and capacity building will enable innovators in Wales to compete more effectively for innovation funding opportunities, including collaboration building, proposal development and advisory support. We share the objective to increase the number, diversity, and positive impact of businesses innovating within Wales.

- **Data for a Fairer and more prosperous Wales:** Through our Data Sharing Agreement, we commit to sharing data wherever possible to achieve common priorities for Wales. We will use data to understand the demographics of Wales' innovation community and actively seek to address inequalities.

UK Innovation

The UK is a great place to innovate and do business. The Nations and Regions of the UK are home to world-leading research and industry clusters in sectors including aerospace, automotive, health, infrastructure and construction, manufacturing, agriculture and food, design and creative industries, high value services, and in the enabling and emerging technologies.

Business innovation is the commercially successful application of ideas. It leads to the development of new or improved products, services, and business models based on new ideas and technologies. Through innovation, we can improve the quality of life for all, protecting the environment and conserving Earth's resources leading to a future economy that will look different from today's.

The UK Government is investing in research and development (R&D) at record levels as it strives to consolidate the UK's position as a science superpower and innovation nation with increased private sector investment into R&D. The R&D mission in the 2022 **Levelling Up White Paper** outlines how these benefits will help local economies. Ultimately, we want all places across the UK to have the opportunity to be a location of choice for those seeking to invest, access expertise or set up new operations.

In November 2021, Innovate UK launched its **Plan for Action** outlining its approach to delivering the UK Government's **Innovation Strategy** through to 2025, and the vision for the UK to be a global hub for innovation by 2035.

Innovate UK's **Strategic Delivery Plan** outlines how it will deliver through the development and commercialisation of new ideas supported by an outstanding innovation ecosystem that is agile, inclusive, and easy to navigate. This includes helping to maximise local strengths that can enhance UK capabilities and increase the regional and national impact of innovation clusters.

By committing to work with local and national partners, Innovate UK aims to build greater coherence between national economic plans, local growth strategies and the UK Government's overall innovation strategy. Innovate UK has committed to co-develop local action plans with local leadership, leveraging the reach and breadth of UKRI collaborations.

This Collaborative Innovation Plan for Wales sets out our shared ambition for Wales: working together in a systematic place-based approach through local to national co-creation, to drive greater levels of innovation, resilience, productivity and economic growth and impact.



Wales Perspective

With a population of 3.11 million, an estimated 253,800 active enterprises, a GDP of nearly £80 billion in 2021 and 149,045 students enrolled at its twelve higher education providers in 2021/22, Wales is well-positioned to grasp the opportunities presented by the industries of the future and increase its resilience, productivity and economic growth.

Wales is shaping its future through its commitment to supporting RD&I, entrepreneurship and collaboration. It has a highly competitive economy and a long-standing commitment to collaboration and supporting businesses to innovate.

Currently, Wales's RD&I landscape is in an evolving state as it builds upon the legacy of EU Structural Fund investments. It is

imperative for growth in changing climates that Welsh organisations are supported to take advantage of the full range of investment and funding opportunities available UK-wide to exploit market opportunities and increase their global positioning.

The Welsh Government launched a new strategy, **Wales Innovates**, in February 2023, recognising that Wales is facing a new RD&I landscape. The Strategy is mission-based, cross-government, and takes an integrated approach with innovation actions and responsibilities across portfolios. It is collaborative and the result of extensive consultation across government, stakeholders and the public.

The strategy aims to enable Welsh organisations, businesses and universities to form consortia, to compete more effectively for UK and international research and innovation funding. This aligns with the UK Government's Levelling Up White Paper's aim to share the uplift more widely in UK RD&I

Wales is shaping its future through its commitment to supporting RD&I, entrepreneurship, and collaboration.

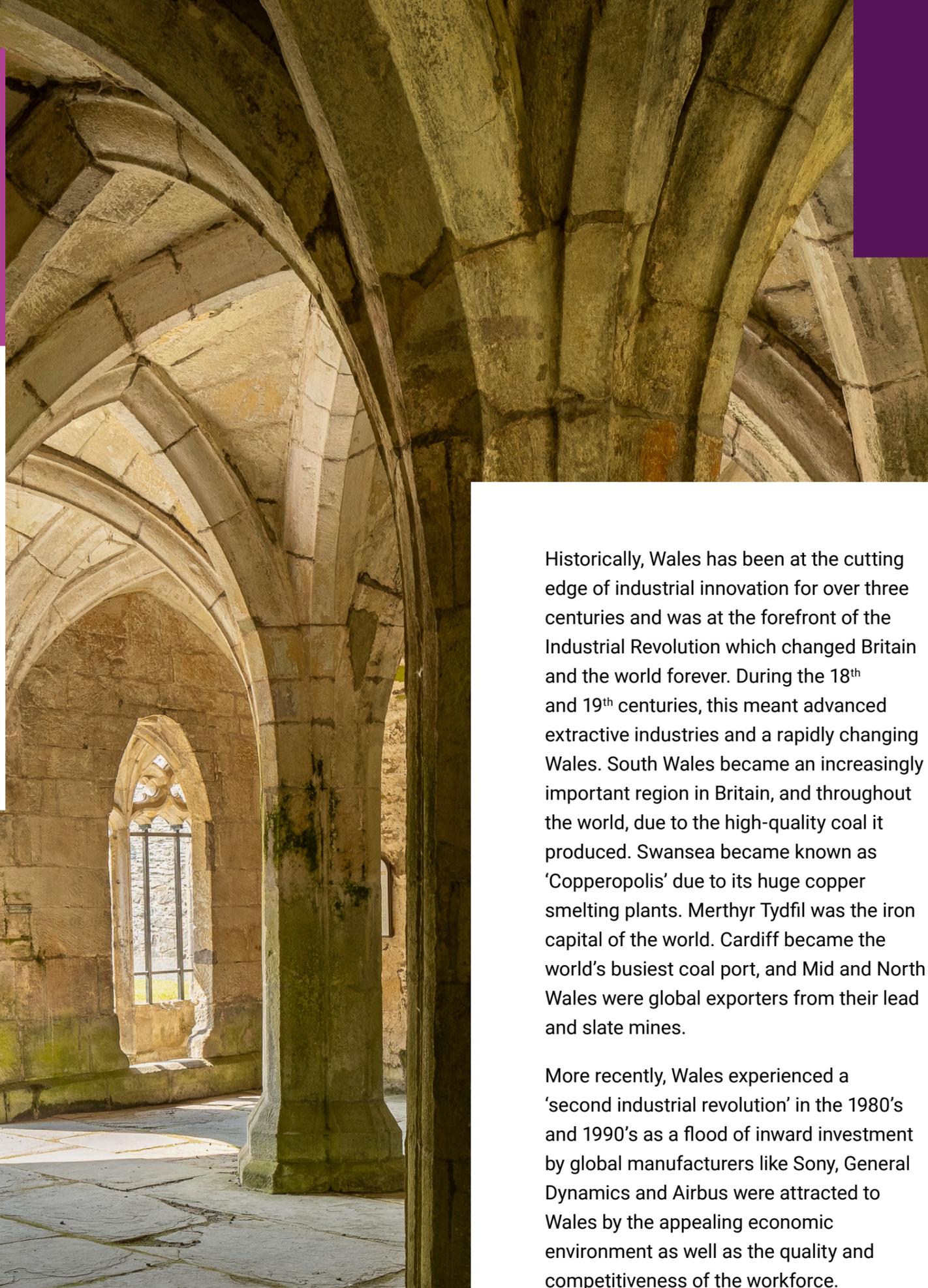
funding available by increasing investment opportunities outside of London and the Greater South-East of England by 2030.

