8. Innovating innovation in the periphery: new roles for universities and public actors

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8.1 INTRODUCTION

It has been conventional wisdom in innovation policy that peripheral regions are relatively disadvantaged when it comes to innovation performance compared to urban regions which are seen to be home to more research and development (R&D) activity, to have more innovative firms, to have better skills and infrastructure, and to benefit from more developed networks, connectivity and proximity (Eder, 2018). Indeed, some have characterised the city as an 'innovation machine' (Florida et al., 2017), with urban areas representing the 'key social and economic organising units for these [innovation] processes' (p. 88). However, recent studies have shown that some peripheral areas are also able to deliver innovation (Fritsch and Wyrwich, 2021; Pugh and Dubois, 2021). Certainly, contemporary research has sought to redress the imbalance in favour of the urban in regional innovation studies, arguing that it results from an inappropriately narrow framing of innovation (Shearmur, 2015). As a consequence, arguments have been advanced which highlight more democratic forms of innovation based on stronger recognition of the role of users (Elstub and Escobar, 2019) and inclusivity in innovation processes and outcomes (Lee, 2023). These developments have been closely allied to a more capacious conception of innovation, extending beyond the technological and science-based emphasis that is most commonly associated with urban innovation ecosystems. Embracing an inclusive and socio-ecological understanding of innovation foregrounds the importance of place in innovation processes (Coenen and Morgan, 2020;: Morgan, 2019).

In this chapter, we explore recent developments in Wales with regard to innovation strategy and innovation policy at both the national and regional levels. We show that Wales and its regions have been taking a more capacious

and socio-ecological approach to innovation, and those forms of challenge- and mission-led innovation activity have come to the fore. We draw on both primary and secondary research findings, along with our active role in advising innovation strategy development in Wales through our affiliations with Cardiff University's Centre for Innovation Policy Research. Furthermore, the first and third authors hold pivotal positions as principal investigator and co-investigator, respectively, in the cooperative agreement between the university and a city region in Wales, Cardiff Capital Region (CCR), which underpins the management and delivery of the CCR Local Wealth Building Challenge Fund (hereinafter 'the Challenge Fund').

We discuss three specific examples of innovation in the periphery. First, we consider Wales's new Innovation Strategy and discuss both the processes through which it has been developed and its primary focus around four missions that lie at the heart of the devolved administration's policies and activities. Next, we present primary research, including action research, undertaken within the CCR and centred on the development and delivery of the Challenge Fund. Our third example is drawn from Carmarthenshire County Council within the Swansea Bay City Region and examines a new initiative in health and social care in the region. Our research both signals substantive developments with regard to innovation within peripheral regions and highlights some issues that warrant further consideration. In the final discussion section of the chapter, we focus particularly on deepening understanding of the role of key actors in developing and delivering innovation in peripheral innovation ecosystems.

8.2 FIRST EXAMPLE: THE WELSH GOVERNMENT'S INNOVATION STRATEGY

In March 2023, the Welsh Government launched its first innovation policy in over a decade. *Wales Innovates: Creating a Stronger, Fairer, Greener Wales* (or the Strategy) is a 58-page strategic document setting out what the Welsh Government calls 'a different approach to innovation in the future'. The Strategy acknowledges the challenges posed by recent changes in the funding landscape, most obviously the loss of European Union (EU) Structural Funds, and the shifting terrain of political relations between Cardiff Bay and London. As Vaughan Gething (the acting Minister of Economy and minister responsible for innovation within the devolved government) put it at the launch event: 'we have less control over less money'.

The Strategy is centred on four missions that are at the heart of the Welsh Government's policy making: education, economy, health and well-being, and climate and nature. The missions are sensible choices; the economy and climate change are central to any innovation strategy, while as devolved responsibilities,

education and health are natural focuses for the Welsh Government's attention. Thus, all four are priorities for the Welsh Government, and the decision to put innovation at the heart of each of them is welcome. In a report we produced as part of the advice taken on board by the Welsh Government during the development of the Strategy, we advocated bringing innovation into the centre of government activity; the responsibility had previously lain buried in the Education Department (Delbridge et al., 2021).

