
The Single Market of the Mind

Education and Culture in Wales
after the Europe referendum

Geraint Talfan Davies



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Foreword

It will be no surprise to anyone that there are many important and productive educational, research, and cultural links between Wales and the rest of the EU; such synergies exist across the world. What I suspect will be a surprise, and was certainly a surprise to me, is the sheer scale of the distinctive financial and other advantages that Wales has been deriving from the EU funding and mobility programmes.

Geraint Talfan Davies has assembled data from a number of disparate sources and is to be congratulated on the timely and detailed analyses in this report. We are just weeks before Article 50 is triggered and BREXIT negotiations begin. This report provides a vital source of information for all those involved in, or with influence over, these negotiations.

There are also important policy recommendations. I was particularly enamoured with the argument that actions to mitigate the consequences of any disruptions to the current EU nexuses would be advantageous even if educational and cultural links are successfully protected in the outcomes of BREXIT negotiations.

In particular, Wales could benefit from better developed national policies and strategies for wider international engagement.

I trust that Geraint Talfan Davies' analysis and recommendations will be recognised as insightful and helpful; they deserve to be.

Professor Richard B Davies

Vice-Chancellor, Swansea University

Summary

The problem with analysing Britain's referendum on EU membership or, for that matter, any referendum, is that it can mean what you want it to mean. The teeming and lading of data and the dicing and slicing of arguments can be done by both sides regardless of the result. And yet the result stands. Both sides are left dealing with consequences that were forecast or denied, hailed or howled down – a confusion of dreams and nightmares from which, in the harsh light of day, both the UK and our erstwhile partners in the EU now have to construct real solutions – separately or together. Without care and resolution, somewhere along the line it is certain that we shall bark our shins on the new realities.

For many of those who voted to Remain, as well as those from other EU countries who were not eligible to vote, the referendum result was a moment of emotional rupture. It was a blow to their sense of themselves as, simultaneously, citizens of their home country and of a wider continental entity. For others there was the prospect of a professional rupture, a direct impact on their working lives. Particularly in higher education and cultural spheres, collaboration across the boundaries of the EU has for long been an accepted part of working life, and an essential part too. For institutions there is the prospect of a rupture in funding sources and in the volume of funding, a rupture whose onset will become more visible over the next few years. Nowhere will this be felt more than in the university sector.

The biggest single differentiator between Remain and Leave voters in the referendum was educational qualification: 75% of those with no qualification voted to leave, while only 27% of people with post-graduate degrees did so. This is not intended as a slight against those who voted Leave, rather as one stark measure of the divide in this country. It is no accident that the cultural sector was overwhelmingly supportive of our continued membership of the EU.

The UK is without question a world leader in higher education and in the arts and creative industries. That has been achieved in large part because we have been an intellectually open country with a high level of international engagement with peers in other EU countries. Sustaining this level of European engagement remains a vital national interest that has to be addressed constructively in any negotiation of our future relationship with the EU. Whether we are in or out of the EU, the free exchange of ideas and talent will remain wholly necessary in both these spheres.

The issue is wider than funding alone, important though that is. It is also a matter of preserving unconstrained access to expertise and deep participation – by right as well as by inclination – in increasingly numerous formal European academic networks, often with connections to research and development by European companies. The value, quality and intricacy of these connections will not be easily or satisfactorily sustained undamaged without continuing formal commitments by both the UK and the EU.

It is true that the world of the intellect knows no boundaries. Ideas cross boundaries with a speed our forebears could not have imagined. Educational, scientific and artistic collaborations already go well beyond the boundaries of the EU, and even if the UK withdraws from the EU, many working linkages will almost certainly survive. But in the last 50 years the EU has built a habit and depth of collaboration, and an intricacy of connections – intellectual, practical, financial, personal and professional. It is no longer a simple transactional arrangement, rather an evolving natural single market of the mind.

Any withdrawal from that single market of the mind poses a threat to the UK's research base, in a situation where our national investment in research and development is already significantly lower than that of many competitor countries. But the threat to higher education in Wales and to the Welsh economy is disproportionately high. Across the UK EU funding represents roughly a third of the competitive funding distributed by the UK's Research Councils and Innovate UK. For Wales that EU funding represents nearly two thirds. Across the UK the private sector is responsible for 45% of total R&D. In Wales the private sector accounts for only 10%.