The Welsh Government and Innovate UK are two important players within a myriad of others within Wales's innovation ecosystem. For the ecosystem to support the Welsh economy to grow and thrive, it is essential that all players work together in a collaborative endeavour. This will require a disciplined approach, with investments and interventions aligned to the priorities set out in the Wales Innovates strategy.

This Collaborative Innovation Plan has been developed to set out key goals in each mission area, the actions we will take along with partners, and the short, medium, and long-term milestones and measures. This will be a living document with enough flexibility to respond to a changing political and economic landscape, providing the scope to identify and react to opportunities that may arise in the future.

Our Innovation History

Wales has a long and proud tradition of innovation, with nationally and internationally recognised clusters in key sectors such as MedTech, Aerospace, Compound Semiconductors, Creative Industries, Photonics and AgriTech. Consistently, more than three-quarters of the work Welsh universities submitted to the Research Excellence Framework has been assessed as world-leading or internationally excellent.



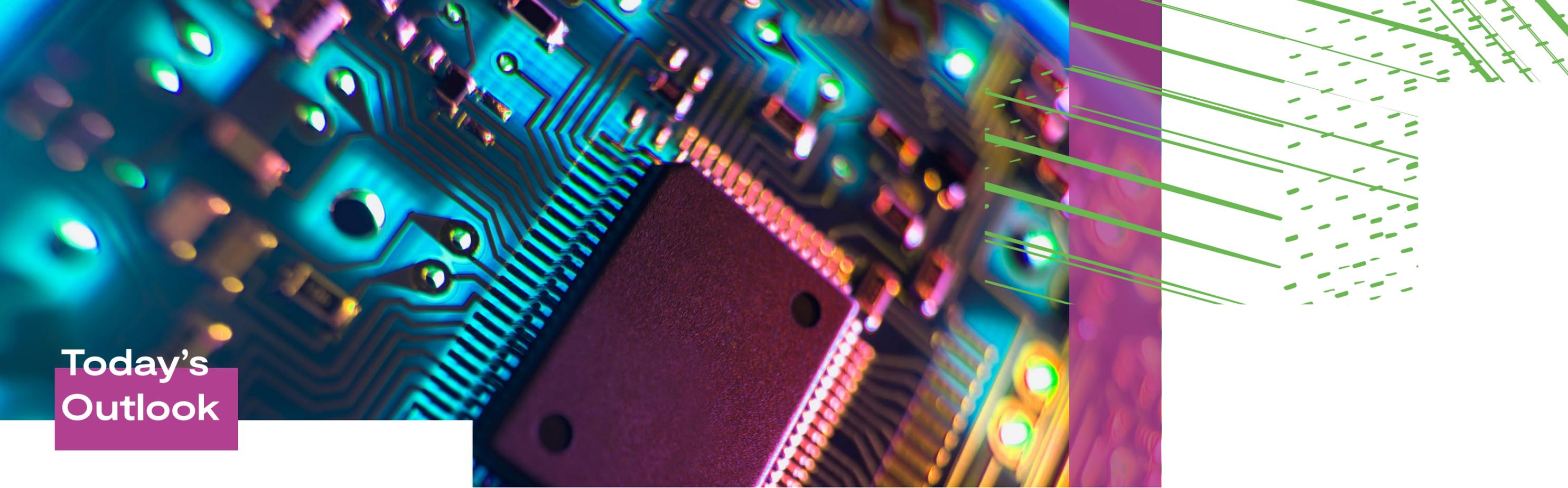
Historically, Wales has been at the cutting edge of industrial innovation for over three centuries and was at the forefront of the Industrial Revolution which changed Britain and the world forever. During the 18th and 19th centuries, this meant advanced extractive industries and a rapidly changing Wales. South Wales became an increasingly important region in Britain, and throughout the world, due to the high-quality coal it produced. Swansea became known as 'Copperopolis' due to its huge copper smelting plants. Merthyr Tydfil was the iron capital of the world. Cardiff became the world's busiest coal port, and Mid and North Wales were global exporters from their lead and slate mines.

More recently, Wales experienced a 'second industrial revolution' in the 1980's and 1990's as a flood of inward investment by global manufacturers like Sony, General Dynamics and Airbus were attracted to Wales by the appealing economic environment as well as the quality and competitiveness of the workforce.

Now, Wales is continuing to shape its future in the 21st century through business innovation, excellence and partnership. It has maintained its competitive economy with an added commitment to collaboration and availability of attractive innovation support.