It is worth noting that the Strategy was developed through an unprecedented consultation exercise with public, private and third sector stakeholders across Wales's innovation ecosystem. One of the Strategy's most notable features is that it was developed by the Welsh Labour administration in collaboration with the main opposition party, Plaid Cymru. This collaboration was symbolically reflected when the then Plaid leader, Adam Price, accompanied Gething at the launch of the Strategy. At that event, Price stressed the innovative nature of the policy development process and expressed the hope that this bipartisan effort would help the new strategy withstand the short-termism of political cycles.

Collaboration is the Strategy's overriding theme, and this is seen as key to creating a 'vibrant innovation culture across the nation' (Welsh Government, 2023; p. 2). To quote the ministerial foreword: 'The underlying message of the strategy is that innovation is not an end in itself, but that developing a culture of innovation is. With such a culture, innovation becomes a tool to enrich our education, our economy, our health and well-being, and our environment' (p. 2).

However, the sections of the Strategy that report on the individual mission areas are vague about both their overarching objectives and concrete goals. There are no detailed timescales, trajectories of development, or delivery instruments set out. In short, the missions are not constructed or presented in the form that most innovation experts would associate with a missions-based approach (see for example, Mazzucato, 2018). At the time of writing, the Welsh Government is yet to reveal the accompanying delivery plan for the Strategy, but such details are likely to be necessary for the implementation of its vision and aims.

8.2.1   Lessons Learned from the Strategy

Alongside the four missions, the Strategy talks about the need to work more collaboratively with the UK Government to increase investment in Welsh research, development and innovation. This includes working with national agencies on rebalancing investment in research and innovation outside London and south-east England. To place in context, Wales has one of the weakest performing and least well-resourced R&D ecosystems in the UK (Forth and Jones, 2020).

Seeking to improve Wales's performance in securing competitive R&D funds is vital as the nation comes to terms with the loss of EU funds. Collaboration is advanced in the Strategy as the key to such success. The Strategy refers to enabling Welsh organisations, businesses and universities to form consortia to compete more effectively for UK and international research and innovation funding. In a specific step towards promoting an ecosystem approach, the Welsh Government's new incarnation of its SMART Flexible Support for Innovation Scheme (a collaboration aiming to help Welsh organisations decarbonise and develop circular economy strategy) will be open to any organisation, including the third sector, local authorities and health boards.

Another prominent element of the Strategy is the emphasis on citizens and communities and the commitment that innovation should deliver for the people of Wales. As noted above, the Strategy document does not present any overarching approach to the four mission areas, suggesting that each will develop its own goals and methods. This may be sensibly pragmatic since research has shown that one way to deliver mission-oriented policy is through the creation of 'micro-missions' that promote engagement and impact at more local, granular scales (Henderson et al., 2023), and we discuss an example of this in the next section. This local and inclusive approach is consistent with the Strategy's emphasis on putting citizens and communities at the very heart of the missions that are highlighted. The Welsh Government's commitment to inclusivity in research and innovation is reflected in the stated intention to: 'Support more people to participate in, and benefit from innovation, regardless of their demographic or where they live' (Welsh Government, 2023). Again, the question of delivering on this goal looms large.

The initial response to the Strategy has seen questions raised about *how* key actors will be supported in developing a collaborative 'Team Wales approach'. Subsequent discussions have also voiced concerns about the necessary level of investment required to address capacity and capability issues within the nation and the importance of developing, attracting and retaining talent. Another key issue in Wales's innovation agenda is the increasingly complex institutional landscape and polycentric polity of the nation. Within Wales, there are four city/growth deals covering, respectively, the Cardiff Capital Region, Swansea Bay, Mid-Wales and North Wales. Each of these has responsibility for, and strategies to deliver, economic growth for their regions. *The Wales Innovation Strategy* is largely silent on how an overarching national innovation policy can be articulated with the strategic directions of these increasingly autonomous regional actors. With this in mind, we continue our examination of innovation in Wales with an appraisal of the development and delivery of a challenge funded by the CCR.

