

**Inquiry into preparations for replacing EU funding for Wales
National Assembly for Wales Finance Committee Consultation
Response by Universities Wales**

1. Introduction

- 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.
- 1.2. We offer the following brief comments in response to the National Assembly for Wales Finance Committee's inquiry into preparations for replacing EU funding for Wales.

2. Financial planning for replacing EU funding streams in Wales and what is being done to prepare for different potential scenarios around levels of funding and administrative responsibility.

- 2.1. EU funding streams, and freedom of movement within the EU, have delivered great benefits for their regions by driving innovation, improving competitiveness, creating direct and indirect jobs, and promoting employment and education opportunities. Universities were the third largest recipient of structural funds in the last round, and EU funding is the main source of capital funding and funding for innovation including industry collaboration and skills development for universities in Wales at present. Although there are opportunities for reviewing precisely how funds could be used in future, arrangements for replacing EU funding streams will be critical in determining the future ability of universities to contribute to the economic and social agenda in Wales.
- 2.2. The following paragraphs highlight specifically how changes to the funding streams could affect universities, and their preparedness to deal with different funding scenarios.

Current EU funding streams and universities

- 2.3. Published data for 2015/16 shows that universities in Wales received in particular £29.3m in ERDF income and £16.5m in ESF income to support regeneration programmes. They also received £48.6m for collaborative research from the EU.¹ Together these accounted for £94.4m, just over 6% of total income. However, a more complete picture of the EU funding streams that affect universities is provided below:
- 2.4. **Horizon 2020** is the current major EU research and innovation programme with a budget of around 70 billion euros for the period 2014-2020. The Welsh higher education sector has been successful in winning funds from this highly competitive programme and universities have accounted for nearly two-thirds of Welsh participations in Horizon 2020 and funding received by Welsh organisations under Horizon 2020.²

¹ HESA HE-BCI 2015/16 Part B Tables 1 & 3.

² <http://gov.wales/funding/eu-funds/horizon2020/?lang=en>

- 2.5. In 2016/17, for instance, Welsh universities accounted for 64% of participations and 66% of Horizon 2020 funding. At the top of the list Welsh organisations awarded funding in 2016/17 were four universities - Cardiff University, Swansea University, Aberystwyth University and Bangor University – who received a total of £20.8m.³ This reflects Welsh universities' strengths in Excellent Science, as well as significant contributions to the Societal Challenges.
- 2.6. **European Structural and Investment Funds (ESIF)** play a crucial role in supporting universities to generate local growth and jobs by turning ideas and research discoveries into new companies, by fostering entrepreneurship and employability, and by attracting talented people to study, work and spend in their areas. Wales has received over £2bn in Structural Funds since 2000. As the third largest recipient of structural funds in the last round Welsh universities are very exposed to the withdrawal of this funding. In 2015 alone, almost £25 million of ERDF funding was approved for proposals led by universities in Wales to enhance research and innovation infrastructure and build capacity. ESF funded projects at universities in the UK have in particular supported the development of a pipeline for skills progression. Some examples of the transformative projects led by universities with SF investment are included in Annex 1. In particular, the EU funding forms an important component of the City and Growth Deals in Wales – an overview of these is provided in Annex 2.
- 2.7. Students at Welsh universities have benefited from the opportunities to study and work elsewhere in Europe provided by the **Erasmus+ scheme**. In 2015/16 over 700 students at Welsh universities took part in the Erasmus+ mobility programme providing them with an academic, career and life-enhancing opportunity. In the period 2007-2014 over 4,500 students at Welsh universities participated in the scheme.
- 2.8. **Marie Skłodowska-Curie Actions (MSCAs)**: Participation in the MSCAs allows universities to host talented researchers from across Europe and to create strategic partnerships with leading institution.
- 2.9. **EU student and staff mobility**. EU staff play a critical role in supporting the excellence of Wales' research base, as well as the quality and diversity of teaching provision. There were 1,425 staff from the EU at Welsh universities in 2015/16, forming over 10% of the academic workforce. European students make an enormous contribution to Wales – academically, culturally and economically. There were 5,460 EU students at Welsh universities in 2015/16, equivalent to 4% of the student population.
- 2.10. Access to **European Investment Bank** funds has also enabled large-scale infrastructure improvement and development at several Welsh universities. An agreement needs to be in place to ensure continued access to the EIB in the future.

