

Overview

- i. The Institute of Physics (IOP) is the professional body and learned society for physics in the UK and Ireland. It seeks to raise public awareness and understanding of physics, inspire people to develop their knowledge, understanding and enjoyment of physics and support the development of a diverse and inclusive physics community. As a charity, it has a mission to ensure that physics delivers on its exceptional potential to benefit society.
- ii. The IOP and the Centre for Economics and Business Research have found that physics is worth £7.3bn GVA to the Welsh economy and supports 113,138 jobs in Wales; this is equivalent to 10% of both GDP and full-time employment.¹ Physics-based businesses in Wales had a combined turnover of £26.7bn in 2019, a 36% increase in a decade – the fastest rise of the four UK nations and well above the UK figure of 24%. The decade also saw 41% growth in employee pay – again, the largest increase in the UK. CBI Economics has found that physics innovators are looking to expand their R&D in the next five years, provided the underlying conditions are right.²
- iii. There are several positive developments led by the Welsh and UK governments that show a clear ambition to both utilise and bolster science. The Welsh Government's desire to increase R&D investment into Wales and the promise of a new innovation strategy are welcome. The UK Government's targets of 2.4% GDP going towards R&D and an increase of research spending beyond London and the southeast of England are similarly positive developments.
- iv. However, the IOP is concerned replacements for EU funding in Wales are a *de facto* cut to science that could damage the figures and ambitions above. The IOP does not wish to re-open debates about which executive and legislature should control replacement funding, but the IOP emphatically does wish to see science safeguarded in Wales. The committee did not include Horizon Europe in the terms of reference for the inquiry, but the IOP wishes to highlight concerns. Any failures with Horizon association will exacerbate matters.
- iv. The EU always specified its regional development funding should be additional i.e., should not be used to fund activity in lieu of national governments. The IOP is concerned some projects vital to the economy and national infrastructure are facing an uncertain future. Case studies of such projects are within the substantive submission below.
- vi. The IOP notes and welcomes the willingness of the Economy, Trade and Rural Affairs Committee and wider Senedd to work on a cross-party basis with regards to post-EU funding.³ Accordingly, we would request that the Finance Committee examines the positions of the IOP and makes the following recommendations to the relevant parties:
 - UK Government to address urgently the shortfall that Welsh science will experience via the UK Shared Prosperity Fund – the £772m lost to Wales returned across the next three years.
 - MSs to consider further co-operation with MPs in their constituencies and regions on the above issue, continuing the cross-party spirit the Senedd has shown and allowing for cross-legislature positioning.
 - Welsh Government to:
 - Embed science, especially physics, in its forthcoming innovation strategy.
 - Increase its own funding streams to alleviate some of the damage to science; the recommendations of the 2018 Reid review remain the quickest remedy.
 - Make science and research funding a standing item on the agenda for the new Interministerial Groups and Standing Committees.

The IOP would be pleased to present and discuss these matters with the committee.

¹ Centre for Economic and Business Research. 2021. [Physics and the Economy: Measuring the value of physics-based industries in Wales](#). London: Centre for Economic and Business Research.

² CBI Economics. 2021. [Paradigm shift: Unlocking the power of physics innovation for a new industrial era](#). London: Confederation of British Industry.

³ Senedd Cymru 2022. [Plenary 08/02/2022](#). Cardiff: Senedd Cymru.

1. Progress in establishing and delivering replacement funds for EU structural funds, including; the UK Shared Prosperity Fund; the Community Renewal Fund; and the Levelling Up Fund.

1.1 The process for replacing EU structural funds has been disjointed and opaque. The initial promise, included in the 2017 Conservative manifesto, was that the Shared Prosperity Fund (SPF) would be a *direct replacement* for structural funds.⁴ The 2019 manifesto again carried this promise.⁵ The subsequent 2021 UK Budget revealed the SPF would start with a pilot £200m Community Renewal Fund, which was launched alongside a £4.8bn Levelling Up Fund (LUF).⁶ Consultations with key stakeholders took place via meetings, though there was no formal public consultation.

1.2 Meaningful public debates happened via Welsh Government, Senedd and UK Parliament consultations. One of the most instructive collections of views is the wide range of evidence gathered by the House of Commons Welsh Affairs Committee in its inquiry on the creation of the SPF.⁷ It is worth drawing attention to the committee's report and recommendations on the matter, which were broadly representative of stakeholder submissions.⁸ The recommendations included that the UK Government should:

- Co-create the SPF with devolved governments, with all agreeing a memorandum of understanding on the SPF's operation.
- Guarantee no cliff edge to EU funding arrangements.
- At least match EU funding levels and consider an increase.
- Continue with multi-year funding.