8.3   SECOND EXAMPLE: CARDIFF CAPITAL REGION CHALLENGE FUND

Alongside emerging areas of debate on the conception of innovation and the possibilities across differing places of innovation, there has been a growing interest in challenge- or mission-led innovation policy. To some extent, this has complemented the move towards the socio-ecological dimension of innovation (Coenen et al., 2015; Uyarra et al., 2019), though critics have argued that the missions approach remains too centred on big science and a top-down nation state-level approach (Janssen et al., 2021). Given these concerns, there has been growing interest in more local and granular approaches, or what we have termed elsewhere as 'micro-missions' (Henderson et al., 2023). Such a locally developed and place-based approach is grounded in the social and institutional characteristics of the local context and draws on local knowledge in the process of policy development (Barca et al., 2012).

In this section, we report on one such locally oriented, challenge-led innovation activity: the CCR Local Wealth Building Challenge Fund (hereinafter 'the Challenge Fund'). The Challenge Fund is a £1.28 billion city deal between the UK and Welsh Governments. It was formed in 2013 and comprises the ten local authorities of south-east Wales, a region of 1.5 million inhabitants. HM Treasury's (the UK's equivalent of the economic and finance ministry) defined objectives are Gross Value Added (GVA) uplift, additional investment and jobs. However, the Challenge Fund seeks to bring together economic and social objectives in its activities, and the Challenge Fund is one such example.

The Challenge Fund has been developed and delivered in a partnership between Cardiff University and the CCR, with the present chapter's first and third authors playing central roles. It commenced in late 2020 and was developed in part at least as a response to the COVID-19 pandemic and is centred on addressing societal challenges in health and well-being, sustainability and decarbonisation and on transforming communities. The Challenge Fund is a bespoke, new scheme that draws on a challenge-led innovation approach in seeking to create new commercial opportunities for businesses within the region and beyond while addressing specific challenges. It focuses on seeking to identify innovative solutions to problems experienced by the public and third sectors. A sister programme of capacity development in public sector innovation funded by the EU and delivered by Cardiff University, Monmouthshire County Council and Nesta Cymru has complemented the Challenge Fund. The overarching goal across the initiative is to deliver solutions to individual challenges but also to develop greater capacity and capability for challenge-led innovation in the public sector and more widely in the region (for a more detailed discussion, see Henderson et al., 2023).

The Challenge Fund is both a partnership for innovating in policy terms and a foundation for further collaboration to deliver innovation in practice. For example, the first challenge that was supported involved partnering with Cardiff and Vale University Health Board and the Welsh Government's Centre of Excellence in Small Business Research Initiatives. The 'tracheostomy challenge' resulted in funding for two small technology firms that developed virtual reality and immersive technology solutions to the challenge of training medical staff in clinical procedures during the COVID-19 pandemic. A second health-related challenge, also being undertaken in partnership, is addressing waiting lists for endoscopy procedures, while other challenges have focused on net zero and the resilience of local food supply chains.

8.3.1 Lessons Learned from the Challenge Fund

There have been a number of lessons learned from the programme to date. The first is that collaboration and partnerships are central to delivering local 'micro-mission' challenges on a budget. The second is the important role that the university can play as a convening actor, bringing together local actors and providing a 'safe space' for developing experimental innovation policy. However, a key third lesson is that it has not been easy to develop these collaborations. This is a particularly acute issue given the time and resource constraints faced by both the public and private sectors. These issues have also been relevant to the development of a wider community of practice interested in learning more about challenge-oriented innovation. Nonetheless, we have made some progress on this front, and after a series of workshops, we held our first conference titled 'Challenge-led Innovation: Delivering on the promise?' to bring the community together in March 2023. This had a delegate list of 80 people from across the public and third sectors, alongside academics and policy makers, and was oversubscribed by 50 per cent, demonstrating the increased interest of various stakeholders to be involved collaboratively in this space.