Planning for different scenarios

- 2.11. Universities in Wales have a proven track-record of managing financial affairs effectively, and planning for uncertainty, as recognised by the Wales Audit Office.⁴ Nevertheless, as the above paragraphs highlight, universities are very exposed to changes in EU funding

³ <https://gov.wales/docs/wefo/publications/horizon/180307-horizon-annual-report-2017-en.pdf>

⁴ Wales Audit Office, Higher Education Finance, 21 November 2013 (as published in January 2014).

arrangements. The following scenarios briefly explores some illustrative scenarios, although there are of course limitless potential variations on these, and planning remains a matter for individual institutions.

Scenario 1 - No replacement of EU funding

- 2.12. If the EU funding streams are not replaced they will have a major direct impact on the income for universities. This would include a cut in funding of around £94.4m or 6% of total income from ESF, ERDF and collaborative research funding (see above). This could make an already challenging funding position even more difficult to manage. The impact of the reductions will not be felt evenly across the sector, and universities will need to take individual action accordingly to ensure their future sustainability.
- 2.13. Universities currently face a difficult financial period until the Diamond recommendations are fully implemented. The university sector in Wales went into deficit in 2016/17 by £10m, as costs rose and income fell, including a reduction of £10m in public funding despite the welcome reprieve to the Welsh Government's planned cuts to the HE budget for that year.⁵ According to the official analysis of HEFCW, universities had already been working for a number of years at a surplus level that is not fully sustainable in the long term once full economic costs are taken into account.
- 2.14. This confirms there is currently no capacity for sustaining activities currently supported by EU funding streams unless replacements are found. If funding is not replaced, activities of the kind that are currently supported by EU funding will simply not take place, and the infrastructure that provides the spring board for future project-based activities would be dismantled.
- 2.15. The withdrawal of funding would have a significant impact on wider university activities. In particular, Universities in Wales have the highest percentage of 'world leading' research in terms of impact such as this of any part of the UK, and it is the type of research that would be at risk should higher education budgets face further pressure.
- 2.16. The financial impact on universities and their activities in itself would in turn would have major consequences for the wider economy and the well-being of future generations in Wales. Welsh universities leverage a large economic impact for Wales, generating £5.0 billion of output in Wales in 2015/16. The £2.7bn of Welsh Gross Value Added (GVA) (equivalent to 4.8% of the Welsh total) universities is more than by the Welsh Government priority sectors of the Creative Industries sectors and Food and Farming combined. For every £100 million increase or decrease in Welsh university expenditure there is a £100 million knock-on increase or decrease in output in other industries in Wales plus a further £33 million in the rest of the UK.⁶
- 2.17. Welsh universities also created almost 50,000 jobs in Wales (3.5% of the Welsh total) in 2015/16. For every 100 direct full time equivalent (FTE) jobs created or cut in universities,

⁵ HESA Finances of Higher Education 2016/17 (see [here](#)).

⁶ Kelly U., McNicoll I., & Viewforth Consulting Ltd, The Economic Impact of Higher Education in Wales, Jan 2018 ([here](#)).

we would expect to see another 120 UK jobs created or cut outside the universities in other industries, 94 of which were in Wales.⁷

2.18. In addition, the off-campus expenditure of EU students in 2015/16 generated over £110 million of output in the UK (of which £83 million was in Wales) and generated 934 full time equivalent jobs in the UK (692 in Wales). Overall, EU students generated over £51 million of UK GVA (£37 million in Wales).

Scenario 2 - Funding available at similar levels.

2.19. As the main source of capital or innovation funding in Wales at present, it is essential in our view that as a minimum Wales ensures that current levels of investment under the EU funding streams continue to be invested for similar activities in Wales, and that the infrastructure which allows partners to do is maintained. European Structural and Investment Funds (ESIFs) have delivered great benefits for their regions by driving innovation, improving competitiveness, creating direct and indirect jobs, and promoting employment and education opportunities.

2.20. At the same time, we recognise that there are opportunities to review the way the ESIF funding is replaced and used to maximise its benefits and return on investment, as discussed below. We see it very important, however, to secure continued participation in Erasmus+ and European research and innovation programmes, including Horizon 2020.