The UK Government accepted such principles.⁹

2. How the funding proposed for Wales and funding received via continued UK participation in EU programmes, compares to the funding received while the UK was a member of the EU.

2.1 The 2019 Conservative manifesto stated the SPF would "at a minimum match the size of [structural] funds in each nation."¹⁰ This has not transpired, and the replacements are a *de facto* cut. The UK Government should address urgently the shortfall that Wales will experience via the SPF, with the £772m returned across the next three years.

2.2 As per its February 2022 announcement, the UK Government will be allocating £2.6bn to the SPF across three years until 2025.¹¹ This means it will not match previous EU funding levels (c. £1.5bn per annum) until 2024–25. The £4.8bn LUF has been signposted as additional support, but neither of its prospectuses (i.e., guidance on what it will fund) have scope for science, research and innovation.^{12 13}

2.3 The SPF will be allocating £585m for Wales. Including the £47m from the Community Renewal Fund, this is £632m for the four years from 2021 to 2025. The SPF would have needed to allocate

⁴ Conservatives. 2017. [Forward, Together: Our plan for a stronger Britain and a prosperous future](#). London: Conservative Party.

⁵ Conservatives. 2019. [Get Brexit Done, Unleash Britain's Potential](#). London: Conservative Party.

⁶ HM Treasury. 2021. [Budget 2021: Protecting the Jobs and Livelihoods of the British People](#). London: UK Government.

⁷ UK Parliament. 2020. [Wales and the Shared Prosperity Fund](#). London: UK Parliament.

⁸ House of Commons Welsh Affairs Committee. 2020. [Wales and the Shared Prosperity Fund: Priorities for the replacement of EU structural funding](#). London: UK Parliament.

⁹ House of Commons Welsh Affairs Committee. 2020. [Wales and the Shared Prosperity Fund: Priorities for the replacement of EU structural funds: Government response to the Committee's Fourth Report of Session 2019–21](#). London: UK Parliament.

¹⁰ Conservatives. 2019. [Get Brexit Done, Unleash Britain's Potential](#). London: Conservative Party.

¹¹ Department for Levelling Up, Housing & Communities. 2022. [UKSPF allocations](#). London: UK Government.

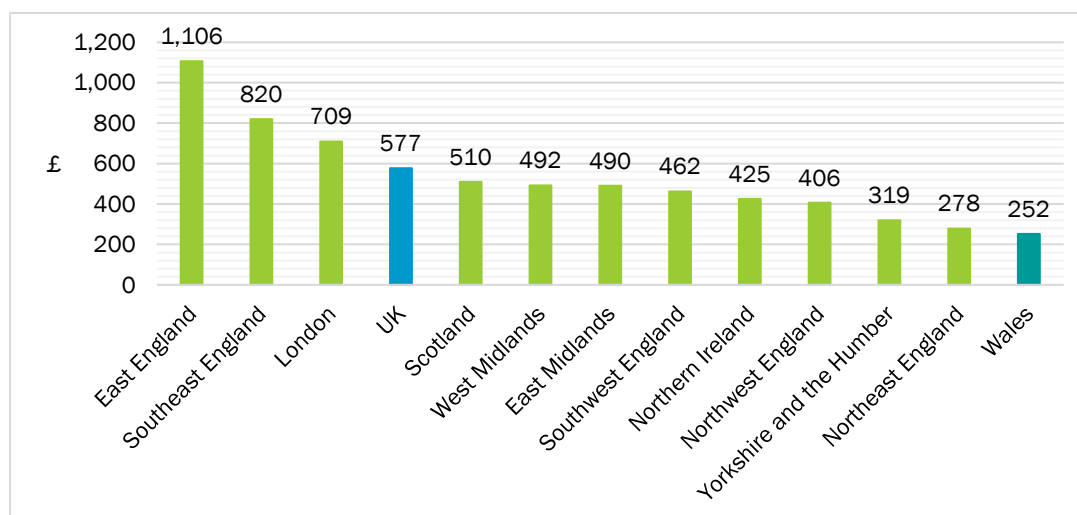
¹² HM Treasury. 2021. [Levelling Up Fund: prospectus](#). London: UK Government.

¹³ Department for Levelling Up, Housing and Communities, HM Treasury, and Department for Transport. 2022. [Levelling Up Fund Round 2: prospectus](#). London: UK Government.