Discussions at the conference drew together a number of key considerations in delivering challenge-led innovation in particular and taking a place- and problem-based approach more generally. Three tensions were highlighted. First, the question of temporality of activity and the pace of attempted change. Amongst the delegates, there was recognition of the urgent need to address some of the major societal challenges being faced in the region, but at the same time, it was acknowledged that patience amongst funders and participants is needed to develop the social and relational underpinnings required for effective collaboration. It was also recognised that there is a need to eschew an overly short-termist approach given the complexity and uncertain nature of many social and ecological challenges. Second, as noted above, the research

literature has begun to unearth some key questions about how to mobilise a missions approach, and there is a significant consideration with regard to the appropriate scale of ambition and action. Delegates recognised that in seeking an ambitious and broad-based impact, it is necessary to develop sufficiently well-focused, granular and locally informed initiatives. A third and related issue is with regard to mobilising key and powerful local actors, which is crucial in seeking to create meaningful and systemic change, while also seeking to be inclusive and democratic so that innovation activity is designed to benefit the peripheral and disenfranchised in our societies. In practice, this will be a key challenge for the Welsh Government in seeking to deliver their innovation strategy. Conceptually, this reminds us that 'peripheral' must be understood as practically relevant *within* regions as well as a property of regions.

8.4   THIRD EXAMPLE: CARMARTHENSHIRE COUNTY COUNCIL'S INNOVATION STRATEGY

Our third and final example is the innovation strategy of Carmarthenshire County Council (CCC), which was launched in May 2023. Carmarthenshire is a peripheral region in south-west Wales. It is small, with a population of under 200,000, and rural, being one of the less densely populated regions of Wales. Nonetheless, the CCC has been a proactive local authority in addressing the twin threats of Brexit and COVID-19, establishing an independent Business Advisory Group to advise on a post-COVID-19 economic recovery strategy (CCC, 2021). The CCC commissioned the present chapter's authors to undertake research into the innovation opportunities in the region and provide a series of recommendations for how to take these forward. The broad objective of the work was to identify proposals to support the recovery and restructuring of Carmarthenshire's economy through innovation. Specifically, the aims were:

- To explore the contribution of certain key sectors: the role of the county council and the wider public sector, especially with regard to the use of public sector spending power to support innovation; and
- To focus on the foundational economy, health and well-being, digital innovation, and the impact of climate change and the prospects of a green recovery by harnessing the potential of the circular economy.

These objectives were informed by local place-based characteristics and an explicit acknowledgement that the foundational economy and public sector are both central to the economy of the region. To put this into context, the GVA figures for the county are below the Wales average (Morgan et al., 2022).

As with our two previous examples, a core component of the CCC's Innovation Strategy is collaboration. With the demise of EU support, one concern for the county was the securing of future funding for innovation activity and business support. This necessarily requires an understanding of the regional innovation ecosystem in West Wales, that is, the place-based networks through which local partners work collectively to achieve what none can deliver on its own. Although CCC has done relatively well in securing resources from schemes such as the UK's Levelling Up Fund and Community Renewal Fund, these amount to relatively modest levels, and the future will require more concerted and collaborative efforts; here the three key public sector organisations – the local university, the health board and the authority itself – have key roles to play. In our report to the CCC, we highlighted four opportunity areas: digital connectivity, a living lab for health innovation, sustainable food procurement, and leveraging a circular economy approach to net zero. All four are locally relevant and involve cross-sector collaboration between the authority and the public and private sectors. They are all also associated with the foundational economy, that is, those parts of the economy that provide mundane but important goods and services consumed irrespective of health, wealth or location (Foundational Economy Collective, 2022). In what follows, we examine one of the four areas of innovation opportunity in the foundational economy of Carmarthenshire: the Pentre Awel initiative.

Pentre Awel is an 83-acre health and well-being village currently under development in South Llanelli, Carmarthenshire. It is the first development of its kind in Wales and exemplifies a partnership approach between CCC and the Hywel Dda University Health Board, with universities and colleges including Cardiff University, Coleg Sir Gâr, the University of Wales Trinity Saint David and Swansea University also involved. The project forms part of the Swansea Bay City Deal (Hywel Dda University Health Board, 2021) and intends to provide new facilities in support of community health and well-being, including assisted living, a gym, a hydrotherapy pool, alongside health and social care services and skills development. These facilities incorporate clinical R&D and innovation activities for business, with a focus on medical technologies and community trials. The vision is to create a holistic ecosystem which co-locates academics, care professionals, clinicians, enterprises, innovators, patients, residents and researchers (CCC, n.d.).