By reaping the rewards of wider UK and international investment, Wales continues to develop and improve the skills of its workforce. This history of innovation and new opportunities for collaboration and funding led Welsh Government to prioritise key sectors of the economy with demonstrable strengths and potential for growth:

- **Digital Transformation**
- **Net Zero and Decarbonisation**
- **Agri-Tech, Food and Rural Economy**
- **Creative Industries and Media**
- **Health and Wellbeing**
- **Materials and Manufacturing**, including Compound Semiconductors



Today's Outlook

Digital Transformation

Digital transformation involves the integration of digital technologies into business operations to enhance productivity and customer experience. Across sectors, Welsh businesses have been building on their strengths by adopting technologies such as cloud computing, data analytics, artificial intelligence, blockchain, internet of things and automation. Wales's growing digital technology sector is turning over £1bn per annum, with 3,600 companies employing 45,000 workers. Key expert facilities in Wales include the **Digital Exploitation Centre** and the **Centre for Artificial Intelligence, Robotics and Human-Machine Systems**.

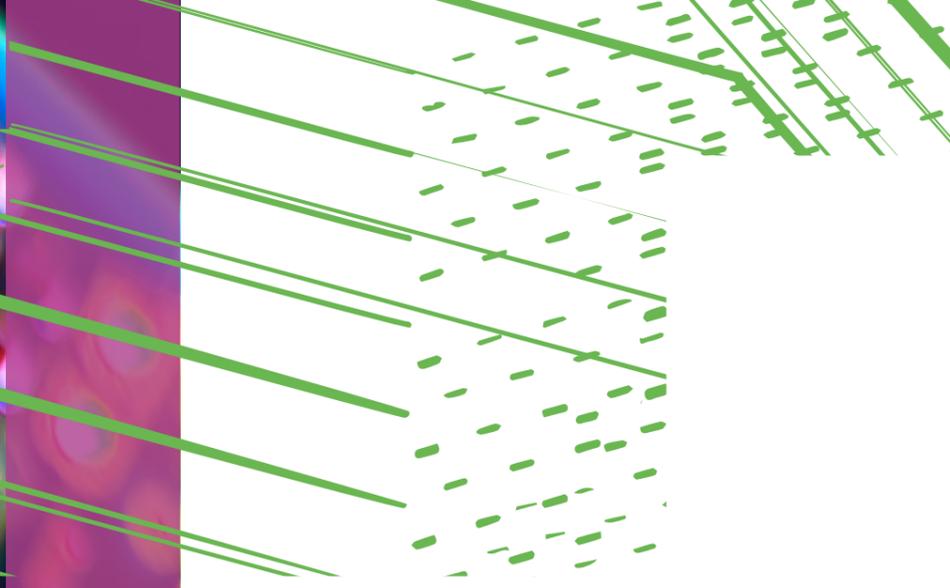
A **Digital Strategy for Wales** was launched in March 2021 to set out a national innovation vision for adopting a digital approach with up-to-date, efficient public

services supported by good and ethical use of data. It also aims to ensure the people of Wales have the knowledge, experience and skills to benefit from an increasingly digital and changing economy. Six missions were identified to support the vision for digital transformation including: services, inclusion, skills, economy, connectivity, and data and collaboration.

The adoption of innovative technology goes beyond the private sector. The **Wales Innovates** strategy notes Welsh Government's mission to drive innovation in Wales's health system, and develop an innovation programme for social care. Building on this, in July 2023, the Welsh Government published a **digital and data strategy for health and social care in Wales** which aims to improve the delivery of health

services, through the use of technology and data. Key delivery actions that underpin this strategy include:

- Launch an ongoing development of NHS Wales Application to support citizens' management of their health.
- Accelerate delivery of national data resources so they are accessible and usable for all health and social care bodies.
- Wider roll-out of centres of excellence to create a digital ready workforce.
- Continued roll-out of electronic prescribing and medicines across health and care.
- Implement and embed standards across digital health for data, interoperability and procurement.
- Appointing **Technology Connected** to support the sector.



Petaverse NETWORK

Tiny Rebel Games is an award-winning developer of games and augmented/mixed reality experiences. They led the Industrial Strategy Challenge Fund (ISCF) 'Audience of the Future' "Moving Image" demonstrator which culminated in Wallace & Gromit: Big Fix Up and Fix Up the City. Securing further funding from Welsh Government, their team is now conducting R&D around the placement and use of augmented reality virtual pets on both mobile and wearable devices, using a variety of advanced technologies to give these creatures intelligence and lifelike interactions within a user's space.

Net Zero and Decarbonisation

According to Eumonia's most recent study in 2017, Wales was ranked third in the world behind Germany and Taiwan on the global recycling leader board. Since then, Wales has committed to achieving net-zero greenhouse gas emissions by 2050. Achieving this goal requires significantly reducing emissions across all sectors of the economy, and an ongoing process to identify opportunities to reduce its carbon footprint, and monitor progress in alignment with Net Zero commitments. **Wales Innovates** pledges to use innovation to improve resource efficiency, reduce carbon emissions and develop the potential for carbon capture and storage.

At present, there is innovation through; marine energy initiatives, utility companies investing in sustainable energy sources and the deep-sea ports of Wales are equipped to support renewable projects. Expertise in Wales is strong in energy and waste management, water treatment, environmental monitoring, built environment active buildings and solar energy materials. Wales has assets and expertise including **SPECIFIC, Centre for Automotive and Power Systems Engineering, Sustainable Building Envelope Centre, H2 Wales Hydrogen Research Centre** and the **Active Building Centre**, now part of the Energy System Catapult.

Approximately 55% of Wales's electricity consumption is currently generated by renewable sources. Wales is a net exporter of electricity, generating nearly twice as much electricity as it consumes annually. In a collaborative effort, Welsh Government asked organisations what measures they would implement to achieve Net Zero, and created a **Pledge Wall** themed around:

- 1. Commitment to Net Zero or Action on Climate Emergency**
- 2. Understanding and Reducing Carbon Footprint**
- 3. Education, Engagement and Capacity Building**

In line with the pledge programme and assisting companies to innovate and deliver on Net Zero targets, the pilot phase of the Innovate UK Adopt and Accelerate programme by Innovate UK KTN conducted knowledge exchange activities in Anglesey and Deeside to better understand the barriers to Net Zero innovation adoption and diffusion. This partnership extended to include workshops focused on the Local Industrial Decarbonisation Plan competition, fostering collaboration in Wrexham and Deeside. The ongoing Adopt and Accelerate programme remains dedicated to advancing Net Zero solutions while continuing to

ensure a collaborative partnership with Welsh Government.