£1.4bn across the same timeframe to have matched EU funding rounds and adhere to the manifesto commitment.¹⁴ This means a total shortfall of £772m (£244 per capita).¹⁵

- 2.4 Although the allocations match previous percentages of EU funding for each nation within the UK, the actual amount committed represents a 55% cut in Wales. Furthermore, £600m of the £2.6bn total is pre-allocated to the Multiply programme. Multiply will be £101m (17.3%) of the SPF allocation in Wales. The IOP has no objection to adult numeracy programmes – indeed, they are of considerable value – but it would be more beneficial to fund such programmes in addition to regional development funding.
- 2.5 It is hard to square the situation with the promises made by the UK Government before, during and after the 2019 election. Communities that relied on the income will be anxiously awaiting more details about if and how governments can close that gap. That anxiety will be shared by the physics community in Wales.
- 2.6 The deficit is significant for physics and science in Wales, where EU structural funding has bolstered research, skills and innovation.^{16 17 18 19} Structural funding for science in Wales has been critically important for several long-standing reasons. Productivity and under-investment are deep scars on the Welsh economy. Weak R&D intensity – especially in the private sector – is a well-known issue.^{20 21 22 23} The latest data from the Office for National Statistics (ONS) show Wales's productivity per hour worked is consistently far below the UK average.^{24 25} Data also show Wales with the lowest level of R&D spending per head.^{26 27}

Graph 1: ONS data on R&D spend per head across the UK in 2019



¹⁴ Evans, R. 2022. [Written Statement: Loss of funding to Wales as a result of the UK Government's arrangements for replacement EU funding](#). Cardiff: Welsh Government.

¹⁵ Welsh Government. 2021. [Mid year estimates of the population: 2020](#). Cardiff: Welsh Government.

¹⁶ Welsh Government. 2021. [2014–2020 EU Structural Funds Programme in Wales: Impact and benefits to the people, communities and businesses of Wales](#). Cardiff: Welsh Government.

¹⁷ Riordan, C. 2020. [Written evidence submitted by Professor Colin Riordan, Vice-Chancellor, Cardiff University \(SPF0020\)](#). London: House of Commons Welsh Affairs Committee.

¹⁸ Universities Wales. 2020. [Universities Wales response to the Finance Committee of the Senedd's call for information on Welsh Government Draft budget proposals for 2022/23](#). Cardiff: Universities Wales.

¹⁹ Royal Society. 2021. [The UK Shared Prosperity Fund should help to grow research and innovation capacity across the UK](#). London: Royal Society.

²⁰ Henley, A. 2021. [Wales' Productivity Challenge: Exploring the issues](#). Manchester: Productivity Institute.

²¹ Wales Productivity Forum. 2021. [The Wales Productivity Challenge: Insight paper](#). Manchester: Productivity Institute.

²² Morgan, K. et al. 2017. [Growing the Value of University-Business Interactions in Wales](#). London: National Centre for Universities and Business.

²³ Tilby, E. 2021. [Research and Innovation in Wales: Research Briefing](#). Cardiff: Senedd Cymru.

²⁴ BBC News. 2021. [Wales one of the least productive parts of the UK](#). London: BBC.

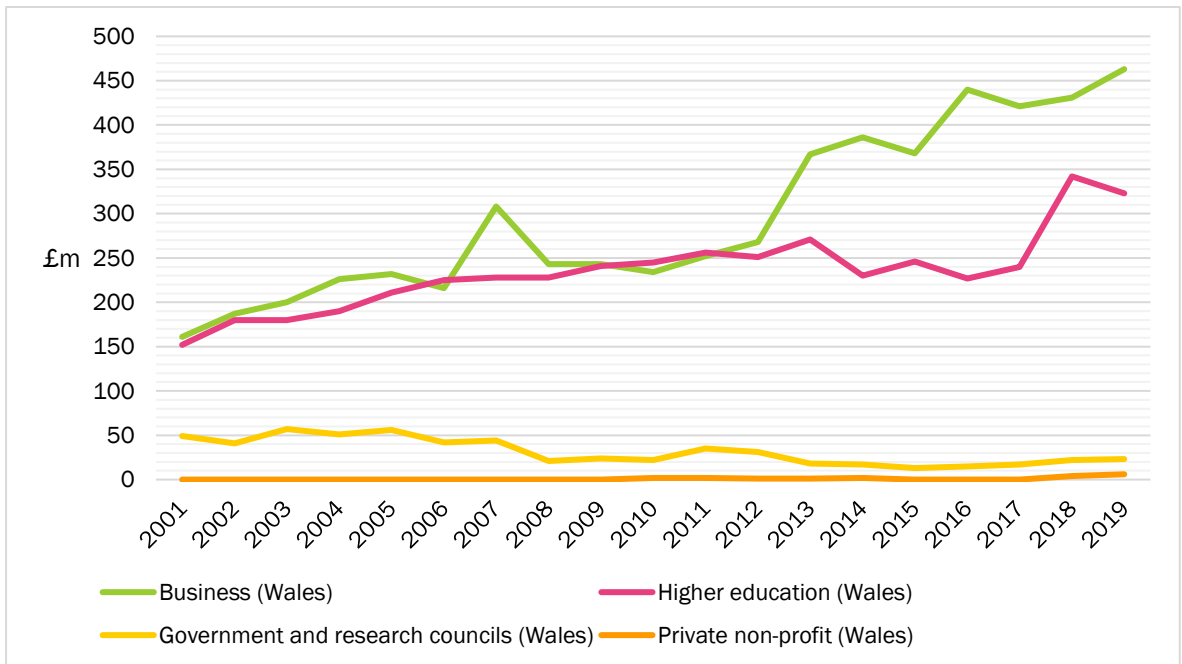
²⁵ Office for National Statistics. 2021. [Annual regional labour productivity](#). Newport: Office for National Statistics.

