Wales innovates, creating a stronger, fairer, greener wales: delivery plan

How we will deliver the innovation strategy for Wales.

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Introduction

As promised in our Strategy, **Wales Innovates: Creating a Stronger, Fairer, Greener Wales**, published in February 2023, the Welsh Government is now releasing its accompanying innovation delivery plan. The strategy was designed to guide Welsh Government research, development and innovation interventions and support over the next 5 years and this plan covers the same period.

Wales Innovates set out a vision to create and nurture a vibrant innovation culture for a stronger, fairer, greener Wales. To achieve this, it highlighted missions in 4 key areas of society:

1. Education
2. Economy
3. Health and wellbeing
4. Climate and nature

The delivery plan details for each mission the relevant goals, actions, milestones and measurements which the Welsh Government, after extensive public consultation, wishes to see achieved into the medium and longer-term.

The Welsh Government is only one part of the innovation ecosystem, which is becoming ever more diverse and broad. Governance, finance and support are distributed across the ecosystem, collaboration is increasingly important. The delivery plan is intended as a guide for the ecosystem, setting out the actions for Welsh Government, to build understanding of where more shared efforts and resources can be focused.

It calls for a disciplined approach to align innovative activity with these goals to attract support for specific projects or programmes from Welsh Government.

The innovation ecosystem needs to focus activity on translational research and

commercial opportunities, where there are benefits not only for our economy, but for our citizens, and for our environment. Support will be targeted towards achieving this impact, which will be measured as set out in the document, and as new opportunities for measurement emerge.

This delivery plan is intended to be a living, dynamic document with enough flex over time to respond to a changing political, budgetary, and economic landscape, and to identify different and better opportunities in a rapidly changing funding environment.

Future budgets will be included as the plan develops. In the meantime, it lays out certain guiding principles:

- Each mission has underpinning commitments to geographic and demographic equality; a thriving innovation culture; and a joined up, collaborative way of working.
- The Innovation Team, in Welsh Government, will be responsible for bringing together innovation leads to work together collaboratively across Welsh departments and policy areas.
- The Commission for Tertiary Education and Research (CTER), and its Research and Innovation sub-committee will have a key contribution to make in delivery, given its leading role in promoting innovation in Wales, in accordance with the legislation.
- Welsh Government will make key investments from within its own budgets, where possible. We will also work more collaboratively with UK Government to bring investment into the Welsh RD&I ecosystem, to drive progress against our shared objectives.
- We will track the course of the missions, developed through ongoing engagement with Plaid Cymru under the Co-operation Agreement and overseen by the Innovation Advisory Council for Wales (IACW).
- We will review progress at the end of year one, reflecting on what's changed and how our ecosystem is transitioning away from direct EU funding towards a more leveraged, competitive RD&I model.

- We will run structured evaluations at years 3 and 5 to consider where measurable outcomes, linked to our missions and goals, have been delivered.

Education mission

Mission:

An education system that supports the development of innovation skills and knowledge throughout people's lives in Wales.

Schools, colleges, universities, and research organisations create knowledge through research. This research can lead to commercialisation, create societal value, and support a stronger economy.

Goal: Increase research in new or evolving technologies for 'real world' applications and industry collaboration

Action:

We will work with Higher Education Funding Council for Wales (HEFCW) (and in the future CTER), Wales Innovation Network (WIN), universities, and the wider tertiary education sector to increase research and innovation funding from external sources, and support collaborations to optimise the value of research and innovation funding for our priorities. This will include engagement with industry and other partners to maximise societal and economic benefits of their research.

- Milestone: 2023-24 £15 million Research Wales Innovation Fund

- Measure: UK Gateway to Research and IUK data on Welsh led proposals

Action:

We will work with Innovate UK (IUK), under our new and broader Memorandum of Understanding (MoU) and action plan, and with our business community, to continue to offer Knowledge Transfer Partnerships (KTPs) with the aim of increasing the budget to £1.4 million per year. We will continue to run SMART Partnerships alongside this programme.