Pentre Awel is primarily a social innovation, in that it is intended to provide a novel solution to the health and social care needs of the citizens of Carmarthenshire. The plan is to bring a community focus to health and well-being and support the development of innovative solutions to the wider determinants of health. In developing Pentre Awel, CCC has recognised the importance of collaborative working, partnering with the health board and universities, amongst others, and in the future, it will be seeking to amplify the

beneficial impact of the project through hub-and-spoke arrangements involving multiple partners across Carmarthenshire.

There is a second major focus for innovation in the project. According to the Pentre Awel prospectus, as well as improving health and well-being, the project will create almost 2,000 jobs and training/apprenticeship opportunities and is expected to boost the local economy by £467 million over the next 15 years. These economic objectives include support for technological innovation through Tritech – the Health Board's technology development arm, which aims to support innovation in medical device firms.

Combining and co-locating this range of services has a number of potential benefits. It offers the opportunity for innovations to be tested in situ, bringing investment into a comparatively deprived local community and providing a focus on ensuring citizens' health and well-being. Whereas the innovation aspirations for Pentre Awel contain elements consistent with science and technological forms of innovation, the wider focus on bringing social innovation to bear on foundational services highlights the opportunities for innovation that addresses the health and well-being requirements of citizens in a peripheral region of Wales.

8.4.1   Lessons Learned from the CCC Innovation Strategy

While it is still too early to report the outcomes of the Pentre Awel initiative, there are some interesting aspects to its development that speak to the potential for peripheral innovation. One such example is how the CCC has revised its own guidelines with respect to the price-quality ratio of tenders in order to allow procurement activities to incorporate community benefits. This 'power of purchase' is particularly significant in public sector-led innovation, especially in weaker economic regions such as Carmarthenshire. In this instance, the agency of the local authority has resulted in the deployment of public procurement as a vehicle for innovation and value generation. A second example is how the local public sector partners have been flexible and imaginative in securing further funding needed to deliver the project, including the recent example of funding secured by CCC and Pembrokeshire County Council, and other local public service providers, to deliver health and well-being services in town centres across the region. Other sources of funding have been secured for a hotel and private housing, alongside a strong focus on commercialising innovations generated by the initiative.

Developments in CCC in general and Pentre Awel specifically draw attention to three aspects of innovation in the periphery. First, public sector-led innovation in the foundational economy is of particular relevance in the weaker economies that are commonly found in the periphery. This form of innovation has the potential to be significant when supported by locally tailored innovation

policy. Second, delivering such innovation requires the capacity to mobilise collaboratively so that local public partners can deliver collectively in ways that they could not when acting alone. Third, the agency of public sector actors can help to support innovation by, for example, flexing policy or leveraging the public purse through procurement decisions.

8.5 NEW ROLES FOR UNIVERSITIES AND PUBLIC ACTORS IN PERIPHERAL INNOVATION ECOSYSTEMS?

The innovation literature has long highlighted the role of firms as drivers of innovation, with government and universities relegated to a supportive role (Morgan and Henderson, 2023). The findings from our research, however, illustrate how universities and public sector actors may be able to adopt new roles in innovation policy, and that this may present opportunities for peripheral areas, like Wales, that lack the innovation attributes of leading nations (Delbridge et al., 2021).

