Review of government funded research and innovation in Wales
The full response of Universities Wales

1. About Universities Wales

1.1. Universities Wales represents the interests of universities in Wales and is a National Council of Universities UK. Universities Wales' Governing Council consists of the Vice-Chancellors of all the universities in Wales and the Director of the Open University in Wales.

2. General comments

2.1. The following submission provides our full response to the call for comments on the future of research and innovation in Wales, as published by the Welsh Government on 15 May 2017. This expands on the comments we have already given in initial oral evidence, and is the basis for our formal on-line submission. We have also previously replied separately by email to the additional specific questions which were requested on more technical issues (see Appendix 3).

2.2. We welcome the opportunity provided by the current consultation to review the nature and mechanisms for the Welsh Government's investment in research and innovation in Wales. Our assumption is that this will build on the outcomes of the Diamond Review for higher education, whose recommendations included substantial investment in core grant funding for research and innovation via HEFCW as part of a package of overall funding and student support. These recommendations have been accepted in principle by the Welsh Government.

2.3. We also expect this review to inform the Welsh Government's White Paper consultation on post-compulsory education and training in Wales, published on 20 June 2017. This sets out proposals for reorganising the funding and oversight of different education sectors including plans to establish a single funding body for all post-compulsory education and training (with the exception of school sixth forms at this stage) and a statutory committee within the new body which would be responsible for research and innovation.

2.4. The current consultation questions in particular focus on questions about how Wales will deal with recent developments across the UK which impact on research and innovation in Wales. This includes the UK Government's major investment in research and innovation, as first set out in its 2016 Autumn Statement, and the reconfiguration of arrangements for the funding and oversight of research and innovation for the UK and England under the Higher Education and Research Act 2017. Wales will need to consider how best to respond and to contribute to the work of UKRI and the development of the UK strategies relating to research and innovation and the UK Industrial Strategy. The withdrawal from

the EU will have a major impact on Welsh universities and a priority for Wales will be to establish replacement arrangements for universities who are likely to no longer have access to EU structural funding and may not have access to competitive EU funding in future.

2.5. In addition, a number of major developments in the UK and changes to potential funding streams need to be taken into account. This includes replacement arrangements for EU funding in the light of Brexit, the major increase in investment in UK Research and Innovation funding, including Industrial Strategy funding, and potential increases in funding specifically for England with consequential additional funding for Wales, the reconfiguration of the research and innovation funding bodies and mechanisms under the HE and Research Act 2017.

2.6. These collectively give rise to the need to consider what else may be required to provide support for research and innovation in Wales that will really meet its future needs. In addition to considering further how the Diamond Review recommendations could be built on, this is an opportunity to consider how future funding arising from these changes could best be used and directed in Wales.

Question 1. How can future support for Government-led investment and support for research and innovation in Wales be aligned with the requirements of the Well-being of the Future Generations Act (2015)? What link should there be between the WFG Act (2015) requirements and the economic and industrial strategy of the Welsh and UK Governments?

3. Alignment with the Future Generations Act

3.1. Research and innovation at Universities in Wales is vital to the delivery of the goals of the Well-being of Future Generations Act 2015. Universities are the major drivers of research and innovation in Wales and have accounted for between 40%-50% of all research and development investment in Wales over the last decade. They play a critical role in supporting research and innovation in diverse ways including equipping graduates for future, facilitating business needs, and leading in the development of an overall culture which fosters research and innovation.

3.2. Universities make an extensive and wide-ranging contribution to each of seven well-being goals of the Future Generations Act whose aims are to improve the social, economic, environmental and cultural wellbeing of the people of Wales.[1] The goals align closely with the individual missions and objectives of universities in Wales. Similarly, support for research and innovation at universities makes a vital contribution to the economic and industrial strategies of the Welsh and UK governments, to the benefit of Wales.

[1] See for instance, HEFCW's 'Higher education for future generations', January 2017, here.

3.3. Research and innovation in Wales has a very real and significant impact on peoples' lives in Wales – from improving the detection of abnormal blood clotting to safely disposing of high levels of nuclear waste; from exploring how sport can improve mutual respect and understanding to using computers to reduce preventable deaths in the health service; and from improving the quality of our bathing waters to reducing costs to our health service. In the recent REF exercise, Welsh universities had the highest percentage of research whose impact is considered to be 'world leading' with almost half of it considered to be having a transformational effect on society and the economy.

3.4. In terms of alignment, we are clear that ultimately the government's investment in support for research and innovation needs to be measured in terms of what universities deliver for Wales. Although universities as independent charities are not directly subject to the requirements of the FGA, we would like more wide-spread recognition and promotion of the role that universities play towards the achievement of each of its goals, and universities seen as a central part of the Welsh Government's economic and wider strategies. Our recent work with HEFCW on a draft HE strategy reflects this approach at sector level.[2] At the same time, we are clear that core research ('QR') funding for individual universities should not be hypothecated in terms of the Act.

4. Links with economic and industrial strategy of the Welsh and UK Governments

4.1. It is essential that Wales draws on its strengths and rises to the challenges of the global race to upskill and invest in its knowledge base and capacity to innovate. Wales will need to work in partnership with researchers and innovators from across the UK and overseas to deliver breadth and scale for Wales. For these reasons, Wales must remain part of a UK wide research and innovation system.

4.2. This means that it will be essential to take into account, and build on opportunities arising from UKRI and the major additional investment in research and innovation funding in the UK. We will need to work effectively with our UK counterparts, while identifying and supporting the areas of greatest strength and opportunity that will maximise Wales' prospects of success and meets its needs.

4.3. The UK Industrial strategy identifies a number of key elements of its strategy which will be important for the future of the economy and industry in Wales. This includes for instance: encouraging trade and inward investment, cultivating world-leading sectors, delivering affordable energy and clean growth, developing skills, creating the right local institutions, improving procurement, supporting businesses to start and grow, driving economic growth across the whole country, and upgrading infrastructure.

[2] See HEFCW Circular W16/33HE Developing a Higher Education Strategy for Wales, 30 Sept 2016, here.

4.4. As the Welsh Government points out in its response, however, the UK industrial strategy covers a mixture of areas that are devolved, partially devolved and reserved. Although 'Research Councils' and 'UKRI' are excepted/reserved under the Government of Wales Act 2006, 'research' more generally will remain devolved.[3] Wales and the UK need to work together to make sure that the exercise of their separate responsibilities complement and support each other for the benefit of Wales.

Question 2. What can be done by the Welsh Government, Welsh universities and the private sector to increase the competitiveness of the research and innovation landscape in Wales, thereby increasing the attractiveness of Wales as a place to undertake research and innovation and attract inward investment and investors from outside Wales, both in academia and in industry?

5. Increasing competitiveness

5.1. There is an urgent need for increased investment in research and innovation in Wales. Research and innovation are major drivers of prosperity and economic growth. The UK government's commitment to spending increases reflects the fact that the UK as a whole needs to significantly increase its invest in research and innovation to keep up with global competition and secure its future. The UK's current spending is around 1.7% of GDP whereas the world's global innovation leaders such as Austria and Japan commit to 3% of GDP.

5.2. Wales lags significantly behind the UK. Wales' total research and innovation expenditure in 2015/16, for instance, was only 2.1% (at £663m) of the UK expenditure.[4] At one stage universities expenditure accounted for more than half of all such expenditure in Wales. However, Universities expenditure on research and innovation has not increased at the same pace as business expenditure since 2010 and it last accounted for 43% of this in 2015.[5] Wales's long-term prosperity in a global economy will depend on its ability to foster research and innovation which is genuinely transformational in nature and can deliver real long-term social and economic benefits.