- Milestone: 3 year contract from 01/04/2024
- Measure: Subject to IUK Review due to be published 2023
- Measure: £ for £ Return on Investment
- Measure: EDI Data

Goal: Increase innovation experiences for children within the school setting

Action:

The new Curriculum for Wales specifically focuses on supporting children and young people to become 'enterprising, creative contributors' through their learning. Careers and Work-Related Experiences are a central part of the curriculum in both primary and secondary schools, and Careers Wales will continue to enable young people to connect with innovation and enterprise employers as they develop their future careers.

- Milestone: Annual
- Measure: £ for £ Return on Investment
- Measure: EDI Data

Action:

We will partner with the WJEC (and other organisations) to expand and deliver the all-Wales Innovation Awards at GCSE and A-Level age groups.

- Milestone: Annual

Action:

We will work with Careers Wales to deliver Big Ideas Wales enterprise awareness, engaging entrepreneurs in the classroom to develop creative and enterprise capabilities, supporting schools' delivery of the new Curriculum for Wales.

- Measure: No. of Pupil Interactions (target 30,000)
- Measure: EDI Data

Goal: Increase innovation capabilities and progression to business for students and graduates of further and higher education

Action:

We will support the Employment and Enterprise Bureau's at further education colleges as part of the Young Person's Guarantee to enhance student preparedness and transition into employment, develop work-related skills and enterprise capabilities.

- Milestone: Annual
- Measure: Number of young people engaged in enterprise
- Measure: Number of students supported to successfully start a business

Action:

We will work with HEFCW, and in the future CTER, and the higher education sector to enable students to develop their innovative and entrepreneurial capability to accelerate graduate entrepreneurship and their business survivability.

- Milestone: Annual
- Measure: Higher Education Business and Community Interaction Survey (HEBCIS) – Graduate Start up (analysis on survivability through FAME database)
- Measure: HEBCIS - No. of Spin-outs

Action:

Big Ideas Wales (Business Wales) will work with students and graduates in Further and Higher Education Institutions to increase participation in enterprise, provide advice and guidance to support student and graduate start ups.

- Measure: EDI data (HEFCW/CTER Targeted Employability Support for Students)

Goal: Increase the participation of further education colleges in RD&I activity

Action:

We will work closely with CTER, which has a key role in the implementation of the innovation strategy, and will be the first national steward for the whole tertiary education and research sector, bringing responsibility for overseeing

Wales' higher and further education, school sixth forms, apprenticeships and research and innovation together in one place.

- Milestone: From April 2024
- Measure: £ funding awarded to FE Colleges for innovation
- Measure: No. of FE collaborations supported

Action:

CTER will develop it's own plan for implementation of the Innovation Strategy.

- Milestone: Q2 2024

Goal: Develop opportunities for net zero skills to support the Innovation agenda and the climate and nature mission

Action:

Welsh Government will undertake a public consultation on sector specific skills requirements, including what additional skills are needed at a regional level to support the development and adoption of new ideas.

Milestone: Q3 2023

Action:

We will develop a Skills Roadmap for each sector. These will help inform planning and policy on skills, working on the evidence and with the sectors to map and detail the key investments into Wales, legislation and policy shifts, transitioning impacts or any other identified milestones that will result in a shift in

skills, competencies and workforce demand.

Action:

In implementing the Plan, we will work at a local and regional level to ensure effective engagement, understanding and buy-in to meet our skills commitments in a more co-ordinated way.

Goal: Grow innovation capability and capacity within innovation ecosystem leadership

Action:

Welsh Government will work with the Intensive Learning Academies, based in our Welsh Universities, to develop and implement bespoke innovation training and education provision, across all sectors including within Health and Social Care.

- Milestone: Academic year 2024-25
- Measure: Number of Welsh leaders engaging in skills and training provision including sector, location and EDI data

Economy mission

Mission:

An economy that innovates for growth, collaborates across sectors for solutions to society's challenges, adopts new technologies for efficiency and productivity,

uses resources proportionately, and allows citizens to share wealth through fair work.

