



NAfW inquiry into the Horizon2020 proposals for European research and innovation funding 2014-2020

A submission to the Enterprise and Business Committee from HEW and WHEB

About Higher Education Wales & Welsh Higher Education Brussels

Higher Education Wales (HEW) is the representative body for Wales's Higher Education Institutions and is a National Council of Universities UK. HEW's Governing Council consists of the Vice-Chancellors of all the HEIs in Wales and the Director of the Open University in Wales.

Welsh Higher Education Brussels (WHEB) has been established to promote the interests of the Welsh Higher Education sector in Europe. WHEB works to:

- Enable the HE sector to engage more fully with European priorities such as the Europe 2020 Strategy, Horizon2020 and the Bologna Process; and,
- Facilitate stronger relationships between Welsh Higher Education Institutions (HEIs), European Institutions and Regional Partners from the EU, and beyond.

By placing itself at the heart of Europe, WHEB aims to build closer links with a wide range of other stakeholders, promoting Welsh excellence in pursuit of Europe-wide goals.

Introduction

HEW welcomes the opportunity to discuss the proposals for the new EU research and innovation programme, Horizon2020 which will come into force in 2014.

The higher education sector represents over 72% of the Welsh participation in the current FP7 programme and the sector is in receipt of over 84% of the FP7 funding coming to Wales. In total, Wales has received over €84m from FP7 since 2007.

There are fields where the sector performs well compared to the UK participation rate such as the Food, Agriculture and Biotechnology and Nanosciences, Nanotechnologies, Materials and New Production Technologies themes in the Cooperation strand as well as parts of the Capacities strand in FP7. However, the sector recognises that Wales should be securing a greater proportion of European funding for research.

Horizon2020 offers new opportunities for the sector to carry out even more European funded research and it intends to fully exploit these opportunities during the 2014-2020 programme period in order to strengthen the international competitiveness of the Welsh HE sector.

This paper highlights the following key messages:

- The primary aim of Horizon2020 will be to **fund excellent research and innovation wherever it is found**. The proposed increase in its budget and its focus on funding research that has the potential to have a transformative impact on the European economy offers new opportunities and challenges to the HE sector in Wales to **increase its competitiveness**.
- This proposal offers opportunities for the sector to build on its current engagement with EU research funding to **strengthen its international engagement**. The new programme introduces a new structure which includes a pillar dedicated to excellent bottom up science with an increased budget most notably for the European Research Council.
- The proposals include **simplified rules for participation** which will make it more attractive to academics to get involved. Furthermore, the focus on the entire innovation chain from research to market will afford **new opportunities for the universities to work with businesses in Wales and internationally**.
- For historical reasons the capacity for Wales to undertake science, technology, engineering and mathematics (STEM) research has been smaller compared to England and Scotland. The Science Strategy for Wales recognises **that a dynamic modern economy needs a strong science base**. It is vitally important that Wales takes a strategic approach to the new European funding opportunities by building its research and innovation capacity through Structural Funds. This investment in **building critical mass of research and innovation will enable universities to compete with the best in Europe and beyond in the new Horizon2020 programme**.
- There are clear links between the challenge driven approach and the Ser Cymru programme in the Science Strategy for Wales with the structure and objectives of Horizon2020. This alignment is essential for universities to integrate the new programme into a broader strategy of attracting other sources of external research funding to Wales. **European funding programmes are therefore of fundamental importance for the future of research and development in Wales**. The HE sector sees this strategic approach as an ideal opportunity to work with Welsh Government and the private sector to contribute to economic growth.