Wales's extensive coastline has the potential for substantial offshore wind energy generation. In 2021 there was a total capacity of 726 MW of offshore wind providing over c2200 GWH, accounting for approximately 29% of renewable electricity generation that year. Onshore wind capacity now stands at 1,266 MW in Wales, 34% of which is situated in the Swansea Bay City Region. (**Energy Generation in Wales 2021**)

The most significant Carbon emissions in Wales predominantly arise from heavier Industries compared to other parts of the UK. Recognition and commitment from Innovate UK to supporting the transition of the industry to a Net Zero future will be critical in maximising innovation impacts around hydrogen, offshore wind, marine energy systems, grid, recycling, storage, CCUS, materials development, ongoing cluster development and planning.



SWIC is a partnership between Welsh industry, energy suppliers, infrastructure providers, academia, legal sector, service providers and public sector organisations. It was awarded over £21m in Innovate UK grant funding, matched by industry to total over £40m for two projects to map and develop what is needed to support South Wales in becoming a net zero carbon region by 2050. In 2022, Welsh Government, via Industry Wales, supported the launch of **Net Zero Industry Wales's (NZIW)** to make Wales the country of choice for sustainable goods and services, furthering the work started within SWIC, to broaden impact across all of Wales and to include North East Wales Industrial Decarb (NEWID). It addresses key areas including energy and resource efficiency, fuel switching, clean growth hubs, carbon capture and utilisation/storage.

Agri-Tech, Food and Rural Economy

The Welsh Food and Drink sector is a vital element of the Welsh economy, employing 233,500 people across the supply chain, production and manufacture (2021), with a turnover of £22.3 billion (2022). **Food Innovation Wales** supports food and drink companies to grow, innovate, compete and reach new markets by providing technical and commercial support.

90% of Wales's total land area is used for agriculture, mainly for rearing sheep and cattle. The value of the sector's exports to the EU reached £594m in 2022, a £130m increase from 2021. For years, organisations in Wales have been drawing on agricultural innovation to enhance productivity, sustainability, and efficiency within agriculture, food and the rural economy. In a drive to Net Zero, enhance efficiency and increase profitability, the sector has strived to innovate by adopting precision farming techniques, using data analytics, developing smart farming solutions and sustainable bio-based products mitigating the use of plastics. Agricultural expertise

in Wales includes the recently launched Agritech cluster by **M-SPARC, the Institute of Biological, Environmental & Rural Sciences, the BioComposites Centre** and **AberInnovation Biorefining Centre**.

IBERS, the Institute of Biological, Environmental and Rural Sciences based at Aberystwyth University, is an internationally recognised research and teaching centre. It conducts research in response to global challenges such as sustainable agriculture and healthy food, climate change adaptation and mitigation, interconnected animal and human health, and conserving biodiversity.

Wales Innovates commits to supporting innovation across the whole nation. Welsh Government has initiatives to support the economic growth of rural areas, including investment in rural infrastructure, tourism, and diversification of rural economies beyond agriculture. Research institutions in Wales collaborate with agricultural organisations to develop innovative solutions for the sector. The **Wales Rural Network Support Unit (WRNSU)** supports a forum to promote the exchange of expertise in rural development.



BioExtractions (Wales), specialising in the isolation and extraction of complex mixtures, is working with the Royal Botanical Kew Gardens and other partners on a £361,168 Innovate UK 'Agri-Tech Catalyst' project in Kenya. The project involves developing plant-based formulations and environmentally benign extraction procedures for pyrethrum and reinvigorating the pyrethrum sector in Kenya. The company have also received support via the Welsh Government Smart Expertise Programme for the SMART Circle project, a consortium of 8 organisations, led by The University of South Wales. Parties worked together to explore how innovative bioprocesses can be used to improve the overall efficiency of a range of industrial operations.



Creative Industries and Media

Within Wales, there is a strong, growing creative and media cluster. According to 2023 data, 34,900 people were employed by 3,423 businesses that make up the creative industries sectors in Wales, and the industry generated an annual turnover of £1.7 billion in 2021 - £14.2 million alone was awarded to Film and TV projects. TV productions made in Wales also spend on Wales-based suppliers (55m in 2018/19) adding further benefit to the economy. Wales is renowned for its TV and media productions and has assets such as S4C Headquarters **Yr Egin** and **The Royal Welsh College of Music and Drama**.

Wales has long been home to three dedicated national broadcasters: **BBC Cymru Wales**, **S4C** and **ITV Cymru Wales**, and has recently been greeted by a new generation of independent production companies, including **Bad Wolf**, **Vox**, **Joio**, **Severn**, **Little Door**, **Triogll**, and **Chwarel**. Attracted by the thriving creative cluster, diverse landscapes and bespoke production support packages, big names like **Lucasfilm** and **NBC Universal** choose to shoot in Wales alongside older perennial shows like Doctor Who and Torchwood.

In terms of creative R&D, Welsh Government and Innovate UK support wide-ranging initiatives including **Media Cymru** which won a £50m UKRI Strength in Places Fund bid to develop a world-leading cluster for media innovation in the Cardiff Capital Region. It brought together 24 partners from academia, technology, local leadership and the creative industries to make new products and services a reality. By providing core funding for the **Clwstwr programme**, Wales is delivering a pipeline of high-profile RD&I projects in the creative industries.

A primary example of this is **CreaTech** who encompasses artificial intelligence, virtual media production, machine learning, games engine technology and many other cutting-edge disciplines where the creative and tech industries intersect. Supporting CreaTech is a strategic priority for Creative Wales, where companies are exploring immersive technology, using augmented reality, virtual reality and mixed reality. Highlights include **Frontgrid's** ultra-realistic paragliding simulator and **Fictioneers'** virtual adventures in the world of Wallace and Gromit.

Welsh Government launched the **Creative Skills Action Plan** for 2022 to 2025 to help develop the workforce of the future and upskill existing talent, with a £1m fund for Wales's creative sectors. The Welsh Government's creative agency, **Creative Wales**, is committed to supporting and nurturing both the current and future workforce.

sugar
CREATIVE

Founded in 2008, Sugar Creative is one of the leading creative technology companies in Wales. Their offering varies from creating immersive experiences or providing creative consultancy, to delivering technology-led solutions for clients in a variety of sectors across the world – including the likes of Aardman, BBC, Dr Seuss, Toyota, and Ubisoft's Assassin's Creed.