Goal: Increase the amount of investment in RD&I activity across all sectors, ensuring a fair regional share aligned to the priorities and strengths in Wales

Action:

Capability and capacity building to compete more effectively for funding from international and UK wide sources.

- Collaboration building
- Proposal development
- Advisory support

A closer working relationship with IUK through an MoU and joint plan for collaboration.

Explore opportunities for MoUs with additional UK bodies, including Research Councils within the UKRI structure – monitoring of funding awards into Wales will form part of those arrangements.

Broader engagement and awareness raising of RD&I funding opportunities across UK Government Departments. This aligns with the commitment in the UK Government Levelling up white paper to spend 40% more on RD&I activities outside of the Greater South East by 2030.

- Milestone: 2026 - A 3% share of IUK competitive budget
- Milestone: 2026 - (Year 3) Re-run priority themes analysis to track progress in priority areas
- Milestone: 2028 - (Year 5) Re-run priority themes analysis to track progress

in priority areas
- Milestone: 2030 - A 5% share of IUK competitive budget
- Milestone: Immediately – ongoing
- Measure: BERD, HERD, GERD
  (including as a % of GDP subject to ONS methodology review)
- Measure: % of UK funding awarded in Wales, including regional split
  (sources of information IUK Data Sharing Agreement, UKRI Gateway to
  Research)

Goal: To increase the number, impact, diversity and ambition of businesses that are innovation active within Wales

Action:

£20 million funding to support organisations to innovate – utilising a range of levers including one to one business support, collaborative activity (eg with universities or the public sector), procurement and grant (complimentary to other sources of funding such as the previously mentioned Research Wales Innovation Fund).

An expanded and flexible offer to include Micro, Small and Medium sized businesses with funding and advisory support (for business development and growth, through Business Wales).

A renewed communications campaign to raise awareness of and enable broad participation in innovation regardless of background or circumstance.

- Milestone: 2023 – Launch of Flexible Innovation Support
- Measure: UKIS Survey – Number of Innovation Active Businesses (WFG National Indicator)
- Measure: BERD

- Measure: ED&I data (supported organisations)
- Measure: % FTE working on innovation (supported organisations)
- Measure: % turnover invested in RD&I (supported organisations)
- Measure: Increase in turnover as a result of RD&I support from Welsh Government (£)
- Measure: GVA per hour worked (WFG National Indicator)

Action:

Expansion of the Digital Accelerator and broader advisory support to help organisations implement more efficient processes within their business, identify and protect their intellectual property and identify energy saving and decarbonisation technologies. This will include a renewed and deeper working relationship with the Intellectual Property Office (IPO).

- Milestone: Q1 2024 – Procurement exercise for advisory support
- Milestone: Q3 2023 – MoU development begins with the IPO

Goal: Increasing the opportunities within the ecosystem for cross-sector and wider geographical collaboration

Action:

Identify and evaluate opportunities for creating and growing nationally important assets based around key science and technology strengths and prospects in both Industry 4.0 and Industry 5.0. We will work with CTER to undertake an evaluation of large scale research facilities that currently exist in Welsh universities.

- Milestone: Ongoing

- Measure: £ industry investment
- Measure: £ UK investment (competitive or allocative)

Action:

We will use Grant and Procurement mechanisms to drive increased collaboration. This will include potential co-investment with City and Growth Deal Regions and Freeports to encourage place-based innovation and the development of solutions to societal challenges and priorities within the Programme for Government and Regional Economic Frameworks.

- Measure: UKIS Survey Geographical split of funding awards (WG, UKG)

Action:

We will provide the ecosystem with opportunities to network and collaborate across borders. This will be done through ongoing membership of the Vanguard Initiative and CRIQUE, while actively seeking opportunities in other overseas locations and networks. Welsh Government will work closely with Wales Higher Education Brussels and Global Wales on this action.

- Milestone: 2024 – Launch of inter-regional funding mechanism through Vanguard Initiative
- Measure: TBC

Action:

We will work with industry and academia to identify, develop and support clusters of Science and Technology capability and capacity in priority areas. We will consider, develop or attract Public Sector Research Establishments (PSRE) where appropriate.