1. The potential impact of the EC's draft legislative proposals for the future Horizon2020 on Wales

Potential positive impact on Welsh universities

Supporting research and development

- 1.1. The sector supports the explicit commitment to the **principle of excellence** as the main criteria for the proposed programme. Funding should only be allocated to research that has been deemed world class by international peer review.
- 1.2. The sector recognises that a **broader definition of excellence includes effective exploitation of research for economic development**. Rapid transition from excellent fundamental research to applied research in products and services is a goal of the current FP7 which has increasingly demanded SME involvement. This will become a core element of Horizon2020.
- 1.3. The sector strongly supports the proposed overall budget of €80bn. This represents the required minimum increase on the current budget to ensure a level of funding comparable to the final years of FP7, whilst taking into account that Horizon2020 will comprise of not only the successor of FP7 but also the Competitiveness and Innovation Programme (CIP) and the European Institute of Innovation and Technology (EIT). **We would estimate that this level of funding is the minimum for Horizon2020 to have the potential to generate a critical mass of research and innovation that will contribute significantly to economic development across the EU.**
- 1.4. The sector supports the new structure of the programme, focusing on excellent science, industrial leadership and addressing societal challenges. The sector particularly supports the first pillar on strengthening the science base as this provides bottom up funding for research in any field or topic, without being restricted to specific thematic call. It therefore represents a clear opportunity for the institutions in Wales to attract more EU research funding. Approximately €25bn has been allocated to this part, representing almost one third of the overall budget. The sector believes that **this amount should be retained during the budget negotiations and that one third of the programme devoted to the Excellent Science pillar should be a minimum requirement.**
- 1.5. Innovation and close to market research which contributes to economic development draws heavily on well funded fundamental research which is itself internationally competitive. As such the sector is very pleased that this is recognised in the proposals with the planned increase in the budget for the **European Research Council (ERC)** by 77% within the Excellent Science pillar. This budget will contribute to the development of a strong world class research community in Europe, ensuring that institutions can attract and retain the best researchers and compete with the best globally. Already, the 10 ERC grants won by Welsh

institutions represent the single largest funding source within the FP7 at €15.4mn and accounts for almost 18% of all FP7 received so far. **Maximising success with this part of Horizon2020 will therefore be a key priority for the sector in Wales to underpin the country's aspirations in building its excellent science base.**

- 1.6. The Commission is in favour of stronger links within and between the pillars of Horizon2020 and the sector is keen to explore how the economic impact of current and future ERC funded research in Wales can be realised by securing funding in the more innovation focused parts of the new programme such as the Societal Challenges or Industrial Leadership pillars.
- 1.7. The sector is also pleased to note that **Marie Curie** will also be a key element of the Supporting Excellence in Science pillar. Welsh universities have been successful in attracting this funding in the past (€12.7mn from FP7 to date) and see this programme as **a key driver for strengthening the science base in Wales by attracting high calibre international researchers**, as well as delivering innovative training programmes and placements for young researchers. The sector is also keen to ensure that elements of the current Industry Academe Pathways and Partnerships (IAPPs) are retained in the new Marie Curie action.
- 1.8. The sector welcomes the inclusion of **Future and Emerging Technologies (FET)** within the Excellent Science pillar. This is an important bottom up initiative which will be open to a much broader range of subject areas, beyond the current FP7 focus on ICT. The proposed expansion of FET to areas such as energy, health, and materials represents a significant increase in opportunities for the sector.
- 1.9. Welsh HEIs have benefited from FP7 funding for **research infrastructures** and the sector welcomes its continuation in the Excellent Science pillar. There will be a clear opportunity for the sector to strengthen the research priority areas e.g. in health and low carbon through this particular strand.
- 1.10. The importance of research and innovation in addressing **societal challenges** is central to the proposals. The sector has argued in the past that transnational collaborative research should be retained as the fundamental key aspect of Horizon2020. Engagement in **collaborative research with the best in Europe** and the rest of the world is important for underlining the reputation of Welsh HEIs as centres of excellence in research, innovation and technology transfer. The focus on **multidisciplinary research** in the Societal Challenges pillar will provide new opportunities for academic departments across the universities to engage with the programme by collaborating with colleagues within their own institutions as well as with colleagues across Europe and worldwide. There will also be the potential for institutions in Wales to collaborate on applications which draw on the specific expertise of colleagues across the sector to strengthen consortia. The sector notes that this pillar will **support the entire innovation chain from research to close to market** initiatives and that it includes a new focus on piloting, demonstration, test beds, support for end user driven innovation, social innovation and market take

up. The sector recognises that greater collaboration with SMEs in Wales and internationally will therefore be required.

