

Cyngor Cyllido Addysg
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Higher Education Funding
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Research and Innovation: The Vision for Wales

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Noddir gan
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The Research Wales Vision Statement

Wales will maintain and develop an excellent research base within its universities. Our research base will support innovation that boosts productivity in Welsh businesses, delivering economic prosperity and social wellbeing for the people of Wales. It will make a vital contribution to Welsh Government's Economic Action Plan and the delivery of the UK Government's target of 2.4% of GDP expenditure on research and development.

The Welsh research base will be global in perspective. Our universities will continue to collaborate with each other and with research leaders across the UK and internationally. They will work to maintain and enhance partnerships with industry, with the public sector and third sector organisations.

Universities in Wales will have a strong sense of place. Research activity will respond to challenges specific to the local region, engaging local communities to create new solutions. Their work will be understood and appreciated by the local community and have relevance across Wales, the UK and the world.

The Vision for Wales

Our Vision for Research and Innovation in Wales is built upon four thematic pillars:



Excellence: a research base recognised for its outstanding quality; internationally excellent in identified areas of focus; robust, resilient and sustainable.



Place: a clear focus on partnership and clusters; a confident contribution to the regions of Wales; a strong sense of civic responsibility; visibility, involvement and active engagement with local communities.



Innovation: innovation, enterprise, entrepreneurship and skills development activity that can transform Wales' productivity; new ways of working that support innovative approaches to applied research and partnership funding.



Collaboration: collaborations that link expertise in universities with key anchor companies, SMEs, the public and third sectors and with further education institution partners; collaborations that grow critical mass within Wales and build new partnerships across the UK; collaboration with international researchers and organisations.

With these pillars setting the context of the research landscape in Wales, HEFCW, working with partners and stakeholders, will deliver a thriving community of challenge, change and achievement that will meet economic, social and civic ambitions across Wales, the UK and the world.

The Four Key Pillars



Excellence

- Wales will be recognised for high-quality research which advances knowledge and generates ideas that lead to the products and innovations of the future.
- Wales will support a more systematic approach to exploiting the multiple pathways between research and the economy.

A research base recognised internationally for its excellence, quality and impact is our starting point. All activity, from curiosity-driven research to highly applied development, will be recognised for its quality and contribution. Research environments will be strengthened via a culture that promotes and supports integrity, diversity, inclusivity and researcher mobility. Interdisciplinary teams will flourish, applying a range of expertise (arts, humanities and social sciences as well as STEM) to real-world challenges.

The university research base will be placed on a sustainable footing to enable it to be responsive to emerging challenges. Wales' research groups will attract and retain the best researchers from across the world. With all of this in place, university research will contribute to increased productivity in the industrial base and increased wellbeing for the people of Wales, ultimately raising the economic and social prosperity of Wales.



Place

- We will support areas of distinctive strength and expertise to build further on these in communities, regions, national and international places.
- Wales will be promoted internationally as a place for world-leading and influential research and innovation, receptive to new relationships and exploiting our local expertise and worldwide reach.
- Universities and other HE providers will articulate clearly their role in civic mission and community engagement.

Universities in Wales are global players, but are also grounded in their locality. A strong sense of place is critical to the contribution they make to the success of Wales, and our ambitions for the economy and for our communities. Our universities will be recognised as primary contributors to the regions in which their campuses are based, with strategies rooted in a coherent view of the needs of those places.

They will draw together business-focused partnerships within recognised areas of strength to attract funding from highly competitive sources, such as *UKRI's* (UK Research and Innovation) *Strength in Places* and the *Industrial Strategy Challenge Funds*. They will articulate and embrace their civic mission and role, engaging actively within their local communities and involving the public in their research activity. They will ensure that research outcomes benefit their teaching and curricula.