5.3. There are clearly a number of elements that will be key to a successful approach. Above all the Welsh Government needs to provide a research and innovation base within universities that is fit for purpose and sustainable. The key issue is implementation of the Diamond recommendations which establish a sustainable dual funding system, which

[3] In essence devolved arrangements will stay the same despite recent changes to the devolution settlement. At the moment 'education' with the exception of 'research councils' is devolved under GOWA 2006. UKRI will be excepted under HERA 2017 when it replaces the Research Councils formally. When the Wales Act 2017 comes into force, UKRI will be 'reserved' but education more generally will be devolved by default.

[4] See StatsWales, here.

[5] See StatsWales, here.

provides significant investment in core infrastructure and access to UK wide competitive funding, for both research and innovation.

5.4. In addition to ensuring that institutions are financially sustainable overall, there needs to be a balance of funding specifically supporting research and innovation that addresses a spectrum of important research and innovation opportunities from fundamental/blue-sky research to close-to-market research and to facilitate the effective diffusion of the end-products of research and innovation.

5.5. This must include an appropriate emphasis on blue sky research and subject-led activities where the market on its own cannot be expected to deliver the levels of investment. There is evidence to suggest that such research can have a particular ability to produce radical innovation and transform the economy. Universities have a particular lead role in this in Wales, and core research funding in particular is essential to support this. At the same time we need to promote research and innovation designed to address specific needs and opportunities. There is significant evidence to suggest that policies which address the tail end of the cycle tend and encourage demand for innovation are particularly suited for these needs.[6]

5.6. It will be important to attract, retain and foster the skills and capacity of researchers and innovators, including both staff and students/graduates. Links and partnerships are essential for research and innovation and we will need to facilitate the interaction of research units, innovators and end-users. It will be important to ensure that critical mass is developed, while drawing on more widespread expertise and niche specialisms.

5.7. In our view, it is also very important to ensure that the research and innovation funding is primarily allocated, as currently, at arms-length through an independent funding body with the requisite knowledge of sector and expertise – as is currently the case with HEFCW. In line with the Haldane principles which are now enshrined for England in the HERA 2015, this will help to ensure that decisions can be made on the basis of evidence and that institutional and academic autonomy continues to be protected. We will comment on the proposals for a single funding body for the PCET in due course, but welcome the apparent intention that this should continue to be the case.

6. Core funding for research

6.1. First and foremost, **'unhypothecated' core funding** is needed to provide a secure research base and reward research excellence. QR funding plays a distinctive and critical role in providing support for research:

[6] (OECD 2010)

- The block grant for research (QR funding) is **a crucial part of the dual-funding system** for universities, providing the **basic research infrastructure** and investment, including the salary costs of permanent academic researchers, support staff, equipment and libraries.

- The **certainty and predictability** of QR funding allows planning over long planning horizons, and as unhypothecated funding it allows **strategic investment** in priority areas. It supports blue-sky research and research in subjects for which limited competitive funding is available, and allows an institution to develop research capacities which industry will need in the future but may be unwilling to support at present.

- It provides a **sustainable research capability**, providing critical mass and continuity for research teams between projects. It also provides the capacity to attract and retain leading researchers, and provides the teaching and support base for research students and the next generation of upcoming researchers.

- QR funding **underpins research funding bids and helps universities to remain competitive** by funding high quality researchers, facilities and equipment and providing the flexibility to react quickly to emerging priorities and opportunities.

- It helps to **bridge the gap between project income and full economic costs** and to enable universities in Wales to compete on more equal terms with other universities in the UK and overseas. Grants provided by the Research Councils, for instance, are expected to meet 80% of the Full Economic Cost (FEC) of the research undertaken. The QR funding provided by the HE Funding Bodies helps institutions meet the remaining 20% of the costs of research funded by the Research Councils.[7]

- **Performance gains:** Welsh universities performed strongly in the UK-wide Research Excellence Framework (REF2014). More than three-quarters (77%) of the research submitted by universities in Wales in 2014 was assessed as world-leading or internationally excellent. 49% of the research submitted was judged to be world-leading in terms of its impact in life beyond academia, compared to 44% across the UK as a whole. Wales appears to punch above its weight for the size of its investment.

- **Additional income generation:** HEFCW estimate[1] that QR investment facilitates the capture of:
    - more than 60% more funding from the UK Research Councils.
    - around 180% more funding from other sources including UK industry, UK central government and the EU.

[7] See HEFCW Circular W16/42HE here.

[1] HEFCW Response to the consultation on the Welsh Government Budget 2016/17.

An independent study of QR funding in England found **a positive relationship between total QR funding and the generation of third stream income** at a university. This result is both statistically and economically significant[8].

- **Internationalisation:** It enables universities to attract a significant number of international researchers and students, and to interact with universities across the globe in an increasingly international and competitive research environment. It also enables universities to take advantage of such opportunities as the Global Challenges and Newton fund, and related activities. In turn, the above provide significant knock-on benefits and wider impact for the national economy and Welsh communities.

6.2. For avoidance of doubt, we support the Diamond Review recommendation which was that Welsh QR funding should be maintained in real terms at £71m per annum for at least five years. The report made clear that inflationary pressures on costs were a key dependency of the financial modelling and estimated cost envelope (p.69), and that the figures were presented in terms of a 2015/16 baseline.

6.3. We view this as the minimum investment necessary for QR and appreciate that the Diamond Recommendations need to be accepted as an overall package. However, we believe that there is a strong case, should future funding permit, that investment should be higher in the light of recent developments, consistent with the guiding principles set out in the Diamond Report. The recurrent funding for research in England by comparison, for instance, was £1,595m for 2017/18, which by our calculations is equivalent of £90m for Wales if the Barnett formula is applied. One difficulty with the current level of QR funding in Wales is that, in seeking to make effective use of the funding, it is concentrated in the most research active universities, and the smaller pockets of excellent research are not always rewarded. A larger investment would allow this to be distributed more widely.

6.4. In our prior email response (Appendix 3) we have also outlined the importance of ensuring that actual figures reflect inflation, as proposed by Diamond, to avoid the value of the funding being seriously eroded.

6.5. The Welsh Government accepted this Diamond recommendation in principle in their response, to be implemented from 2018/19 onwards. We were also pleased that the Welsh Government's recent White Paper clearly proposes that its streams of funding should include unhypothecated 'QR' funding based on REF.

7. Funding for knowledge exchange

7.1. We would strongly welcome the reintroduction to Wales of core funding for innovation and knowledge exchange. There is currently no equivalent in Wales to the HEIF fund or capital

[8] http://www.hefce.ac.uk/media/hefce/content/pubs/indirreports/2014/A,review,of,QR,funding,in,English,HEIs/2014_qrreview.pdf

funding for the research or national infrastructure which provide a strong platform for innovation.

7.2. Independent studies of the impact of the HEIF in England found that innovation funding has significant benefits for economic and regional development that are both monetary and non-monetary, including significant benefits for social and community groups and SMEs.[9]These studies found that the HEIF presents a return of investment of £7.30 per £1 as well as an additional £2.40 of non-monetised benefits. The success of this funding prompted the House of Commons Science and Technology Committee to conclude that "such funding should be consistently available across the United Kingdom".[10]

7.3. The Diamond Report recommended a budget of £25m (at 2015/16 prices, excluding inflation), to support knowledge exchange in addition to the research funding. This was intended to have two elements comprising a 'dual support' system of core funding for knowledge transfer: including £20m for response-mode scheme, and £5m to support the creation of two knowledge transfer hubs.