- 1.11. The sector supports the commitment to open the programme to international partners from across the globe. This is continuing the way the FP7 has operated, where over 180 countries outside the EU and Associated Countries have taken part, with the US and Russia the leading non-European participants in the programme, followed closely by China, India and Brazil. This will be an opportunity for the institutions to **incorporate engagement with the programme into their own international strategies** in terms of collaborative international research and researcher mobility. In addition, the sector aims to work with Welsh Government to ensure that these issues form part of the government's own international activities.
- 1.12. The sector notes the significant increase in the budget proposed for the **European Institute of Innovation and Technology** (EIT) within the proposals. The EIT is an important development which brings together research, education and innovation through the Knowledge Innovation Communities (KICs). Aberystwyth University is one of several associate partners in the Climate-KIC. However, the sector's experience of the EIT to date has been stifled by a lack of clarity as to its objectives, activities and mechanisms. Genuine opportunities for engagement need to be clearly articulated to justify the proposed increase of the EIT budget under Horizon2020. The sector believes that the **other areas of Horizon2020 are of a higher priority, should any restrictions be placed upon the proposed budget for the programme.** That said, the sector is extremely keen to work with Welsh Government in exploring opportunities to engage with the new areas proposed in 2014. Involvement in the proposed Food for Future KIC would allow the sector to build on its notable success in the Food, Agriculture and Biotechnology strand of FP7.

A simplified programme

- 1.13. The sector welcomes the moves towards **greater simplification and a more user-friendly programme.** In particular the proposed reduction of time to grant to 100 days as will encourage more academics to engage with the programme.
- 1.14. The proposal to have a single reimbursement rate of 100% of direct costs for all participants and activities and a single flat rate of 20% for indirect costs will be a key element for simplifying the programme which should also lead to a reduction in time-to-grant and administration. A single reimbursement rate will allow the preparation of budgets to be much simpler, in particular for transnational multi-partner projects, **reducing the administrative burden,** especially for coordinators. In addition, the Commission recognises that projects often need to adapt to changing needs during their implementation e.g. the need to replace partners or reallocating resources within the project, and changes will no longer lead to complex budget renegotiations.

1.15. The sector strongly supports the move towards a **more trust based system and acceptance of accounting practices in member states**. This should lead to fewer audits and controls. In addition the sector welcomes the proposal for non-recoverable VAT to become an eligible cost which should make the programme more attractive to the institutions. However, it should be noted that the eligibility of VAT in Horizon2020 is a decision at the level of the Financial Regulation. Without this change, some elements of the new funding regime will not be financially viable for the sector.

Engaging with SMEs

1.16. The sector notes the target of 15% SME participation in Horizon2020. The moves towards greater simplification will not only benefit the HE sector but will also make the programme more attractive to SMEs. Engaging SMEs in Framework Programmes in the past has proved challenging and they rely to a large extent on support and expertise within HEIs to engage with European funded programmes. One of the key challenges for the sector will be to identify the best SMEs as partners in projects, wherever they may be located. Preparing successful bids is a very resource intensive undertaking and better support to facilitate this process would be welcome. The importance of structural funds in this regard is noted – Moreover, this could be achieved through the expansion (size, scope and ambition) and simplification of the Wales European Collaboration Fund, following e.g. the Enterprise Ireland's programme of financial support for FP7 participation¹.

1.17. Whilst the sector supports the proposals for new SME instruments within Horizon2020, it will be important that the Commission's aim for greater cross-over between the different strands of the programme is realised. **Research and development undertaken within universities should be prioritised for activities funded under the Industrial Leadership pillar** where SMEs can transform research results into products and services. The sector notes that the emphasis on demonstration and pilot projects in the Societal Challenges pillar will require greater collaboration between universities and business, both large and SMEs.

1.18. **Potential negative impacts on Welsh university participation.** Collaboration between SMEs and Universities are frequently developed within wider university collaboration with large companies, often in the context of strengthening supply chains. This is problematic in Wales because of the relative paucity of larger companies. It reinforces the significance of the Welsh Government's policies towards "anchor" companies but also points to the potential importance of the Horizon2020 in helping Wales achieve maximum benefit from "anchor" companies which are attracted to Wales.

