

Research and Development

May 2024



The Welsh Parliament is the democratically elected body that represents the interests of Wales and its people. Commonly known as the Senedd, it makes laws for Wales, agrees Welsh taxes and holds the Welsh Government to account.

An electronic copy of this document can be found on the Senedd website:
www.senedd.wales/SeneddEconomy

Copies of this document can also be obtained in accessible formats including Braille, large print, audio or hard copy from:

Economy, Trade and Rural Affairs Committee
Welsh Parliament
Cardiff Bay
CF99 1SN

Tel: **0300 200 6565**
Email: **SeneddEconomy@senedd.wales**
Twitter: **[@SeneddEconomy](https://twitter.com/SeneddEconomy)**

© Senedd Commission Copyright 2024

The text of this document may be reproduced free of charge in any format or medium providing that it is reproduced accurately and not used in a misleading or derogatory context. The material must be acknowledged as copyright of the Senedd Commission and the title of the document specified.

Research and Development

May 2024



About the Committee

The Committee was established on 23 June 2021. Its remit can be found at:
www.senedd.wales/SeneddEconomy

Current Committee membership:



**Committee Chair:
Paul Davies MS**
Welsh Conservatives



Hefin David MS
Welsh Labour



Luke Fletcher MS
Plaid Cymru



Vikki Howells MS
Welsh Labour



Samuel Kurtz MS
Welsh Conservatives



Jenny Rathbone MS
Welsh Labour

The following Member attended as a substitute during this inquiry:



Mike Hedges MS
Welsh Labour

The following Member was also a member of the Committee during this inquiry:



Buffy Williams MS
Welsh Labour

Contents

Chair’s foreword	5
Recommendations	6
1. Introduction	7
2. Research and Development Funding	8
Background to funding and support	8
Dual-funding system for university research.....	9
Research Wales Innovation Fund	10
Policy and strategy	11
Innovation Strategy	11
Collaborative Innovation Plan for Wales	14
Welsh Government’s R&D ambitions	16
Real terms reduction in Quality Related Funding (Core Funding).....	17
Public funding to the business sector	21
Barriers for businesses accessing public funding	23
Regional disparity – are investments felt Wales-wide?	26
3. Supporting collaboration between higher education and industry	29
Differing needs of businesses and universities	31
Communicating the benefits of R&D.....	33
4. Views from business sectors.....	35
Bidding for competitive funding and investing in R&D	35
Research agenda and collaboration.....	37
5. Conclusions	40
Annex 1: List of oral evidence sessions.	42

Annex 2: List of written evidence 43

Additional Information.....43

Chair's foreword

This one-day inquiry gave us an insight into the latest position on funding for research and development, and helped identify barriers to Wales accessing a greater share of the UK-wide money available to drive future innovation and growth.

There are some exciting collaborations between Welsh universities and industry, but significant barriers for businesses to take advantage of innovation funding, and some critical issues for the higher education sector. In its Innovation Strategy, the Welsh Government has set itself a target for Welsh businesses to get their fair share of UK-wide research and innovation funding, and the Memorandum of Understanding signed with Innovate UK is a step in the right direction. Overall, the picture of collaboration and partnership working is encouraging but there are concerns about the level of investment funding and resources available. As we have previously reported, Universities Wales is calling for the UK Government to review the way post-EU funding is delivered via the Shared Prosperity Fund. There are some thorny issues to address in order to reach the Welsh Government's current target of 5 per cent of Innovate UK's funding coming to Wales by 2030.

This was a short, sharp, focused piece of work to look at research and development funding in Wales. The Committee will monitor the Welsh Government's response and progress with delivering its innovation 'missions', and will return to further exploration of the issues raised. We hope that our findings are useful to the incoming Commission for Tertiary Education and Research as it starts its journey of strategic oversight of post-16 education and research in Wales. Its mission is to take a 'whole system approach' to research and innovation funding, and align education and training with the needs of employers: this will be key to driving economic growth through innovation.



Paul Davies MS

Chair

Recommendations

Recommendation 1. The Welsh Government should carry out, or commission, a review into the level of Quality Related funding provided to Welsh institutions, to determine the amount required for them to best carry out research and compete for external funding. The review should take the Diamond and Reid reviews into account and consider equivalent funding levels in England, Scotland and Northern Ireland.....Page 21

Recommendation 2. The Welsh Government should undertake more analysis of the spread of R&D funding across Wales in order to fully understand the national picture, and look at fostering partnerships or other specific funding initiatives outside the areas where successful innovation clusters already exist..... Page 28

Recommendation 3. The Welsh Government should work with partners on a communications plan to highlight the impacts and benefits of publicly-funded research and innovation to a wider range of audiences in Wales, to raise awareness of how business and academia are collaborating on major innovation challenges and increase engagement and participation in R&D, starting with schools but reaching a range of audiences creatively.....Page 33

Recommendation 4. The Welsh Government should look at what further support can be provided to SMEs: including to help them with the UKRI bidding application process, address issues relating to procurement and match funding; and to clearly signpost all the various funding streams and the help available to access them..... Page 39

1. Introduction

The Committee undertook a snap-shot inquiry to assess the current position of the research, development and innovation landscape in Wales.

- 1.** The terms of reference of the one-day inquiry was to consider the effectiveness of public funding levels; barriers to access to funding; and regional differences across the UK and Wales. It also looked at collaboration between universities and industry, support for Welsh businesses, and the Welsh Government's approach to Research and Development (R&D) including its recent Innovation Strategy.
- 2.** The Committee ran a public consultation inviting views in advance of its one-day inquiry. Fifteen responses were received from a range of bodies in the further and higher education sectors as well as trade bodies, charities and the private sector. The list of responses, and supplementary information received, can be found at Annex 2.
- 3.** The responses received were analysed in detail and used to inform Members' understanding of the key issues, and their questions to witnesses who gave oral evidence on 30 November 2023. The Committee took oral evidence from representatives of the funding bodies, higher education institutions and three business sectors for innovation – covering the creative industries, cyber and advanced manufacturing. Details of witnesses who gave oral evidence are at Annex 1.
- 4.** The Committee is, as always, grateful to all those who shared their time and thoughts with us to inform this piece of work.

2. Research and Development Funding

The Committee considered the current situation regarding funding for research and development - both core grant funding and competitive research funding - and the direction of innovation policy and strategy.

Background to funding and support

5. The overwhelming majority of UK public funding for R&D is allocated by the UK Government and UK-level institutions. This means that R&D and innovation activity in Wales is fundamentally impacted by UK Government investment and policies. The amounts spent by the Welsh Government are comparably modest, but have a relationship with how much of the UK Government funding that Wales is able to capture.

6. R&D funding is defined as expenditure on research, mostly in science and technology, that results in new products, processes and understanding. It includes research undertaken by, and funding from, public and private sectors.

7. In the UK in 2021, total expenditure on R&D was £66.2 billion. The business sector is the largest funder of R&D performed in the UK. In 2021, it funded £46.9 billion (71%) of R&D. The higher education sector funded £14.9 billion (23% of the UK total). The government sector, including UK Research and Innovation (UKRI), funded £3.4 billion (5% of the UK total).¹

8. The UK Government's Levelling-Up White Paper², published in February 2022, set a target to invest "at least 55% of [the UK Government's] total R&D funding outside the Greater South-East by 2024-25". In 2021, the highest concentration of R&D spending was in the East of England, London and South East (52% in total), with £34.3 billion spent. In Wales, £1.6 billion was spent on R&D (3% in total). Of

¹ Gross domestic expenditure on research and development, UK - Office for National Statistics (ons.gov.uk)

² Levelling Up the United Kingdom - GOV.UK (www.gov.uk)

which, £1.1 billion was spent by the business sector (70% of the total spend in Wales).³

9. Research institutions in Wales, which includes all Welsh universities and Amgueddfa Cymru - National Museum Wales, are able to access UK Government funding. They are part of the UK-wide funding system and their own Welsh Government funding allocations allow them to access UK-wide funding.

Dual-funding system for university research

10. There is a dual-funding system for university research:

- Core Welsh Government grant funding, which is allocated and distributed by the Higher Education Funding Council for Wales (HEFCW) and also referred to as Quality Related (QR) funding; and
- Competitive research funding which is mainly available from the UK-wide research councils within UK Research and Innovation (UKRI).

