

Report on Cardiff University's Horizon 2020 and Erasmus+ activities Enterprise and Business Committee of National Assembly for Wales

Horizon 2020

1: An update on Cardiff University's participation in the first calls under the Horizon 2020 calls.

Cardiff's ambition towards Horizon 2020 is set out in its institutional strategy, *The Way Forward 2012-2017*, where the University has identified Horizon 2020 as a key research funding source, setting a target of increasing EU funding by 12.5% *pa* during this period, and in so doing contributing to the growth of overall research income of 10% *pa*.

Cardiff University's success rates in Horizon 2020 are in line with those elsewhere in the UK and in the wider European context. It has already been widely acknowledged and reported by the European Commission (EC) that success rates in the first year of Horizon 2020 have varied significantly from those in Framework Programme 7 (FP7), partly as a result of significant over subscription to some calls. The University has not viewed Horizon 2020 in the same light as FP7, recognising prior to the former's launch, that there were going to be key changes made in the way in which proposals would be evaluated, especially those for collaborative research projects, with a much stronger emphasis on impact and 'Technology Readiness Levels'.

To date, and mindful that a large number of applications to the 2015 calls are still under evaluation, the University has secured funding for 34 projects worth £14.6M since the start of Horizon 2020 (2014-2020), covering all three 'pillars' of the programme, i.e. Excellent Science, Leadership in Industrial and Enabling Technologies' and Societal Challenges.

Cardiff is the lead Beneficiary for 11 of the 34 projects *ie*:

- 6 European Research Council (ERC) awards made up of 4 Consolidator Grants (3 Physics and Astronomy and 1 Psychology), 1 Starting Grant (Computer Science and Informatics) and 1 Proof of Concept (Chemistry);
- 5 individual Marie Skłodowska-Curie (MSCA) Fellowships made up of 3 Global (Biosciences to Brazil; Medicine to South Africa; Journalism, Media and Cultural Studies to the USA) and 2 European in Biosciences and Engineering.

The University's three Colleges have all prioritised Horizon 2020 and, working closely with colleagues in Professional Services, are encouraging more academic and research staff to submit high quality proposals to the large numbers of calls available at any one time. We have developed new internal support structures and development programmes e.g. for researchers targeting the ERC schemes and those looking to lead their first Horizon 2020 collaborative proposal.

Horizon 2020 is a key priority for our strategic collaboration with KU Leuven and our alliance with our GW4 partners Bath, Bristol and Exeter universities. This includes knowledge sharing and mapping of common areas of interest and we are looking to develop high-quality Horizon 2020 applications where we are a partner, or lead coordinator. Similarly, taking advantage of the international dimension of Horizon 2020, we are actively looking to expand our use of the programme to fund our research activities with partners in China, the USA, Africa and elsewhere worldwide.

2: Views on the role of WEFO Horizon 2020 unit in supporting Welsh engagement in the new programme, and views on the other support mechanisms available in Wales including Score Cymru.

The WEFO Horizon 2020 Unit is an important development for HE, business and other organizations in Wales, and one to be supported going forward. Competition for Horizon 2020 funding is very high and anything to give us 'an edge' when applying is to be welcomed. We have been in discussion with the Unit recently about

how we can help facilitate greater Welsh SME awareness/participation in Horizon 2020 using our membership of Vision2020: The Horizon Network: <http://2020visionnetwork.eu/>

SCoRE Cymru is an important and valuable initiative, and we in the University are delighted with support provided by this scheme. Funding for travel has allowed a number of our staff to travel to meet partners, develop bids and attend information events. The limited funding made available to employ specialists to help with bid writing (for collaborative proposals), which we have made of use with our early career researchers, is a very welcome addition and one to be encouraged, continued and grown.