1.19. While the sector welcomes the increased budget for **Marie Curie** it is important to note that the budget allocation represents a **cut in real terms for the first six**

¹ For further information please see: <http://www.fp7ireland.com/Page.aspx?SP=225>

years of Horizon2020. In 2013, the final year of FP7, the budget for Marie Curie is almost €1bn. Under the current proposal for Horizon2020, an equivalent level of annual funding will not be reached until 2019. At the start of Horizon2020, in 2014, the annual call budget for Marie Curie will be only €0.7bn. The Marie Curie action is a very competitive part of FP7 and the sector has been successful in attracting this funding. However, this real terms cut will make this funding even more competitive during most of the Horizon2020 period. We would recommend that a higher budget is allocated to this even if this means a slight reduction in the amount allocated to the ERC. A further concern is that a much larger share of the Marie Curie budget is being allocated to the COFUND scheme. The scheme is only available to existing fellowship and researcher training programmes, which can apply for top-up funding from COFUND. This represents a potential problem for Wales, as very few such programmes currently exist in Wales, making a larger proportion of the Marie Curie programme virtually inaccessible for the sector.

1.20. The sector recognises that **research in social sciences and humanities** can play a vital role in the Societal Challenges pillar, as Welsh universities have leading departments in this field and will encourage academics to engage with the new programme. However, the **importance and contribution of social sciences and humanities to each of the Challenges is not sufficiently well articulated in the current proposal.** A change of approach is needed to make social sciences and humanities an integral and explicit element of all Challenges. The concern is that otherwise academics in this area will be disadvantaged, even marginalised, by not having clear opportunities to participate in what is the largest pillar of Horizon2020.

2. What the Welsh Government should prioritise in seeking to shape the UK Government's position in the Council of Ministers, and feed these views into the negotiations taking place in Brussels (including the European Parliament)

2.1. The sector strongly supports the proposed budget of €80bn for the new programme and recommends that the Welsh Government provides evidence to the UK government on the **importance of the programme for delivering the Science Policy for Wales and Wales' overall engagement with European programmes.**

2.2. The sector urges Welsh Government in particular to **ensure that the budget for the Excellent Science Base pillar is retained and as a minimum should represent at least one third of the overall Horizon2020 budget.** However, within the Excellent Science Base pillar, the sector would recommend a smaller proportion of the Marie Curie budget to be allocated to the COFUND scheme, giving greater emphasis and funding to the individual fellowships and Initial Training Networks.

- 2.3. Welsh Government should clearly articulate the strong alignment between Horizon2020 and Structural Funds. The proposed synergies between the two programmes offer unprecedented opportunities for **building research capacity and capability within Wales and allowing universities and businesses to collaborate with the best in Europe and worldwide through successful bids to competitive calls**. It is essential that these programmes are viewed as complementary and that bridges are actively built, linking the two programmes. We urge that Welsh Government recommends that explicit reference is made to these important links between Structural Funds and Horizon2020 in the Partnership Contract and the Operational Programmes.
- 2.4. The sector urges Welsh Government to refer to the **endorsement given by the Enterprise and Business Committee in its February report** on the alignment between Horizon2020 and Structural Funds when negotiating with UK Government².
- 2.5. The sector recommends that Welsh Government **promotes the opinions of Welsh universities in the European Parliament** which is currently considering the proposals alongside the Council of Ministers.

3. Assess the opportunity for synergies between H2020 and the future EU Structural Funds in Wales aimed at improving future participation in H2020.

(Annex 1 provides examples of links between structural fund investment and transnational EU funded research activities in Welsh universities)

- 3.1. Though Structural Funds and Horizon2020 have different characteristics and focus we note that both funding instruments have **shared objectives linked to the smart growth objective of Europe2020**.
- 3.2. The agenda on synergies between both instruments is actively pursued in Brussels where there is widespread support for using Structural Funds for building research and innovation capacity – the **stairway to excellence concept**. MEPs are advocating this strongly in the Industry Transport Research and Energy committee³. This commitment is reflected in requirement for regions to devise regional innovation strategies based on smart specialisation.