Core funding / Quality Related funding

11. Quality Related (QR) funding is made available to Welsh universities via a HEFCW grant each year. The allocations are directly related to the quality of the research produced by each university. The quality of research is measured by the UK-wide Research Excellence Framework (REF). The REF is a research audit exercise that assesses the quality of the research universities submit to the exercise and gives an overall research quality profile for each university. The last completed exercise was REF 2021 which found that 83% of research at Welsh universities is world-leading or internationally excellent.

12. Reviews undertaken by Professor Sir Ian Diamond and Professor Graeme Reid highlighted the importance of QR funding and how it can be used to help win competitive funding from external bodies. Professor Diamond recommended that QR funding should be maintained in real terms at the level, in 2016, of £71 million per annum. Professor Reid endorsed this recommendation.

13. The Welsh Government accepted Professor Diamond's recommendation in principle but only in one financial year since 2015-16 has QR funding matched in real terms the £71 million.

³ Gross domestic expenditure on research and development, UK - Office for National Statistics (ons.gov.uk)

Competitive research funding

14. UKRI was established in April 2018 and brings together the seven UK-wide research councils, Research England (broadly the equivalent to HEFCW), and Innovate UK. UKRI publishes reports on geographical distribution of UKRI spending.⁴ There are different funding streams through UKRI: generally, spending by the research councils is available for universities while spending via Innovate UK is available to businesses.

15. UKRI has a place-focused programme called the Strength in Places Fund. The fund aims to help areas of the UK build on existing strengths in research and innovation to deliver benefits for their local economy. The programme funds projects which are led by a consortia that includes both universities and businesses and has engagement with local leaderships. The Fund is relatively new with the first payments to projects starting in 2019-20. Of the £14.59 million spent under the Strength in Places Fund in 2020-21, Wales received £1.69 million (11.6% of the total spend). The north-west of England received the largest amount (£5.04m) followed by Scotland (£4.59m) and Northern Ireland (£1.95m) with Wales next.⁵ There are two projects in Wales being funded: CSconnected and Media Cymru.

16. In March 2023 the Welsh Government launched Phase IV of its Sêr Cymru programme⁶ – to bring scientific talent into research posts in Wales - which is worth £10 million over the years 2023-24 and 2024-25. This latest phase of the programme will focus on low carbon; life sciences; advanced engineering; and advanced computing. The Welsh Government expects the top three activities which will be funded to include: PhD studentships, capacity and building awards, and national research networks.

Research Wales Innovation Fund

17. Between 2014 and 2020 a significant difference between Wales and the other UK nations was the lack of a core grant provided to universities to support them to engage with business. HEFCW had previously provided approximately £8 million a year to universities for this purpose, but this grant was withdrawn in 2013-14 due to budget constraints. England, Scotland and Northern Ireland continued to make this funding available.

⁴ [Geographical distribution of UKRI spend reports – UKRI](#)

⁵ [UKRI-060522-GeographicalDistributionOfUKRISpend.pdf](#)

⁶ [Sêr Cymru IV: Economy Minister announces £10 million to support scientific research in Wales | GOV.WALES](#)

18. In 2019, in light of additional funding becoming available, HECFW agreed that the Research Wales Innovation Fund (RWIF) would be created and distributed to Welsh universities from 2020-21 to further their knowledge exchange activity and enable them to work with industry and business. The Fund was allocated £15 million for the 2021-22 financial year.

Policy and strategy

Innovation Strategy

19. The Programme for Government⁷ included commitments to “Press the UK Government for a fair share” of R&D investment for Wales and develop a “mission based national innovation strategy”. Among the five priorities for research and innovation⁸ announced in November 2021 by the then First Minister, Mark Drakeford MS, was the intention to publish an Innovation Strategy.

20. The Welsh Government published its Innovation Strategy⁹ in February 2023. Its vision is “to create and nurture a vibrant innovation culture for a stronger, fairer, greener Wales”. The Strategy’s four missions are:

- Education – ensure Wales’s education system supports the development of innovation skills and knowledge throughout people’s lives;
- Economy – drive Wales forward to be a leading innovation-based nation which will see an economy that innovates, collaborates and uses resources proportionately;
- Health and wellbeing – see the sector collaborate with industry, academia and the third sector to deliver new ways of working and uses innovation to transform care services; and
- Climate and nature – optimise natural resources for the protection and strengthening of climate and nature resilience.

21. In October 2023, the Welsh Government published its Delivery Plan¹⁰ setting out details for each mission including “relevant goals, actions, milestones and

⁷ Programme for government | GOV.WALES

⁸ Written Statement: Five priorities for research, development and innovation (23 November 2021) | GOV.WALES

⁹ Wales innovates: creating a stronger, fairer, greener Wales [HTML] | GOV.WALES

¹⁰ Wales innovates: creating a stronger, fairer, greener Wales: delivery plan [HTML] | GOV.WALES

measurements” that it “wishes to see achieved into the medium and longer term”. Implementation will be overseen by the Innovation Advisory Council for Wales¹¹.

22. The inquiry’s terms of reference included the effectiveness of the Welsh Government’s approach to R&D including its Innovation Strategy. Witnesses from the higher education sector said there had been a good consultation process to refine the strategy. Professor Roger Whitaker of Universities Wales said:

“I think there is strong complementarity between the missions of the innovation strategy and the positioning of universities; ... one point to reaffirm is the value of innovation; it drives competitive advantage, but also basic research feeds into innovation, so making sure we keep that chain connected is really important. Chemistry drives the battery composition that drives the electric vehicles, and so hard science can soon find its way into really purposeful impact ... as a strategy it gives the universities flexibility to deliver in different ways as well against those missions, based on specialisms and expertise from across the sector.”¹²

23. Lewis Dean, Head of the Wales Innovation Network (WIN), told the Committee that the Network was responding to the strategy and its work was “partly shaped” by it: “We have networks around net zero and public health, for example, working into some of those key areas, drawing together representatives from across the universities in Wales, and looking at how we can work together on R&I.”¹³

24. In supplementary evidence provided after the oral evidence sessions in November, UKRI also welcomed the strategic focus on areas such as net zero and healthcare, which complemented its own strategic priorities. UKRI said:

“It is crucial that a clear signal of intent and direction of travel is provided, which the sector can coalesce around, and we are confident that the strategy and plan helps achieve that. It is also important to note the wider complementarity to flagship policies involving the whole of the UK, such as the UK Science and Technology Framework.”¹⁴

¹¹ [Innovation Advisory Council for Wales | Innovation \(gov.wales\)](https://www.gov.wales)

¹² Paragraph 136, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹³ Paragraph 137, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁴ Additional information - UKRI

- 25.** Cardiff University noted that the lack of full alignment between the Welsh Government’s Innovation Strategy and UK Government’s plans, while entirely reasonable, could leave innovators and researchers ‘stuck in the middle’. It recommended that there was “further clarity on prioritisation within Welsh innovation, and also further work to provide clearer links between Welsh institutions and UK-based funders, similar to the Welsh Government’s Collaborative Innovation Plan with Innovate UK.”¹⁵
- 26.** In written evidence, the British Heart Foundation (BHF) said that “what the Innovation Strategy seeks to achieve is commendable”, however “what can be achieved is severely limited by the lack of resource and more needs to be done to attract external sources of funding”.¹⁶ The BHF also pointed to the findings and recommendations of the Senedd’s Cross Party Group on Medical Research (CPGMR), for which it acts as secretariat, on improving collaboration between the Welsh Government, healthcare, higher education institutions, the third sector, and industry in Wales, and across different areas of research such as cancer, heart and circulatory diseases, diabetes and endocrinology and rheumatology.¹⁷
- 27.** Moderna also said a “challenge for the strategy is workforce pressures, which will need to be addressed in order to meet the strategy’s goals”. It added that recent budget cuts “including a £17.5 million cut to apprenticeship programmes, threaten to undercut the positive goals set out in the innovation strategy”. Moderna called for this to be addressed “to ensure the next generation of STEM (science, technology, engineering and maths) workers are receiving the training and career opportunities required to deliver the strategy”.¹⁸
- 28.** The Association of the British Pharmaceutical Industry (ABPI) welcomed the alignment of activity to strengthen the “Wales offer”, stressing the importance of “increasing innovation activity and creating the right environment for the pharmaceutical industry to invest in research and collaborate with the NHS”.¹⁹
- 29.** Andy Silcox of the Advanced Manufacturing Research Centre Cymru (AMRC) described Welsh Government’s innovation strategy and delivery plan as “a shining beacon”:

“I did this job, effectively, for 10 years back in England. The support the Welsh Government gives and the progressive

¹⁵ Written evidence – RD 13

¹⁶ Written evidence – RD 06

¹⁷ Written evidence – RD 06

¹⁸ Written evidence – RD 08

¹⁹ Written evidence – RD 03

support it gives to companies, I think, is excellent. The innovation team across Wales really do create a supportive structure for companies wanting to bid into Welsh Government funding. So, yes, I personally think it's a shining beacon. I do far more work with SMEs here than I did back with the catapult centres in England.”²⁰

30. Professor Pete Burnap of the Cyber Innovation Hub (CIH) noted the focus on applied research with outcomes, highlighting there was a gap in terms of accessing public funds to do applied experimental research. He also welcomed the experiential learning element which was going to be “massively important” to inspire the next generation.²¹

31. Professor Justin Lewis of Media Cymru wanted to see more focus on processes within the strategy, in particular bringing in intermediaries, such as universities, to provide support mechanisms for small companies without R&D innovation capacity - to implement skills support and R&D support for those companies that make up the majority of Welsh businesses.²²

32. The Committee received a range of evidence on innovation activity across Wales in a range of sectors. This included the work being done at the Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University on plant breeding, genetics and use of AI to address the challenges of climate change and reaching net zero. IBERS pointed to difficulties with the regulatory mechanisms being agile enough to keep up with the speed of technological advances in this field. It said a lack of regulatory consistency “impacts on both the prospects for attracting commercial investment into plant breeding programmes based in Wales and the UK, and also on our ability to maintain our world-leading status as a plant breeding institution.” It also pointed to “a particular need to speed up the crop breeding pipeline especially given the impacts of climate change and the frequency of extreme weather events, e.g. droughts followed by flooding events.”²³

Collaborative Innovation Plan for Wales

33. In April 2023 the Welsh Government signed a Memorandum of Understanding (MoU)²⁴ with Innovate UK, something it committed to doing in the

²⁰ Paragraph 280, Economy, Trade and Rural Affairs Committee, 30 November 2023

²¹ Paragraph 281, Economy, Trade and Rural Affairs Committee, 30 November 2023

²² Paragraphs 282-283, Economy, Trade and Rural Affairs Committee, 30 November 2023

²³ Written evidence - RD 15

²⁴ [Innovate UK and Welsh Government sign a new partnership agreement](#)

Innovation Strategy. The MoU commits the Welsh Government and Innovate UK to develop a joint plan to help grow the Welsh economy.

34. The joint Collaborative Innovation Plan for Wales²⁵ was launched in October 2023, and focuses on three areas:

- Ensuring entrepreneurs, businesses, academia, public sector and third sector in Wales have a simple, connected, visible and effective route to access innovation support mechanisms;
- Ensuring innovation stakeholders in Wales are aware of and engage with the opportunities available to them to increase the number, diversity, and positive impact of businesses innovating within Wales; and
- Using data to understand the demographics of Wales’s innovation community and actively seek to address inequalities in access to innovation support.

35. Moderna said the Plan was a “positive development which will enable Welsh universities and businesses from across the UK to interact and collaborate”.²⁶

36. UKRI welcomed the Welsh Government’s commitment with Innovate UK to “increase the Knowledge Transfer Partnership budget for Wales and align this support alongside SMART partnerships”, as a ‘tangible way to improve university-industry engagement’.²⁷

37. CollegesWales’ written evidence stressed the need for the Welsh Government to “consider a more long-term approach to funding the Knowledge Transfer Scheme, and allow colleges to deliver research projects with flexibility over a longer period of time.”²⁸

38. In supplementary evidence, UKRI also stressed the “numerous high-level and operational links [it has] with the Welsh Government, including regular senior-level meetings with Government officials, the Chief Scientific Adviser for Wales and with HEFCW,” saying these were key to further support and wanting to build on agreements already in place. It also noted engagement through fora including the Science and Innovation Strategy Forum and HEFCW Research Wales

²⁵ [FINAL-English-DPS-Wales-Action-Plan.pdf \(ktn-uk.org\)](#)

²⁶ Written evidence – RD 08

²⁷ Additional information – UKRI

²⁸ Written evidence – RD 07

Committee, and looked forward to “continuing this deep partnership with the Commission for Tertiary Education and Research, once it is fully operational.”

Welsh Government’s R&D ambitions

39. In 2018-19, the Fifth Senedd’s Economy, Infrastructure and Skills (EIS) Committee inquiry into Research and Innovation²⁹ reported that “there is considerable under-investment in Welsh Government funded research and innovation activity in Wales even as investment levels increase at the UK level and in England and Scotland”. It said that this “under-investment will make it more difficult for Welsh universities to meet the challenge of needing to win more external funding competitions”.

40. The EIS Committee’s recommendations included that the Welsh Government should consider setting its own target for investment in research and innovation in Wales (the UK Government’s target is 2.4 per cent of UK GDP). The Welsh Government rejected that recommendation, saying that the majority of funding and associated decision levers sit outside its control and that its main focus centred on securing replacement funding for EU Structural Funds.

41. Evidence provided to this inquiry by the Centre for Innovation Policy Research (CIPR) included a May 2021 report previously provided to the Innovation Advisory Council for Wales, which points out that “as a proportion of gross value added (GVA) Wales’s expenditure on R&D (1.2 per cent of GVA) lags behind other parts of the UK, and is less than two thirds of the UK average. These data point to the uneven nature of R&D activity in the UK context and hint at the productivity challenges facing Wales.”³⁰

42. The EIS report also recommended that the Welsh Government work with stakeholders to agree and communicate a vision for all research and innovation activity in Wales which recognises and encompasses business activity which occurs beyond universities. This was after receiving evidence that “small businesses can find it difficult to engage with universities, sometimes finding it difficult to know who within a university they can contact”, and that “small businesses can lack the capacity to put together and manage the sort of large funding bids which might see them collaborate with universities”. The Welsh Government accepted this recommendation to agree and communicate a wider

²⁹ [Research and Innovation in Wales \(senedd.wales\)](https://www.senedd.wales)

³⁰ Written evidence – RD 01

vision for research and innovation in Wales. It said that it would “also capture the significant contribution of industry”.

43. In its Innovation Strategy, the Welsh Government says that “Wales has not achieved its potential in traditional UK competitive bid funding rounds”. It aims for approximately 3% of Innovate UK’s budget to be spent in Wales consistently by 2026, saying this represents Wales’s proportion of the business population. The Welsh Government wants that to then increase to 5% by 2030. It says that it will apply similar targets to research council funding in due course.

44. Between 2019-20 and 2020-21, the amount of funding to Wales, from Research Councils via UKRI and from Innovate UK, went up:

Research Councils	Financial Year 2019-20	Financial Year 2020-21
Spend in Wales	£66 million	£86 million
Total spend	£3,300 million	£3,764 million
Percentage spent in Wales	2.0%	2.3%

Source: Geographical distribution of UKRI spend

Innovate UK	Financial Year 2019-20	Financial Year 2020-21
Spend in Wales	£27 million	£40 million
Total spend	£1,177 million	£1,526 million
Percentage spent in Wales	2.3%	2.6%

Source: Geographical distribution of UKRI spend

Conclusion 1. Many of the issues raised in this one day inquiry were previously examined by the predecessor Committee for research and innovation in the 5th Senedd. Although the funding landscape has changed since that Committee reported, some stakeholders are still calling for recommendations made in the EIS Committee report of 2019 to be revisited by the Welsh Government. This latest report, and the previous report of 2019, should be considered by the new Commission for Tertiary Education and Research as a priority.