Recognising that SCoRE Cymru is public funding, and as such due process and procedure need to be adhered to, in an effort to speed up the whole application/approval cycle could the scheme be run via an online system, which ultimately could prove cheaper and more effective to run? For Horizon 2020 two-stage proposals, the turn-around time for the preparation and submission of the full proposal at Stage 2 is very tight, meaning that our staff have a very short window in which to book travel, accommodation etc to attend proposal writing meetings. This makes it very difficult for them to benefit from the SCoRE Cymru funding at this crucial stage in the proposal development.

3: Views on the impact that the Science for Wales Strategy has had on Welsh participation in Horizon 2020.

The Sêr Cymru Stars programme has attracted world-class researchers to Wales and built new research capacity which has the potential to effectively compete for Horizon 2020 funding. The results of this initiative are already being seen in the University where one of the new senior lecturers, attracted as part of Professor Yves Barde's research chair support package, made it through to the final stages of an ERC Starting Grant call. Unfortunately, this proposal was ultimately unsuccessful due to the intense competition for this particular funding stream, but the individual concerned will be a strong candidate for a re-submission to a later call.

The appointment of Professor Diana Huffaker by the University aligns with other investments in compound semiconductor research and innovation (*ie* the new Compound Semiconductor Institute and Compound Semiconductor Centre Joint Venture company). This significant collaborative activity with IQE, a global company with its headquarters in St Mellons, Cardiff, has already led to at least one major proposal submitted to the European Commission, and Horizon 2020 bids are a future priority.

Increasing engagement with Horizon 2020 is a key objective for the Sêr Cymru initiative. The three National Research Networks (NRNs) have organised a series of funding workshops across Wales aimed at increasing awareness of Horizon 2020 and providing practical advice for applicants. Delivery of the workshops was by external experts. The Networks are also working closely with the European Offices at the relevant universities to support other local initiatives aimed at increasing engagement with Horizon 2020.

Cardiff University is committed to recruiting new research staff in areas of acknowledged strength, as identified in REF 2014, including through the newly launched COFUND programme. The institution's recruitment will be strategically aligned with ongoing investments including the nine University Research Institutes: Cardiff Catalysis Institute; Crime and Security Research Institute; Data Innovation Research Institute; Energy Systems Research Institute; European Cancer Stem Cell Research Institute; Neuroscience & Mental Health Research Institute; Sustainable Places Research Institute; Systems Immunity Research Institute; and Water Research Institute. Growth in capacity in other key areas will also be prioritised for the COFUND scheme, *eg* in relation to major operations which are currently in business planning with WEFO (FLEXIS, HPC Wales II). The Cardiff University Executive Board has determined the strategy for attracting excellent researchers to apply to the COFUND scheme with Cardiff University as the host institution, whilst the resources for the required level of co-investment have also been considered.

4: Views on the impact of the Welsh HE Brussels Office support to the participation of the sector in the programme, including the four thematic co-ordination groups it established in 2012.

Cardiff University gets very good 'value for money' from its membership of Welsh Higher Education Brussels (WHEB) and we collectively have an excellent working relationship with Berywn Davies, Head of Office, and his team, and through them with the other offices co-located in Wales House in Brussels. We have a growing

number of academic and research staff using WHEB *e.g.* to organise meetings with key EC officials in Brussels and to host meetings with partners in Horizon 2020 bids/projects at Wales House. Academics across our institution have joined and actively contribute to the four WHEB sector-led European Research Groups in Advanced Materials & Manufacturing, Biosciences, Health and Low Carbon. WHEB also supports the sector by helping to organise the annual visit to Brussels for the participants on the Welsh Crucible programme.

5: Views on how Cardiff University and Welsh HE more generally is working with Welsh businesses (and other businesses) to engage them in collaborative projects under Horizon 2020. The EU Funding Ambassadors in their session with the Committee on 23 September underlined the importance of specialist one-to-one support to businesses on engagement with Horizon 2020, arguing that this is currently not available in Wales. Do you agree with this view?

The point made by the EU Funding Ambassadors in their session with the Committee on 23 September is a valid one. That said the question is who should be providing this specialist one-to-one support to businesses on engagement with Horizon 2020.