² Draft Legislative Proposals for EU Structural Funds 2014-2020, NAFW Enterprise and Business Committee, February 2012

³ Working Document on Specific Programme Implementing Horizon2020 – The Framework Programme for Research and Innovation (2014-2020):

<http://www.europarl.europa.eu/sides/getDoc.do?type=COMPARTL&reference=PE-488.047&format=PDF&language=EN&secondRef=01>

3.3. As stated during its previous evidence to the Enterprise and Business Committee the sector fully supports the Commission's proposal in the draft regulations for Structural Funds to concentrate resources around a limited number of priority areas which include research and innovation. The sector endorses the minimum allocation of 80% in More Advanced Regions and 50% in Less Advanced Regions to these areas. Investing in the 'Strengthening Research, Development and Innovation' theme provides clear opportunities for aligning Structural Funds with the objectives and the activities proposed in all three pillars of Horizon2020 and as stated in the previous evidence session, will be a **key determinant for achieving transformational change in the Welsh economy**. This view was endorsed by this Committee in its final report⁴.

Key opportunities for realising the synergies

3.4. In order to ensure that opportunities for synergies are realised in practice we strongly urge Welsh Government, as the managing authority, to **prioritise its Structural Fund activities within the Operational Programme to support Welsh participation in Horizon2020**.

3.5. A common Wales wide strategy for Structural Fund priorities with strong commitment for investing in research and innovation across both the Less and More Advantaged Regions would enable the institutions to collaborate more effectively and allow for stronger strategic links with Horizon2020.

3.6. The sector strongly supports the possibility of **combining Structural Funds and Horizon2020 funding for same project** (as stated in the Art 55 (8) of Gen Regs). On condition that an expenditure item is not funded twice under the Structural Funds or any other EU instrument, a single operation is allowed to receive support from both the ERDF and ESF or the ERDF and Horizon2020. This needs to be underpinned by compatible rules and procedures, coherent application processes and evaluation criteria which avoid any double jeopardy.

3.7. Smart specialisation is likely to be an ex ante condition for receiving Structural Funds. This is a key opportunity to commit to making links with Horizon2020. The **Smart Specialisation Strategy** should outline both upstream and downstream actions to and from Horizon2020 as key actions for Structural Funded activity to realise the Regional Research and Innovation Strategy.

3.8. **Upstream activity** should prepare regional research and innovation organisations to participate in Horizon2020 by adopting the stairway to excellence concept. There is potential within ERDF to fund capacity building in Member States and Regions for research and innovation excellence and technological change. Examples include

⁴ Draft Legislative Proposals for EU Structural Funds 2014-2020, NAFW Enterprise and Business Committee, February 2012

investing in research infrastructures and equipment of European interest . Within the ESF there will be opportunities to support the modernisation of the sector through the development of post-graduate programmes, improving the research skills of students, training of researchers and the support and promotion of university and business collaboration. These activities can in turn stimulate and facilitate participation in Horizon2020.

- 3.9. Structural Funds can also support **downstream activity** by exploiting research and innovation results stemming from Horizon2020 and current FP7 projects, transforming research outcomes into commercially viable products and services. The sector supports the Commission's recommendation that Structural Funds are used to develop projects led by universities in supporting the first time access of regional SMEs to European programmes such as Horizon2020.
- 3.10. The sector strongly recommends devising **innovative schemes, using Structural Funds, to build on and grow Wales' success particularly under the Excellent Science Base pillar**. These should include a specific programme to support Welsh host institutions of awardees of ERC grants, based e.g. on the model of the Science Foundation Ireland's ERC Support Programme⁵. Norway supports successful ERC grant winners with an additional 25% of grant to in order to travel to collaborator institutions for nurturing ideas, to engage a proposal writer or to free up time from teaching duties to undertake the funded research. Furthermore, setting up Welsh research fellowship and/or researcher training programmes through Structural Funds, with the view to attract additional EC funding through Marie Curie COFUND, should be prioritised.
- 3.11. The sector strongly supports the proposal first promoted by the Synergies Expert Group⁶ in 2011 and endorsed by MEPs that **structural Funds might be used to contribute to the funding of ERC, Marie Curie or collaborative projects that meet the criteria of excellence but cannot be funded due to lack of European funds**. Horizon2020 could confer a 'seal of excellence' on positively evaluated projects that have not otherwise been able to achieve funding because of budgetary limitations.
- 3.12. Greater **transnational activity** is supported in Structural Funds and this offers opportunities to work with other regions to build research collaborations and e.g. to share research infrastructures.
- 3.13. In addition, the **Territorial Cooperation programme** offers opportunities for building trans-national linkages between regional innovation actors. This programme will include activity currently supported through Regions of Knowledge and Research Potential programmes which were highly competitive strands of FP7. The new