²⁶ Office for National Statistics. 2021. [Gross domestic expenditure on research and development, by region, UK](#). Newport: Office for National Statistics.

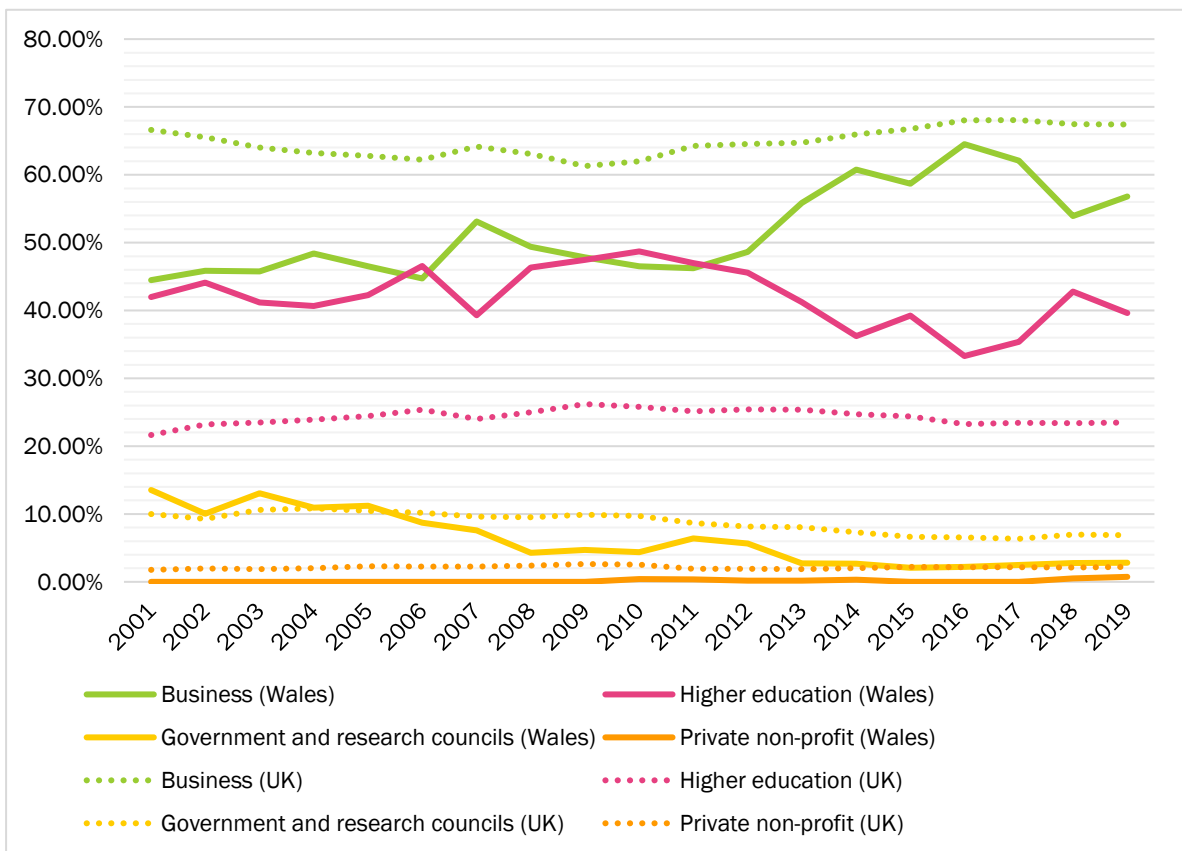
²⁷ Hutton, G. 2021. [Research Briefing: Research and development spending](#). London: UK Parliament.