With the changes from FP7 to Horizon 2020 highlighted above, coupled with the EC stating that a minimum of 20% of the Horizon 2020 budget would go to SMEs, the University recognised the need to use its existing connections with universities, research organizations, companies, businesses and others, both in Wales and elsewhere, more effectively when applying to Horizon 2020. Joining Vision2020: The Horizon Network: <http://2020visionnetwork.eu/> in July 2013, and taking on the lead role for Energy in the Network, is helping us in that endeavour. Vision2020 is a pan-European network of universities, research organisations, large companies, SMEs (over 130 so far recruited) and others working in the field. The Network launched in April 2013 and Cardiff University joined in July 2013. The calibre of those universities/research organisations involved, *eg* University College London, KU Leuven, Helsinki University, CERN *et al*, plus all the companies joining, has put us in a strong position to work with some of the best and most successful ‘players’ on the European research and innovation scene. From an SME perspective, the network gives them access to a ready international network of research and innovation intensive organisations who ‘know Horizon 2020’. In a Wales context the University has been instrumental in getting IQE, Cultech, Alesi Medical Instruments and other Welsh companies to join this Network.

In January 2015 the University combined with Vision2020 to host an event through the Cardiff University Innovation Network titled ‘*Vision2020: The Horizon Network (for EU funding): What’s in it for Small and Medium-Sized Enterprises (SMEs)?*’. This free event, which included a presentation by an EC representative, and was attended by a large number of local companies plus Welsh Government representatives, explained how the Vision2020 Network supports SMEs by providing a collaboration platform for companies and research organisations participating in the Horizon 2020 funding programme.

Cardiff University is seen as one of the founding members of Vision2020, leading the Energy Cluster within the network. Within that role, the University organised a very successful two-day event in Cardiff in July 2015 on the Horizon 2020 ‘Secure, clean and efficient energy’ Societal Challenge. The event attracted some 150 attendees, including representatives from 30 companies and 28 universities across Wales, the UK and 8 other European countries – amongst those attending were major companies such as GE Oil and Gas, Johnson Matthey, as well as a large number of SMEs, with many of those coming from Wales.

The overall UK approach to its NCP (National Contact Point) support would seem to be at variance with some of its EU partner countries. In the UK individuals operate at a national level, while in countries like Germany, there seem to be many more staff deployed on a regional basis across all the themes. This is not to criticise in any way those working as NCPs in the UK, many of whom are very knowledgeable and helpful individuals providing valuable support. In the summer we had excellent support and input from Helen Fairclough, the lead NCP for Energy in the UK, before and during our Vision2020 Energy Cluster event. Likewise, we get excellent advice and support from the UK Research Office (UKRO) in Brussels in its role as the UK NCP for both the European Research Council (ERC) and the Marie Skłodowska-Curie Actions (MSCA).

In the Wales context the WEFO Horizon 2020 Unit is helping to raise the profile of Horizon 2020 from a

relatively low starting base, for those outside the university sector. Their work with companies and others working in Welsh Government *e.g.* Innovation, is starting to pay dividends. That said, as we in the University know, while it is one thing to encourage someone to apply to Horizon 2020, it is another to get a bid funded as borne out by the low success rates in the first calls.

Using consultants more widely to help companies in Wales engage in Horizon 2020, and actually help with bid development, is one possible path to be explored but of course the question is who would pay for that support – over and above the level of provision possible through SCoRE Cymru.

5: Views on whether Wales – the Welsh Government and the Welsh HE sector including Cardiff – is sufficiently ambitious with regard to how it is approaching Horizon 2020, particularly given Ireland has set a target of drawing down €1.25bn from Horizon 2020 and has secured around €127m from the first calls under the new programme.

The early success of Ireland in Horizon 2020 has to be considered against its investment of significant central resources over a sustained period of time to promote the various Framework Programmes *eg* FP6, FP7 and now Horizon 2020 to all sectors in its economy.