2.21. To prepare for this scenario, if the funding is not provided by the UK, the Welsh Government may need to prepare to meet any shortfall of funding from loss of access to EU programmes. Further budgetary provision may be required in relation to changes in immigration rules which impact on student or staff mobility.

2.22. We agree with the recommendations of the External Affairs and Additional Legislation Committee⁸ that:

Recommendation 10. If no agreement on Horizon 2020 and any successor programmes is reached between the UK Government and the EU, we recommend that the Welsh Government explores ways in which it could provide continued support for Welsh institutions to collaborate with European counterparts after Brexit.

Recommendation 11. We recommend that the Welsh Government explores the potential for a new international student mobility programme after Brexit and reports back to the Committee within six months.

Scenario 3 – Increased funding

2.23. In our view, Wales should take this opportunity to review the scale and scope of its investment in research and innovation, and skills in Wales, and be much more ambitious in its future plans. Overall investment in replacement funds should match the scale of

⁷ Kelly U., McNicoll I., Viewforth Consulting Ltd, The Economic Impact of Higher Education in Wales, Jan 2018 ([here](#)).

⁸ Wales' future relationship with Europe, Part one: a view from Wales, March 2018. See [here](#).

challenge to be addressed by Wales in the light of global trends and competition. Europe 2020 aims to ensure that investment across Europe increases to an average of 3% of GDP.

- 2.24. Universities in Wales are well placed to increase their activities and build capacity for sustaining activities over the longer-term, acting as a catalyst for further activity and acting as anchor institutions in partnership with wider networks and growth and innovation ecosystems.
- 2.25. As highlighted by a recent Government Office for Science report, the skill levels of a country are directly linked to economic growth, productivity improvement, competitiveness, and innovation.⁹ Long-run economic growth is above all determined by knowledge accumulation and technological progress.¹⁰ Estimates typically attribute 20% of the UK's economic growth in recent decades to improved workforce skill levels.¹¹ Countries with high levels of innovation on average tend to have a stronger track record of investment in higher education.¹² A number of studies also point to the importance of interaction between universities and business for stimulating innovation and economic growth.¹³
- 2.26. The UK government is currently seeking to rise to this challenge and has announced a series of major investments in research and innovation and as part of its industrial strategy. However, Welsh universities currently compete for UK funding opportunities at a disadvantage to their counterparts in England, who benefit from considerable additional support – particularly in the form of HEIF funding. Increased investment in Wales, would also help universities in Wales to lever their fair share of the increases in UK funds for the benefit of Wales.

Scenario 4 – Continued uncertainty

- 2.27. The uncertainty of future arrangements is an issue in itself. Short-term challenges can usually be managed where there is a clear prospect of future funding. Universities cannot indefinitely maintain the support and infrastructure, however for academic activities and opportunities for businesses and students without a clear prospect of their future sustainability. It will be important to confirm and communicate arrangements which replace EU funding in sufficient time to avoid universities having to make decisions in advance which have an adverse impact on infrastructure and compromise future activities.
- 2.28. In particular, we need to avoid EU students being deterred from applying to Wales even before the UK leaves the EU, because they are uncertain whether they will receive funding for future years of their study if they come to Wales. Similarly, we need to ensure that prospective staff are not deterred from coming to Wales due to uncertainty about future immigration and workforce arrangements. Certainty about arrangements for prospective students and staff is clearly needed as soon as possible.

⁹ Government Office for Science, "Future of Skills and Lifelong Learning", 2017.

¹⁰ OECD, "The OECD Innovation Strategy - Getting a head start on tomorrow." 2010.

¹¹ BIS, "UK Skills and productivity in an international context", December 2015.

¹² Universities UK. "Higher Education in Focus: Driving Economic Growth", 2011.

¹³ Lambert, R., Lambert Review of Business-University Collaboration - Final Report, HMSO, 2003.

2.29. We agree with recommendation of the External Affairs and Additional Legislation Committee (Recommendation 6) that the Welsh Government should seek clarity from the UK Government on the timescales for moving to a future immigration system at the earliest opportunity in order to provide businesses and public sector bodies with much needed certainty on the recruitment issues that they may face in the future.¹⁴

3. Approaches to administering replacements for current EU funding streams - what might deliver best for Wales, and to what extent these might replicate or differ from current arrangements.