Real terms reduction in Quality Related Funding (Core Funding)

45. In Professor Sir Ian Diamond’s 2016 Review of Higher Education Funding and Student Finance Agreement in Wales, he said that QR funding:

“... is crucial in providing the baseline investment that enables the long-term strategic development of research and the creation of a critical mass of research capability. The certainty and predictability of QR funding is important given the long planning horizons that university research strategies have to address. The funding [...] can also be used, in effect, to leverage for external research funding.”³¹

46. QR funding can be used to help win competitive funding from external bodies. Cardiff Metropolitan University called QR funding, “the bedrock upon which capacity, expertise and breakthroughs are built”.³²

47. Both Professor Diamond, and Professor Reid in his 2018 Review of Government Funded Research and Innovation in Wales³³, recommended maintaining QR funding at the level, in 2016, of £71 million per annum.

48. Welsh Government accepted Professor Diamond’s recommendation in principle but only in one financial year since 2015-16 has QR funding matched the £71 million in real terms. This was in 2021-22 when QR funding was £81.7 million. For the 2023-24 financial year approved QR funding is maintained at £81.7 million, which in real terms is £65.8 million using the 2015-16 financial year as the base. This is a real terms cut of £5.3 million.

49. The British Heart Foundation (BHF) noted the QR budget in Wales for 2022-23 was £81.7 million whereas Research England had announced £1.789 billion for QR funding for 2022-23. It stated that “if Welsh universities were supported to compete with England, pro rata QR funding in Wales should be around £100 million”.³⁴

50. HEFCW “agreed approximately” with the BHF figure, but said that its budget had not increased and there was a need to balance competing needs across the sector, including student health and wellbeing support and Welsh Government priorities such as part-time and flexible learning”.³⁵

51. Harriet Barnes of HEFCW also highlighted that the role of unhypothecated funding for research and innovation is to maintain capacity in the system “regardless of what the current trends are”, and to “enable fundamental research

³¹ [Review of higher education funding and student finance arrangements: final report | GOV.WALES](#)

³² Written evidence – RD 04

³³ [Review of government funded research and innovation \(Reid review\) | GOV.WALES](#)

³⁴ Written evidence – RD 06

³⁵ Paragraph 56, Economy, Trade and Rural Affairs Committee, 30 November 2023

into the early stages, things that are not yet commercially viable, things where you need to test them out before there is a possibility of gaining grant funding from them, and then to build the early stages of those collaborations that you need with business, the public sector and others.” She also stressed its role in encouraging universities to have “positive, healthy, inclusive research cultures.”³⁶

52. Amanda Wilkinson of Universities Wales identified the current level of QR funding as a barrier to the ability to secure further funding from UKRI:

“in terms of how the model works, roughly speaking, for every research contract that you're able to secure, you have to find 30 per cent of the value of that contract from other resources. So, you know, there is an issue in terms of the availability of core funding, and QR funding in particular, to support that base and allow us to draw the contracts that we are very capable of winning from UKRI.”³⁷

53. Roger Whitaker of Universities Wales expanded on this, saying:

“One of my hypotheses is that we're not receiving a population share of UKRI funding, in part due to not receiving population share of QR funding, and to explain that, QR funding is really vital for the lifeblood of universities; it's the means through which we can create time and support for people to bid into UKRI, and also have the facilities through which we can deliver the grants as well.”³⁸

54. Lewis Dean of WIN also stressed that:

“Research projects do not start with funding from UKRI, they start before that; there needs to be proof of concept and preliminary work goes on. So, really, that QR funding is vital for that whole research life-cycle.”³⁹

55. Lewis Dean also pointed to the problem of availability of match funding: “A range of grant programmes will ask for match funding from institutions, which is a further financial investment by the universities. Without that ability to invest in

³⁶ Paragraph 8, Economy, Trade and Rural Affairs Committee, 30 November 2023

³⁷ Paragraph 111, Economy, Trade and Rural Affairs Committee, 30 November 2023

³⁸ Paragraph 113, Economy, Trade and Rural Affairs Committee, 30 November 2023

³⁹ Paragraph 114, Economy, Trade and Rural Affairs Committee, 30 November 2023

that match funding, universities will have to make the decisions about which grants they're able to apply for.”⁴⁰

56. Harriet Barnes said that the Diamond and Reid reviews needed to be seen now in the context of the replacement for EU structural funds and that “we have to be realistic about the extent to which their recommendations can actually be achieved.”⁴¹

57. Universities Wales’s supplementary evidence, sent after the meeting, said its key recommendation to Welsh Government was to “reiterate that core funding for research and innovation is vital in enabling Welsh universities to increase the capture of research and innovation funding.”⁴²

58. Cardiff Metropolitan University also noted the recommendation in Sir Paul Nurse’s official review of the RD&I landscape⁴³ that the “UK Government should review QR, competitive funding and full economic costing to address the sustainability of research”. The University highlighted that the then Minister for Education and Welsh Language, Jeremy Miles MS, had referenced the Nurse review in the HEFCW annual remit letter for 2023/24, which it said also asked HEFCW to “keep under review the effectiveness of its QR, PGR and Innovation funding allocation processes to monitor their effectiveness in encouraging successful competitive behaviour relative to the rest of the UK”.

59. Cardiff Metropolitan University’s evidence highlighted the impact of UK Government policies ‘destabilising international activity’ in research and innovation. It said the withdrawal of visas for dependents of taught postgraduates “is most likely to affect Nigeria and India which, in 2021/22, were 43% of international taught postgraduates in Wales”. The University also cited significant increases in visa costs and a 109 per cent increase in the Immigration Healthcare Surcharge for international staff. It noted that “International researchers are prevalent in STEM in Wales, which is vital for future economic prospects.”⁴⁴

Conclusion 2. The Committee welcomes the Welsh Government’s ambitions and targets for Wales to win more UK-wide funding. Quality Related funding plays a key role in universities being able to win that UK-wide funding, but QR funding

⁴⁰ Paragraph 164, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁴¹ Paragraph 57, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁴² Written evidence

⁴³ UKCGE | Nurse review of research councils

⁴⁴ Written evidence – RD 04

has been falling in real terms which is putting Wales at a disadvantage in winning competitive funding, counter to the Welsh Government's ambitions.

Recommendation 1. The Welsh Government should carry out, or commission, a review into the level of Quality Related funding provided to Welsh institutions, to determine the amount required for them to best carry out research and compete for external funding. The review should take the Diamond and Reid reviews into account and consider equivalent funding levels in England, Scotland and Northern Ireland.

Public funding to the business sector

60. Dean Cook of Innovate UK said that the average success rate in Wales for applying for funding was 25%, which was just above the national average (and compared with 19% in London) but that it was “demand driven”, with a lower level of activity from the business sector in Wales and a lower funding ask:

“We know that the business population, by the Office for National Statistics 2022 figure, is about 3.9 per cent of the UK business population. We know that Welsh participants are 3 per cent active on a project basis. So, we know that we're not getting enough applications in from Welsh participants. The fact that Welsh participants account for about 3 per cent of the project activity, and yet only 2.6 per cent of our funding is coming to Wales, also tells you that the level of investment that Welsh participants are asking for is a little bit less than what you see in other parts of the country. Now, there's a whole heap of reasons for that that we're talking about with colleagues in Welsh Government.”⁴⁵

61. He pointed to a historical displacement effect from “the sheer volume” of previous EU funding to Wales, and the higher proportion of SME and microbusinesses as being factors:

“In terms of the demand driver, we know that there has, historically, been a displacement effect because of the sheer volume of European regional development fund innovation funding that's been available in Wales, and that's probably displaced and meant that Welsh businesses and Welsh universities haven't thought about coming to us for that

⁴⁵ Paragraph 27, Economy, Trade and Rural Affairs Committee, 30 November 2023

funding. And then, in terms of the average grant ask being a bit lower, well we know that the characteristic of the business population here is you've got a greater a proportion of micro and small businesses. So, there's something about the business population here as well, and probably there's something around ambition.”⁴⁶

62. When asked what more could be done for Wales to achieve its share of funding, Dean Cook of Innovate UK said:

“you've got to be in it to win it. We have to encourage businesses and the research sector here to compete and come into the programmes and the competitions that we run. And, actually, that is reflected quite nicely in the call to arms that is in the Welsh innovation strategy.”⁴⁷

63. Dan Shah of UKRI pointed to the increase in the overall quantum of research council and Innovate UK funding between 2019-20 and 2020-21.⁴⁸ He agreed that success rates were important, and said that the success rate by value - the percentage of what was asked for in the applications that Welsh institutions succeed in winning - is 32 per cent, on average, “which is slightly higher than it is for England, and higher than the average in particular areas of strength, for example, in the social sciences and in engineering and physical sciences.”