Innovation

- Wales will be recognised as a leader in innovation, enterprise and entrepreneurship and skills development.
- Wales will make a vital contribution to the delivery of the UK Government's target of 2.4% of GDP expenditure on research and development by 2027 and Welsh Government's Economic Action Plan.

Underpinned by a strong research base and excellent practice in knowledge exchange, Wales will be recognised as a leader in innovation, enterprise and entrepreneurship and skills development. Activity will be delivered jointly by universities, further education institutions, business, industry, community partners, the public sector and the third sector, exploiting innovation in delivery and embedding resilience through creative approaches for delivery.

Innovative approaches to applied research and partnerships will attract industry and government funding, and make a significant contribution to the UK's research and innovation infrastructure, and delivering both the UK Government's target of 2.4% of GDP expenditure on research and development by 2027 and Welsh Government's Economic Action Plan. The contribution of the research base to increased productivity in the economy will be recognised and celebrated.



Collaboration

- The Research Community will be collaborative, outward-looking and global in perspective.
- Successful partnerships with industry, including SMEs and the public/third sectors, will be a key feature of Wales' success.

Collaboration and partnership working is key to delivering increased productivity, building trust and delivering success. It is fundamental to the Welsh Government's ambitions set out in the *Well-being of Future Generations (Wales) Act 2015*.

Researchers in Wales will tackle grand challenges through collaborations with universities, key anchor companies, SMEs and public and third sectors. They will develop stronger relationships with further education to ensure a pipeline of skilled workers for innovation-led business. Collaborations between university research groups in Wales will ensure a sustainable critical mass (both strength and depth) in our research base.

At the same time, Wales will be outward-looking and global in perspective, building new and strengthening existing partnerships across the UK and collaborating with international researchers and businesses, for example via European and international networks.

Delivering the Vision: Roadmap for success

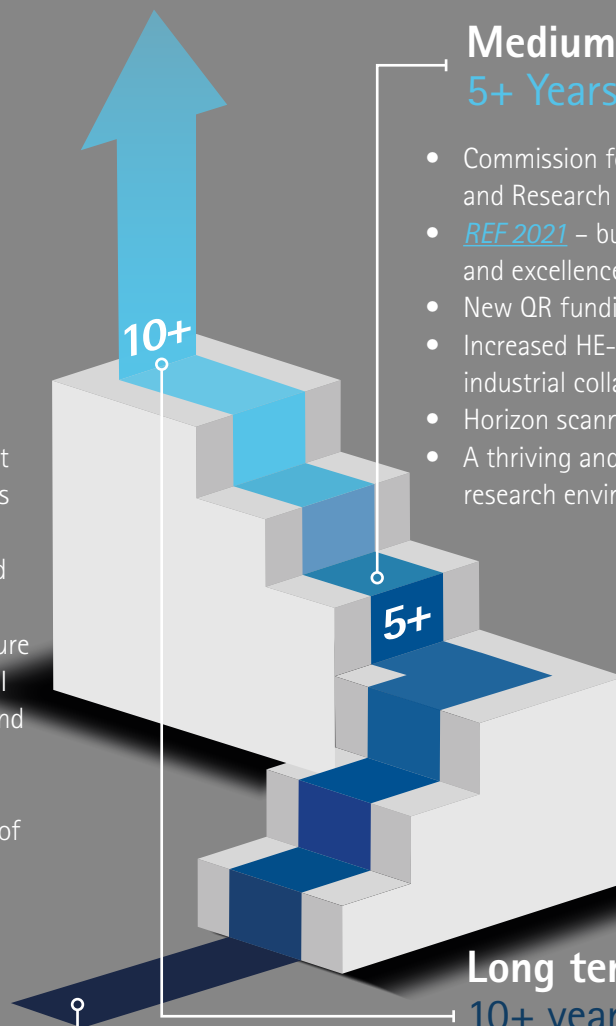
The roadmap for success builds on the advice of HEFCW's Research Wales Committee, and the recommendations of both the [Review of higher education funding and student finance arrangements \(Diamond Review\)](#) and the [Review of Government Funded Research and Innovation in Wales \(Reid Review\)](#). We will develop our role as an influencer, building a strong relationship with UKRI and other key funding or influencing bodies. In the near future key ambitions include:

- Supporting the R&I base by maintaining in real terms HEFCW's formula funding for research (QR). This recognises both the quality and volume of research in Wales. The QR funding that HEFCW provides to universities in Wales is part of the UK dual support system for research.
- Reinstating innovation and engagement funding. This fund will boost the sector's capacity to collaborate with industry and the public sector by providing additional support for institutional infrastructure.
- Working with Welsh Government to establish the Future of Wales Fund to reward and incentivise external (e.g. UKRI) grant capture.
- Continued engagement with European structures, working with Welsh Higher Education Brussels and adapting to the changing research and innovation context.
- Developing proposals for Innovation Hubs making a compelling case for funding based on the outcomes which could be achieved.
- Exploiting infrastructure investment from UKRI in line with support given for the establishment of interdisciplinary research institutes and Catapults.
- Monitoring the financial sustainability of the research and innovation base in universities using data (e.g. TRAC, HESA, HEBCI and [REF](#) and possibly [KEF](#) outcomes) and through direct engagement with universities.
- Working with Welsh Government to establish a new Commission as the single regulatory body for higher education and further education, providing opportunity for greater collaboration between HE and FE in innovation activity.

Delivering the Vision: Goals, milestones and ambitions

Short term goals

- Establish Research Wales – a fit-for-purpose Committee which will be recognised as the voice of Welsh R&I and enterprise
- Maintain QR funding in real terms
- Establish the Research Wales Innovation Fund
- Work with Welsh Government to establish the St David's Investment Fund and support Innovation Hubs
- Work with Welsh Government to establish the Future of Wales Fund – additional QR funding to incentivise and reward grant capture
- Strengthen engagement with UKRI – ensuring Wales' voice is heard and increasing sector's competitive success in securing funding
- Monitor health and sustainability of the university research and innovation base drawing on the National Measures for Higher Education performance
- Engage with and support Wales Higher Education Brussels



Medium term milestones 5+ Years

- Commission for Tertiary Education and Research established
- [REF 2021](#) – building on reputation and excellence
- New QR funding model introduced
- Increased HE-FE industrial collaborations
- Horizon scanning
- A thriving and supportive research environment

Long term ambitions 10+ years

- Wales recognised as international leader in identified areas of strength – e.g. based around Innovation Hubs
- Strengthened Welsh participation in national, European and international research programmes
- Increased capacity – number of researchers (HEI and industry)
- Flagship institute established in Wales



Delivering the Vision: Challenges and factors

To deliver the Vision for Wales, the research base within universities in Wales need to be appropriately resourced in order to maximise leverage of funding from UK Research and Innovation and other significant funders. Our universities need to be able to recognise and capitalise on their distinctive areas of expertise and create opportunities to exploit investments made by industrial partners.

The challenges and opportunities that universities in Wales face fall under the four pillars of Excellence, Place, Innovation and Collaboration. Taken together, the Vision sets a clear ambition to deliver economic and social prosperity for Wales, in the context of the well-being of future generations.



Delivering the Vision: Context

i) Policy Context

The UK Government's Industrial Strategy with its emphasis on a balanced economy, and the Welsh Government's Economic Action Plan seek to improve economic prosperity and support social wellbeing across all regions. The Well-being of Future Generations Act in Wales goes one step further, emphasising the need to match economic prosperity with long-term sustainability. The research and innovation base in Wales is essential to the delivery of UK and Welsh Government ambitions.