In short, Wales has more to lose, and just at the wrong moment. In recent years the research record of Welsh universities has been on an upward trajectory, in both volume and quality. That improvement has to be sustained over many years to come before we can be content that we have established a truly competitive quantum of R&D that can help close the gap with the rest of the UK in terms of Wales's economic performance. If the Welsh research effort is allowed to stall we will pay a high price.

Similarly, in the cultural sphere, where Wales is internationally deeply engaged in many fields, quality has been enhanced by the absence of any unnecessary barriers to the free flow of ideas and talent.

Whether in the field of university research, student and staff mobility, or in the artistic sphere, we will have to cope with three challenges: the threat to funding and to free movement, and the choice either of negotiating our continued access to the architecture of collaboration that the EU has built – the European Research Area, ERASMUS+ and Creative Europe – or of constructing new organisational structures of our own to develop and manage bilateral/multi-lateral arrangements that can have the same effect.

If we are to put in place fully effective arrangements for the future we need to know the full extent of our current involvement with Europe in these spheres. The following pages are intended, primarily, to chart these connections and what they have meant for higher education and for the arts and culture in Wales. They describe what is at stake and, I believe, show that “global” is not an alternative to “European”, rather an extension of it.

Key points

1. For Wales the prospect of the removal of guaranteed routes to international collaboration, networks and funding across the full scope of the EU's activities makes it imperative for Welsh Government to create a fuller and more effective international strategy. This has to be an essential focus for the future, whether we remain a member of the EU or not. Higher education, arts and culture and the creative industries must be essential components of such a strategy. There is no choice to be made between Europe and the rest of the world. We need to be engaged in both.
2. An international strategy for Wales needs to be supported by appropriate structures - visible to the public in Wales and to the world beyond - together with funding above the current levels. Necessary changes should not await a date of withdrawal from the EU. They would be of value whether we remain or leave.
3. Within Europe Welsh interests have to be safeguarded across at least six fronts:
 - Unhindered access to the best research talent in Europe
 - Participation in European research collaboration
 - Participation in European student and staff travel and study programmes
 - Unhindered access to all kinds of creative talent in Europe
 - Participation in European cultural programmes
 - Participation in European educational and cultural networks
4. The continued participation of Wales and the UK in the European Research Area, ERASMUS+ and in Creative Europe - their programmes, institutions and networks - should be a prime objective of negotiations, even if we cease to be a full member of the EU. **This should be a red line issue for the Welsh Government.** If this cannot be negotiated the UK will have to construct robust and properly funded systems of our own plus, where necessary, bilateral or multi-lateral arrangements that would seek the same ends.

Education

5. Even with the UK's success rate in winning EU funding for research, our total spending on R&D lags behind our key competitors in the EU and across the world. The UK is 20th in the world league table of R&D expenditure as a percentage of GDP. The funding commitments by the UK Government for a post-Brexit era will not close this gap. Increased UK funding of R&D – by industry as well as by government – is needed in *addition* to the current levels of funding we draw from the EU.
6. Wales is disproportionately reliant on higher education for R&D compared with the rest of the UK. Wales will, therefore, be particularly vulnerable to any rupture in funding streams, especially as Welsh higher education is still in the process of bringing its research capacity, in volume, up to an internationally competitive level. Despite hugely encouraging developments at several of our universities, there is still a long way to go. Withdrawal of EU research funding would be a major setback, unless replaced in full by the UK Government.
7. The proven return of more than 60% on the UK's financial contribution to EU research programmes provides ample justification for a continuing and possibly increased UK investment in EU research funding. This investment may need to be larger than our contribution of €5.5bn over the 2007-13 period. This will bring lasting benefits to our economy and society.
8. We must not make the mistake of thinking that the success of the EU's research programmes is to do only with funding. The EU's *requirement of collaboration* between member countries, as a condition of funding, has brought qualitative benefits in addition to the very significant capital and revenue funding that higher education in Wales has enjoyed.
9. Wales has also benefitted from being able to deploy *combinations* of research funding (that are determinedly international) and structural funds (that are related to a specific geography). These combination effects must be taken into account by any UK Government seeking to put in place substitutes for European funding. There has been no pledge to that effect to date.
10. The EU's programmes for collaborative research, research staff development, and international student experience have constituted some of the EU's clearest achievements. The continued movement of people between the UK and other EU countries in the educational and cultural fields is essential to the health and the high standards of both sectors. Every step must be taken to minimise bureaucratic barriers to the free flow of talent between the UK and Europe, whether industrial, scientific or artistic.
11. Reassurance for nationals of other EU countries already living and working in the UK re continued residency and employment is urgently needed, if considerable damage is not to be done to our higher education and our creative sectors.
12. Wales should seek not only to retain its involvement in the ERASMUS+ programme but also to increase its participation in order to reinforce the internationalisation of study experiences for Welsh students and staff. It should underpin this aim by improving the quality and spread of teaching of modern languages in Wales.