⁵ <http://www.sfi.ie/funding/funding-calls/open-calls/sfi-erc-support-programme/>

⁶ See: http://ec.europa.eu/research/regions/pdf/synergies_expert_group_report.pdf

proposals could offer the chance for Wales to engage in this activity for the first time.

- 3.14. The sector notes that a specific **part of Horizon2020 has been designated for closing the research and innovation divide** which should be considered alongside Structural Funded activity. Proposed activities include twinning emerging institutions in less developed regions with international leading counterparts, build links with innovative clusters and recognising excellence in less developed regions and ERA chairs in order to attract outstanding academics to institutions with a potential for research excellence. The sector is keen to explore further the clear link between this part of the programme with the Ser Cymru proposal in the Science Strategy for Wales.

Implementing these opportunities

- 3.15. Structures should be set up to **facilitate strategic identification of priorities for the different instruments and aim to avoid duplication of effort.** Universities would be keen to play a central role in these structures. Joint meetings between Welsh Government as managing authority for Structural Funds and agencies involved in implementing Horizon2020 such as the National Contact Points is needed in order to share data on Horizon2020 participation.
- 3.16. This information exchange should highlight potential links to projects funded at the regional level and could be a key role for the new European Programmes directorate in WEFO to support the sector in realising the alignment of the funds.
- 3.17. The next year offers a unique opportunity for Wales to put in place a strategy incorporating both funding programmes in order to **build the critical mass for research and innovation to transform the Welsh economy.**

4. Consider how the Science Strategy for Wales and other relevant Welsh Government policies are aimed at maximising the opportunities to organisations in Wales from participation in the future EU research and innovation funding.

- 4.1. The sector welcomes the commitment in the Science for Wales Strategy to 'stronger coordination of resources and priorities across government, academia, industry, EU structural and research programmes to allow more focused delivery and raise impact'⁷.

⁷ P8 Science for Wales. A strategic agenda for science and innovation in Wales:
<http://wales.gov.uk/docs/det/publications/120306scienceen.pdf>

- 4.2. The sector also welcomes the commitment to support collaboration with the best everywhere⁸. Engagement with Horizon2020 should be central in delivering on this commitment.
- 4.3. The sector supports the **grand challenges approach** which is mirroring the new structure within Horizon2020. The sector, coordinated by Welsh Higher Education Brussels (WHEB), has already set up European Research Funding Groups in the four research priority areas: Health and Biosciences, Low Carbon, Digital Economy and Advanced Engineering and Materials and we look forward to working with Welsh Government and the Chief Scientific Adviser's office on ways to engage fully with the new programmes. **The sector foresees that these groups will be aligned closely with the National Research Networks proposed in the Strategy.**
- 4.4. The sector welcomes the commitment to fundamental research in the strategy and is keen to work with Welsh Government to ensure that the Excellent Science Base pillar of **Horizon2020 is fully utilised as complementary source of funding with the Ser Cymru Programme.** To reinforce the reputation of leading researchers and their teams in Wales, it will be crucial that ERC and Marie Curie opportunities are exploited to the full in order to attract the best researchers to Wales and supporting existing talent in Wales.
- 4.5.** The Science Policy for Wales emphasises the importance of developing collaboration between universities and business. Horizon2020 aims to support the whole innovation cycle from fundamental research to market and provides **new opportunities for HE and business to work together within the context of a new regional innovation strategy.**
- 4.6. In line with Commission thinking on the strategic use of Structural Funds, the Science Strategy also emphasises the need to **use these funds in a 'transformational way'**. Structural funds should play a central role in leveraging other external funding to Wales. Universities are keen to work with Welsh Government to develop this strategic approach rather than focusing on transactional projects.
- 4.7. The sector is encouraged that Horizon2020 is included in the **Welsh Government's new EU strategy** and looks forward to contributing actively to making this strategy a reality by using all European funding opportunities at its disposal.