2.7 The following graphs use data from StatsWales to highlight the weakness of private R&D in Wales relative to other parts of the UK, as well as the UK as a whole.²⁸

Graph 2: Expenditure on R&D by sector of performance in Wales, 2001–2019



Graph 3: Share of expenditure on R&D by sector, Wales compared to UK, 2001–09



²⁸ StatsWales. 2021. [Research and development expenditure in Wales by expenditure type and year](#). Cardiff: Welsh Government.

- 2.8 Despite such problems, physics has been a boon to the Welsh economy. IOP analysis shows it is worth £7.3bn GVA and 113,138 jobs for the Welsh economy; this is equivalent to 10% of both GDP and full-time employment.²⁹ Physics-based businesses in Wales had a combined turnover of £26.7bn in 2019, a 36% increase in a decade – the fastest rise of the four UK nations and well above the UK figure of 24%. There was substantial growth in employee pay, up 41% in the same period – also the largest increase in the UK.
- 2.9 The SPF represents a cut to regional development funding that will exacerbate the R&D weaknesses and hamper the strengths, such as physics, that exist in Wales. It will also hamper some of the encouraging policy commitments, from both governments, that the IOP supports fully. Furthermore, cuts to public spending result in a loss of additional funding; Professor Richard Jones has previously pointed to Wales missing out on a public investment and a more substantial private sector multiplier.³⁰ That is additionally significant given the private sector performance shown above.
- 2.10 This comes at a difficult time, with businesses having retrenched from R&D during the COVID-19 pandemic to secure core activity.³¹ ³² Physics innovators have said they will be looking to innovate post-pandemic and invest more in R&D in the next five years than they did in the previous five years. However, they would only do so if the conditions are right, with sufficient funding and long-term support.³³
- 2.11 The £772m shortfall will lead to budgetary pressures for the Welsh Government, and the ability or otherwise to support science previously backed by EU funds is concerning.³⁴ However, it is worth noting that EU funding was always supposed to be additional i.e., “contributions from the Funds must not replace public or equivalent structural expenditure by a Member State in the regions concerned”.³⁵ It is possible that governments have not embedded such a principle, with core infrastructure relying heavily on what should have been additional funding.
- 2.12 There are projects of enormous value to physics and Wales as a nation that now face a funding cliff edge. A pertinent example is Supercomputing Wales, which serves as the national supercomputing facility and brings together scientists from all corners of Wales. Its work spans fundamental science through to innovation. The case studies from Supercomputing Wales show how its researchers and facilities have led Wales's contributions to major physics projects.³⁶ Perhaps none is more impressive than the Welsh contribution to the detection of gravitational waves, for which the international project leaders received the 2017 Nobel Prize in Physics.³⁷
- 2.13 Staff involved in Supercomputing Wales also helped with the genome sequencing of SARS-CoV-2, while associated data scientists at Cardiff University are using mathematical modelling to reduce waiting times in Aneurin Bevan Health Board. Facilities like Supercomputing Wales are core to the Welsh economy and science base and should be protected.
- 2.14 The IOP's concern is not only with the research and innovation projects facing a cliff edge, but the skills and education projects that are invaluable in supporting the physics pipeline – the skills ecosystem is potentially more important in this area.³⁸ ³⁹ Our Space, Our Future project is a pan-Europe initiative to work with young people on their perceptions of a career in the space industry. Led in Wales by Science Made Simple and Cardiff University, it is working in schools in Blaenau

²⁹ Centre for Economic and Business Research. 2021. [Physics and the Economy: Measuring the value of physics-based industries in Wales](#). London: Centre for Economic and Business Research.

³⁰ Forth, T. and Jones, R. A. L. 2020. [The Missing £4 Billion: Making R&D work for the whole UK](#). London: Nesta.

³¹ Ulrichsen, T. C. 2021. [Innovation during a crisis: The effect of the Covid-19 pandemic on how universities contribute to innovation](#). London: National Centre for Universities and Business.

³² National Centre for Universities and Business and University Commercialisation & Innovation. 2021. [Innovation and Resilience in a Crisis: the Impact of Covid-19 on Business R&D](#). London: national Centre for Universities and Business.

³³ CBI Economics. 2021. [Paradigm shift: Unlocking the power of physics innovation for a new industrial era](#). London: Confederation of British Industry.