Culture

13. Even at this late stage Wales should aim for a step change in use of THE Creative Europe programme. To assist this aim the Creative Europe Wales desk should be transferred from the Welsh Government into the Arts Council of Wales to work alongside Wales Arts International. This will also provide a helpful consistency across the devolved administrations.
14. The Arts Council of Wales should be asked to conduct an audit of international activity by Welsh organisations and artists to quantify the total value of international engagement to the sector in Wales. Organisations that are part of ACW's portfolio should assist this process in future by being required to report on the economic value of international activity as part of their annual returns. This would provide a baseline for assessing the adequacy of replacement funding, should the UK be unable to negotiate continued access to EU funding.
15. The Welsh Government should, as part of its international strategy, strengthen its internationally-focused infrastructure by building on the foundations of Wales Arts International, to produce a step change in international engagement by Welsh arts, culture and the creative industries, including an intensification of our links with the rest of Europe. Although we need to be engaged with British institutions in this task, the traditional level of engagement of British institutions in Wales will not be sufficient to our task.
16. Wales should increase its participation in a range of cultural networks in Europe under the auspices of both the EU and the Council of Europe. The Arts Council of Wales, the British Council and Wales Arts International should collaborate with the sector to identify and prioritise appropriate networks.

a. Higher
Education

1. Why research collaboration matters

The fundamental justification for high level research was stated succinctly by Sir John Cadogan, the Inaugural President of the Learned Society of Wales: "Other countries will always beat the UK when it comes to low-cost, derivative manufacturing. We can only survive, let alone win, by being leaders in discovery and its subsequent application at the highest technological level".¹

In line with this widely held belief there has been massive growth in international research collaboration in recent decades. This has been driven by cost pressures - especially in hugely capital intensive projects - the ease of communication in the internet age and the wish to ally with the best, as well as the pressure to solve global issues such as climate change, diseases of ageing and epidemics such as the ZIKA and Ebola viruses, not to mention basic research in particle physics and life sciences.

A handful of international projects stand out in the public mind, such as the International Space Station, the Large Hadron Collider at CERN and the Human Genome project, but the growth of international research collaboration is not confined to mega-projects of this kind. It has become central to the best research. It has been estimated that in 1981 90% of UK research output was entirely domestic, whereas by now that domestic portion is down to one half, with almost all the growth in research over the last three decades attributable to international collaboration.² That growth is usually measured in two ways: in monetary terms and in the growth of peer-reviewed research articles.

The EU's research spending has increased more than ten fold through eight successive Framework Periods (FP) since the 1980s, the biggest increase being made following the signing of the Lisbon Treaty in 2007. This gave new backing to the European Research Area that had been launched by the EU in 2000, specifically to encourage the "internationalisation and modernisation" of higher education throughout the EU.

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Fig.1: EU research spending 1984-2020

	Framework period	Budget €billion	% Increase
1984	FP1	3.3	
1987	FP2	5.4	66
1990	FP3	6.6	22
1994	FP4	13.2	100
1998	FP5	14.9	13
2002	FP6	19.3	29
2007	FP7	55.9	190
2014	H2020	80	43

Reviewing the global research world in 2016, the US National Science Foundation (NSF) found that in the decade 2003-13 total Research and Development expenditure across the globe doubled from \$836billion to \$1.7trillion, with EU countries increasing their share of the total from 21.9% to 27.4%.³ The report also found that, in reviewing 2.2million published peer-reviewed papers, the percentage with authors from multiple countries increased by almost half – from 13.2% to 19.2%.

The importance of these collaborations also seemed to be greater the smaller the country. International co-authorship accounted for 15% of papers from China, 33% for papers from the USA, but nearer 50% for papers from the UK. The EU as a whole led the publication league table with 606,000 papers, followed by the USA with 413,000, China with 401,000, Japan with 103,000 and India with 93,000. In 2013 the EU accounted for 27.5% of all publications.

On the other hand, expenditure figures show the way in which the countries of the Far East are determined to catch up with the west in growing their research investment. The NSF found that seven countries account for nearly 75% of global R&D, with China and South Korea recording the biggest increases. The UK was seventh in that list in terms of the total amount spent, seventh in growth since 2000 as well as in growth since the financial collapse in 2007-8.