As outlined in the reply to question 1, Cardiff's ambition towards Horizon 2020 is clearly set out in its institutional strategy. Welsh universities as a whole clearly recognise the importance of Horizon 2020 in terms of their own research profiles, and collectively have a role to play in helping to promote the programme. The Welsh Government, through the Office of the Chief Scientific Adviser Wales, the Horizon 2020 Unit in WEFO, and their colleagues in the various sector and innovation teams, are working hard to raise the profile of Horizon 2020 and its many funding strands across Wales, making it more visible and accessible. The success of the Welsh Government-led Marie Skłodowska-Curie Actions (MSCA) COFUND proposal has clearly demonstrated ambition and the willingness of Welsh Government and Welsh universities to work together to build research capacity, and to help increase research funding into Wales.

6: Synergies between EU Structural Funds and Horizon 2020: views on the measures being taken under the Structural Funds in Wales 2014-2020 to support research and innovation and impact of this on Welsh competitiveness in Horizon 2020.

The 2014-2020 ERDF Structural Fund programmes include a direct 'Priority Axis' and 'Specific Objective' to "increase the success of Welsh research institutions in attracting competitive and private research funding". Individual Operations will be measured on their capture of research awards, including Horizon 2020 awards. This is directly aligned with this University's institutional objectives and Key Performance Indicators (KPIs), to grow research income by 10% year on year.

ERDF Structural Funds can now be targeted by HEIs for research capacity building activities – including investment in academic posts and research groups, *eg* FLEXIS, currently in Business Planning with WEFO, and in research infrastructures *eg* the new CUBRIC building, and in 'innovation-led' collaborations with industry *eg* the Institute for Compound Semiconductors, under discussion with WEFO. The Welsh Government Sêr Cymru II (ERDF) and COFUND (H2020) schemes are also intended to recruit academic talent into Welsh HEIs, alongside collaborations with industry that will drive up research and development, and innovation.

Over the medium to long term, this range of investment in growing research and innovation capacity in Wales should lead to a greater volume of high quality applications to and awards from Horizon 2020 to Welsh academics, industry and organisations. At an operation/project level, each project will adopt different approaches to encouraging and supporting engagement with Horizon 2020 through networking, liaison, influencing and grant-writing activity, as set out in their respective Business Plans.

7: What contact Cardiff University has had with the new EU Funding Ambassadors and the view of the University on the value this initiative provides to Welsh engagement with centrally-managed EU programme such as Erasmus+.

The University has had limited contact to date with the new EU Funding Ambassadors but is aware of their roles in helping to engage Wales in EU funding programmes, and is very keen to work with them more closely.

All three were introduced at the Wales Annual Horizon 2020 Conference in February 2015, and a meeting was then set up by our European Office with Dr Grahame Guilford to discuss health and life sciences opportunities in Horizon 2020. We would welcome further contact with Dr Guilford, and also with Dr Hywel Ceri Jones and Ms Gaynor Richards.

Erasmus+

Cardiff University has been involved in the Erasmus programme since it was first established in 1987. As an institution we have 284 Inter-Institutional partnerships with universities across 28 countries throughout Europe. During the first year of the Erasmus+ programme, 2014-2015, a total of 350 participants have taken part, including Student Mobility for Study, Student Mobility for Traineeships and Staff Mobility for Teaching and Training.

The University's Global Opportunity Centre is committed to increasing our involvement in the Erasmus+ programme. Our involvement in the Erasmus+ programme contributes to the University's strategic vision to become a global Top 100 university as laid out in *The Way Forward*. The University has identified greater international engagement as crucial to this, with a target of ensuring that by 2017, 17% of our home students will have studied, worked or volunteered abroad for at least a month during their time at Cardiff.