- 3.1. It is crucial that funding for infrastructure and capacity-building for research and innovation and regeneration/social cohesion in Wales is maintained or strengthened. Regardless of whether this comes from the EU or UK national budgets, the EU replacement funding should continue to be needs and placed based – in other words which reflects the particular need for investment in Wales on grounds of social cohesion and the need for capacity building, in line with Wales’ own approach to securing the well-being of future generations as a devolved nation.
- 3.2. European Structural and Investment Funds (ESIFs) have delivered great benefits for their regions by driving innovation, improving competitiveness, creating direct and indirect jobs, and promoting employment and education opportunities. However, despite 20 years of ESIF, Wales productivity is lagging most regions of the UK. The replacement of the funding gives us an opportunity to make a significant step-change in approach to deliver the change Wales needs and align it more easily with other approaches and initiatives in Wales and the UK.
- 3.3. In essence, our favoured approach to replacing the EU funding streams is set out in our response to the Welsh Government’s consultation on regional investment in Wales after Brexit.¹⁵ This includes:
- We agree that replacement funds should be managed differently, while preserving some of the strengths of the current funding arrangements. There are lessons to be learned from EU regional policy and universities have vast experience in the pros and cons of the current system.
 - The overarching objective should be to create genuinely transformative economic change in Wales.
 - In our view, focussing on transformative change would include prioritising investment in research and innovation and higher levels skills which have been demonstrated globally as having a transformative effect on economies. Given that 45% of EU Cohesion Funding is currently directed to innovation-related investment, it will be essential to ensure at least a similar proportion of Wales’ future regional investment is used to support innovation, including R&D and university-business collaboration. The skills agenda, addressing specific needs in Wales, is also very important – including for instance the development of apprenticeship programmes at the moment.

¹⁴ Opus cit. See [here](#).

¹⁵ <http://www.uniswales.ac.uk/wp/media/Unis-Wales-response-Regional-investment-in-Wales-after-Brexit.pdf>

- There should be a stronger focus on outcomes rather than inputs, and investments should be prioritised and targeted based on their return on investment for Wales.
- Transformative change is likely to mean taking risks to encourage innovation and attract private sector investment. We should review our processes to ensure the balance is right between risk taking and risk aversion when assessing projects, and that they are equipped for dealing with risks.
- A key strength of current EU funding which we should seek to retain, however, is that the funds are delivered over a longer period than traditional domestic programmes, providing stability and confidence through more informed criteria to secure local funding allocations.
- Strengthening partnerships between universities, government and industry will be crucial to future regional investment in Wales. It is partners within the regions who are likely to be best placed to identify the specific challenges and opportunities in their areas. However, partnership working should not be applied as a blanket approach but approached on its merits in the particular circumstances. Regional frameworks must also be flexible across regions and not create another layer of bureaucracy.
- There is an opportunity to align the objectives of the EU replacement funding more clearly with the Welsh Government's economic approach and well-being of future generations objective at national level. The regional elements of the City and Regional Growth Deals could be embedded more clearly within a more comprehensive nationwide approach, for instance. However, it is vital that UK Government does not consider the City and Growth Deals replacement investment for any shortfall in funding through the loss of structural funding.
- Taking steps to maintain a global outlook and presence will be even more important after Brexit. Wales should seek to sustain and develop new international opportunities. Projecting Wales as a dynamic and outward-looking economy will be crucial. Universities are committed to protecting and growing the sector's export contribution through their international work (including through the Global Wales partnership with British Council, HEFCW and Welsh Government). In 2015-16, Welsh universities generated £544 million of export earnings, equivalent to 4.1% of all Welsh exports. There is great potential to increase this through work with our universities to boost Wales' global profile in key overseas markets.
- Universities should play a key role in these partnerships as their relationships range from local, as anchors in our communities across Wales, to global, as world-class institutions.
- It will be important to ensure that replacement funding is available to leverage funding from other sources, both at a UK level and from global opportunities. The ESIFs have played a significant role in facilitating Welsh universities' ability to leverage private sector funding e.g. EU Framework Programme Funds. Additionally, we note that the Higher Education Innovation Fund (HEIF) has played a crucial role in enabling

universities in England to develop their technology transfer capabilities and is estimated to produce a return of £6.30 for every £1 spent – plus a further £3.36 in additional turnover from student start-ups and spin-offs. In addition to EU replacement funding there is a need for similar support for HE innovation in Wales in line with the Diamond recommendations and Reid Review.