The next generational period will bring fundamental technological and social changes. These will include increased life expectancy and an ageing population; growth of artificial intelligence, increasingly impacting on employment at higher skills level; decarbonisation of energy sources (electric vehicles, wind, tidal and solar power, nuclear energy); increased pressure on natural resources; impact of climate change and population growth, including implications for food security. The research and innovation base in Wales must clearly articulate its strengths, and work with agility and flexibility so that it can contribute solutions to these challenges.

This Vision supports HEFCW's Corporate Strategy and Well-being of Future Generations objectives.

ii) Strengths¹

Wales has strength in its scale and geography as a nation: small enough to collaborate effectively, and diverse enough to reach broadly across areas of challenge. The robust position of the research and innovation base serves to enhance these strengths.

- Research in Wales is high quality as demonstrated in the 2014 Research Excellence Framework, where over three quarters of the work submitted by universities in Wales was rated world-leading or internationally excellent. In terms of the impact of our research, half was judged to be world-leading in terms of its reach and significance on the economy or wider society.
- The [King's College London report, 'Impacts of academic research from Welsh universities'](#), found considerable interdisciplinarity between research disciplines and impact areas, with 20 of a possible 36 disciplines felt to be informing government policy. This demonstrates the strength of Wales' diverse research and equally diverse impact which will be crucial to finding solutions to the challenges outlined above.

1. For further details see [Wales and the World](#) (Learned Society for Wales)

- Research from Wales is highly influential. Analysis has shown that Wales' share of the top 1% highest cited papers is over twice that expected based on its overall publication share², exceeding England, Finland, Norway, New Zealand and Ireland in terms of field-weighted citation indices.
- Wales is home to a large SME base, as well as global companies that collaborate closely with universities to ensure that research strengths are applied to real world change, creating jobs, growth and wealth in the economy.
- Wales is both international and local in its outlook. Universities and businesses have secured more than €100m in Horizon2020 funding, which supports world-class collaborative science and innovation. Universities in Wales have been instrumental in delivering priorities for Wales via collaborative projects funded via European Structural and Investment Fund projects (over £570m channelled via universities since 2000). Through these successes, Wales has been able to deliver world-leading research and innovation across Wales in the areas that need it most.

iii) Challenges

Wales, and the UK, is in a significant period of change. Our challenge is to deliver a resilient research sector that can respond to the breadth of change and harness the opportunities.

- Wales' shortfall in the number of STEMM researchers compared with other countries of the UK, is estimated to be around 600³ researchers. We need to be imaginative in how we build sustainable capacity in our research base.
- Wales has a high volume of SME businesses, bringing creativity, vibrancy and opportunity for our research to effect real and relevant change. However, these organisations are often limited in their R&D capacity. We must create a research culture that is accessible to all organisations and builds research capacity within organisations as well as universities.
- Future arrangements for equivalent funding through the Shared Prosperity Fund after Brexit are currently uncertain. We will work closely with partners to ensure Wales is well positioned to exploit new funding.

2. International Comparative Performance of the Welsh Research Base (2016)

3. [The Case for Growing STEMM research capacity in Wales](#)

iv) Opportunities

Against this background, there are a number of opportunities for the research and innovation base in Wales.

- Additional investment of £4.7 billion a year for R&D by 2021 to underpin the UK Industrial Strategy.
- New UK-wide funding streams, including Industrial Strategy Challenge Fund and Strength in Places Fund.
- In response to the Diamond Review and the Reid Review, the Welsh Government's commitment that universities should be adequately resourced so that they can compete effectively for external funding from UKRI.
- The UK Government's commitment to work with industry to boost spending on R&D to 2.4% of GDP by 2027. This will include opportunities through their public investment in R&D and through policies designed to improve the research base's collaboration with industry in order to grow and attract private investment in R&D.
- Welsh universities are central to four of the Science and Innovation Audits, which identify areas of academic excellence on a regional basis where there is good fit with industrial capacity. We must take full advantage of the work that has led to these audits and continue to play a key role. Ensuring alignment of some funding to optimise this academic-industry capacity match would be necessary.

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