



## **Draft Innovation Strategy – Learned Society of Wales Response**

### **Introduction**

The Learned Society of Wales welcomes the opportunity to respond to the draft Innovation strategy for Wales.

The Learned Society of Wales is Wales’s national academy for arts, humanities, and sciences. Our Fellowship brings together experts from across all academic fields and beyond. We use this collective knowledge to promote research, inspire learning, and provide independent policy advice.

In the last year, the Society has [convened six roundtable discussions](#), bringing together innovation experts, practitioners and leaders to consider a programme of activities to help inform and improve [innovation policies and practices in Wales](#). This timely programme reflected on the developments at UK-level, including the UK Innovation Strategy; the HM Treasury’s Comprehensive Spending Review 2021 which made a strong commitment to increasing R&D funding to £20 billion by 2024-25; and the UK Government White Paper on Levelling Up which underlined the ambition that an increased proportion of government spending on R&D over the next three years is invested outside the Greater South East of the UK.

The discussions brought in experts from places and projects that do innovation well in order to share their knowledge and experience, and to prompt reflection on how Wales could improve its approach to innovation.

The Society’s response draws on these discussions to inform this submission.

### **Executive Summary**

The new Innovation Strategy for Wales provides a platform to do things differently.

It offers the opportunity to develop and project a distinctive narrative which should both draw on, and inform, the values and aspirations at the heart of an Innovation Strategy for Wales. One of the strengths of small nations is the capacity to develop a coherence of action across key stakeholders. The Innovation Strategy for Wales needs to capture some of the potential ways in which actors beyond Welsh Government might contribute to this national agenda.

This submission highlights the potential of the innovation commons approach for Wales, which could function as a means of connecting interfaces, a ‘missing link’ to bring together the disconnected innovation actors and institutions from across the private and public sectors in Wales.

This response highlights the importance of Wales's universities in the innovation ecosystem and the role of the new Commission for Tertiary Education and Research to support the sector to further develop research and innovation capacity.

## Question 6

### What new actions are needed from the Innovation Strategy?

#### Narrative

One of the key recommendations in a recent [report](#) scoping innovation policy in Wales was that the next national innovation strategy 'needs to be founded on a compelling and inclusive narrative that can act as a catalyst for activity, promoting the innovation agenda and the nation'. We reiterate the importance of narrative and the projection of an authentic and distinctive identity, and propose that the development of this should be a key aspect of the new Innovation Strategy. This narrative should both draw on, and inform, the values and aspirations at the heart of an Innovation Strategy for Wales.

The Innovation Wales Strategy (2013) emphasised the importance of 'promoting a culture of innovation' and that developing a better narrative around innovation in Wales would contribute to strengthening this culture. In 2022 there remains a need for improving the narrative and visibility of the innovation activity that is taking place in the nation; there are pockets of strength and successes that can be given greater prominence. There is a balance to strike, however, as some of the successes are relatively modest in comparison to innovation activities elsewhere in the UK. Nonetheless, an innovation narrative that both captures and builds from Wales' current strengths will be a valuable component of the strategy.

#### Benefits of a small nation

Small nations often have the advantage of a strong sense of identity and distinctiveness. They also have considerable potential to be agile – it can often be easier to convene people and organisations from across the nation, find common cause and foster collaborations. Activities in small nations need not necessarily be limited in ambition, nor in impact. The goals of the Wellbeing of Future Generations Act provide a framework for the conceptualisation of long-term mission challenges which could contribute improving the lives of the people of Wales and provide intervention models that could be adopted in other nations and regions. It is more questionable whether these goals provide an appropriate structure and set of objectives for mobilising the innovation strategy.

One of the strengths of small nations is the capacity to develop a coherence of action across key stakeholders. The innovation strategy for Wales needs to capture some of the potential ways in which actors beyond Welsh Government might contribute to this national agenda. For example, the triple helix framing or the MIT REAP approach both identify the key roles played by a variety of actors in innovation ecosystems. Wales could project itself as a crucible of innovation in its broadest sense, to better secure investment and to encourage and support innovation activity. The narrative would thus need to recognise the wide range of actors – and potential actors – and demonstrate the impact of innovation. This would contribute to an increased awareness of the potential of innovation, and engender a sense of belonging and inclusion.

Wales's narrative of innovation should be grounded in reality *and* reflect the values and level of ambition needed to see a step change in Wales' innovation culture and innovation activity.