Student and Staff Numbers

330 Cardiff students have participated in the programme during 2014-2015.

- 233 students (from 14 academic Schools) took part in Study placements in 12 countries;
- 97 students (from 10 academic Schools) took part in Traineeships in 16 countries.

17 academic members of staff took part in Teaching mobility across 10 countries, while 3 staff took part in Traineeships in 3 countries.

Increased engagement with the programme

1) Cooperation with academic Schools

During the first year of the Erasmus+ programme, we have engaged a great deal with academic Schools at the University. A number of Schools have reviewed their degree programmes, or set up new programmes, to allow for a period of mobility as an integral part of the degree. Staff have also been invaluable in promoting the benefits of student mobility to their undergraduate cohort. An outcome of this is that students from a far wider range of Schools are now involved in the programme.

2) Short-term Traineeships

From 2007 the number of students participating in Traineeships has leapt from 3 participants in 2007/8 to 97 in 2014/15. This is largely due to support from academic Schools, increased flexibility of degree programmes to allow for periods of mobility abroad, as well as engaging with shorter-term (8 week) traineeships over the summer holiday. These shorter-term placements are particularly beneficial for students studying in disciplines with a very structured timetable and fixed curriculum, such as Pharmacy.

Graduating Students

During the first half of the year, the Global Opportunity Centre worked closely with ECTARC to help publicise the opportunities for recent graduates to take part in Erasmus+ Traineeships. Over the summer months we had a good number of students enquire about how they could take part in the programme as a Recent Graduate. Unfortunately by this time, we were advised that ECTARC were no longer able to offer Traineeships through the programme.

International Credit Mobility

We have recently been successful in securing funds for student and staff mobility between Programme and Partner Countries (KA107 International Credit Mobility).

The planned mobility project to Brazil and Macao is crucial to establish strong teaching and research relationships with colleagues at partner institutions in these countries, and make arrangements for exchange

placements that will form part of a new degree programme in Portuguese.

This success demonstrates the University's commitment to both outward student and staff mobility and the internationalisation of the University community; as well as our continued commitment to take advantage of the opportunities that form part of the Erasmus+ programme.

Key Action 2 – ERASMUS+ Strategic Partnership Project

Standardized Vocational Education and Training for BIM in EU (BIM4VET)

The University is a partner in this new project led by Luxembourg Institute of Science and Technology, in which Commissariat à l'Energie Atomique et aux Energies Alternatives is also a partner. Building Information Modelling (BIM) is rapidly changing the way construction projects are procured, designed, built and managed all along the life-cycle of a facility. New skills are required, and the project tackles an urgent need to 1) develop a transparent and harmonized competence matrix for BIM actors across Europe, 2) standardize BIM missions and processes on an EU scale, taking into account the international BIM developments already existing and 3) classify and harmonize BIM training curriculum and certification schemes.

Language Learning Courses – Languages for All Programme

From 2014/15, all Cardiff University students can study a modern language for free in addition to their studies through the new Languages for All Programme. The main objective of this university-wide initiative is to support the international mobility of students and increase their employability prospects. The first year has been extremely successful with 2,800 students studying a language either on a weekly or an intensive course. The top languages were Spanish, French and German. Tailored courses for groups going abroad were also made available and intercultural awareness is embedded in curricula of Languages for All programmes.

Internationalising the curricula

There has been progress towards encouraging academic Schools to internationalise the curriculum. As stated above, since the introduction of Cardiff University's institutional strategy, The Way Forward, many more degree programmes now allow for an integrated period spent abroad. Academic Schools were also offered funding to support further short term academically-led mobility opportunities over the summer months.

Provision of accommodation

The Global Opportunity Centre provides a successful induction programme to ensure that Erasmus+ students coming to the university for just one semester are able to find private accommodation in the city. With regards to outgoing students, we ensure that opportunities are advertised early enough to ensure that students do not sign up for tenancy agreements for the next academic year so far in advance. We also assist students going abroad for one semester to find an incoming student who may be able to take over their room in a shared house.