(a) Response-mode scheme

7.4. The Diamond Report recommended that there should be £20m for a **response-mode scheme** that permits universities, in collaboration with industry, to bid for support for specific projects: "While the areas to be funded need to reflect opportunity and need and be jointly conceived by industry and academia some examples might be funding to enable the development of research into proof of concept; funding to enhance the opportunity for increases in shareholder value through technological developments; funding to support foreign direct investment in research and development in Wales; funding to support enhanced engagement between university and industry teams such as secondments; business support services; funding to support the creation of high value spin-outs; and incubation facilities. It should also be emphasised that the areas that can benefit from these projects should not be confined to STEMM-based areas. Opportunities could exist in, for example, the creative industries or in finance." We agree with this assessment and believe there are opportunities in other areas too, including humanities. Recent research highlights in particular the significant diversity and interconnectivity of different disciplines that can impact on any area.[11]

7.5. The current level of HEIF funding for England is £160m for 2017/18 (it was the same for 2016/17). The equivalent level of funding for Wales, calculated using the Barnett formula,

[9] See http://www.hefce.ac.uk/pubs/rereports/year/2015/heifeval/

[10] House of Commons Science and Technology Committee, Managing intellectual property and technology transfer, (March 2017).

[11] See Hewlett K. and Hinrichs-Krapels, Impacts of academic research from Welsh universities, May 2017 (commissioned by the Learned Society for Wales), p.27ff.

is £9.1m. In addition, institutions in England also benefit from significant capital funding for research amounting to £338m for 2016 and £203m for 2017/18 – equivalent to £19.1m and £11.5m for Wales respectively.

7.6. We agree with the guiding principle set out in the Diamond Report that flexibility in the deployment of this funding is essential. We note that the Welsh Government's recent White Paper proposes a **Hypothecated Strategy-related Research and Innovation (SRI) funding**. This funding would be awarded on competitive merit according to Welsh Government national priorities agreed in the Commission Strategic Plan. Our initial view is that we welcome this. In some respects it is broader than the funding proposed by Diamond enabling a strategic as well as response-mode approach to be taken – importantly, at the discretion of an independent funding body with appropriate oversight of the sector and needs and requirements of Wales.

(b) Knowledge exchange hubs

7.7. Additionally, the Diamond Report recommended £5m for a stream of funding aimed at funding **two knowledge exchange hubs**. The intention is that this is driven, as with QR funding, by volume of 3* and 4* STEMM research activity as measured by the Research Excellence Framework and other measures including annual income from research grants and contracts, externally funded research students, and level of collaborative commercial activity.

7.8. As we understand it, Diamond recommends that funding focuses on providing critical mass. The hubs, however, are intended to balance this with a flexible solution that could potentially enable research and innovation to be harnessed more widely: "critical mass is essential in maximising economic benefit but to fund primarily on scale would be likely to eliminate some universities with niche activities or where their geography is important for local economies." These hubs would be expected to be flexible and agile so as to respond positively and at pace to emerging commercial opportunities and to industry demand. The activities that these hubs would enable might include teams to promote and manage the university-industry relationship and enable effective translational technology transfer activity. The Diamond Report envisages it operating through link staff appointed by the smaller universities and answerable to those universities.

7.9. We welcome and support the Diamond Recommendation but there are clearly aspects of the proposal that require more detailed consideration at this stage. **We would like to see more specific proposals put forward as the basis of a separate consultation.** For instance, it is unclear what their focus would be e.g. broker relationships, provide IP and commercialisation advice, provide office/laboratory space, or shared equipment and space for industry and academics to work together. It is also unclear whether they would work across all sectors or focus on one each, or are intended to further distribute funding between collaborating partners.

7.10. We note that the Diamond Report recommendation clearly envisages a hub between universities and it is first of all important that it is made to work at this level, with a collegiate approach which aims to build and draw on particular areas of specialism and expertise more broadly.

7.11. It is possible that the Hub idea could be extended to FE potentially at a later stage. FE can make a helpful and important contribution to the research and innovation agenda. There are many good examples of collaborative working between the HE and FE sectors in terms of addressing skills needs, and also in terms of research and innovation. At the same time we should be clear that the greatest economic impacts are likely to come from focussed investment that reflects critical mass. We assume that bringing in FE may require additional investment and additional considerations.

7.12. On the question of the number of hubs and geographical considerations, our initial view is that the number and location of the Hubs should probably be determined on the basis of Wales's strengths in research and innovation and opportunity, first and foremost as there needs to be the will and opportunity to translate R&D to products that will meet national needs above all. This is likely to be best evidenced where universities, local authorities and business are committed to working together and there is strong leadership. The Hubs could be expected to have strong local and regional impacts and geographical impact should also be taken into account. We would, however, avoid seeking to operate them rigidly on the basis of fixed geographical areas within Wales. This would, in our view, not reflect the way that effective research and innovation clusters work.[12]

8. Other support

8.1. In addition to funding support identified above, there is also clearly a range of other ways in which the Welsh Government could support research and innovation:

- Identify best practice in commercialisation. With a view to spreading best practice, the Welsh Government could explore the successful practices on commercialisation of intellectual property that have been in place in Wales. This includes AgorIP, a Swansea University-led model for the commercialisation of research which is focused on pipeline and deal flow. The £13.5m scheme will work with the NHS and industrial partners to turn innovative research into new products, processes and services.

- Seek replacement arrangements and investment for structural funds (see next).

- Support the next generation of research leaders and entrepreneurs. Universities Wales welcomes the increase in PhD places and recognises that the current system

[12] Halligan article ? [check]

has been effective. We would recommend that the increase in places includes subjects outside of STEM. In Wales, effective support for research leaders and entrepreneurs has included:

- **Ser Cymru II,** a strategy to increase research capacity in STEMM and areas of applied social science. Part funded by the European Commission, it supports more than 150 new posts to work with leading researchers in universities in Wales. The programme is designed to attract the highest calibre candidates at all levels from junior research fellows to professorial chairs.

- **Knowledge Economy Skills Scholarships (KESS) Programme,** led by Bangor University on behalf of universities in Wales, supports more than 900 PhD and Research Masters' projects jointly sponsored by industry. The programme increases the research capacity of SMEs and supports the development of key technologies.

- We note the revitalised approach to REAP which should also be supported.

- The effective use of the different strands of research investment is another way to support research and innovation strengths in local areas. For example, and as commented on above:
  - Ensuring UKRI operates effectively UK-wide and is sensitive to devolved interests (see below).
  - Ensuring that the Industrial Strategy Challenge Fund recognises and interfaces with research and innovation activity where Wales is sector-leading

- Where additional funding does not trigger an 'automatic' Barnett consequential, Universities Wales would welcome equivalent allocations being made to Wales, as was the case following allocations of funding to HEFCE from the Newton Fund and the Global Challenges Research Fund.

- Identifying market needs: In Wales, three Regional Skills Partnership Boards (RSPBs) cover the entirety of Wales and are tasked with analysing economic challenges and likely growth areas, and identifying the skills needed in the local workforce. The boards produce plans which provide recommendations to influence the prioritisation and deployment of skills funding. These RSPBs can be a mechanism through which to identify skills shortages in Wales to inform the development of the industrial strategy. An approach to future growth requirements will also be needed, however. It is also worth noting that the Welsh Government is currently working with NESTA to establish new tools to inform innovation policy in Wales: the Arloesiadur project is building a web platform that will automatically access, combine, and analyse

different datasets derived from web sources with the aim of providing information on industries with strong growth potential and how connected or fragmented business and knowledge networks are.