64. Dan Shah went on to stress the importance of building confidence and an understanding of the system to encourage more Welsh applications, and increasing connectivity and engagement in partnerships and networks. He cited the example of the Active Building Centre which was being led by Swansea but also involves Newcastle and Bath. Dean Cook of Innovate UK also highlighted the importance of partnership working with Welsh Government, because research and innovation funding is part of a bigger ‘ecosystem’ and economic levers to support businesses to grow are also part of that.⁴⁹

65. There was some questioning in Committee of how the figures given for Welsh success in accessing research and development funding matched up with

⁴⁶ Paragraph 28, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁴⁷ Paragraph 31, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁴⁸ Paragraph 35, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁴⁹ Paragraph 40, Economy, Trade and Rural Affairs Committee, 30 November 2023

Welsh Gross Value Added (GVA), and its employment levels for key industries like life sciences, ICT, and professional services, compared to the UK average.⁵⁰

66. Lewis Dean from WIN highlighted how the Network was proactively pooling expertise to “ensure that universities are more competitive in that increasingly competitive UKRI funding space” and saw “some really promising initial results, with relatively small amounts of seed funding turning into some quite large applications.”⁵¹

67. Andy Silcox of AMRC said that access to funding for manufacturers across Wales had been ‘quite skewed’ by the flow of funding from the Shared Prosperity Fund in the past 12-18 months: “...now that funding has been regionalised and if it's not a certain local authority's priority, then you don't do anything in Powys, for example, and yet you'll do lots in Flintshire.”⁵²

68. In supplementary evidence to the Committee, Universities Wales said that in order to be successful it would be necessary to access both UK and EU funding, and said “For UK Government, we would recommend that the principles, structure and method of Shared Prosperity funding be revisited.”⁵³

Barriers for businesses accessing public funding

69. Small and Medium Enterprises (SMEs) are the majority of businesses in Wales. In written evidence, the Federation of Small Businesses Wales (FSB Wales) said:

*“It is clear from our research that most small businesses have not used government support to finance their innovation activity. This suggests that the existing system of government support for innovation is not working as well as it could do, and that what constitutes innovation and its aims remain unclear to SMEs.”*⁵⁴

70. FSB Wales added that “only 7% of innovators said they did not need government support because they had access to private sector finance” and that “SMEs’ awareness of funding available is an issue”.⁵⁵

⁵⁰ Paragraph 38, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁵¹ Paragraph 156, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁵² Paragraph 244, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁵³ Additional information - Universities Wales

⁵⁴ Written evidence - RD 02

⁵⁵ Written evidence - RD 02

71. In written evidence HEFCW stated that:

“The landscape for funding needs to be clear and coherent, and easily understood by those who access it. This is particularly relevant for SMEs (including microbusinesses), who make up the majority of the Welsh economy, who do not have the time or the staff capacity needed to involve themselves in long and complicated funding processes.”⁵⁶

72. Bangor University said that “Wales’s SME base often has additional challenges in resource and absorptive capacity to benefit from research”⁵⁷, and the Social Enterprise Stakeholder Group said that “the greatest barrier to growth for social businesses was time pressures/lack of staff capacity, which was noted by 52% of social businesses surveyed”.⁵⁸

73. Bangor University also said that the transparency requirements attached to public funding in terms of reporting details of projects, “does not always sit well with companies” and can lead to projects not going ahead.⁵⁹

74. Professor Pete Burnap of CIH added that procurement was another barrier for SMEs, saying it is “a nightmare for smaller businesses being able to easily access R&D funds for small, innovation-based projects.”⁶⁰ He said it was very difficult for them to access the large research pots, and it seemed that public funds were ‘coming in shorter bursts’ - with the shared prosperity fund being a good example - and procurement was ‘getting in the way’ of spending and delivering quickly.

75. Innovate UK had identified barriers for businesses around awareness of funding support, and ambition:

“... that's not just about reaching the businesses that are already innovation active and pointing them to the funding and the support opportunities, but also reaching out to those businesses that aren't innovation active and making them think about being more innovative businesses. And I made the point earlier

⁵⁶ Written evidence – RD 09

⁵⁷ Written evidence – RD 10

⁵⁸ Written evidence – RD 11

⁵⁹ Written evidence – RD 10

⁶⁰ Paragraph 284, Economy, Trade and Rural Affairs Committee, 30 November 2023

on as well that, those R&D-intensive businesses, we need to be encouraging them to scale and grow.”⁶¹

76. Supplementary evidence from UKRI stressed that it “would like to reemphasise the importance of stimulating demand from and building the innovation capacity of the Welsh business community. In line with this, we are looking to increase our joint support to Welsh innovators to enable them to be more competitive in our UK-wide programmes.”⁶²

77. The actions in the Collaborative Innovation Plan for Wales were seen by Innovate UK as “a good start” to work with the business community to address the barriers.⁶³ The fact that it was a dynamic ‘live’ document, with the intention to review and be held to account on achievements, was stressed:

“... we've gone back, for example, with Liverpool city region, one year on, with Mayor Steve Rotheram, to talk about what we've achieved and what we're planning to do in the year ahead, and we will do exactly the same here in Wales. So, one year on from Wales Tech Week, we'll come back, we'll talk to the community about what we have done, what we've achieved against that plan, and we'll set out ambitions for the years ahead. So, this is live; we keep this live.”⁶⁴

78. Swansea University’s written evidence says that “there needs to be more nuanced understanding of the challenges that businesses across the UK are facing every day”. It adds that those in research innovation roles in industry are more aware of financial challenges “for example around the daily running of their institutions and the real everyday challenges of keeping the doors of a business open.”⁶⁵ With regard to the changed landscape for funding post-EU exit, and the welcome association with Horizon programme, Swansea University noted that “it is not clear if SMEs are getting the right support to access these opportunities; universities could help support this with funding.”

Conclusion 3. More needs to be done to recognise and understand the day-to-day realities for businesses in Wales and the barriers to their access to R&D funding, including those set out in this report relating to awareness, time constraints and procurement issues. This is particularly important in light of FSB

⁶¹ Paragraph 69, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁶² Additional information - UKRI

⁶³ Paragraph 71, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁶⁴ Paragraph 71, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁶⁵ Written evidence – RD 12

Wales's evidence about the picture for SMEs in Wales, and the need to stimulate demand. Reviewing the effectiveness of the actions being taken as part of the Collaborative Innovation Plan for Wales will be vital.

Regional disparity – are investments felt Wales-wide?

79. Bangor University's written evidence said that there "is significant regional disparity, which reflects the urban/rural composition in Wales with industrial clustering reflective of this".⁶⁶

80. When asked about regional disparity within Wales, witnesses from the higher education sector drew quite a positive picture of economic impact across Wales.

81. Amanda Wilkinson of Universities Wales said that the geographical spread of Welsh universities was a good thing, and that it did not stop universities in one area from having impact in other parts of Wales:

*"we've got a really good mix and a really good place base, but there's also nothing that stops universities delivering across Wales in terms of R&I impact."*⁶⁷

82. Amanda Wilkinson did not think that having universities as 'anchor' institutions based in certain areas resulted in public funding being channelled towards those areas at the exclusion of the wider private sector across Wales.⁶⁸ She said that the innovation funding stream was very important to helping universities engage with industry wherever it was located. Witnesses from Universities Wales and the Wales Innovation Network (WIN) also highlighted the relationship with the regional Growth Deals.⁶⁹

83. Professor Roger Whitaker said the core QR funding should be looked at when considering regional disparity between different parts of Wales:

"... if we take the research excellence framework data on headcount of researchers and look at the investment of research Wales innovation funding to Bangor, that is just over £6,900 per researcher, where, in Cardiff, each researcher receives just over £1,600 equivalent. So, actually, there's over a fourfold investment towards that region, when you look at this

⁶⁶ Written evidence

⁶⁷ Paragraph 118, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁶⁸ Paragraphs 126-127, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁶⁹ Paragraph 129, Economy, Trade and Rural Affairs Committee, 30 November 2023

through the research perspective, which is the power behind research and innovation.”⁷⁰