Sugar creative has been supported with Innovate UK funds, often alongside fellow Welsh creative innovators Tiny Rebel in delivering augmented or immersive innovations.

A primary example of their innovative brilliance was the launch of Project V, a virtual reality storytelling engine enhanced with ground-breaking British sign language visual captioning as an industry first, with support from Welsh Government.



Health and Wellbeing

With an approximate turnover of £2.6bn and more than 12,000 employees in over 260 companies (ranging from SME's and start-ups to large blue-chip companies) within the sector, Wales is brimming with opportunities for life sciences entrepreneurs. Welsh companies already supply their products and services to markets worldwide from Spain and Ireland, to Canada, Brazil, Qatar and Singapore, with 75% of the life sciences market being export-focused.

To support innovation across both NHS Wales and Social Care, Welsh Government

fund the Innovation, Technology and Partnerships and Social Care innovation programmes, that provide platforms across a thriving ecosystem for health and social care staff respectively to work in partnership with industrial and academic partners to solve system needs and challenges in new and different ways including: **MediWales, Health Technology Wales, SBRI Centre of Excellence** based in **BCU Health Board, General Electric's Innovation Village Entrepreneurial Spark**, and the **Innovation Centre for Enterprise**.

Having world-leading academic expertise and a central **Life Sciences Hub**, Wales demonstrates a strong competitive advantage in Medtech, Diagnostics, Wound Healing, Regenerative Medicine and Cell Therapy, and is already creating a world-leading Regenerative Medicine ecosystem, which includes academics, the NHS, Government and centres of excellence. Wales also has unique expertise such as Cardiff University's **Brain Imaging Centre** and the **Institute of Life Sciences** at Swansea University.



Copner Biotech is a biotechnology company, founded in 2020 in Ebbw Vale. Its focus is 3D cell culture and associated technologies. What started as an initial concept of next generation 3D printing technology, has gone from strength to strength, creating an impressive portfolio of technologies, products and services to the 3D cell culture markets. They received an Innovate UK Smart Grant Award on novel inkjet bioprinting and the associated software approach. They were also awarded a SMART Cymru grant and are exploring overseas Trade missions with support from Welsh Government.

Materials and Manufacturing



CSA Catapult located in South Wales is at the heart of CSconnected, a world leading compound semiconductor cluster which brings together academic institutions, prototyping facilities and global manufacturing capabilities that collaborate across a range of research and innovation programs.

To date, CSconnected has helped support 2,615 jobs, contributed £303 million in gross value added and generated £550 million in total sales. The cluster has also helped leverage cutting-edge facilities, such as KLA's new 25,000 sq ft of R&D cleanrooms in Newport, and the establishment of the Siemens Power Electronics Innovation Hub at CSA Catapult.

Manufacturing is the largest contributor in terms of gross value added to the Welsh economy. It provides employment and career opportunities and supports communities across Wales, with a 143,000-strong skilled workforce in June 2023, Welsh higher education providers producing over 3,000 engineering and technology qualifiers in 2021/22, along with 160 aerospace and defence companies, which employ 20,000 people and produce a turnover of more than £5 billion. Key assets and expertise in include; **Compound Semiconductor Applications Catapult, Advanced Manufacturing Research Centre Cymru, Institute for Innovative Materials, Processing and Numerical Technologies, OpTIC Centre** (Photonics and Space), **Welding Institute, Manufacture Advanced Design Engineering Centre** and the **Dennison Advanced Materials Centre**.

Wales's productivity in the manufacturing sector is higher than the UK average and in June 2023 accounted for 9.8% of all workforce jobs in Wales, compared to 7.1% across the UK. Wales has several UK-significant High-Value Manufacturing industries and associated supporting organisations, including **automotive**, **photonics/opto-electronics**, **space and aerospace**, **medical devices/life sciences**, **advanced materials and metals** and a growing industry in nuclear. **Industry Wales** provides strategic direction and significant advice relating to success and sustainability of the economy in Wales to Welsh Government and other key stakeholders.

A Manufacturing Future for Wales provides a framework to future-proof manufacturing capability in Wales. It identifies specific, targeted actions to develop long-term resilience with a skilled and flexible

workforce to deliver the products, services and technologies for our future economy. The framework will use the five ways of working within the **Well-being of Future Generations (Wales) Act**, ensuring the collaborative actions taken will:

- Future-proof manufacturing in Wales by growing an innovative low carbon, resource efficient community.
- Support transition to new ways of working to prevent decline in manufacturing and focus on resilience through diversification of supply chain activity within both public and private sector procurement.

- Ensure integration with other actions being taken by other public sector bodies such as the Corporate Joint Committees; City / Growth Deals, Natural Resources Wales and Skills bodies.
- Facilitate collaboration within and between government, industry, academia and trade unions, where appropriate; and utilise the social partnership model developed in Wales.
- Involve the people of Wales, reflecting the society in which manufacturing operates and ensuring equality of opportunity.

Innovate UK in Wales

Over recent years, Innovate UK has better aligned national and local strategies and plans for business innovation by focusing on areas of shared priorities, and continuing to work closely with local leadership to improve collaboration and drive innovation.



Innovate UK provides an ecosystem of expertise, funding, and powerful connections. Wales benefits from major investments from Innovate UK including:

- **High Value Manufacturing (HVM) Catapult, including one of its seven centres; AMRC Cymru**
- **Compound Semiconductor Applications (CSA) Catapult**
- **Offshore Renewable Energy (ORE) Catapult**
- **Active Building Centre (ABC)**

In addition to the support provided by Business Wales, the Development Bank of Wales and the British Business Bank, businesses and researchers in Wales are supported by Innovate UK EDGE and Innovate UK KTN.

Innovate UK EDGE has well established ways of working with the business support agencies in Wales. During the financial year 2022-23, Innovate UK EDGE provided

unique support to 176 companies. Out of these 176 companies, 26 created 111 jobs, and 25 maintained 462 jobs. Innovate UK EDGE support also resulted in 11 companies raising a total of £10,695,406 in investment. Innovate UK EDGE are currently liaising with the European Commission to bring Welsh Government into the Innovate UK EDGE Enterprise Europe Network consortium as a delivery partner, to further develop international partnering services for Welsh companies. We expect Welsh Government to become a consortium member during financial year 2023-24.