8.2. Other measures could include:

- To increase private investment in infrastructure in areas such as Wales, it would be worth exploring the potential for differential tax arrangements. Such an arrangement would potentially also benefit Wales' historically poor levels of private investment in research and development (BERD) which for 2015 was around 0.65% of Welsh GVA13

- Universities Wales welcomes the focus on infrastructure investment. A number of large infrastructure projects hold particular importance to the economic growth of Wales, and potentially increasing private investment in research and development. Including:
    - The proposed Swansea Tidal Lagoon
    - Rail electrification
    - The South East Wales Metro
    - The M4 relief road
    - The reduction of tolls at the Severn crossing
    - Energy investments including nuclear in North Wales

Question 3. What can be done by the Welsh Government, business and universities to increase research and innovation income in Wales in the light of the implications of BREXIT and the increased funding announced in the 2016 Autumn Statement and UK Government's 2017 Budget, the Global Challenge Fund and other, opportunistic Government funding opportunities?

9. Brexit impact

9.1. Brexit will have a significant impact on universities in Wales and it will be imperative to ensure that adequate alternative arrangements are in place following exit from the EU, and that Wales takes all possible advantage of the new international landscape.

9.2. Funding arrangements are clearly a priority. Much of the existing innovation activity in Wales is funded through European Structural Funds, which has awarded around £240 million to Welsh universities for 2014-2020. The withdrawal of access to structural funds and potential loss of access to EU competitive funding including Horizon 2020 will have a major impact for universities and play an important role in addressing the shortfall in

[13] StatsWales, http://gov.wales/statistics-and-research/research-development-expenditure/?lang=en

investment in research and development in Wales. It is important that economic growth in Wales is not threatened by the loss of European funding and that these funds are replaced with a devolved package of structural funds following the UK's withdrawal from the EU.

9.3. In many ways, however, the potential loss of staff and threat to the ability to attract and retain researchers and innovators and international students who will become the researchers and innovators of the future may be even more critical in the long-term. The potential risk to interconnection and communication with partners in the EU and beyond could equally be critical as research and innovation increasingly become global activities.

9.4. At this stage we have identified a number of key Brexit asks:

- Much of the existing **innovation activity in Wales is funded through European Structural Funds**, which has awarded around £240 million to Welsh universities for 2014-2020. **Sustain or replace European Structural Funds at a devolved level** following the UK's withdrawal from the EU so that Welsh universities can continue to deliver the maximum economic and social impact in communities across Wales.

- **Residency rights for EU nationals currently working in the university sector,** and their dependents.

- **Continued UK participation in the Horizon 2020 research and innovation programme to the end of the programme period** in 2020, even if this date is post-exit, in order to maximise stability in the short term.

- **Continued access to Erasmus+ and the Marie Sklodowska-Curie Actions programmes.**

- Access to the 9th Framework Programme (FP9) for research and innovation (the successor to Horizon 2020) provided it maintains a focus on excellence.

- **Close collaboration with European partners to deliver excellent research.**

- Equally, prioritise developing new collaborative funding arrangements and provide enhanced support for collaboration with partners and major research powers outside of Europe, with a focus on delivering excellent research.

10. UK research and innovation funding

10.1. UK investment in research and innovation is set to increase significantly in future given the UK Government's major investment in the new £23bn National Productivity Investment Fund, as first announced in its Autumn Budget 2016. This included an additional £4.7

billion for research and development between 2017/18 and 2020–21, to be distributed through UK Research and Innovation (UKRI). We assume that an equivalent amount for any England-specific element of that funding will be passed on to Wales in the budgets for 2017/18 and beyond under the Barnett formula.

10.2. As we have identified in our separate response to specific questions (see Appendix 3). This highlights the very significant opportunities for Wales in terms of future UK opportunities for research and innovation. Wales will need to align itself to those opportunities, but as a UK body UKRI has a duty to reflect on devolved policy also. Part of this will require the support for building core infrastructure, as outlined above, which is so essential for taking advantage of these opportunities.

10.3. There is also a clear need for Wales, including both universities and Welsh Government and the Funding Council (or its successor), to engage effectively with the new institutions and mechanisms, and for UK strategy to reflect the interests, strengths and needs of Wales. A key part of our separate response, outlined the need for some of these issues need to formalised e.g. by use of appropriate agreements or memorandums of understanding. An important concession gained from the UK government during the passage of HERB was precisely that.

Question 4. What is the optimum balance between (a) geographically focused use of funding and (b) focus of funding on existing research and innovation excellence and capability, bearing in mind the Cabinet Secretary for Economy and Infrastructure's new regional approach to economic development?
The different streams of funding for research and innovation in the UK reflect a variety for different approaches. In particular, the Europeans Structural funds sought to apply a regional approach, prioritising investment in particular areas.

11. Balance between regional approaches and alternatives

11.1. This is clearly an important question for the potential use of future funding streams to support research and innovation. There is no doubt that research and innovation at universities have a major impact on their local regions. Universities help to create high value industrial clusters.[14] Interaction between universities and their communities is strong across diverse universities.[15] There is some evidence to suggest that there is a comparatively strong correlation between University-business interaction where this is connected to a city environment.[16] At the same time, Wales is a largely rural nation and may require a particular policy approach as a result.

[14] Well-known examples include Silicon Valley, Massachussets Route 128, North Carolina's research triangle and, closer to home, the Cambridge effect: (Higher Education Wales 2011)

[15] (Universities UK; IPPR North 2012)

[16] (Universities UK; IPPR North 2012); (European Commission; Goddard, J 2011)

- QR funding currently ensures a far more even distribution of support for research and innovation across universities in Wales than competitive UK funding – with an important knock-on impact for localities and regions within Wales.

11.2. The European Structural Funds, as pointed out in this consultation, take a specifically geographical approach and were designed specifically to address regional disparities in capacity and competitiveness across the member states.

11.3. There are clearly a number of other sources of funding and strategies which are important in this context but do focus specifically on geography.

11.4. In particular, City Deals and Growth Deals have an important role to play in this, although it is important to recognise that this approach would not provide coverage of the entirety of Wales. Currently two city deals are in place in Wales – the Cardiff Capital Region City Deal and the Swansea Bay City Region Deal. The Cardiff Capital Region City Deal includes:

- Support for innovation and improving the digital networks including the Compound Semiconductor Catapult Centre
- Support for the region's infrastructure including the delivery of the South East Wales Metro and the Valley Lines Electrification programme

The Swansea Bay City Region Deal includes:

- Support for next generation broadband services and 5G test beds
- A partnership with Tata Steel to establish an innovation and knowledge centre for steel, including a focus on zero carbon steel making and future sustainability

Similarly, a proposed "Growth Deal" for North Wales would provide another mechanism for supporting research and innovation strength in Wales.

11.5. It is clear to us that it will be very important to incorporate geographical capacity building into any future framework for funding research and innovation, ideally through the devolved structural funds replacement. We would advocate against an overly rigid geographical approach. However, we would strongly welcome an approach that takes broader spatial and economic strategy considerations into account, within the context of the wider national interests of 'Wales'.

11.6. It is clear that although universities have a unique and leading role in research and innovation, finding solutions to today's research challenges and bringing them to the end-users requires multi-disciplinary approaches and involve widespread connections and networks both within the UK and internationally. Innovation is often best achieved through an effective partnership between universities, government and business to develop successful innovation eco-systems. We would like a system that fosters this, acts as a catalyst for growth, and provides the best possible platform for success in Wales.

11.7. A regional approach is not new for higher education, and 'regional strategies' for higher education have supported collaborative provision in a range of activities. In our view, however, a slightly different approach for research and innovation is likely to be more effective.