- Milestone: 2023 – 2024 for technical assessment studies of potential clusters
- Milestone: 2025 Recognition, designation and growth plans for the clusters
- Milestone: 2026 to 2030 creation and development of clusters. Similarly milestones for PSRE and Themed Research Organisations (TRO)
- Measure: Number and identity of clusters identified
- Measure: Number of clusters created and developed
- Measure: Similarly for PSREs and TROs established in Wales

Goal: Increase the access to specialist private investment into technological-generative innovation

Action:

Welsh Government will work with the Development Bank of Wales (DBW) to:

- Build expertise in deep tech investment in Wales
- Seek collaborative relationships with recognised and specialist private finance organisations such as Venture Capitalists and Angel Networks, to raise awareness of investment opportunities in Wales
- Provide targeted support to Welsh organisations to become investor ready
- Milestone: Ongoing
- Measure: DBW investment data – private sector match
- Measure: External data sets focussed on fundraising and equity investment deals made e.g. Beauhurst, Crunch Data, etc

Goal: Increase the use of, and participation in, innovative procurement mechanisms by Welsh organisations.

Action:

We will support the use of procurement (and emerging procurement reform measures) for feasibility, testing and demonstration of novel and disruptive technology in the public sector in Wales.

- Milestone: 2023 – Launch of Flexible Innovation Support
- Measure: UKIS Survey – Number of innovation active businesses (Wellbeing of Future Generations National Indicator)

Action:

Work with the Small Business Research Initiative (SBRI) Centre of Excellence to increase the number and breadth of innovation procurement opportunities across the public sector in Wales.

- Measure: % of public sector procurement spend using innovative mechanisms
- Measure: Number of and % increase of Welsh businesses participating in public sector procurement, and innovative procurement projects

Health and wellbeing mission

Mission:

A coherent innovation ecosystem, where the health and social care sector collaborates with industry, academia and the third sector to deliver greater value and impact for citizens, the economy, and the environment.

Goal: Increase Health and Social Care Research, Development and Innovation support and investment against the 6 areas of ministerial priority published in the NHS Wales planning framework 2022-25

Action:

Align health and social care Innovation activity and investment to support delivery and progress against the 6 ministerial priorities. This includes the assessment of Integrated Medium Term Plans (IMTP) and delivery of the Innovation Technology and Partnerships Programme.

- Milestone: Q4 2023
- Milestone: Q4 2024
- Measure: £ invested in health and care related innovation activities

Action:

Welsh Government and Health and Care Research Wales will implement the plan for Health and Care Research activity in Wales. An annual budget of £47 million has been ringfenced (any budget figures subject to current review).

- Milestone: 2022-23
- Milestone: 2023-24
- Milestone: 2024-25
- Measure: £ investment in health and care research by public/government funders (% increase)
- Measure: £ investment in health and care research by industry/commercial research funders (% increase)
- Measure: Numbers employed in the health and care research workforce (% increase)
- Measure: Public participation in health and social care research (% increase)

Goal: Increase innovation activity and funding awards to the health and social care system, and the Life Sciences sector. Creating the right environment for industry to collaborate with the NHS in Wales

Action:

We will explore the availability and development of a funding portal to access innovation funding, which will include grant and innovative procurement mechanisms.

Develop a Life Sciences Policy Statement with clear actions to support the development of the sector in Wales to support health and wellbeing, economy, education and climate and nature missions.

Work with the Life Sciences Hub Wales Ltd to identify opportunities to build strategic partnerships with industry focussed on innovation to deliver better outcomes for patients, and economic impact.

Deliver financial support for innovation through the Innovation, Technology and Partnerships funding programme.

We will commission the Value Based Healthcare Programme to develop a suite of innovation measures linked to resource efficiency, patient outcomes (PROMs) and patient experience (PREMs).