- There are opportunities to reduce administrative barriers and burdens for those supported by future funding and to ensure that unnecessary complexity or bureaucracy does not stifle the creativity that the funding is designed to support. A focus on outputs rather than scrutiny of inputs would help to avoid a focus on detail that can prevent achievement of broader objectives. There is potential scope to reduce audit requirements, perhaps through exploring the options for risk-based auditing and performance-based auditing, and it is likely that a simpler and less burdensome scheme is more likely to be fit for purpose.
- There is also an opportunity to review how costs are met under future schemes in order to encourage and support projects, including greater recognition of full economic costs.
- Finally, the replacement funding scheme for Wales must be flexible enough to adapt to emerging opportunities including, future changes in EU programmes and funding from UK government.

Universities Wales
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Annex 1 - Examples of projects, led by UK universities with SF investment

ASTUTE 2020 project

ASTUTE supports the stimulation of ideas in the Welsh manufacturing sector through provision of resources, facilities, advice and guidance exploiting the wealth of world class research in Welsh universities in close research collaborations with industry. It is a collaboration of four Welsh universities; Swansea University, Cardiff University, Aberystwyth University and the University of Wales Trinity Saint David (UWTSD). In the previous funding round (2010 - 2015), the project supported more than 250 Welsh enterprises in West Wales and the Valleys, supporting them towards long term sustainability and competitiveness, the most evident improvements experienced by companies were improved processes, accelerated research and development, improved growth prospects and new product developments. The final evaluation of ASTUTE concluded that ASTUTE's work created economic impact of well in excess of £200m in West Wales and the Valleys showing that for each £1 invested an outstanding return of over £8 of economic impact was achieved.

Cardiff University: Compound Semiconductor Technology Cluster (£13 million)

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.

Swansea University: Science and Innovation Campus (£40 million)

Swansea University's Science and Innovation campus was developed with extensive EU support. As well as EIB investment, £40 million was received in European Structural Funds. The development was amongst the top five knowledge economy projects in Europe and aims to generate around £3 billion of economic impact over a 10-year period through construction activity, research, and student and business investment.

FLEXIS (£24m)

The FLEXIS project, led by Cardiff University, brings together expertise from across Welsh universities to facilitate an affordable, sustainable, and socially acceptable transition to a low carbon future. The five-year EU-backed project will look to solve a diverse, complex and inter-dependent set of challenges, ranging from energy storage, to decarbonisation and fuel poverty. By 2020, over £20m of additional competitive research income is expected to be secured in Wales as a result of FLEXIS.

Bangor University: Knowledge Economy Skills Scholarship (KESS I £33m, KESS II £40m)

KESS is a major European Convergence programme led by Bangor University on behalf of the HE sector in Wales. Benefiting from European Social Funds, KESS supports collaborative research projects (Research Masters and PhD) with external partners based in the West Wales and the Valleys. It has an integrated higher-level skills training and development programme, leading to a Postgraduate Skills Development Award. The first phase of KESS provided 453 PhD and Masters places (230 PhD / 223 Research Masters) with Welsh organisations, of which 61% were SMEs.

Annex 2 – City and Growth Deals in Wales

1. Cardiff Capital Region and Swansea Bay City Deals

- 1.1. Cardiff City Deal (£1.2bn) - The UK Government announced that it will provide £50m to help develop the compound semiconductor technology of the future as part of the UK Government's City Deal investment. Cardiff university and Cardiff-based compound semiconductor specialist IQE will spearhead the UK national 'catapult'. However, the university's involvement is expected to go much further. The City Deal foresees the potential for investment in other areas in which the university is able to offer expertise, such as software development and cyber security, energy and resources and health and wellbeing. The deal also includes support for the region's infrastructure including the delivery of the South-East Wales Metro and the Valley Lines Electrification programme.
- 1.2. The Swansea Bay City Deal (£1.3bn) - The Internet Coast, the Swansea Bay City Deal, aims to turn the whole of the region into a digital super hub to transform the regional economy, the future of energy and transform the way health and social care will be delivered in future. It aims to create 10,000 new jobs and increase the value of goods and services produced in the region by £1.8bn. There is potential available for the area, and wider Wales, to be lead in new technologies such as wireless 5G connectivity.
- 1.3. Both Swansea University and UWTSD are heavily involved in all 11 Internet Coast projects and sit on the main City Deal Delivery Board alongside local authority and health partners:
 - The Life Science and Well-being Campuses, and Life Science and Well-being Village projects, to support innovative growth of the life science sector
 - The unique ARCH (A Regional Collaboration for Health) project - already established to develop the region into a globally relevant ecosystem for integrated Open Innovation in Life Science and Well-Being
 - The Factory of the Future Initiative Growing Smart Manufacturing practice
 - The Steel Science Centre at Tata's Port Talbot Steel Works
 - Swansea University's SPECIFIC Innovation & Knowledge Centre
 - UWTSD as a dual sector university group is specifically leading on
 - Yr Egin - the new HQ of S4C and the development of a focused major creative cluster enhancing film and TV opportunities through the medium of Welsh
 - Swansea Waterfront Digital District Box Village proposal - creating an innovative location for young businesses at the heart of the waterfront