84. Professor Justin Lewis of Media Cymru said that the job of UKRI was to fund excellence where they find it, so there would inevitably be disparities as it was not their job to award competitive funding by location: “You need to show that you can provide very, very good value for that investment and you need to show appropriate levels of expertise. So, where you get concentrations of expertise, particularly within certain sectors within Wales, inevitably, that’s going to be an advantage for them in bidding for those funds at that level. He said for better or worse, that was the way the system works.⁷¹

85. Professor Pete Burnap, Director of Wales Cyber Innovation Hub (CIH) agreed with this, but said there were also possibly opportunities to “look across the regions in terms of smaller scale industry support”, noting a push to get more knowledge transfer partnerships into the hands of smaller companies that could benefit from them.⁷²

86. Andy Silcox of AMRC noted the importance of universities going out and working with businesses in other regions, not just in their local area: “it takes a lot of effort on behalf of the universities to go out and widen that reach across the whole of Wales in the more remote regions.”⁷³ Professor Justin Lewis said it was something Media Cymru were committed to do, citing the setting up of workshops and training centres and distributing funding beyond the Cardiff Capital Region, but said that was not necessarily a priority of their funder UKRI, who were “less concerned” about that.⁷⁴

87. To reach Welsh Government’s target for winning competitive R&D funding, Professor Justin Lewis said:

“we have to back people in a position to win it. I think that’s just a reality. Not all parts of all universities will be in that position, so to some extent we have to look at what we’re good at, and then we have to think about how we develop that, and invest a little bit to make sure that things that we’re good at attract investment to Wales.”⁷⁵

⁷⁰ Paragraph 122, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷¹ Paragraph 233, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷² Paragraph 236, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷³ Paragraph 239, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷⁴ Paragraph 241, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷⁵ Paragraph 286, Economy, Trade and Rural Affairs Committee, 30 November 2023

Conclusion 4. The Committee recognises that there are regional disparities, and that success with winning competitive funding depends on a critical mass of expertise and sector 'clusters' – Media Cymru being one example of this. There can then tend to be a circular effect created by the fact that when funding goes to these 'clusters' it is then built on with further funding wins.

Recommendation 2. The Welsh Government should undertake more analysis of the spread of R&D funding across Wales in order to fully understand the national picture, and look at fostering partnerships or other specific funding initiatives outside the areas where successful innovation clusters already exist.

3. Supporting collaboration between higher education and industry

88. Representatives of HEFCW, UKRI and Innovate UK all stressed the importance of collaborative R&D. Harriet Barnes of HEFCW said the Research Wales Innovation Fund (RWIF) was crucial – “funding universities to take the role of being anchors in the innovation community local to them, providing facilities, innovation hubs, collaboration spaces and so on.”⁷⁶

89. Cardiff Metropolitan University told the Committee it was a “concern that [Welsh Government’s] Innovation Strategy Delivery Plan names £15 million for RWIF as a successful milestone” as the Reid Review recommended £25 million.⁷⁷ HEFCW acknowledged that “in principle this should be increased to £25 million, should budgets allow, to achieve greater equivalence with funding allocated to universities elsewhere in the UK”.⁷⁸

90. Universities Wales and WIN pointed to the ‘Connecting Capability Fund’ provided by Research England to help ‘pump-prime’ collaborations, and Lewis Dean said lessons could be learnt from that funding which “has allowed learning to be generated in that space above and beyond the work that is done funded by higher education innovation funding”.⁷⁹

91. Harriet Barnes of HEFCW stressed the role of universities in skills development: “They are the place that trains the researchers and innovators of the future. Providing PhD support and so on is not the sort of thing that businesses can do on their own. Although the collaborative partnerships with industry are important, fundamentally, it is based in universities...”. She said that the new Commission for Tertiary Education and Research would help extend that work, “... because that will enable us to join up the skills development that goes on within further education and work-based learning with what universities do, and then taking it on into business and innovation.”⁸⁰ She also said the Commission would be able to help ‘systemise’ the good work going on in Wales.⁸¹

92. Dan Shah said UKRI’s five year strategy included direct interventions that aimed “to strengthen clusters and partnerships”, such as the Catapult and

⁷⁶ Paragraph 77, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷⁷ Written evidence – RD 04

⁷⁸ Evidence paper – Economy, Trade and Rural Affairs Committee, 30 November 2023

⁷⁹ Paragraph 187, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸⁰ Paragraph 78, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸¹ Paragraph 183, Economy, Trade and Rural Affairs Committee, 30 November 2023

knowledge transfer partnerships, but that it was also important to ‘pay attention’ to the signals sent and incentives set to encourage collaboration between business and academia.⁸²

93. Dan Shah expanded on the place-based approach to encouraging collaboration, saying that:

“We are innovating in the things that we fund. So, for example, the Engineering and Physical Sciences Research Council is taking a place-based approach to supporting consortia of universities and businesses to do knowledge exchange through place-based innovation accelerator accounts. Three of the 10 funded ones have a strong Welsh connection—two wholly in Wales, one, I think, straddling the border. And I think it's really important to stress the importance of this being an interaction. So, academia gets from engagement with business a real sense of the demand and the future for impact that they're incentivised to achieve, and it gets research questions and research data that are really valuable to them. Business gets not only the direct benefits from the interaction, but it gets sources of ideas it wouldn't be able to generate for itself over longer time frames. It gets infrastructures it may not want to invest in itself because you only use them once in a while, and especially it gets access to people and talent, and we know that that's a massive draw for inward investment internationally, as well as in the UK. Crucial to that is that spirit of porosity between business and academic communities.”⁸³

94. Professor Roger Whitaker backed this up, saying those innovation partnership projects were “very important in bringing industry and experts together to think about problems in different ways, as well as to translate research into deliverables.”⁸⁴ His view was that Cardiff University had good relationships with a number of larger businesses, listing some examples, and described activity as “buoyant”. He also pointed to the co-location of universities and businesses to assist that porosity, such as Cardiff University social science park, and integration

⁸² Paragraph 80, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸³ Paragraph 81, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸⁴ Paragraph 144, Economy, Trade and Rural Affairs Committee, 30 November 2023

with academies.⁸⁵ However, he said any constraint was probably around the resources available to do more.

95. Lewis Dean of WIN said that REF case studies illustrated the multiple ways in which collaborations develop between universities and businesses, and how strong relationships are built up over many years. He gave the specific example of the work that the University of Wales Trinity Saint David does with Belron on windscreen technology: “... universities across Wales are doing multiple different things to ensure that that planned serendipity happens.”⁸⁶

96. Amanda Wilkinson noted that “If you look at the higher education business and community interaction survey data, which is UK data, then Wales performs fairly strongly in this area.”⁸⁷ She pointed to “... a really high number of graduate start-ups for the size of the sector—5 per cent of the UK sector, 13 per cent of graduate start-ups—and good longevity...”.⁸⁸

97. Amanda Wilkinson also noted the importance of keeping “a weather eye” on developments elsewhere in the UK and for the Welsh university sector to respond to those, for example in relation to proposals about spin out being considered by the UK Government:

“... If the UK Government accepts that report, that will result in, for example, higher innovation funding to universities for a lower spin-out take. That could transform what we’re able to do with industrial partnerships and so it’s going to be important from a Wales perspective that we’re able to look at that and we’re able to operate in the same way, because that allows for the sort of porous interaction with expertise that we’re able to provide in the university...”⁸⁹

Differing needs of businesses and universities

98. There was a recognition across the written evidence received that innovation within universities tends to be focused on early-stage development, while industry research tends to be focused on the development of products or services for

⁸⁵ Paragraph 169, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸⁶ Paragraph 176, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸⁷ Paragraph 171, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸⁸ Paragraph 172, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁸⁹ Paragraph 141, Economy, Trade and Rural Affairs Committee, 30 November 2023

commercial marketing. According to Bangor University “the gap between the two can be problematic in terms of accessing funding”.⁹⁰

99. Bangor University also said that the “key to having successful R&D capacity is an appropriate level of funding across the full spectrum of technology readiness” and “that a failure to invest across the spectrum will cause structural weakness in our research capacity and future wider economy”.⁹¹

100. In written evidence, FSB Wales said that “the interests and needs of universities and industry may often be different and they may have different priorities, but they are not necessarily in opposition”.⁹² Moderna said that “in certain sectors, the research interests of industry and universities will differ”, however, in life sciences “interests between the sector and academia often align”.⁹³

101. FSB Wales also said that “SME’s relationships with educational institutions tended to be ad-hoc and based on personal relationships, and that the onus seems to largely be on SMEs to find the institutions rather than the other way around”.⁹⁴

102. The Committee wanted to understand the needs of businesses and the extent of gaps between the research interests of universities and industry. This was with a view to understanding any barriers, and what needs to be put in place to create a framework for more joined-up innovation so that businesses in Wales get the support they need and their share of access to public funds.