Although universities have been identified as core participants in regional innovation ecosystems, their primary role has been expressed as supporting traditional science and technological innovation (Cinar, 2019; Pugh, 2017). Research has begun to challenge this narrow framing of universities in such systems, with growing attention being given to their role in engaging and supporting strategic innovation activities. Here, the findings from our research highlight potentially broader roles in innovation processes in peripheral areas, as conveners of innovation strategy processes (for example, drawing actors together to support the policy development process, but also in convening public innovation activities and supporting capacity development), and more capacious forms of innovation (Benneworth and Cunha, 2015; Coenen and Morgan, 2020). These new roles show that universities may be able to provide a safe space in which public and private actors are able to convene, experiment and build skills and capabilities to address place-based challenges (Henderson et al., 2023; Vallance et al., 2020).

This role, however, represents a departure from the traditional entrepreneurial focus of some universities on science and technology, intellectual property and start-ups (Pugh, 2017; Uyarra, 2010), and requires universities to adopt a more facilitative role than traditionally associated with this entrepreneurial focus (Henderson et al., 2023). A facilitative approach may represent a less muscular approach for many universities, whose typical focus is on large firms and large prestigious research contracts, and instead involves working alongside regional partners in a collective learning process. Such an approach has been termed 'humble governance', emphasising the importance of governance partners working together while appreciating the role and inputs of diverse

stakeholders as part of a continuous iterative process of learning and experimentation (Annala et al., 2021). This recognises that the process of monitoring is central to learning, allowing innovative solutions to be developed over time (Morgan and Sabel, 2019) and may represent a more democratic model for innovation in peripheral places.

The roles of the local health board and local authority, as place-based actors in Carmarthenshire, further illustrate how a peripheral area might be able to harness new innovation actors and activities. As with foundational services in all peripheral areas, such actors have not typically been viewed at the forefront of innovation activities (Morgan, 2019). The example of Pentre Awel, however, illustrates how such actors may be able to address place-based challenges in partnership with other multiscalar actors from policy, as well as those with business expertise. While such activities are in the early stages of implementation, the ongoing partnership in both the design and implementation of these projects suggests that a place-based focus on these developments will have the potential to be sustainable.

The new roles of the actors reviewed above offer the potential for new sources of expertise and resources to be brought to bear on innovation activities, but we do not underestimate the challenges for peripheral areas. Austerity has long denuded the capacity of the public sector in such regions to undertake innovation activities. The lack of European funds, as noted above, has further limited the potential of actors such as the Welsh Government to engage in innovation support. Effective practices have also been found to disseminate poorly across regions (Boschma et al., 2017). The findings do, however, suggest that actors may be able to address some of these weaknesses by working together and leveraging resources from other sources through their alignment with multilevel innovation priorities.

8.6   CONCLUSION

The findings presented in this chapter illustrate how peripheral regions may be able to engage in innovation processes without some of the features that characterise leading innovation-oriented regions, namely R&D-intensive firms, density of connections and sources of scientific and technical expertise. They suggest that these new approaches to innovation may require the engagement of new actors, collaboration, and a focus on place-based challenges with the potential to support grand challenges. This represents an approach to regional innovation that responds to the lack of clear responsibilities, resources and a 'template' of action for its participants, relative to traditional forms of innovation that were predicated on firm-led commercialisation of new products, processes and services.

These new opportunities for innovation in peripheral areas call for regional (and multiscalar) actors to adopt less hierarchical roles in delivering innovation policy than may have been the case in the past. In turn, this calls for greater humility amongst all innovation partners with respect to different sources of expertise and the possibility of more distributed leadership within regional innovation activities in peripheral areas. Such an approach may be based on a 'humble governance' approach to innovation policy, in which a plurality of viewpoints is considered in decision-making as part of a collective learning process (Annala et al., 2021). Humble governance further highlights the potential for experimentation to lie at the heart of innovation in peripheral areas, where actors collaborate to develop small-scale solutions to place-based challenges.

The capacity of peripheral regions to engage in innovation is likely to be uneven because of their differing capacities, resources and industrial inheritance. A region's institutional inheritance is also likely to play an important role in the potential for distributed leadership to form the basis of new innovations in peripheral areas. Our findings further highlight the potential for multilevel arrangements to add to the complexity of such innovation activities, as well as the need for ongoing dialogue to manage potential contestation. Such findings highlight the importance of coordination and the need for multiscalar actors to respect local expertise and place-based needs.

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