11.8. An approach which is more along the lines of a 'smart specialisation' model as currently adopted by the Welsh Government's Innovation Strategy is likely to afford the best approach to directing support for research and innovation in Wales. In essence, this approach is designed to enable Wales to focus on identifiable areas of strength in high-value activities i.e. areas of greatest opportunity. A key feature of this approach is the sustained investment in areas of identified competitive advantage and creation of research and innovation 'eco-systems'. However, there also needs to be sufficient flexibility to foster and respond to emerging opportunities in other areas.

11.9. We assume that the current starting point for such an approach for science/technology intensive innovation would be the Three Grand Challenge areas outlined in the Science agenda for Wales. There would also be a need for a broader strategy to cover other areas where there is potential for genuinely transformational change such as creative industries and services (e.g. financial) in line with Wales' overall economic growth strategy and requirements. The approach also needs take into account the need to identify and foster the diffusion and application of the Key Enabling Technologies (KETs) which support innovation in these areas. Some of the current areas of strength in Wales are further outlined in the Appendices to this submission.

11.10. The eco-systems would need to be characterised by well-developed relationships between university, industry and government.[17] It is likely that a successful innovation strategy would be based around companies of all sizes demonstrating excellence in innovation and with potential for high-growth.

Universities Wales
June 2017

[17] (Etzkowitz 2003); (Universities UK; IPPR North 2012, 18)

APPENDICES

Appendix 1 - Research and Innovation strengths in Wales

Appendix 2 – Role of QR funding

Appendix 3 – Response to specific questions (as previously submitted)

Appendix 1

Research and Innovation Strengths in Wales

1.1. The following highlights some of the current strengths in research and innovation in Wales:

1.1.1. **Compound Semiconductors**

- The world's first Compound Semiconductor Technology Cluster will be formed in South Wales as a result of work between Welsh Government, Cardiff University and IQE Plc. The institute has benefitted from several large-scale investments including £13 million from European Structural Funds as well as £17.3 million from the UK Research Partnership Investment Fund RPIF and £12 million from the Welsh Government.
- Compound semiconductor material technology underpins the operation of the internet and has enabled emerging megatrends such as smart phone and tablet usage, satellite communications/GPS, Direct Broadcast TV, consumer electronics, high capacity communications networks and data storage. The demands of next generation electronic technologies create a large and significant market opportunity.

1.1.2. **Biomedical and life sciences**

- Biomedical and life sciences are significant areas of research and innovation activity in Wales and a number of projects and activities span Welsh higher education, including:
- Cardiff University breaking ground on the £300 million Innovation Campus which complements Cardiff's MediCentre, a business incubator for biotech and meditech startups which includes the Precision Medicine Catapult Centre of Excellence. Cardiff is also playing a major role in the UK's biggest dementia research initiative with the launch of a £13m dementia research centre, part of the new UK Dementia Research Institute (UK DRI).
- A Regional Collaboration for Health (ARCH) at Swansea University is pioneering new approaches to patient care and involves one million patients, 30,000 health care workers, and a £2 billion annual spend on healthcare.
- Life Sciences Research Network Wales which supports world-class science within Wales and the development of new therapeutic treatment. The Network provides a range of funding opportunities aimed at supporting academics across Wales to identify new collaborators, develop research ideas and build long term research capacity. The funding is distributed across universities in Wales and has so far funded 125 research projects.

1.1.3. **Smart, flexible and clean energy**

- Welsh universities have in place a number of programmes and projects which well-place the Welsh higher education sector for investment in smart, flexible and clean energy. These are outlined in our response to question 6.

1.2. We strongly believe investment in research and innovation should not be solely focused on STEM subjects. The creative industries are the fastest growing sector of the UK economy,

make up 5.7% of the Welsh economy and 9.2% of the Welsh workforce are employed in creative or high-tech industries[18]. In particular, Cardiff and the Vale of Glamorgan has been identified as a 'creative hotspot' by NESTA[19].

Links to challenges

1.3. Universities Wales welcomes the suggested challenge areas. Much sector-leading work on the proposed areas has taken place in Wales including:

1.3.1. **Quantum technologies**

- As outlined above, the world's first Compound Semiconductor is being formed as the result of a partnership between the Welsh Government, Cardiff University and IQE Plc

1.3.2. **Smart, flexible and clean energy**

- Bangor University leads SEACAMS, a collaboration between three universities in Wales, which aims to improve access for businesses in the marine and coastal sector to expertise and facilities in higher education, with a particular focus on marine renewable energy
- BEACON Biorefining Centre of Excellence, led by Aberystwyth University in collaboration with partners at Bangor University and Swansea University, supports Wales-based companies to develop renewable energy products and services, assisting in the transition to a low carbon economy and helping mitigate the impact of climate change.
- As outlined in response to question 3, SPECIFIC will fit new build, and retrofit existing homes and buildings, with integrated renewable energy technologies, including the development of functional coated steel and glass products that transforms the roofs and walls of buildings into surfaces that will generate, store and release energy
- Flexible Integration Energy Systems (FLEXIS) in South Wales, is an EU funded project representing a partnership between Welsh Government, Cardiff University, Swansea University, University of South Wales, Tata Steel, Swansea City Region, and Neath Port Talbot Country Borough Council. FLEXIS is focused on developing smart energy distribution systems and will have a significant economic impact, not only via the support and development of excellent research in this area, but also via the new technologies and associated job creation that will follow.
- Wales is also host to the Centre for Automotive and Power Systems Engineering at the University of South Wales.

1.3.3. **Leading-edge healthcare and medicine | Bioscience and biotechnology**

- There has been a significant Welsh Government investment in biomedical and life sciences in Wales including through the dedicated Life Sciences Investment Fund worth £100 million. Life sciences contribute £2 billion to the Welsh

[18] NESTA, Geography of the UK's Creative and High-tech Economies

[19] NESTA, Creative Clusters and Innovation

economy every year and the Life Science Hub's goal is to increase this contribution by more than £1 billion by 2022.

- As detailed earlier in this response, there are a number of notable developments in biomedical and life sciences in Welsh universities including ARCH at Swansea University and the Innovation Campus and Medicentre at Cardiff University.

1.4. To drive maximum economic impact, we would recommend that the UK Government also consider challenge areas in:

1.4.1. **Catalysis**

- The global market for Catalysis is $12bn per annum and growing rapidly, and for every $1 spent on a catalyst, between $200 and $1000 in revenue generated. A proposal has been prepared for the establishment of a £200m M4 Catalyst Centre led by a partnership of UK-based chemical industry companies working with Cardiff University.

1.4.2. **Agriculture, food research, and animal health**

- The Welsh food, drink, and farming sectors together contribute approximately £15.5 billion per annum to the Welsh economic, employ 17% of the Welsh work-force[20], and can bring enormous economic benefits through advances in food security and climate change mitigation.
- Food Innovation Wales is a network which brings together three food centres of excellence and is dedicated to encouraging the development of the food sector and providing technical and operational support in all aspects of food manufacturing.
- Farming Futures, an agri-food-tech network of the top research universities and institutions in the UK is hosted by the Institute of Biological, Environmental and Rural Science at Aberystwyth University.
- We would welcome recognition in the industrial strategy of the future support needed to drive more innovation in the food sector along the entire production chain.

For further information please see the 'Impact' pages on Universities Wales' website here, including further information on research in Wales here.

[20] The Value of Welsh Food & Drink Report, Welsh Government

Appendix 2

Role of QR Funding

QR is an unhypothecated funding stream which is allocated to universities by HEFCW on the basis of research excellence, as demonstrated by the Research Excellence Framework. QR is the core element of institution's research funding. It provides universities with a stable funding stream which they can use to support the bedrock of their research infrastructure and which they can deploy flexibly to support their research strategies.