103. When asked about removing barriers created by the different needs of universities and businesses, Dean Cook of Innovate UK highlighted the “increasing importance of impact in the research excellence framework, so universities are being incentivised to think more about translation and commercialisation and working with industry so society benefits from that underpinning research.” He also pointed to the important role of UKRI to “harmonise and bring that system together”:

“So, you’ve got Innovate UK looking after the business-led interests, but much more integrating working with the other research councils. And as part of that, there is actually a

⁹⁰ Written evidence – RD 10

⁹¹ Written evidence – RD 10

⁹² Written evidence – RD 02

⁹³ Written evidence – RD 08

⁹⁴ Written evidence – RD 08

*commercialisation programme, where there's a director of commercialisation; he actually sits in with Innovate UK, but works across all of the councils. So, there's a lot of work in place to harmonise and bring that system together."*⁹⁵

Communicating the benefits of R&D

104. Witnesses all agreed that more could be done to communicate the tangible benefits of R&D to the everyday lives of people in Wales. Harriet Barnes pointed to The Learned Society of Wales report 'Making an Impact', which celebrated the economic impact of Welsh R&D, but more could be done to celebrate the outcomes of the research excellence framework. The Learned Society of Wales' written evidence to the Committee had highlighted the importance of "a better narrative".⁹⁶

105. Dean Cook said there could be a 'ramping up' of that communications effort to 'shine a light' on where public funding had led to major commercial innovation, focused on important societal challenges.⁹⁷ Dan Shah said it was important to promote to different audiences, to "tell these stories that matter to the people who want to hear them".⁹⁸ Professor Justin Lewis said part of that communication would need to take account of the need to 'be comfortable with failure' as inherent in the R&D process.⁹⁹

106. It was agreed that a piece of work needed to be done to identify creative ways to encourage engagement and participation, including through universities engaging more with schools.

Conclusion 5. The Committee heard evidence of good collaboration between universities and industry, but noted there were still constraints on doing more on that. In particular, Welsh Government should focus on addressing the barriers that prevent businesses from greater collaboration, including those raised by witnesses about protecting the necessary infrastructure for collaboration, from incubation space to partnership and networking opportunities, and ensuring equitable access to funding..

Recommendation 3. The Welsh Government should work with partners on a communications plan to highlight the impacts and benefits of publicly-funded

⁹⁵ Paragraph 65, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁹⁶ Written evidence – RD 05

⁹⁷ Paragraph 87, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁹⁸ Paragraph 89, Economy, Trade and Rural Affairs Committee, 30 November 2023

⁹⁹ Paragraph 274, Economy, Trade and Rural Affairs Committee, 30 November 2023

research and innovation to a wider range of audiences in Wales, to raise awareness of how business and academia are collaborating on major innovation challenges and increase engagement and participation in R&D, starting with schools but reaching a range of audiences creatively.

4. Views from business sectors

107. For this one-day inquiry the Committee was keen to gather views directly from business sectors in Wales. Members took oral evidence from representatives of Media Cymru, Wales Cyber Innovation Hub (CIH), and the Advanced Manufacturing Research Centre Cymru (AMRC). They explained the different sources of R&D funding for their activities and the collaborative partnerships they were involved in.

Bidding for competitive funding and investing in R&D

108. Professor Justin Lewis of Media Cymru explained the hard work involved in successfully winning £22 million in competitive funding from UKRI for the creative industries in Wales, and the setting up of a 23-partner consortium to achieve that. He said that the growing realisation of the economic importance of the creative industries sector had helped; “Sixteen per cent of businesses in Cardiff are creative industry businesses. It's a huge part of our economy now, and I think that growing realisation helped.”¹⁰⁰

109. He said that understanding the ‘particular rules of the game’ for accessing funding from UKRI, and understanding how the research councils work, was important but that universities had strength in that area and the application process was no more complex than elsewhere. The creative industries sector is very industry focused, and an ‘ecosystem’ has been created to help SMEs within it to innovate and grow:

“... a lot of the money that we get goes straight back out to them, either directly in the form of grants, or indirectly in the form of support we give them. The universities, I think, have begun to realise that they can play a really important role as conveners, collaborators of bringing industry together in Wales, particularly in an economy that is based on mostly small companies.”¹⁰¹

110. Professor Justin Lewis said that accessing match funding was “a massive challenge”, and Professor Peter Burnap of the CIH agreed this was a big issue. Professor Burnap has led AI for cyber innovation at Airbus as well as co-founding a spin-out company, and so explained the difficulties for SMEs in accessing R&I

¹⁰⁰ Paragraph 219, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁰¹ Paragraph 224, Economy, Trade and Rural Affairs Committee, 30 November 2023

funding, including being able to match fund to access public money. He said that while SMEs got on with running their business it made sense with the critical mass of expertise in Welsh universities for them to receive the money and help deliver it to the sector. He did not see applications by SMEs being boosted without a solution to the match funding issue.¹⁰² Professor Burnap did not think that dependence on grants was the answer, but suggested:

“Are there ways in which we can look at reducing the amount of actual cash matched that a start-up company needs to put in to draw down, for example, an Innovate UK grant or anything else? Could that be looked at in terms of reducing it, or being kicked down the road a little bit, for example, give them easier access to funding initially that they can pay back later?” So, I think there are a variety of things to look at, but the big barrier I would see is smaller companies, and bigger companies, to come to Justin's point about the shortage of cash at the moment to invest in R&D, and the amount of money that needs to be put in to draw down public funds.”¹⁰³

111. Professor Justin Lewis noted that the capacity of the private sector to invest for economic growth was limited, and that most of the businesses Media Cymru worked with had no R&D or innovation budget, and so public sector funding was crucial to drive growth.

112. The suggestion was made that the government or the Development Bank of Wales could take a stake in the business it has invested in to be able to recoup some of those R&D funds. Professor Pete Burnap said that was something to be looked at, but where the Development Bank invested there was still a need for private equity match, which was a barrier for start-ups and smaller companies.¹⁰⁴

113. Andy Silcox also said the bidding process itself was a barrier, in the time and money it required, and also his anecdotal observation of an overemphasis on judging impact, for example in job creation, which could be difficult for small companies to evidence, and was a factor that was ‘never audited afterwards’:

“When you start a programme, saying how many jobs this will create and how many jobs it will safeguard is a finger in the air, and yet a bid is assessed more on that, and it's a pass or fail on

¹⁰² Paragraph 287, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁰³ Paragraph 264, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁰⁴ Paragraph 266, Economy, Trade and Rural Affairs Committee, 30 November 2023

*that more than the innovation. That balance, for me, is wrong.*¹⁰⁵

114. With his spin-out hat on, Professor Pete Burnap said that “you can get pretty good bid development support for around £3,000” to write an Innovate UK smart grant, which for an SME was a lot of money. Anything that could be done to help Welsh SMEs access that tried-and-tested Innovate UK-style grant writing would be helpful. He noted the ‘snowball effect’ of success in a second and third bid by smaller companies once successful with a first bid.¹⁰⁶

115. Andy Silcox noted how Welsh SMEs were reliant on larger companies to access Innovate UK funding: “small companies access Innovate UK funding on the coat-tails of big companies like Airbus and their programmes have been part of those bigger programmes. If you're not in that circle, you'll never get access to it.”