- Milestone: 2023-24 £12.8 million
- Measure: £ invested in health, care and life sciences innovation activities (internal to organisation, WG, UKG/International)
- Measure: Number and value (£) of strategic partnerships between industry and NHS Wales
- Measure: Impact measurement of funding awards:
- Measure: Value based healthcare measures - Patient outcomes and experience, resource usage across relevant clinical areas
- Measure: Referral to Treatment Time (RTT) in clinical areas developing, testing and deploying innovation

Goal: Develop and implement a Social Care Innovation Support Programme

Action:

Welsh Government will fund Social Care Wales to develop and support the Social Care Innovation Support Programme.

- Milestone: 2023-24 £1.2 million
- Measure: Social Care Wales will begin work to develop an outcomes framework in September 2023

Goal: Increased innovation activity across NHS Wales, to include the development, protection and commercialisation of intellectual property

Action:

A roadmap and directory of the health and care organisations within the innovation ecosystem.

A common innovation assessment tool, to consistently assess innovation opportunities.

A common approach to the creation, protection and management of intellectual property created by NHS Wales staff and organisations.

A clear route to commercialisation and income generation for further investment in innovation.

- Measure: Number of Intellectual Property sharing agreements in place across organisations
- Measure: Income generated
- Measure: Income from innovation activity re-invested in Innovation

Goal: Increase adoption and scale of 'Adoption and Adaption ready innovation' across the health and social care system.

Action:

Establish the Innovation and Value function of the NHS Wales Executive.

- Milestone: Q1 2025
- Measure: Health Technology Wales Adoption Audit

Action:

Develop a list of 'Adoption and Adaption ready innovation' aligned to Welsh NHS and Social Care needs and priorities – working with Health Technology Wales, the Regional Innovation Co-ordination Hubs Network.

- Milestone: Q4 2023
- Measure: NHS Wales Procurement data
- Measure: Value based healthcare innovation metrics

Climate and nature mission

Mission:

To optimise our natural resources for the protection and strengthening of climate and nature resilience. We will focus innovation efforts of the ecosystem towards tackling the climate and nature crises simultaneously ensuring a just transition to a wellbeing economy.

Goal: Reduce the level of industry generated carbon emissions and increase adoption of circular economy principles.

Action:

Identifying the most appropriate carbon measurement tool for organisations in

Wales.

- Milestone: WG will commission research into carbon measurement tools by January 2024
- Measure: Carbon emissions reductions based on tool selection to be used to generate baseline emissions and end of project emissions

Action:

Provide support, and identify funding mechanisms (including the Development Bank of Wales Green Business Loan Scheme, which is supporting businesses wanting to invest in decarbonisation infrastructure, including renewables), to adopt technologies and new approaches to reduce carbon output.

Embed carbon measurement tools into the terms of financial support provided to ensure funded innovation does not contribute to increasing carbon emissions.

Action:

Provide financial support to Welsh organisations seeking to become more resource-efficient and avoid unnecessary waste, in turn enabling them to become more productive and competitive.

- Milestone: Launch Circular Economy Fund 2 Q1 2023-24
- Measure: Carbon emissions
- Measure: Waste reduction

Goal: To use innovation to reduce the level of carbon emissions generated by homes and transport.

Action:

We will deliver £70 million worth of funding to the social sector landlords to decarbonise homes (subject to budget review).

- Milestone: 2023 to 2024
- Measure: External data collected and collated via data sensors installed in retrofitted homes

Action:

Development Bank of Wales will run a pilot to incentivise owner-occupiers to decarbonise their homes.

Action:

We will focus efforts to encourage active and public transport trialling:

- Hydrogen Fuel Cell trains
  - Milestone: 2027
  - Measure: Evidence of a trials
- Zero-emission taxi pilots and car clubs
  - Milestone: 2023
  - Measure: Trial currently underway in Cardiff Capital Region (CCR) – due to complete later this year
- E-bike rental schemes
  - Milestone: 2023 to 2025

- ◦ Measure: Trial currently underway
- Electric vehicle charging (especially on street trials) and rurality
  - ◦ Milestone: 2024 to 2026
  - ◦ Measure: Evidence of trials
- Road surface innovation
  - ◦ Milestone: Trials currently underway
  - ◦ Measure: Evidence from trials

Goals: Innovate to accelerate the development and take up of renewable energy generation and storage.