Innovate UK KTN and Welsh Government have worked in collaboration to actively support the innovation ecosystem within Wales. This has included joint initiatives, funding calls, scoping sessions and surgery sessions. Innovate UK KTN sector experts frequently engage with companies, research

organisations, public sector and community led organisations to support their innovation needs. To exploit innovation opportunities for the nation, they have connected over 4,000 people with events and organisations within Wales to date.

As part of their offer, Innovate UK KTN provides on the ground local support – jointly funded with Welsh Government – for Knowledge Transfer Partnerships (KTP). The KTP programme connects businesses with innovation ideas to research-based expertise, enabling projects that improve competitiveness, productivity and performance through the better use of knowledge, technology and skills.

KTP's in Wales benefit from Welsh Government offering an enhanced grant rate of 75% for Welsh businesses, making

them an even more attractive proposition for investors. There have been 144 KTPs in Wales since 2010, with every Welsh university participating in projects. Across all KTPs, approximately 60% of projects are focussed around artificial intelligence and 20% on Net Zero.

The UK network of Catapults bridge the gap between innovative businesses and the research communities, taking an active role in removing industry-wide barriers to innovation and commercialisation. Innovation is not risk-free, but the Catapults manage risks through the provision of R&D infrastructure, specialist knowledge and expertise, partnership and collaboration building capabilities, and business support. There are nine Catapults with centres covering more than 40 locations across the UK.

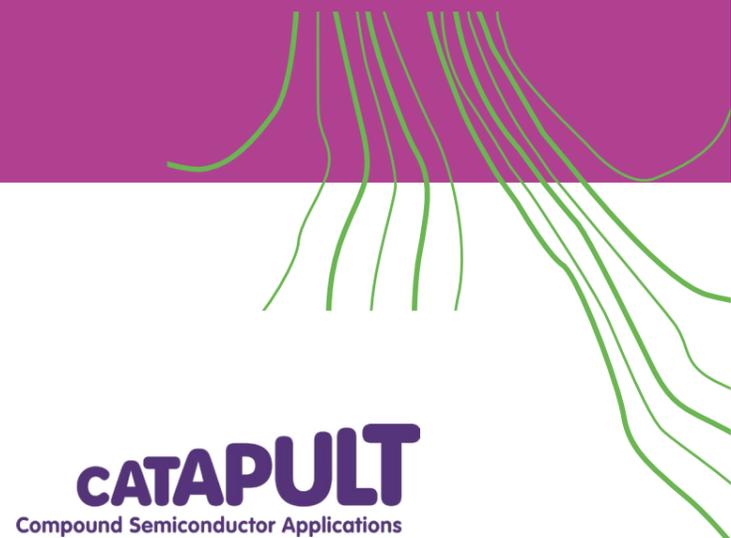
Based in a Welsh Government funded £20m state-of-the-art applied research centre in Broughton, North Wales, **AMRC Cymru** is a member of the HVM Catapult, a consortium of leading manufacturing and process research centres backed by Innovate UK.

AMRC Cymru is part of the University of Sheffield Advanced Manufacturing Research Centre (AMRC) innovation network, which has a global reputation for helping companies overcome manufacturing problems, and is a model for collaborative research involving universities, academics and industry worldwide.

It turns world-leading research into practical improvements for industry, helping to boost businesses' productivity and sharpen their competitive edge while saving time, money and energy. AMRC Cymru fosters collaborations and partnerships between industry, academia and government to deliver cutting-edge research, development and innovation for better products and processes; while driving forward sustainable manufacturing technologies for Net Zero, creating the vital step-changes needed in the low-carbon transition.

AMRC Cymru's capabilities include: artificial intelligence and machine learning, additive layer manufacturing,

robotics, virtual and augmented reality, human assisted assembly, industrial internet of things and digital twins, advanced metrology, digital simulations, as well as design and prototyping. It has particular strengths in the aerospace and food sectors and is uniquely positioned to support the manufacturing economy in North Wales.



CSA Catapult is the UK's authority on compound semiconductor applications and commercialisation. CSA Catapult develops new methods, tools and techniques to help companies make better products and to de-risk the commercialisation process, helping to bring products to market quicker and make the UK more competitive. In the last six years, CSA Catapult has received £64 million in core funding through Innovate UK and further support from the Welsh Government.

ORE Catapult is the UK's leading Technology Innovation and Research Centre for offshore renewable energy. It is delivering the UK's largest clean growth opportunity by accelerating the creation and growth of UK companies in offshore renewable energy.

The Marine Energy Engineering Centre of Excellence (MEECE) was set up by ORE Catapult in collaboration with university partners, to support organisations in the marine energy sector or its supply chain to innovate with the aim of expanding the sector in Wales and throughout the rest of the UK. MEECE is delivering research, development and demonstration activities to support renewable energy innovation in Wales, accelerating the commercialisation of the wave, tidal and offshore wind sectors by reducing the cost of energy. Over the past 5 years, it has become a multi-project office, embedded in various local clusters, and working across a range of themes in addition to marine energy.

Recently, ORE Catapult set up an office in Anglesey to explore opportunities in North Wales, shared with Marine Energy Wales, and co-located with the local BP/enBW representatives and the secretariat of the Offshore Energy Alliance. The primary focus is the industrialisation of tidal stream energy.



The ABC was successfully secured in Wales as part of UKRI's Transforming Construction Challenge, Industrial Strategy Challenge Fund. ABC was setup as an independent research organisation to help the built environment sector accelerate its journey to Net Zero.

ABC partnered in delivering over 100 real world schemes with a value of around £300m, ranging from capital projects with Welsh Government to commercial buildings and housing developments with local authorities.

With the initial R&D funding phase as part of the UK Government's Transforming Construction Challenge now complete, integration within the Energy Systems Catapult will boost the deployment of and scaling up of active building technologies in the UK.



Funding

Since 2013, Innovate UK competitively awarded £225.9m to organisations in Wales, with further grants offered and in stages of delivery.

In this past decade, Innovate UK investment within Wales has increased, rising to £38.1m invested in 2021-22. Since 2013, 21% of funding went directly to large businesses and 35% to SMEs, totalling 56% of Innovate UK funding to businesses across Wales.