2. Growth Deal for North Wales

- 2.1. Bangor University is heavily involved in the development of a North Wales Growth Deal, working with the North Wales Economic Ambition Board, its members and partners across the region, which include Wrexham Glyndwr University, the North Wales Business Council, Mersey Dee Alliance, the six North Wales local authorities and Further Education providers, to put together a strong proposal which will drive growth across the region.
- 2.2. Given its considerable strengths in teaching, its research expertise in sectors such as Marine Science, Electronic Engineering including Computer Science and telecoms (5G), Biocomposites and Sustainable Energy, and its strong collaborative links to Ireland, Bangor University is a catalyst to ensure that investment under the Growth Deal delivers real growth in GVA not just in the north west but along the entire north Wales region.

- 2.3. The north Wales economy is closely connected to the major developments planned in the Northern Powerhouse, and Bangor University's involvement will assist the region in leveraging the benefits of that investment. Post Brexit, the opportunities to capitalise on the region's connectivity with Ireland will also be key, and the university also has a substantial amount of expertise which will assist the region in that respect.
- 2.4. Bangor University's expertise in developing high-level skills, R&D, Knowledge Transfer, Innovation and Commercialisation will be central to the success of the Growth Deal in North Wales. Bangor University is also ensuring that valuable research and knowledge assets created by HEIs are translated into real economic gains: high value jobs, increased exports and successful growth patterns by North Wales firms in priority sectors such as Energy, Environment and Advanced Manufacturing.
- 2.5. The effect of the North Wales Growth Deal will be to create real growth and momentum in high value business sectors. The University's expertise and involvement in the energy sector is a good example of how Bangor University will be a focus for innovation and development in this area. It is heavily engaged in a number of low carbon energy projects in the region, including the estimated £12bn investment in the new BWR nuclear reactor at nearby Wylfa, as well as a new biomass power station, a number projects involving marine renewable energy and a number of other projects.
- 2.6. The newly completed £20m ERDF/Welsh Government funded Menai Science Parc (MSPARC) will be a key asset in terms of realising economic benefits as outlined above, along with planned developments of a Science and Technology Quarter on the Bangor Campus. Aligned with rapid prototyping / design capabilities in the £51m Pontio Arts and Innovation Centre there will be a pipeline established for generation of new products processes and services, from research laboratory through preincubation stages to establishment of new ventures at MSPARC or elsewhere.

3. Growth deal approach for Mid Wales

- 3.1. It is important to recognise that the above city and regional growth deals do not provide coverage of the entirety of Wales. Universities Wales would like to highlight successful regional partnerships for consideration in any future regional growth deals. There is scope to invest in ways which would connect these forms of Welsh infrastructure more effectively with institutions across the UK and internationally:
- 3.2. SPECIFIC, an academic and industrial consortium led by Swansea University with Cardiff University, BASF, Tata Steel, and NSG Pilkington as strategic partners. SPECIFIC develops functional coated steel and glass products that transforms the roofs and walls of buildings into surfaces that will generate, store and release energy.
- 3.3. ASTUTE 2020, which is designed to stimulate growth in West Wales & the Valleys by applying advanced engineering technologies to manufacturing challenges, driving cutting-edge research, development, and innovation. At the core of ASTUTE 2020 are four Welsh HEIs, Swansea University, Cardiff University, Aberystwyth University, and the University of Wales Trinity Saint David.