Action:

We will apply a whole system approach to innovate pre-market decarbonisation solutions to test and prototype new power generation and storage approaches essential for grid stability and integrating renewable energy into the grid.

- Milestone: Launch of Whole Systems Research and Innovation for Decarbonisation (WSRID) SBRI annual fund Spring 2024
- Measure: Carbon emission reductions
- Measure: Commercialisation and investment target metrics %

Action:

This will include focus on developing new innovative ways of delivering integrated hydrogen storage, carrier media (such as ammonia), distribution systems and the associated supply chains for developing the Welsh hydrogen economy and its potential value chain.

Storage and distribution supply chain innovation includes pipelines and vessels,

on-vehicle transport, storage tanks and surface infrastructure, monitoring and system controls and also refuelling and blending.

Goal: Reduce current levels of air quality pollution, including ammonia pollution

Action:

We will support the development and testing of new technologies and methods to reduce air quality pollution in Wales, using the grant and procurement mechanisms.

Action:

We will work closely with organisations in the area of ammonia emissions, to support the development and uptake of new technologies, such as bacterial treatment.

- Milestone: 2030 – 16% reduction
- Measure: Ammonia emissions

Goal: Reduce current levels of water pollution, including nutrient levels in water courses and other forms of surface water pollutants.

Action:

We will support the development and testing of new technologies and methods to reduce water nutrient pollution in Wales, using the available grant and procurement mechanisms.

- Milestone: 2023-24 Water Quality Capital Grant Scheme
- Measure: Nutrient levels and water quality – relevant to innovation activity

Action:

We will consider new methodologies for measuring pollution levels and removing pollutants, preferably at source, before entering our waterways.

Action:

We will work closely with relevant stakeholders to support the development and uptake of new technologies, such as nutrient recycling and nature-based solutions.

Goal: Embed nature recovery within all of our innovation activities

Action:

We will develop principles for responsible investment to ensure that any innovation funding awarded supports our ambitions for nature recovery. This will be built in to our funding award letters and contracts.

Appendix 1: Health and care priorities and innovation challenge statement list

Welsh Government priorities	Innovation challenge statement
1 Developing a closer relationship with local government to tackle the issue of delayed transfers of care	Identify innovative solutions to enable people to stay in their own homes safely for longer & reduce the time to discharge to home / care. Reliability, availability and sharing of data across health & care organisations to improve care, treatment and reduce unnecessary delays in transfer.
2 Primary and Community Care	Primary care innovation that enables diagnostics / treatment to prevent referral into secondary care. Community Care innovation to enable people to stay in their own homes safely for longer through their recovery.
3 Urgent and Emergency Care	Innovation that reduces demand on urgent and emergency care by reducing preventable attendances (e.g. community acquired pressure damage & falls). Innovation to improve flows of data and patients within the system, reducing delays to handovers and system transfers throughout the system.
4 Planned Care and Recovery	Innovation to enable treatment through less invasive or alternative procedures and support improved speed of recovery at home. Innovation to increase capacity and quality within planned

Welsh Government priorities	Innovation challenge statement
	care.
5 Cancer	Innovation which increases the access to, and speed of cancer diagnostics and improved treatment outcomes.
6 Mental Health and CAMH Services	Identify innovations which improve access and availability to mental health resources and services. Developments which support early intervention and prevention.
7 Cross cutting: preventative health through technology	Innovation using of data and technology which focuses on preventative health interventions and enables healthier communities (weight management, diabetes, smoking cessation, substance misuse) improving people's ability to live well for longer, outside of the healthcare system.
8 Cross cutting: screening and diagnostics	Innovations which deliver improvements to availability and capacity of screening and early identification / diagnostic of health issues and disease.
9 Cross cutting: sustainability of workforce and environment	Innovation to ensure the sustainability of the workforce (through staff attraction, staff retention, increased morale/ motivation) and environmental sustainability where our impacts on natural resources are reduced.