## Question 8

**What are the main challenges and barriers to innovation in Wales? What needs to be done to overcome these barriers?**

The innovation system in Wales would benefit from:

- increased capacity, including infrastructure
- better coordination and connectivity to enable collaboration
- and a more coherent voice and narrative.

### **Capacity and infrastructure**

The Welsh innovation system as it stands does not have capacity in terms of infrastructure – both hard and soft – to win funding through competitive bids, nor absorb a significant uplift in external investment. There is a need for a continuing intervention to create a stronger base in terms of:

- physical infrastructure and facilities
- people, talent and skills,
- building in the ability to scale up to absorb future growth in grant capture.

Universities play an important role in Wales's innovation. Research from Welsh universities has a [transformational effect on society as well as the economy](#) and these activities make a vital contribution to the goals of the Well-being of Future Generations Act. The significance of research and innovation goes beyond economic impact – research from Welsh universities generates ideas and inventions which make a difference to people's lives in Wales, the UK and the rest of the world. ERDF investment brought significant investment and benefits, but as Wales was at a relatively low base, there is more to be done

*The Review of Higher Education Funding and Student Finance Arrangements in Wales* recommended that a 'dual support system' for innovation be developed, along the lines of the QR research funding for university research; in this way, universities receive formulaic core funding in order to provide the basis from which applications for competitive project funding can emanate.<sup>1</sup> This recommendation deserves to be revisited. A dual support system for innovation would help to increase innovation capability – in terms of hard and soft infrastructure and capacity – and provide a stronger position from which to pitch for competitive project funding.

A key element for successful stimulation and delivery of innovation is well-developed hard infrastructure, with innovation districts, knowledge quarters and science parks having the most potential. M-Sparc and AberInnovation demonstrate the potential of university-led science parks, connecting academic research and businesses, focusing on specific strengths, and providing business support and incubation. Both projects are beyond the south Wales M4 corridor and are important interventions for supporting high skilled and well-paid jobs in rural Wales and the Welsh language heartland. Both parks are rooted in their community, promote retention and return of talent, drive innovation and stimulate regional economic development. In our roundtable discussion, the possibility of developing a network of such initiatives to both build visibility and 'sharpen' Wales' innovation offer was discussed.

The innovation strategy would benefit from an integrated talent strategy, to address issues regarding skills, the pipeline of talent progression, talent retention, and encouraging businesses and organisations

---

<sup>1</sup> [The Review of Higher Education Funding and Student Finance Arrangements in Wales Final Report](#); p17

to innovate. The European Union's Smart Specialisation programme of regional development provides a wide range of models, good practice and lessons learned, that Wales could consider to inform the deployment and implementation of the strategy.

### **Coordination, Connectivity and Collaboration**

Communication and connections between sectors within Wales is patchy, and there are relatively few opportunities to create and nurture new links and exchange knowledge. It can be difficult for sectors and organisations beyond higher education to identify potential opportunities and collaborations. The recently launched Wales Innovation Network provides foundations for Welsh universities to strengthen and develop collaborative projects across Wales.

There are examples of successful regional networks within Wales; the Cardiff Capital Region sees itself as a connector of people, their ambitions and opportunities, and as a catalyst for continuity investment, underpinned by a focus for creating the conditions where businesses and people are best equipped to embrace the future. Its cluster groups operate with a networked leadership and, along with internal strengths, there are emerging areas of potential at the intersections of the clusters. There is as yet no strong Wales-wide cross-sectoral equivalent and the Commission for Tertiary Education and Research will have an important role in facilitating improvement in this respect.

In comparison, the Scottish research and innovation system has a dense grid of interconnected networks which links universities, industry, government and the public sector. Within this system there are multiple opportunities to develop connections. Individual networks can clearly explain their remits, which in turn sends a positive message to potential stakeholders about openness and readiness for collaboration. A network of networks within Wales would contribute to realising the potential of knowledge exchange and collaboration.

Universities are research generators, and are also enablers, conveners and catalysts; their civic mission activities can help to support stronger innovation ecosystems. But in order to maximise this capability, universities may need to change their approach, and potentially invert usual practice.

Similarly, questions have been raised about Welsh universities' capacity to deliver innovation-led research. Activity that is informed by societal challenges, such as climate change and health social care, can provide the impetus for new ways of undertaking research and innovation.