(i) QR provides essential funding for staff posts

QR helps fund the salaries of existing members of research-active academic staff. This is particularly important for research-led institutions which have substantial numbers of established staff engaged in research. Competitively-won research grants are, of course, also used to fund some staff salaries (in full or in part), but such grants are fixed term. QR funding is needed to help meet salary costs in between external grants, or where such grants are not available. It also ensures that universities are able to offer the competitive salaries which are required to attract and retain world-leading and internationally-excellent researchers.

(ii) QR gives universities the freedom and flexibility to develop new lines of research

QR funding is provided to institutions as a block grant. It is unhypothecated and not tied to specific research projects. Consequently, universities have the freedom to decide how best to use their allocations to support their research activities.

At the level of individual researchers and departments, QR funding provides the time and resources for researchers to explore new lines of research which are not yet sufficiently well-developed to attract external research grant funding. This often opens the way to leverage substantial external funding at a later stage and is essential for promoting the dynamism of the research base.

Unhypothecated funding gives researchers and universities the freedom and autonomy to determine the direction of their research, based on their own knowledge and understanding of their field and their particular strengths. This could not be achieved if funding were tied to specific projects.

(iii) QR underpins major new developments

QR funding also has a role in helping to underpin change and development on a larger-scale at institutional level. For example:

- In 2013, Cardiff University committed QR funding to the recruitment of new staff under the Serious Brain Power initiative. Eighteen appointments were made, half of which were at Chair level. The initiative was costed at £6.7 million over five years.

- Aberystwyth University is in the process of establishing ten new Interdisciplinary Research Centres. The University will provide £250k per annum to support the start-up costs of these centres for three to five years.

Several of the research-led universities in the sector are undertaking major programmes of capital investment in their research base. These include:

- Swansea University's Bay Campus

- Bangor University's plans to develop a new Science Quarter on its main site, involving extensive demolition and reconstruction.

- Cardiff University's Innovation System, an extensive programme of new-build capital development based primarily on the Maindy Road site.

These substantial developments require external borrowing and awards from external research funders. However, here too, HEFCW's QR funding provides part of the stable baseline funding which enables institutions to secure the necessary loans and awards.

(iv) QR is vital for meeting the Full Economic Cost of research

QR helps meet the Full Economic Cost (FEC) of externally-funded research which does not cover its costs in full. For example:

- The Research Councils' stated policy is that their research grants meet 80% of the Full Economic Cost of the projects which they fund, with the expectation that the universities will make up the remaining 20% from other sources, principally QR.

- Charities do not provide any funding for the overhead costs of the research which they support, and consequently universities have to meet all of the overhead costs on such research from other sources. The HEFCW QR formula includes a funding component which specifically acknowledges this.

QR funding helps universities make up the financial shortfall on such grants. Without the QR support, institutions would be unable to undertake the same volume of externally-funded research

because the extent of the funding shortfall would mean that it would not be financially sustainable for them to do so.

(v) QR helps fund essential organisational infrastructure required by researchers

Research is extremely competitive. All institutions engaged in research need to provide a supporting organisational infrastructure if their researchers are to succeed. QR plays a vital role in funding this infrastructure. For example, it helps institutions provide:

- high quality IT infrastructure
- subscriptions to research journals
- Research Support Offices to provide professional expertise to support grant applications and research project management and to ensure that researchers comply with funders' requirements in relation to research ethics, open access publishing etc.
- staff training and development programmes for researchers.

Additionally, some institutions also run more tailored programmes to help support and develop their research base. Examples include:

- Research Leave Schemes – to enable staff to undertake sustained periods of research and complete the preparation of publications.
- Visiting Fellows and International Collaboration Seedcorn Fund - to support short-to-medium term visits by influential researchers from major international universities, and to encourage researchers to increase their overseas contacts and collaborations.

(vi) QR contributes to investment in physical infrastructure

Many universities engaged in high-quality research need to maintain expensive research facilities, the cost of which is not covered by direct research grant funding. QR funding plays a role in making these facilities sustainable. Examples (drawn from Bangor University) include:

- An Imaging Unit in the School of Psychology, which includes a MR scanner which is subsidised by around £150k per annum.
- An ocean-going research vessel, which is subsidised by around £315k per annum.
- The commissioning of a research information system to manage research information more efficiently – around £150k.

There are also examples of institutions using unhypothecated baseline resource, including QR, to operate funds for new research equipment. Cardiff University operates a Research Infrastructure Fund which allocates around £2 million per annum to support the purchase of, and match funding for, research equipment. The Fund is allocated on the basis of competitive bidding and is heavily oversubscribed.

(vii) QR enables universities to leverage in additional research investment

HESA figures indicate that, in 2014/15, QR funding of £71 million enabled the Welsh HE sector to lever in external research income of:

- £54 million from the Research Councils (76% of QR)
- £160 million from other research funders (225% of QR).

QR facilitates leverage in a number of different ways:

- It supports the essential, core research infrastructure from which funding bids can be launched. In order for universities to bid successfully for competitive research funding, they need to have strong researchers in post, well-equipped laboratories and (usually) an established track record of success. QR funding provides research-led institutions with the resources required for this.
- It gives researchers the time to undertake the preparatory activities required for external funding bids. These include:
  - Writing grant applications
  - Undertaking preliminary research to underpin the application
  - Building research networks.
- As noted under (iv) above, Research Council grants only cover 80% of the Full Economic Costs of the research supported, and research grants from charities do not provide any overheads at all. QR funding helps universities make up the financial shortfall on such grants.
- In some cases, funders require institutions to provide match funding, either in kind (e.g. staff time) or in cash. QR helps ensure that institutions have sufficient resources available to provide match funding for such bids. This applies in particular to funding from EU sources, and especially the European and Structural Investment Fund, administered by WEFO.

Without QR, universities capacity to leverage funding from research grants and contracts would be critically constrained.

(viii) QR is part of a UK-wide dual support system

QR funding is part of a UK-wide funding system. All four of the UK HE funding bodies provide QR funding (or the equivalent). This funding forms one side of the UK's "dual support" system for research. The other side consists of the funding which the UK Research Councils award for specific research projects on the basis of competitive bids.

A *Review of QR Funding in English Universities,* commissioned by HEFCE and published in December 2014, noted that "*QR is a non-hypothecated funding stream which supports the bedrock research infrastructure, while grants from Research Councils, government departments and agencies fund specific research projects and programmes".* It also noted that QR "*was widely recognised as a critically important element of the Dual Support system."*

The recent BEIS White Paper on Higher Education, *Success as a Knowledge Economy – Teaching Excellence, Social Mobility and Student Choice,* reaffirmed the continued importance of the dual support system for research. Responding to concerns that the transfer of responsibility for QR in England from HEFCE to UK Research and Innovation could erode QR funding in England, the White Paper outlined measures to safeguard English QR funding. It noted that this would have the effect of enshrining the principle of dual support in legislation for the first time. There is thus a clear commitment to the maintenance of QR in other parts of the UK.

In order for universities in Wales to compete effectively with the rest of the UK, it is essential that the Dual Support System for Research is also maintained in Wales. Universities need to continue to have unhypothecated QR funding to provide the bedrock of their research activities, fulfilling the functions outlined above.

(ix) Additional uncertainty following the EU Referendum

European funding has been an extremely important funding source for research in Wales. The two key sources are:

- *European Structural and Investment Funds*, mainly the European Social Fund (ESF) and European Regional Development Fund (ERDF) and
- *Horizon 2020*.