Fig.2 Research spend increase 2000-13 - Current \$bn.⁴

	2000	2013	% Increase
1 USA	269.5	457	69.6
2 China	32.6	336.5	932.2
3 Japan	98.8	160.2	62.1
4 Germany	52.4	101	92.7
5 South Korea	18.5	68.9	272.4
6 France	33	55.2	67.3
7 UK	27.9	39.9	43.0

Fig.3 Research spend increase 2008-13 - Current \$bn.

	2008	2013	% Increase
1 USA	407.6	457	12.10%
2 China	144.7	336.5	132.5
3 Japan	148.7	160.2	7.7
4 Germany	82	101	23.2
5 South Korea	43.9	68.9	56.9
6 France	46.5	55.2	18.7
7 UK	39.4	39.9	1.3

This growth in EU research funding has been of great significance to British universities, including those in Wales. Overall our universities have won 16% of the total pot, second only to Germany's 17%. Yet, in terms of the number of projects, the UK coordinates more than any other country. EU funding sources have been the equivalent of "around one third of the competitive funding given out by the UK's own research councils and Innovate UK." In Wales it has been nearer two-thirds, making it disproportionately dependent on EU funding.

The UK has undoubtedly been a net beneficiary in this field. The ONS has calculated that the UK contributed €5.4bn to the EU R&D funding pot but received €8.8bn back - a 63% return. Of the €8.8bn, 22% was spending on R&D and Innovation from the structural funds (ERDF and ESF).

Fig.4 Top ten recipients of EU research funding 2006-15

	£m.
1 Germany	8336
2 UK	8045
3 France	5355
4 Italy	4303
5 Spain	4240
6 Netherlands	4143
7 Belgium	1931
8 Sweden	1740
9 Austria	1389
10 Greece	1301

Nevertheless, the worry for the UK is that despite its success in winning research funding from the EU, our total research spend between 2008 and 2013 has grown by only 1.3%, implying reductions in other UK sources of funding, both public and private. The stark fact that emerges from all the data is that the UK's high performance in terms of research - the fifth largest producer of scientific and technical journal articles - is highly dependent on EU funding - much more so than other countries - because of the poor performance of both the UK government and British businesses in investing in R&D. The UK is 20th in the world league table of R&D spend as a percentage of GDP.

A report by Digital Science in 2016 found that the UK as a whole, as well as British business, is committing far less than its main competitors to R&D. UK spend has dropped from 2.4% of GDP in 1981 to 1.63% today, considerably less than Germany's 2.85%.⁵ In addition, the OECD reported that British businesses are investing 80% less than German businesses in R&D as a percentage of respective GDP. This puts the UK private sector investment at below the averages for the EU-15 and EU-28 nations. Only Italy, Greece, Spain, Portugal and Luxembourg are behind us.

The Royal Society reported that in FP7 (2007-13) only 18% of the EU research funding went to UK businesses, compared with 33% to German businesses and 27% to French businesses. Significantly, in Wales only 15% went to businesses, although so far during the Horizon 2020 period Wales has narrowed the gap with the rest of the UK (currently Wales 19%, UK 21%).

The dependence on the higher education sector to sustain the UK's research base is very marked, with the private sector responsible for only 45% of the total UK R&D spend of €226.3bn., compared with the target of 66% private investment agreed as part of the EU's Lisbon agenda.⁶ It is worth noting that the UK Government's promise to increase R&D spend by industry by £2billion per annum represents an increase of only around 1% in the current total spend - depending on assumptions regarding the £/€ exchange rate.

Digital Science concluded: "The success (or efficiency) of the UK's research sector has been a double-edged sword: while we have remained highly internationally competitive and successful and have won a large portion of EU funding, we have not invested at a national level to ensure that we keep up with competitors on our own without EU assistance. Rather than allowing the UK to gain an even better position on the global stage by having an excess of funds to deploy, EU funds have been used to prop up and cover systemic issues with how we choose to fund research in the UK at both governmental and corporate level."