The intersection of civic mission and innovation is a space to identify problems and work to develop solutions. Wales's Civic Mission Framework is an important first step, and has supported the development of a number of initiatives across the sector. The establishment of the Commission for Tertiary Education and Research provides the opportunity to align aspects of HE civic mission with innovation activity, and there are examples of the successful implementations of this approach.

For example, the **Greater Manchester Combined Authority Civic University Agreement** is a joint action plan between five regional universities (University of Manchester, University of Bolton, University of Salford, Manchester Metropolitan University, Royal Northern College of Music) and the office of the mayor of the Greater Manchester Combined Authority. The ambition of the agreement is to break down barriers and improve the lives of residents of the area. Extensive research was undertaken to determine the priorities, including a survey that sought to understand the key socio-economic concerns of residents, as well as whether and how they value the universities in the region. The agreement recognises the uneven economic geography and disparities in life expectancy within the Greater Manchester region, acknowledging that poor health leads to poor productivity. The initial action plan includes:

- a focus on six priority areas of action: reducing inequalities, education and skills, jobs and growth, the digital economy, net zero and the creative and cultural economy.
- business schools collaborating to increase leadership and management skills with the regional SME base;
- sharing best practise on technology transfer out of the universities;
- supporting the new regional organisation, Innovation Great Manchester, a private-public partnership with a remit to increase innovation and productivity, drive progress and deliver the region's innovation vision.

The Welsh HE sector also has significant potential to support innovation and economic development across Wales. However, too often, those interested in pursuing innovation are unsure of how to engage with the innovation ecosystem. Capacity for innovation within Wales's SMEs, public sector and third sector organisations is often limited, and although there is appetite to innovate there are often constraints in terms of resource. This is a further reason why the innovation strategy needs to engage with the wider set of actors that constitute the national innovation ecosystem.

An organisation similar to Scotland's **Interface - The knowledge connection for business** could facilitate the development of connections between industry and the third sector and Wales's HE, FE and research sectors. Interface is a hub connecting organisations from a wide variety of national and international industries with all of Scotland's universities, research institutes and colleges. Interface is funded by the Scottish Funding Council and Enterprise Scotland. It works with organisation of all sizes, in all sectors, to match them to Scotland's world-leading academic expertise to help them grow. It also facilitates clusters of businesses and academics working together to tackle industry sector challenges, and helps organisations access funding options to offset the costs of their projects. In facilitating business-academic collaboration, its work supports economic and societal benefit; stimulates businesses and third sector organisations that want to access research and expertise within the universities; and encourages the research community to be well placed to respond to these requirements.

A Wales equivalent of Interface could help to improve connectivity, enabling businesses, the public sector and the third sector to access research and knowledge within the HEI sector. This could create an efficient and supportive space for knowledge exchange. This would support CTER's strategic duties for civic mission and the encouragement of competitive and collaborative research as outlined in the Tertiary Education and Research (Wales) Act 2022.

### **Coherent Voice and Narrative**

While diversity is crucial to innovation, Wales would at times benefit from a more coherent voice and more of a 'Team Wales' approach, both when mobilising in response to opportunities, and when presenting itself to external stakeholders and audiences. At the same time, Wales needs to become more proficient in learning from, and sharing, effective practice. We need to develop our innovation capability to the level of the most effective actors and share the practical lessons of how to do that.

A national innovation body may be one mechanism to address some of the issues raised in this response, in particular the sharing of effective practices, the promotion of an ambitious innovation narrative and the convening of collaborations. It would not necessarily need to be a government agency, and would potentially be a useful mechanism to help mobilise across sectors and institutions in support of the development of 'big ideas' in consultation with Welsh Government. It could also play a role in spotting emerging opportunities, supporting retention of talent and instilling an innovation culture and supporting and developing the innovation commons of Wales (see below). Such an organisation could also have a lead role in promoting Wales as an innovative nation.

## Question 16

**The strategy aims to create a culture of innovation in Wales, one which collaborates, shares risk, encourages participation and supports the ecosystem to innovate. What does an innovation culture mean to you? What is needed to develop an innovation culture in Wales?**

Wales's innovation potential does not easily translate into impact or implementation. Culture could be one reason for this, in particular a lack of effective connectivity and relatively weak networks between the various actors and groups within the innovation ecosystem in Wales. Innovation commons could be a useful means of connecting interfaces, a 'missing link' to bring together the disconnected innovation actors and institutions in Wales. It is a cultural solution to innovation issues.