During that time, 14% of funding was awarded to academic and research organisations through Collaborative Research and Development projects, supporting business innovation and strengthening the relationship between industry and academia. This is particularly important for SMEs who are less likely to have the research capability in-house, and need external research organisations to help progress new ideas to commercialisation.

Innovate UK has also invested in critical innovation infrastructure in Wales, with 28% of funding being attributed to Wales-based Catapults and other significant projects.

By working together, Innovate UK and Welsh Government, can continue to enhance the support given to our vibrant ecosystem within Wales. We are committed to delivering the joint actions and activities in this plan to help drive and support growth within Wales, and look forward to seeing increased impact by this greater collaborative way of working.



Aligning Ambitions

Innovate UK is committed to embedding Place into everything it does in this spending review period and beyond, contributing towards the UK Government's Levelling Up agenda.

As the needs of innovative businesses will vary from place to place, Innovate UK will tailor its support to build capacity and stimulate greater connectivity between local businesses and the research base to improve productivity. It will support local businesses to adopt new knowledge, skills, and cutting-edge technologies, and use them to deliver greater productivity and economic impact. Innovate UK will join forces with organisations across Wales to unlock the power of untapped innovation. Working together on the Innovate UK No Limits initiative, we will collectively focus on inspiring future innovators and addressing disparities in funding and support for innovation.

This plan is built on the Memorandum of Understanding that was signed in April 2023 which cemented the relationship between Innovate UK and Welsh Government leadership and aligned both visions for increasing business innovation within Wales. It sets out key areas of action for both Innovate UK and Welsh Government to work on to support RD&I together.

Core Areas and Actions

We will work together with wider partners to deliver our strategic priorities through three core areas:

- 1. Strategic partnerships** with open and transparent discussions, based on mutual trust and co-creation and delivery of this plan.
- 2. Innovation support** that meets the needs of local businesses and entrepreneurs, by targeting identified priority clusters informed by the expertise and data shared between our organisations to stimulate innovation.
- 3. Communications and engagement** to ensure we're reaching, engaging, and inspiring more entrepreneurs and business leaders to innovate.

The next sections outline the commitments we will jointly deliver across these core areas.



1. Strategic partnership

Innovate UK and the Welsh Government will:

Co-investment opportunities

Work together to ensure that innovation stakeholders in Wales have a clear, consistent and effective route to access innovation support mechanisms by bringing the innovation support activities of the Welsh Government and Innovate UK into much closer alignment. For example:

- Make the Welsh Government a partner in Innovate UK EDGE.
- Building on AMRC Cymru in North Wales, drive forward commitments to undertake feasibility studies that explore potential proposal developments to improve support for manufacturing and productivity in Wales. We will do this by assessing the need for access or provision of innovation assets, such as HVM Catapult presence, operations and delivery, including potential for a Wales-wide manufacturing institute.
- Actively seek opportunities to develop joint programmes that align to growing the innovative industries and clusters that have been highlighted in this plan.
- Utilise the innovation opportunities and networks available through coordinated delivery.
- Where support and funding are available from both UK and Welsh Government sources, ensure that we achieve maximum additionality, eliminate duplication and respect devolved and reserved responsibilities from our respective offerings through mutual consultation at the design stages of policies and competitions.
- Continue to strengthen the relationship in terms of government levers that are available to support innovation e.g. innovative procurement and opportunities emerging from UK regulatory standards.
- Explore and support the feasibility, testing and demonstration of novel and disruptive technology in the public sector in Wales.
- Collaborate and consult on national review of Small Business Research Initiative (SBRI) and innovation opportunities emerging from UK procurement reform.



Increasing investment

Use our joint convening power to ensure national agencies and Wales-based partners are aware of relevant investment activities, including UKRI Research Councils, Government bodies and British Business Bank. Together, we will encourage and attract more local and foreign investment into the region.

Innovate UK's presence

Ensure the full suite of Innovate UK products and services are being provided and utilised across Wales. We will do so by:

- Engaging Innovate UK's Place team with Welsh Government's regional leads to ensure understanding and representation of the innovation activities and plans in those areas are being considered in terms of Innovate UK's future activity.
- Outlining future innovation development challenges missions, calls and competitions through coordinated local briefing sessions with innovation stakeholders, key Welsh Government policy leads and Innovate UK domain leads, to help increase awareness, engagement and opportunities for Wales.

- Aligning to Business Wales and Welsh Government Innovation support, supply Innovate UK's Innovation Hub with key information to meet stakeholders' innovation needs. The portal will provide local advice, guidance and sign-post referrals.
- Continuing to develop impactful ways of work with Innovate UK KTN on promoting activities and opportunities within Wales based around technologies, missions and regions.
- Working with organisations within the Innovate UK system inside and outside of Wales to provide opportunities for Welsh innovators to engage and utilise their offering.

Accessibility, talent and skills

Celebrate the diversity of our people and their talents. Diversity in all its forms promotes a different way of thinking and brings novel and new perspectives to innovation endeavours. Nurturing a diverse talent pipeline is critical to developing the skilled workforce that our economy needs.

We will work together to understand the innovation skills gap and explore programmes of inclusive innovation support to address the inequalities and disadvantages impacting communities in Wales.

Talent comes from all walks of life and is found in every corner of Wales. We will engage with Innovate UK's No Limits mission to unlock the power of untapped talent and build an inclusive and accessible innovation ecosystem.

We will support all innovators, as well as focussed young innovators programme, to accelerate their R&D and innovation ideas, and bring forward a new generation of diverse and entrepreneurial businesses. We will explore the potential of leveraging industry relationships to support further education colleges to increase business innovation in the region.



2. Innovation Support and Stimulation

Together, we will ensure that innovation stakeholders in Wales are aware of and engage with the opportunities available to them through Innovate UK and Welsh Government innovation stimuli. We will be proactive in joint promotion of innovation opportunities, taking into account Wales' unique needs and specific context and scale when framing innovation challenges and for compelling or emerging innovation activities.

We will engage with innovation stakeholders across all stages, especially those who are new to innovation support, and work together to understand if the support would be viable to advance activities of organisations of mutual interest.

In academia, Innovate UK and UKRI will continue to engage and align strategies with HEFCW and CTER in Wales, to provide university research programmes with the underpinning resources to enable them to compete for external research funding through quality-related research funding.