³⁴ Evans, R. 2022. [Written Statement: Loss of funding to Wales as a result of the UK Government's arrangements for replacement EU funding](#). Cardiff: Welsh Government.

³⁵ European Commission. 2022. [Additionality](#). Brussels: European Commission.

³⁶ Supercomputing Wales. 2019. [Achievements and Outputs 2017 – 2020](#). Cardiff: Supercomputing Wales.

³⁷ Cardiff University. 2017. [LIGO scientists celebrate Nobel Prize](#). Cardiff: Cardiff University.

³⁸ Royal Society. 2022. [Regional absorptive capacity: The skills dimension](#). London: Royal Society.

³⁹ Donald, A. 2022. [Regions flourish when people and industries have the skills to absorb new ideas](#). London: Wonkhe.

Gwent, Bridgend, Cardiff, Port Talbot and Wrexham. Its efforts to understand the barriers and inspire young people, including a more diverse cohort of young people, into physics now face an uncertain future. The replacement funding will not be able to carry forward the legacies of all EU-funded projects and there is a substantial risk of outstanding work disappearing.

3. The mechanisms and structures being established to administer those funds in Wales, the roles of those involved, in particular the Welsh and UK Governments, and the consequent impact on accountability arrangements.

- 3.1 It is not just the amount of funding that Wales stands to lose, but also the content of the schemes themselves. Firstly, EU structural funds were needs-based. This was entirely appropriate, given their purpose. Funds went to regions in EU member states based upon GDP per capita in three tiers: less developed ($\leq 75\%$ EU average GDP per capita), transition (75–90% of EU average GDP per capita) and more developed ($\geq 90\%$ EU average GDP per capita). West Wales and the Valleys was a less developed region and East Wales was transition.
- 3.2 The replacements are competitive, albeit with a methodology that takes regional inequality into consideration.⁴⁰ The clear consensus from stakeholders was that the SPF should not be competitive and should run on a multi-annual basis. However, the SPF only runs to 2025 and prospectuses are reissued annually; this does not breed confidence or allow for patient, evidence-based innovation. As above (see 2.10), physics innovators are asking for longer-term security.
- 3.3 The new system also risks duplicating past errors. Wales has decades of experience in administering structural funds. After Brexit, there was an opportunity to learn the lessons that had been developed, reinforcing the strengths of EU schemes and removing past weaknesses. However, this expertise is now being lost via the replacement structure. Many of these lessons were ready to be implemented via the Welsh Government's regional development framework, which was created in collaboration with a diverse range of stakeholders from across Wales.⁴¹ Crucially, that framework retained a range of strong commitments to science, research and innovation.
- 3.4 Firstly, pan-Wales schemes (like Supercomputing Wales) are going to be harder to foster with the funding dispersed amongst local authorities. This helps decision-making to become more embedded in local communities and reflect their concerns, which the IOP welcomes, but it does risk projects that span Wales becoming difficult to develop. How an individual physicist can build support for a project with local authorities at different ends of the nation is hard to imagine. Furthermore, dual-government delivery in devolved areas can create confusing systems for recipients to navigate.
- 3.5 An overlooked benefit of the EU system, which is not possible with the replacement funds as designed currently, is smart specialisation. While different EU funds were not used for the same project specifically, different parts of regional development could access complementary funding. A region could, for example, support a fundamental physics initiative via Horizon, its innovation via one part of structural funds and associated skills via another. There is not the same compatibility between the SPF and LUF, with only the former bearing any relation to science. This is a lost opportunity to build more clusters of expertise, like the physics-based compound semiconductor cluster, in Wales.⁴² As above (see 2.14), the absorptive capacity of a region needs to be boosted alongside its innovation supply.
- 3.6 This is not to diminish several positive developments led by the UK Government. Firstly, UK Government policy documents and statements have shown clear ambition to utilise and bolster science. Indeed, the UK Government's own evidence for its innovation strategy put great emphasis on technological innovations.⁴³ Many of the accompanying documents were also focused on

⁴⁰ Department for Levelling Up, Housing & Communities. 2020. [UK Shared Prosperity Fund allocations: methodology note](#). London: UK Government.

⁴¹ Welsh Government. 2020. [A Framework for Regional Investment in Wales](#). Cardiff: Welsh Government.

⁴² European Commission. 2016. [SMART Specialisation in Wales – A Case Study](#). Brussels: European Commission.