The latest Horizon 2020 total for Welsh universities based on 2014 and 2015 calls (to date) was €28,532,306. Data derived from institutions' annual returns to the Higher Education Statistics Agency (HESA) show that the total EU income for Wales in 2014/15 was around £46 million after adjusting for known variations in the way data are returned. This represents around 21% of total external research income in Wales.

Following the Referendum decision to leave the EU, we do not know at present the extent to which UK researchers will be able to access EU research funds in future. However, in these uncertain times, it is all the more important to maintain QR funding as a substantial and stable funding scheme which universities can use to support the bedrock of their research infrastructure.

Appendix 3 – Email response as previously submitted on 16 June 2017

Review of government funded research and innovation in Wales

The following comments seek to address the two specific questions (shown in bold below) which Universities Wales was asked by email on 12 May 2017. Please note that we offer our comments in advance of our full submission to the Review which we intend to submit by the deadline of 30 June 2017, and as such the comments remain provisional at this stage.

1. Protection of QR funding in real terms

"You ask for flat-real protection of QR funding in the 2016 document and, as I understand it, that has been translated into a flat-cash following the Diamond recommendation. When we met, I raised the question of whether the Universities Wales position on QR is influenced by the uplift in science and innovation funding in the 2016 Autumn Statement and the reference to so-called 'balanced funding' (dual support, in other words) in the 2017 HE & Research Act. On the face of it, Welsh Universities could be locked into a flat settlement for QR while English Universities receive an increase that could, in theory, be quite sizeable. I didn't pick up a precise Universities Wales position at our meeting but you might want to set out more detail in your written response."

1.1. Our position is that we support the Diamond Recommendation as stated. In our view QR funding is a vital part of the support for research at universities in Wales, as in other parts of the UK, and this will form a major part of our main written submission.

1.2. The Diamond Review concluded that Welsh QR funding should be maintained, as you point out, in real terms at £71m per annum for at least five years. The Report also recommended an additional £25m for knowledge transfer. The report made clear that inflationary pressures on costs were a key dependency of the financial modelling and estimated cost envelope (p.69), and that the figures were presented in terms of a 2015/16 baseline. The Welsh Government accepted this Diamond recommendation in principle in their response, to be implemented from 2018/19 onwards.

1.3. We view this as the minimum investment necessary for QR and believe that there is a strong case that investment should be higher in the light of recent developments, consistent with the guiding principles set out in the Diamond Report. We appreciate, however, that the Diamond Recommendations need to be accepted as an overall package.

1.4. The following paragraphs highlight the importance of taking inflation into account in future allocations of QR funding, and highlight some of the further major developments in other parts of the UK that are likely to result in significant further investment in QR and related funding in other parts of UK. These in turn are expected to provide pro-rata additional funding for Wales via the Barnett formula. As you indicate, unless we take these into account, there is potentially a very significant danger that QR funding will continue to increase in England, while Welsh Universities are locked into a static flat-cash settlement which does not provide a sustainable funding basis for current levels of research or enable universities in Wales to build a research base that will enable them to compete successfully for future research and commercialisation opportunities. This in turn would be highly damaging for the long-term

economic prospects of Wales and have a profound impact on its culture, society and international profile.

(a) Inflation

1.5. Unless inflation is taken into account, as recommended by the Diamond Report, the real-term value of QR funding will be seriously eroded over time. The following provides the latest OBR forecasts for the most relevant key measures of inflation: the Retail Price Index (RPI), Retail Price Index excluding mortgage interest payments (RPIX) (as used in maximum tuition fee legislation), the Consumer Price Index (CPI), and the Gross Domestic Product (GDP). We have rebased these to 2015/16 = 100 for ease of interpretation in this context. (The ratio between the index for a given year and the baseline indicates the cumulative inflation. For instance, if the index of a given year is 120 and compared to the baseline year whose index is 100, the multiplier is 120/100= 1.2, i.e. it represents 20% percent growth):

Inflation indices (rebased to 2015/16 = 100)

	RPI	RPIX	CPI	GDP deflator
2015/16	100.0	100.0	100.0	100.0
2016/17	102.2	102.3	101.1	102.0
2017/18	106.2	106.5	103.7	103.6
2018/19	109.8	110.1	106.0	105.3
2019/20	113.2	113.4	108.0	107.0
2020/21	116.7	116.9	110.2	109.0
2021/22	120.4	120.5	112.4	111.1

1.6. This shows for instance that, the cumulative inflation between 2015/16 and 2021/22 is currently forecast to be around 20.5% based on RPIX (the measure currently used for maximum fee legislation) or 11.1% based on GDP deflators (the measure typically used for public expenditure).

1.7. To preserve the real-term value of the £71.1m QR funding in real-terms from 2015/16 would mean increasing the cash funding to £85.7m for 2021/22 based on RPIX or £79.0m based on GDP deflators:

QR funding adjusted for inflation

	RPI	RPIX	CPI	GDP deflator
2015/16	71.1	71.1	71.1	71.1
2016/17	72.6	72.8	71.8	72.5
2017/18	75.5	75.7	73.7	73.7
2018/19	78.1	78.3	75.3	74.8
2019/20	80.5	80.6	76.8	76.1
2020/21	83.0	83.1	78.4	77.5
2021/22	85.6	85.7	79.9	79.0

(b) Further developments

1.8. The Diamond Report set out a number of key guiding principles which need to be at the heart of the funding strategy, and which we agree with. This included the principle that "the funding system should take into account the UK-wide and international dimensions of research activity and collaborations and the need for universities in Wales to be competitive and successful in those environments." (p.16). The Report itself highlighted the importance of post-Brexit arrangements which remain uncertain. As you have noted, there have been significant further developments in the rest of the UK since the Report was finalised. At this stage, we assume that a comparable amount of additional funding will be passed on to Wales via the Barnett formula.

1.9. In particular, the UK Government announced a new £23bn funding pot, the National Productivity Investment Fund, in its Autumn Budget 2016. This included an additional an additional £4.7 billion for research and development between 2017/18 and 2020–21, to be distributed through UK Research and Innovation (UKRI). We expect part of this to be used for additional QR funding for England, although the precise intentions remain unconfirmed at this stage.

1.10. The UK government's grant allocations to HEFCE for each financial year (FY) have increased annually since 2015/16. The indicative allocation for FY 2018/19 is 4.1% higher than the allocation for FY 2015/16. Given the size of the overall additional investment in NPIF, it is possible that there may be more significant increases once responsibility for QR funding has been transferred to UKRI:

Grant to HEFCE (£ millions)	**FY 2015-16**	**FY 2016-17**	**FY 2017-18**	**FY 2018-19 indicative**
Recurrent grant for Research	1,686	1,695	1,732	1,755
Capital Grant for Research	303	338	203	303

1.11. The amount of funding that Wales would receive as a result the Barnett formula based on the allocations above and the latest mid-year population estimates we calculate as follows. This effectively represents the level of grant funding that HEFCW would need to receive to be comparable:

Comparable funding for Wales (£ millions)	**FY 2015-16**	**FY 2016-17**	**FY 2017-18**	**FY 2018-19 indicative**
Recurrent grant for Research	95.4	95.9	98.0	99.3
Capital Grant for Research	17.1	19.1	11.5	17.1

1.12. In turn, HEFCE has recently confirmed that its allocation of recurrent funding for research for Academic Year (AY) 2017/18 will be £1,595m, of which the equivalent sum passed on to Wales would be around £90m (HEFCE 2017/05, see here). A further £160m was allocated for knowledge exchange (equivalent to £9m for Wales), and £353m capital funding made available (£20m equivalent for Wales).