For business support services, Business Wales provides and delivers access to Welsh Government and non-government-funded business support programmes. Innovate UK EDGE will align and co-ordinate their efforts with Business Wales to provide the best quality support for Welsh businesses.

We will also work in closer collaboration with The Development Bank of Wales, as an Innovate UK Investor Partner, to provide business finance and innovation investments to companies within Wales.

Outputs relating to commercialisation and income generation, business growth, skills support, and civic mission and public engagement will continue to be monitored.

3. Communications and Engagement

We will provide innovation support awareness through timely and coordinated outreach, maximising respective communication channels between Innovate UK and Welsh Government delivery teams.

Innovate UK hosts a number of online events including competition briefings, application workshops, and consortia building. These will be available to sign up for via Business Wales and the Innovation Hub, which we aim to become primary points of contact for receiving innovation enquiries.

This coordinated and joint support for events will also manifest in online communications via, web, email and social media channels.

An example of how we will do this is by broadening the reach of the Welsh Government's Collaborative Research Innovation Support Programme through targeted communications, regular support meetings, event briefings, domain deep dive workshops, application support, innovation assets awareness and engagement.

Welsh Government Innovation officials and Innovate UK's Wales Manager will provide and share intelligence and information on calls, competitions and awards. They will engage with Welsh Government Policy Leads on innovation plans to understand challenges and align with Innovate UK support opportunities. They will also participate in regular events to engage with innovators in the community.



Monitoring, Delivery and Outcomes

Innovate UK and the Welsh Government have responsibility for overseeing the implementation of this plan. The plan is intended to be an agile and evolving document, which responds to local needs and economic pressures over the next 3 years.

We will identify and target priority areas, missions, challenges, sectors, and technology of joint strategic interest where there may be opportunity for co-funding and co-creation of interventions. We will work jointly to respond to urgent and emerging innovation priorities, collaborate on urgent national/global innovation activities to provide rapid response, utilise existing networks and expertise.

Reviews will take place annually where we assess progress against the actions and create a delivery plan for the subsequent year, evolving existing and creating new actions as appropriate, in line with the principles and core areas in which we have agreed to work.

As with the Wales Innovates Delivery Plan, clear metrics are established for the number of applications to Innovate UK from Wales, the number of awards to Wales, and the percentage of those that are new to both Innovate UK and Welsh Government.

Place

We will work together to develop place-based innovation, ensuring that the unique innovation opportunities from across all regions contribute to, and benefit from, Wales and the UK's innovation ecosystems. Innovate UK aims to drive regional growth by supporting emerging clusters, for example, through the Launchpad programme.

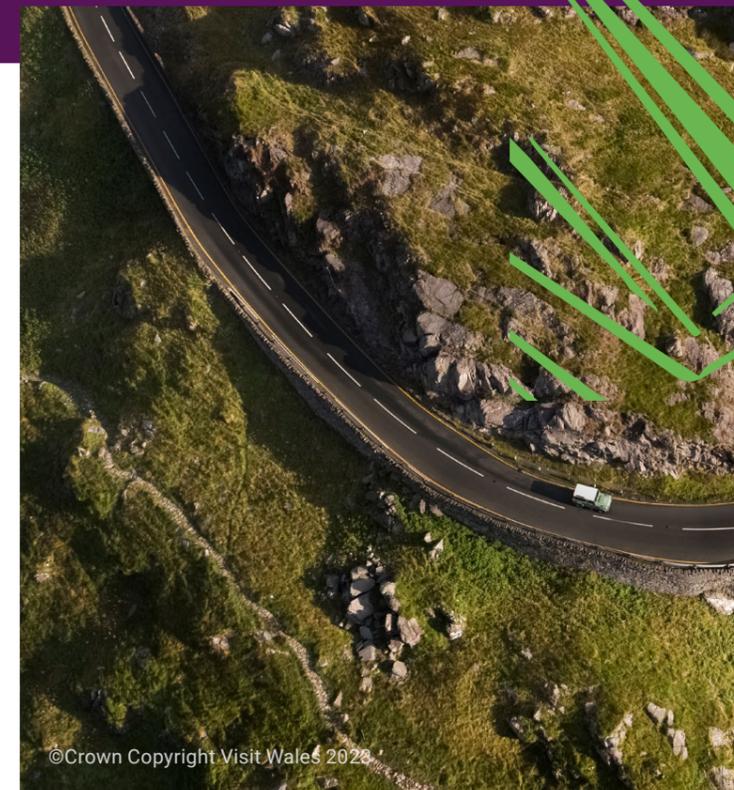
We will work in collaboration on proposals for unique, Welsh, national and global opportunities with place-based economic impact within Wales. These proposals will be considered for direct support if existing support channels are deemed inappropriate.

Innovation Investments

We will seek to maximise local impact, engagement, and access to innovation assets such as Catapults, Innovate UK KTN and Innovate UK EDGE to increase awareness, and support and grow innovation capacity across all sectors and regions. We aim to expand and increase outreach, improve and enhance awareness and contact points, including exploring the feasibility and increased presence of Catapult centres in Wales, through specific events, regional offices and road shows. Data for a Fairer and more prosperous Wales

We commit to sharing data wherever possible to achieve common priorities for Wales and will review and enhance the existing Data Sharing Agreement where possible.

We will use data to understand the demographics of Wales's innovation community, actively seek to address inequalities and take steps to ensure that innovation is accessible to all of Wales's citizens.



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Additionally, data will be shared to identify emerging opportunities for innovation in Wales and opportunities to collaborate to create the most impact.

We will continue to analyse and share Innovate UK's 'blue zone' data, where Welsh-based funding applications are above the quality threshold but fail to secure Innovate UK funding due to over subscription. Those suitable will be signposted to Welsh Government to be considered for alternative innovation support.

Blue zones, along with other data, will form the foundation of a new performance dashboard to be developed and shared between Innovate UK and the Welsh Government. The dashboard will analyse innovation funding applications and awards in Wales by region, sector, academic institution and business, and compare these percentages against UK regions and other devolved administrations' totals.



Innovate
UK



Llywodraeth Cymru
Welsh Government

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ukri.org/councils/innovate-uk

03003 214357 • support@iuk.ukri.org • [@innovateuk](https://twitter.com/innovateuk)

Innovate UK, Polaris House, North Star Avenue, Swindon, SN2 1FL