Research agenda and collaboration

116. When asked about the key drivers for the research agenda, Media Cymru was focused on thinking ahead to ensure the sustainability of the creative industries economy. Professor Justin Lewis said “... there's a danger that we become a show-and-go economy, where we make fantastic productions for Hollywood studios or for the public service broadcasters but none of the wealth stays here. So, we're very committed to investing in innovation that allows intellectual property to stay with our companies here, whether it's a new format, whether it's a new bit of technology, whatever it is.”¹⁰⁷ He said it was very much focused on what the industry needed in terms of R&D and R&D support.

117. Professor Pete Burnap of CIH said that in cyber and digital it was a mix between focus on business needs around current products and the desire to innovate new products. An example of the former was the data innovation accelerator helping SMEs based in south-east and north Wales to understand their data assets and whether they are suitable and ready to do innovation with those. But he also pointed to the work of Cardiff University's research institutes, one of which was digital transformation:

“... which is trying to draw together the critical mass of expertise across the university, which is no mean feat ... in health tech and med-tech and transportation sustainability so that it can

¹⁰⁵ Paragraph 269, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁰⁶ Paragraphs 289, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁰⁷ Paragraph 248, Economy, Trade and Rural Affairs Committee, 30 November 2023

be outward facing and looking at cross-sector industry needs, in terms of digital transformation, and then, bringing expertise on AI and cyber security, for example, together with academic expertise in clinical applications, business operations and organisational change, et cetera, to try and create the next generation of solutions ...”¹⁰⁸

118. AMRC’s work was described as 10 per cent product focused and 90 per cent process focused, with the driver for process innovation being productivity as the “be-all and end-all”. Andy Silcox of AMRC said energy costs were now a major driver for a focus on sustainability and energy efficiency.

119. Professor Pete Burnap’s view was that in the sectors represented by the business panel, the collaboration between academia and industry was ‘very tight, very driven’.¹⁰⁹

120. Written evidence from FSB Wales also pointed to the importance of risk appetite as a barrier to innovation for SMEs, stating that

“If we are to tackle the often referred to ‘long tail’ of low productivity firms, policymakers need to find a way of reaching the 24% of business owners who state they are unlikely or very unlikely to take a risk and experiment with their product, service or business process. This includes making the issue relevant to them and their business in a time where immediate pressures will often lead to necessarily reactive immediate needs in those businesses that will trump longer term innovation planning.”¹¹⁰

121. FSB Wales noted that risk appetite varies by sector and said that addressing this barrier must be a priority for Welsh Government in its innovation strategy, and that “Consideration should be given to alleviating these pressures through agencies like Business Wales and the Development Bank of Wales, through advice and financial support services.” Its evidence also pointed to ‘uncertainty’ and ‘confusion’ about what was available and how to go about accessing funding post-EU exit. Evidence from the Learned Society of Wales also emphasised the

¹⁰⁸ Paragraph 250, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹⁰⁹ Paragraph 259, Economy, Trade and Rural Affairs Committee, 30 November 2023

¹¹⁰ Written evidence – RD 02

importance of ‘coordination of opportunities’ and the need for ‘different strategies and capabilities’ in the transition to a new funding landscape.¹¹¹

122. The BHF’s evidence pointed to the example set by the BioRegion in Catalonia to identify ways to attract more industry partners, saying that the Government of Catalonia had worked to create a thriving clinical research environment which now placed Catalonia among the top five in Europe in the capture and execution of clinical research trials.¹¹² It recommended the Welsh Government consider identifying whether elements of the Catalan approach could be implemented in Wales, including increased incentivisation of collaboration between the NHS, Welsh universities, and industry.

Conclusion 6. The Committee heard a lot of evidence about the challenges for smaller businesses in finding match funding and how this impacts their ability to access public research and development funding. Members recognise that this is a complex issue to resolve, and that dependence on grants or private equity initiatives are not necessarily the answer. However, the Committee would like to see the Welsh Government focus its attention to better understand the challenges facing SMEs and seek creative solutions.

Recommendation 4. The Welsh Government should look at what further support can be provided to SMEs: including to help them with the UKRI bidding application process, address issues relating to procurement and match funding; and to clearly signpost all the various funding streams and the help available to access them.

¹¹¹ Written evidence – RD 05

¹¹² Written evidence – RD 06

5. Conclusions

Conclusion 1. Many of the issues raised in this one day inquiry were previously examined by the predecessor Committee for research and innovation in the 5th Senedd. Although the funding landscape has changed since that Committee reported, some stakeholders are still calling for recommendations made in the EIS Committee report of 2019 to be revisited by the Welsh Government. This latest report, and the previous report of 2019, should be considered by the new Commission for Tertiary Education and Research as a priority.Page 17

Conclusion 2. The Committee welcomes the Welsh Government’s ambitions and targets for Wales to win more UK-wide funding. Quality Related funding plays a key role in universities being able to win that UK-wide funding, but QR funding has been falling in real terms which is putting Wales at a disadvantage in winning competitive funding, counter to the Welsh Government’s ambitions.Page 20

Conclusion 3. More needs to be done to recognise and understand the day-to-day realities for businesses in Wales and the barriers to their access to R&D funding, including those set out in this report relating to awareness, time constraints and procurement issues. This is particularly important in light of FSB Wales’s evidence about the picture for SMEs in Wales, and the need to stimulate demand. Reviewing the effectiveness of the actions being taken as part of the Collaborative Innovation Plan for Wales will be vital.Page 25

Conclusion 4. The Committee recognises that there are regional disparities, and that success with winning competitive funding depends on a critical mass of expertise and sector ‘clusters’ – Media Cymru being one example of this. There can then tend to be a circular effect created by the fact that when funding goes to these ‘clusters’ it is then built on with further funding wins.Page 28

Conclusion 5. The Committee heard evidence of good collaboration between universities and industry, but noted there were still constraints on doing more on that. In particular, Welsh Government should focus on addressing the barriers that prevent businesses from greater collaboration, including those raised by witnesses about protecting the necessary infrastructure for collaboration, from incubation space to partnership and networking opportunities, and ensuring equitable access to funding.Page 33

Conclusion 6. The Committee heard a lot of evidence about the challenges for smaller businesses in finding match funding and how this impacts their ability to

access public research and development funding. Members recognise that this is a complex issue to resolve, and that dependence on grants or private equity initiatives are not necessarily the answer. However, the Committee would like to see the Welsh Government focus its attention to better understand the challenges facing SMEs and seek creative solutions..... Page 39

Annex 1: List of oral evidence sessions.

The following witnesses provided oral evidence to the committee on 30 November. The transcript can be viewed on the [Committee's website](#).

Date	Name and Organisation
30 November 2023	<p>Harriet Barnes, Director of Policy and Funding, Higher Education Funding Council for Wales (HEFCW)</p> <p>Dean Cook, Director, Place and Levelling Up, Innovate UK</p> <p>Dan Shah, Director of Investment Strategy and System Insight, UK Research and Innovation (UKRI)</p>
30 November 2023	<p>Amanda Wilkinson, Director, Universities Wales</p> <p>Professor Roger Whitaker, Pro Vice-Chancellor, Research and Enterprise, Cardiff University, Universities Wales</p> <p>Lewis Dean, Head of the Wales Innovation Network</p>
30 November 2023	<p>Professor Justin Lewis, Director, Media Cymru</p> <p>Andy Silcox, Research Director, Advanced Manufacturing Research Centre Cymru</p> <p>Professor Pete Burnap, Director, Wales Cyber Innovation Hub (CIH)</p>

Annex 2: List of written evidence

The following people and organisations provided written evidence to the Committee. All Consultation responses and additional written information can be viewed on the [Committee's website](#).

Reference	Organisation
RD 01	Centre for Innovation Policy Research
RD 02	Federation of Small Businesses Wales
RD 03	Association of British Pharmaceutical Industry (ABPI)
RD 04	Cardiff Metropolitan University
RD 05	The Learned Society of Wales
RD 06	British Heart Foundation Cymru (BHF)
RD 07	CollegesWales
RD 08	Moderna Biotech UK Limited
RD 09	Higher Education Funding Council for Wales (HEFCW)
RD 10	Bangor University
RD 11	Social Enterprise Stakeholder Group (SESG)
RD 12	Swansea University
RD 13	Cardiff University
RD 14	Universities Wales
RD 15	Institute of Biological, Environmental and Rural Sciences, Aberystwyth University

Additional Information

Title	Date
UK Research and Innovation (UKRI)	December 2023
Universities Wales	January 2024