1.13. By contrast, HEFCW QR allocations to Universities in Wales have remained at £71m since AY 2010/11, but have been effectively reduced in the most recent allocation. For AY 2017/18, HEFCW allocated £71m to the QR in its budget lines and £80.6m in total for research including postgraduate research and Ser Cymru (see W17/11HE, here) *before adjustments*. However, HEFCW left institutions to apply adjustments that amounted to a reduction of £28.5m, calculated for each institution by applying a pro-rata reduction across their total funding for QR, PGR, part-time credit-based teaching and the Expensive Subjects Premium. The reductions are not shown by HEFCW against specific budget lines because institutions are free to determine how to apply them. However, as a matter of necessity, the reductions are likely to impact on these same core areas. By our calculations, if applied on the same basis, a pro rata reduction results in an effective funding allocation of around £54.5m for QR in 2017/18 (£61.9m for all research funding).

2. Devolved funding and HERA 2017

"The HE & Research Act raises another question. I am no lawyer and I have only skimmed the Act. But I have not yet spotted any protection for Wales against a shift of the balance of funding between UK budgets (in Research Councils and Innovate UK) and English budgets (in Research England). At present, there is a high degree of transparency as the Secretary of State makes distinct budget allocations to Research Councils on the one hand and HEFCE on the other. But under the new Act, the Secretary of State will allocate funds to UKRI who will then deploy the funds inside its organisation, albeit with a published strategy and other public accountability. I wonder if you have plans to respond to that issue – I would welcome such plans in the written evidence as well."

2.1. As you indicate there are potential issues for Wales about the way devolved funding works under the Higher Education and Research Act 2017 and current Treasury rules.

2.2. We expressed our concerns with the Bill during its progress through Parliament. Along with Universities Scotland we called for change to the Bill on the grounds that UKRI should not be allowed to vary the allocations between Research England and other UKRI funding since this meant that they would effectively be making decisions about devolved funding which it would be more appropriate for the UK Government to determine.

2.3. We also raised questions about how the devolved funding would work under these arrangements and called for clarity regarding the proposed treatment of Research England funding for purposes of the Barnett formula/devolved nation budgets. Under current Treasury arrangements, for instance, Wales would not receive any increase in its block grant in relation to UKRI funding via the Barnett formula.

2.4. We also raised our concerns about the membership of UKRI and the need to address Welsh specific interests in the UK strategy.

2.5. A number of changes were made to the Bill and further concessions made in Parliament in response to our concerns. We understand that the resulting position is as follows.

2.6. Under the new provisions of the Act (s.94), UKRI may provide financial assistance to any of the Councils, including Research England. The provisions potentially give UKRI considerable flexibility to determine how those funds are allocated between different Councils, including how much is allocated to England-only or UK activities.

2.7. The extent to which UKRI has flexibility to determine what it allocates to each Council, however, will largely depend in practice on how the powers of the Secretary of State are operated. The Secretary of State may make grants to UKRI of such amounts, and subject to such terms and conditions, as the Secretary of State considers appropriate (s.101(1)). The terms and conditions may provide for the allocation of the whole or a part of the grant to a particular Council and for subsequent changes in that allocation (s.101(4)(a)). The Secretary of State may also give UKRI directions about the allocation or expenditure by UKRI of grants received and UKRI must comply with any directions given (s.102).

2.8. Section 101 (5) of the Act (as it is now) was added specifically in response to the concerns we raised. The amendment means that the Secretary of State must make clear the separate budget allocation to each Council and Research England. This provides greater transparency in terms of budgetary arrangements.

2.9. In addition to the changes that were made to the Bill, the UK Government gave a number of very important assurances to Parliament in this context. In particular, Lord Prior proposed the development of a Memorandum of Understanding with the devolved administrations:

> *'I acknowledge that I and the Government appreciate the sentiment of the amendments and the underlying concerns from those working in the devolved nations. It is essential that we continue to work together to secure for the long term the UK's global reputation for excellence in research and innovation. This joint working happens on a number of levels, from regular informal discussions to formal partnership arrangements. Where appropriate, it can include the development of an MoU between the bodies, the devolved Administrations and their agencies and institutions.*
>
> *There are many such arrangements at present, from ESRC's MoU with the Scottish Government on the What Works programme to the MoU between HEFCE and the devolved funding bodies, which ensures the operation of the UK Research Partnership Investment Fund across the whole UK. There is even an MoU between BBSRC and the Scottish Government for the horticulture and potato initiative. These arrangements will continue and I can commit to new MoUs being put in place where appropriate.'*

2.10. Lord Prior also committed that the devolved administrations would be consulted about UKRI's strategy, and that regular consultation with the devolved administrations would be required in guidance from BEIS to UKRI:

> *'I also share noble Lords' desire that UKRI's strategy should work for the whole of the UK. The strategy will be the product of consultation and engagement with research and innovation institutions and bodies from across the UK. Let me also assure noble Lords that this consultation will of course incorporate the views of the devolved Governments. However, the development of a full research and innovation strategy for the UK may be an*

infrequent affair. I have spoken to Sir John Kingman, chairman-designate of UKRI, and he agrees that regular consultation with the devolved Administrations on UKRI's priorities would be a more appropriate way of ensuring their views are captured and taken account of regularly. This would be consistent with the MoU between the UK Government and the devolved Administrations, in which the principle of good communication with each other is key. The primary aim is not to constrain the discretion of any Administration but to allow them to make representations to each other in sufficient time for those to be fully considered. I commit today to putting this intention regularly to consult on strategy with devolved Administration colleagues into guidance from the department to UKRI.'

2.11. On the issue of UKRI's membership, Lord Prior commented:

'On the UKRI board, the Bill as amended in the other place recognises that the Secretary of State has a duty to consider appointing at least one person with relevant experience of the devolved nations. This change means that the Bill already goes further than the current legislation, which makes no such requirement. Of course, this should not be taken to mean just one person. The search for UKRI board members now under way actively seeks suitable applicants with experience from across all nations of the UK. We want and are actively working to recruit a board that will have this broad experience.'

2.12. Although there is no further opportunity to further amend this Act, and UKRI lies beyond the legislative competence of the National Assembly for Wales, these remain very important issues to address. We feel that it is essential that a Memorandum of Understanding is developed between the devolved and UK governments and between the relevant funding bodies which deals which provides the necessary formal procedures and protocols for ensuring that issues do not arise in practice. This should include the necessary consultation, communication arrangements and rules for dealing with devolved funding not provided by the Act.

2.13. In practice, for instance, we understand that the UK government officials currently envisage that UKRI would work within the budgetary constraints set out by the Secretary of State in the Terms and conditions of grant across a planning period, and that the provisions would be used primarily to allow some flexibility for UKRI to vary allocations between Councils in between. This would mean that the Secretary of State effectively retains decisions over the level of England/devolved funding, but UKRI gains a level of financial flexibility for dealing with the year end. We would like to see an agreement formalized along these lines.

2.14. We also assume that the current Treasury rules (more specifically, the list of 'comparable objects') would need to be revised to ensure that an equivalent amount pro rata is passed on to Wales in respect of Research England funding under the Barnett formula, and that a process for revising the comparable objects would need to be agreed to deal with planned and potential shifts in funding. Without making a formal change to the comparable objects, Wales will not receive equivalent funding for Research England or England only activities funded by UKRI.

2.15. Otherwise the priority will be to ensure that we encourage representation from Wales in the membership of UKRI and its Councils and build relationships with the leadership of UKRI

to ensure that it is sighted on the particular strengths and policy contexts in Wales, and to establishing appropriate internal processes and practices for establishing this relationship as part of its culture.

Universities Wales
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