⁴³ Department for Business, Energy & Industrial Strategy. 2021. [Evidence for the UK Innovation Strategy](#). London: UK Government.

technology and regional equity.^{44 45 46} A subsequent paper on post-Brexit priorities dedicated a section to science and technology.⁴⁷

- 3.7 Furthermore, the SPF has an avowed commitment to reduce bureaucracy. This is one of the key lessons to learn from structural funds, which carried with them a large administrative burden. Such an onus disenfranchised microbusinesses and SMEs, which comprise over 98% of physics businesses in Wales.⁴⁸ The SPF does also include a commitment to innovation and science, especially in Wales.⁴⁹
- 3.8 Another positive development is the UK Government's commitment to fund more R&D in Wales. The UK Government published its white paper for levelling up in February 2022.⁵⁰ It was accompanied by a paper on how levelling up will be delivered across the UK.⁵¹ The most positive aspect for Wales was the commitment to increase R&D spending outside the Golden Triangle by 40%. This should be welcomed, provided it is new money and not a reallocation of resource, and credit should be given to the UK Government for the move (though a larger uplift is needed for the UK Government to hit its overall target of R&D spending reaching 2.4% of GDP by 2027.^{52 53}
- 3.9 There are still routes forward for better engagement. Co-operation between MSs and the MPs in their constituency or region would be welcome, especially in the cross-party manner shown by the Economy, Trade and Rural Affairs Committee. If clarity of voice could be built in partnership, then changes could be pursued in both the Senedd and UK Parliament (irrespective of political party).
- 3.10 The House of Commons Welsh Affairs Committee held a one-off session on the Community Renewal Fund in March 2021, with a one-off session on levelling up and intergovernmental relations in March 2022. The discussions from both are pertinent to this inquiry and a joint sitting might be beneficial.
- 3.11 The changes to intergovernmental relations, announced in January 2022, could be a positive route forward.^{54 55} The new system is welcome, and the Interministerial Standing Committees and Interministerial Groups provide the ballast that was previously missing in a haphazard arrangement. The IOP believes science, research and innovation (including funding) should be added as a standing item to some of the committees and groups, as the matter is one that clearly cuts across devolved boundaries.
- 3.12 Similarly, the stance taken when granting legislative consent to the Advanced Research and Invention Agency (ARIA) Bill could be instructive; the Senedd granted consent (with the Welsh Government's support) on the basis that a memorandum of understanding would be signed between the governments on the operation and governance of ARIA.⁵⁶ As recommended by the Welsh Affairs Committee (see 1.3), a memorandum of understanding for replacement EU funding would be welcome.

⁴⁴ National Institute of Economic and Social Research. 2021. [From ideas to growth: Understanding the drivers of innovation and productivity across firms, regions and industries in the UK](#). London: UK Government.

⁴⁵ PwC. 2021. [The Potential Impact of Artificial Intelligence on UK Employment and the Demand for Skills](#). London: UK Government.

⁴⁶ Herr, D. et al. 2021. [The Economic Impact of Robotics & Autonomous Systems across UK Sectors](#). London: UK Government.

⁴⁷ UK Government. 2022. [The benefits of Brexit: how the UK is taking advantage of leaving the EU](#). London: UK Government.

⁴⁸ Centre for Economic and Business Research. 2021. [Physics and the Economy: Measuring the value of physics-based industries in Wales](#). London: Centre for Economic and Business Research.

⁴⁹ Department for Levelling Up, Housing & Communities. 2022. [Interventions list for Wales](#). London: UK Government.

⁵⁰ UK Government. 2022. [Levelling Up the United Kingdom](#). London: UK Government.

⁵¹ UK Government. 2022. [Levelling Up: Delivering for all parts of the UK](#). London: UK Government.

⁵² Institute of Physics. 2022. [IOP Submission to the Nurse Review](#). London: Institute of Physics.

⁵³ Institute of Physics. 2022. [UK Government Levelling Up White Paper: policy briefing and analysis](#). London: UK Government.

⁵⁴ Cabinet Office and Department for Levelling Up, Housing and Communities. 2022. [The review of intergovernmental relations](#). London: UK Government.

⁵⁵ Drakeford, M. 2022. [Written Statement: Review of Intergovernmental Relations](#). Cardiff: Welsh Government.

⁵⁶ Gething, V. 2021. [Supplementary Legislative Consent Memorandum \(Memorandum No. 2\): Advanced Research and Invention Agency](#). Cardiff: Senedd Cymru.

4. The amount of legacy funding that Wales is due to receive following the UK's exit from the EU and associated with EU structural fund programmes.

4.1 Funds that Wales will continue to receive from the EU are legacy only and have already been announced.⁵⁷ Under EU arrangements, £1.5bn per annum would have arrived *in addition* to the legacy funding i.e., there would have been a period in which the annual amount exceeded £1.5bn. Under the SPF, money is added to the legacy funding so that it reaches £1.5bn per annum.