### **The potential of an innovation commons approach**

The [innovation commons](#) is a new theory of innovation, which considers the initial emergence of new innovative activity. Innovation commons emphasises the processes of cooperation and resource pooling as preconditions for how classically understood industrial innovation begins to happen. The concept of innovation commons is thus defined as a space and a means for sharing data, knowledge and information. This includes where value has yet to be determined, in order to facilitate learning and discovery. The innovation commons space also provides opportunities for venture capital to join collaborations at an early stage.

At the heart of innovation commons theory, is the recognition that in order for innovation to happen, resources need to be shared in a space (or via a network or institution) that enables people to cultivate connections and trust and to play with the ideas in a more spontaneous way. One of the key ingredients of intangible capital within innovation commons is long term high trust relationships between individuals, which is key for collaboration. For example, lessons learned from [EU Smart Specialisation programme](#) (an innovation-led territorial development) indicates the [disparity in the level of trust between various regions within EU](#), which affected the ability of low-level trust regions to progress with the development and implementation of innovation activities.

The commons approach creates a space for the intersection of domain-specific knowledge ('vertical knowledge') with place-based and local information (horizontal knowledge), providing a mechanism for engaging public sector services and organisations in innovation activities. As the public sector often has early sight of big problems, bringing their knowledge into an innovation commons space can inform and facilitate the search for impactful solutions. Open-source data is another important resource for unlocking this potential, and the public sector, as a repository of data, could work to improve access to this valuable resource. The arguments for opening up data to underpin and 'feed' innovative activity has been the [subject of valuable recent academic work](#). Investment in the skills, data and connectivity of innovation commons could usefully complement and extend the potential impact of tailored and targeted [investment in specific clusters of innovation](#). The innovation commons space also affords a stronger role for social science and humanities researchers within innovation activity to help address societal challenges.

The emphasis on the cultural and environmental aspects of innovation within the commons approach is a potential opportunity for Wales. Explicit acknowledgement of the commons as a central component of innovation strategy could offer a window to reframe Wales's innovation narrative and to create a new story about how innovation happens in Wales, as well as the results of that innovation.

## Question 18

**Alongside the final strategy we plan to publish an action plan which will address resourcing and implementation of the strategy. The Commission for Tertiary Education and Research will have a leading role to play in the implementation of the strategy, as will the Welsh Government and other bodies and partners. Wales currently does not have one lead body responsible for the coordination and delivery of our innovation system. Turning to implementation, how would you like to see this strategy implemented?**

### The role of universities in implementation

Universities are a vital part of Wales's innovation ecosystem. In 2018 and 2019, c. forty per cent of the total expenditure in Wales on research and development activity was within Higher Education, demonstrating the potential for innovation activity in the sector.<sup>2</sup>

Universities can encourage a cluster effect of agglomeration of innovation and research activity in their immediate area. However, it is often in partnership that universities are most effective, as per the Innovation Greater Manchester example above.

In a Wales context, the Compound Semiconductor Cluster demonstrates the impact such clusters can have.<sup>3</sup> A partnership that embraces Cardiff and Swansea Universities, the Cardiff Capital Region, Welsh Government and several businesses has shown what can be achieved. University research on improved design, production and characterisation of compound semiconductors encouraged key corporate decisions, for example, when international semiconductor company IQE expanded its manufacturing base and retained its headquarters in South Wales. This strategic partnership laid the foundation for further development of a Compound Semiconductor Cluster. To date, the cluster has led to investments of over £167M, introduced new companies to the South Wales region, and established a new UK manufacturing base that has supported over 1,687 jobs.

The Clwstwr and Media.cymru projects draw on south-east Wales' expertise in both research and the creative industries. Media.cymru brings together 24 organisations from across the Cardiff Capital Region, including partners working in education, broadcasting, technology, media production and local leadership. It aims to drive inclusive, sustainable economic growth and deliver an estimated additional £236 million in Gross Value Added (GVA) by 2026.

These are two examples, in this case both successes in the UK Research and Innovation's (UKRI) flagship Strength in Places Fund, which have shown that higher education, local and national government and business can mobilise effectively around innovation in Wales. The innovation strategy would usefully both highlight these examples of success and reflect directly on how further success is to be attained.

Both projects platform large scale collaborations, public-private partnerships, and draw on world-leading university research to drive forward their innovation. The Commission for Tertiary Education and Research will have a crucial role in encouraging the development of similar projects in the future.