⁸ ibid

ANNEX 1

Expanding International Capacity Through the Structural Funds

The following projects offer a few examples of where Structural Fund investments have laid the foundations for future collaborations and drawn down national and EU research and innovation funding.

DIPLE (Printing & Coating)

Funded through the ERDF Objective 1 in 2004, this project was led by Swansea University. The project aimed to match companies to growth areas identified by the Printing and Coating Forum Strategic Summit. The 5 technological areas forecast to grow are: Digital Technology and Colour Control, Industrial Printing, Packaging, Lean Manufacturing and Environmental Improvement. An integral part of the project was the development of strategic marketing support with the target companies in order for them to realise their full potential. From this work the FAST2LIGHT FP7 project has been developed. Funded by the EU's FP7 programme this project explores high-throughput, large area and cost-effective OLED production technologies. Consisting of a partnership of 13 partners from 8 countries with investment of more than €10m this project develops the international reputation expertise now present in Swansea University.

Centre for Nanohealth

Located at Swansea University the Centre for Nanohealth was begun in 2009 with support from the ERDF Convergence Programme. The project aims to establish the region as a world leading interdisciplinary centre offering a Research and Development, Demonstration and Deployment, and Skills innovation system for NanoHealth. It aims to promote Welsh SMEs to work on the development of new healthcare technologies from initial concept to the point where they can be deployed commercially. The AMETHYST project, funded by the EU's FP7, programme has since been developed through the Centre. Bringing together 8 organisations from across 6 countries this project is developing novel approaches to wound treatments which offer cost and safety benefits over current techniques.

Gas Turbine Research Centre

Cardiff School of Engineering's Gas Turbine Research Centre was in receipt of a £3.8 ERDF grant between 2006-2008 under the ERDF Objective 1 programme to relocate and upgrade two large-scale combustion rigs donated by international technology company QinetiQ, who selected the School of Engineering as the recipient ahead of several other EU contenders.

The Centre conducts research into more efficient fuel utilisation, alternative fuels and reduction of pollutants such as Nitrogen Oxide and fine exhaust particulates in power generation and aircraft turbines. Since its opening in October 2007, the GTRC has delivered a number of commercial contracts, involving Welsh companies, as well as participated in EU FP7 funded collaborative projects. The Centre's participation in FP7 funded projects 'H2-IGCC' (funded under FP7-Energy theme) and 'BRISK' (funded from FP7-Capacities/Infrastructures theme) have brought circa £700K of research grant income to date.

SWINGS

Cardiff School of Pharmacy was a key collaborator in an INTERREG Ireland-Wales IIIA project 'SWINGS' (Separations, Wales & Ireland – Novel Generation Science) lead by the Waterford Institute of Technology. The key objective of the SWINGS project was to identify and carry out laboratory research in emerging separation science techniques. This research involved the development of novel extraction and purification media for pharmaceutical and environmental applications and led to valuable collaborations with SMEs operating in this area both in Ireland and Wales. The SWINGS project has since lead to a successful bid to the FP7 Industry-Academia Partnerships and Pathways scheme for a new HIPODERM project (grant value of around £700K), which looks into skin cancer drugs using the microneedle technology developed at the Welsh School of Pharmacy. The four year project combines expertise from the School of Pharmacy, the Welsh company An-eX Analytical Services and two Irish partners, the Pharmaceutical and Molecular Biotechnology Research Centre at Waterford Institute of Technology and the company EirGen Pharm