- EU = £1.5bn + legacy funding
- SPF = £1.5bn - legacy funding

5. Additional matters

5.1 While the committee's inquiry is largely examining the processes and financial impacts of the post-EU funding arrangements, there are additional matters not covered by the terms of reference on which the IOP wishes to offer comment:

- Welsh Government action to alleviate funding cuts.
- Additional concerns regarding Horizon Europe.
- Support for cross-party work on the issues.

5.2 The Welsh Government acknowledges that the inadequate replacement funding will create significant budgetary pressures, not least for science and innovation. The point has been made on numerous occasions by ministers. However, the buck cannot be passed to Westminster alone and policymakers in Wales should look to act within their own competencies.

5.3 Even while Wales was in the EU, it was readily acknowledged that more needed to be done for science and research. The worst-case scenario is a budgetary squeeze from both governments, with scientists in Wales hampered by decisions in both London and Cardiff. While the Senedd faces obvious barriers in calling the UK Government to action, there is still work that can be done by the Welsh Government and the Senedd.

5.4 The 2018 review of government-funded research and innovation, led by Professor Graeme Reid FInstP, was the last concerted effort to look at the picture in the round.⁵⁸ The recommendations were all sound in their reasoning and were welcomed by a range of organisations. As has been covered by Cardiff University, the Welsh Government remains some way short of fulfilling the Reid recommendations – the shortfall last year was over £60m.⁵⁹ Such a figure would cover any per annum loss to research incurred from the SPF.

5.5 It is important to remember that the budget allocated to research by the Higher Education Funding Council for Wales (HEFCW) is still smaller than it was in 2009.⁶⁰ Adjusting for inflation, the latest data show the drop was £17m (14.3%) between 2009 and 2020. This was the largest gap of the four UK nations in both nominal and percental terms.

Table 1: Inflation-adjusted change in funding council allocations for research, 2020 compared to 2009

Nation	Funder(s)	Change (£m)	Change (%)
Wales	Higher Education Funding Council for Wales	-17	-14.3%
Northern Ireland	Department for Education	-12	-11.7%
England	Higher Education Funding Council for England / Research England	+282	+11.5%
Scotland	Scottish Funding Council	+62	+17.4%

⁵⁷ Welsh Government. 2022. [EU Exit Transition & Post Transition Period and EU Structural Funds 2014-20 Programmes: FAQs](#). Cardiff: Welsh Government.

⁵⁸ Reid, G. 2018. [Review of Government Funded Research and Innovation in Wales](#). Cardiff: Welsh Government.

⁵⁹ Cardiff University. 2021. [Welsh Parliament Economy, Trade and Rural Affairs Committee Priorities for the Sixth Senedd](#). Cardiff: Senedd Cymru.

⁶⁰ Office for National Statistics. 2022. [Research and development expenditure by the UK government](#). Newport: Office for National Statistics.

- 5.6 Furthermore, it is concerning that the Welsh Government's current ambition is to ensure "Wales has a fair share of available research, development and innovation funding and [to] work to secure funding levels at least equivalent to those we received historically, via the European Union".⁶¹ The pre-Brexit consensus was that Wales invested in science insufficiently, so returning to EU funding levels is too low a target. The Welsh Government supplements the target with a promise to "work to address historic underfunding from both competitive and non-competitive UK investment sources".⁶² Implementation of the Reid review would go some way to meeting the supplementary ambition.
- 5.7 In addition to funding increases, it is vital that physics and wider science is recognised, valued and embedded in the forthcoming innovation strategy (as promised in the *Programme for Government*).⁶³ The value of physics, and physics-driven innovation, to the Welsh economy must be safeguarded.
- 5.8 The IOP also wishes to raise additional concerns about the future of the UK's participation in Horizon Europe. While the UK Government has reiterated its commitment to association, and guaranteed replacement funding if association is not secured, the timescales are slipping.⁶⁴ The additional blow of Horizon failure must be avoided. If association is not secured, lessons should be learnt from the disappointing way the SPF and LUF have been delivered.

⁶¹ Drakeford, M. 2021. [Written Statement: Five priorities for research, development and innovation](#). Cardiff: Welsh Government.

⁶² Ibid.

⁶³ Welsh Government. 2021. [Programme for Government – Update](#). Cardiff: Welsh Government.

⁶⁴ Inge, S. 2022. [UK winners of EU grants given two-month ultimatum](#). London: Research Professional.