---

<sup>2</sup> [StatsWales](#), accessed 21 September 2022.

<sup>3</sup> Economic transformation and innovation through the world's first Compound Semiconductor Cluster, [Cardiff University REF2021 Impact Case study](#)

## **Commission for Tertiary Education and Research**

The experience and knowledge within the Higher Education Funding Council in Wales in relation to the funding of research and innovation will be an important asset for the work of the Commission for Tertiary Education and Research. We hope that this invaluable resource is recognised.

The Commission and the Research and Innovation Committee will have an important role in developing research capacity in the tertiary education sector. It will distribute the unencumbered Quality Related (QR) block grant funding stream as part of this function, as well as the Research Innovation Wales fund. QR funding provides the foundation on which the competitive, project-based funding streams from other sources depend. It is an investment that helps to ensure that Welsh universities can be strong fit and agile to compete with universities across the UK for a share of research investment equivalent to the annual budget of the Welsh Government, and to bring that back to Wales.

The Commission for Tertiary Education and Research CTER's duties will include the need to support a sustainable and innovative economy, promote civic mission and encourage collaboration and coherence. This positions the Commission well to help the activities of the tertiary education sector to implement and deliver priorities the priorities of Wales's Innovation Strategy, and the opportunity to facilitate better collaboration within and across Welsh Government's research and innovation activity.

### **Private Public Partnership model: Innovation Greater Manchester**

The Innovation Greater Manchester initiative demonstrates the potential for private-public partnerships to develop innovation capacity and impact, and may offer a model to be considered within the Innovation Strategy for Wales.

Innovation GM is supported by and designed with businesses, investors, R&D organisations, universities and local and national Government. It is a platform that sets out how a long-term strategy, underpinned by public and private investment, will unlock a globally leading innovation ecosystem. The ecosystem will spur on the discovery, invention, and adoption of new technologies and business models needed to raise productivity & competitiveness, and provide solutions for big societal challenges including net zero and reducing health inequalities. It creates a blueprint for levelling up through innovation, with the capacity and capability to pilot an approach that can be replicated across the UK.

The sustainable model recognises that innovation ecosystems cannot be led by a top-down model, and that new arrangements and a collaborative private – public cross sector approach will help to ensure that investment is targeted in the right places. Innovation GM is the city-region's offer to work with UK Government to boost research and development. It has received a share of the UK government's £100 million Innovation Accelerator pilot scheme and offers a potential model that can be adopted by other regions to drive economic recovery through collaborative innovation.

### **A National Innovation Body**

As noted above, a national innovation body may be one mechanism to address the issues raised in this response, for example supporting the sharing of effective practices, the promotion of an ambitious innovation narrative and the convening of collaborations. A national innovation body could have a role to support retention of talent and to instil an innovation commons culture within the innovation system.

The innovation ecosystem needs to be understood as a heterogeneous set of actors and the strategy needs to reflect how these will need to interact. A national innovation body might offer that convening



and coordinating function, working alongside Welsh Government and its divisions to maximise the potential for innovation activity.

A particularly important aspect of its role could be in spotting emerging prospects for development, and to help develop initiatives to identify and exploit UK-level opportunities. As UK government investment in research and innovation increases in the next few years, projects will need to be ambitious and at a large scale to secure significant funding. Proposals also need to engage and align with the priorities of the UK funding agencies and councils, in particular those of Innovate UK. It could emulate the Innovate GM model to develop an offer to work with UK Government and its agencies, such as Innovate UK, to boost research and development in a way that works for Wales, working with place-based knowledge to address key challenges. Mission and challenge-oriented innovation can also offer a vehicle for coordinating activity, and could be developed and overseen by a national body, working with Welsh Government.

As we have emphasised throughout this response, Wales could be promoted as an innovative nation to both external and internal audience, and narrative is a key means of achieving this. Wales's innovation narrative should draw on, and inform, the ambitions and principles of an Innovation Strategy *for* Wales. Such an approach would be an asset in the development of a potential Wales wide Innovation Accelerator.

**This response has been prepared by the Learned Society of Wales and is informed by:**

- **The Society's 2021-22 series of roundtable discussions on *Innovation Strategies for Wales***
- **The Society's previous comments on the Tertiary Education and Research Bill and the establishment of CTER**
- **The Society's responses to previous consultations on research and HE policy**

**We would be pleased to speak further about our response. Please contact [Dr Sarah Morse](#), Policy and Public Affairs Manager**