If this overdependence on EU funding is true of the UK as a whole, it is doubly true of the situation in Wales where private sector R&D investment accounts for only 10% of the total, with our universities responsible for almost the whole of the other 90 per cent. In the Welsh case this may have less to do with the willingness of business to invest than with the structure of Welsh industry with its tiny proportion of large businesses, the dominance of small and medium sized industries, and the profusion of branch plants where R&D may be done elsewhere in the UK or abroad. This, on its own, explains the concern of governments across the UK, as well as the university sector itself, that if we are to leave the EU some way must be found to retain our full participation not only in the funding and programmes of the European Research Area but also its multitude of academic networks. In any negotiation the Welsh Government will have to make this a 'red line' issue.

2. The Welsh research record – an upward trajectory

In the first decade of the new millennium science policy was a controversial issue in Wales. There was concern about the poor research performance of the Welsh universities in successive research assessment exercises (RAE). Even as late as 2008 only 14% of research undertaken in Wales was classified as ‘world leading’, while it was winning only 3% of the funding from the UK Research Councils, much less than its population share of 5%.

On the other hand, the universities were complaining that they were under-funded, and that the Welsh Government was being slow to develop a science policy. In contrast, the Scottish Government, in per capita terms, was outspending both England and Wales on HE, partly because, for historical reasons, its HE sector is unusually large. Scotland also appointed its first Chief Scientific Adviser in August 2006, in the same year that the Welsh Government resisted recommendations for a similar appointment in Wales as well as resisting the formation of a Scientific Advisory Council. These recommendations had come from the National Assembly’s then Enterprise, Innovation and Networks Committee. Wales’s first Chief Scientific Adviser was not appointed until four years later, in 2010.

A ‘Science for Wales’ strategy was published in 2011, followed in 2012 by the announcement of the Ser Cymru initiative involving the establishment of a £50m fund to attract ‘star academics’ to Wales. These initiatives would have been too late to have influenced the 2014 Research Excellence Framework – the successor to the RAE – which nevertheless marked a big step forward for the Welsh research base, with the proportion of research classified as 4* – ‘world leading’ – rising from the 14% of 2008 to 30%.

Fig. 5 Research Excellence Framework

Ranking	2008	2014	% attaining 4*
Cardiff	16	17	40.4
Swansea	37	40	31.1
Aberystwyth	51	49	22.0
Bangor	56	55	25.7
South Wales	79	94	11.8
Cardiff Met	101	112	24.5
Trinity St Davids	110	125	10.6
U of Wales	128	135	26.0
Glyndwr	136	137	3.0

Earlier this year the Higher Education Funding Council for Wales commissioned one of the biggest specialists in ‘bibliometrics’ to update a study they had done on the performance of the Welsh research base between 2010-14.⁷ This was published in November 2016. This concluded that Welsh research was punching above its weight, with 0.14% of the world’s researchers, but 0.24% of the world’s published articles, 0.47% of global citations, and 0.59% of the world’s top 1% of most cited articles. The percentage of publications being cited worldwide had risen from 59% in 2011 to 68% in 2014.

The report also claimed that Welsh research was second only to Scotland among UK countries in publications per researcher and publications per million dollars spent on R&D, while between 2007-11 and 2010-14 the percentage of Welsh publications resulting from international collaboration rose from 40.3% to 45.8%.

Nevertheless, despite the apparent efficiency of Welsh HE research and the growth of recent years there are still concerns that, in total, the Welsh research base is smaller than it should be. Research Councils UK data⁸ show that Wales had taken only around 2% of the funding per annum in the ten years up to 2014-15. The highest figure was 2.6% in 2008-09, dropping to 2.1% in 2014-15.

However, when all sources of research funding – UK and EU, grants and contracts – are taken into account, in 2014-15 Wales accounted for £213,705,000 - 3.6% of the UK total.⁹ Of this total, EU funds represented the third largest contribution behind government and other public authorities and the British Research Councils. There have been significant strides forward. Between 2011-12 and 2014-15 Welsh HE's income from the EU rose more than three times faster than the income from the UK Research Councils – the EU by 14.3% and the Research Councils by only 4.4%. By 2014-15 the EU was contributing £35.1m, or 16.4% of Welsh HE's research income.

Fig. 6 Funding sources for Welsh HE 2014-15 - Total research grants and contracts

	£	%
Government and public authorities	61,696,000	28.8
Research Councils	54,091,000	25.3
EU government bodies	35,100,000	16.4
Other sources (commercial, charitable etc.)	62,818,000	29.4
Total research grants and contracts	213,705,000	

The figures for the Welsh share of EU research spend are broadly comparable with our share of spend by Research Councils. In the period 2007-13 (FP7) the EU research spend with Welsh HE amounted to €89million, excluding funding coming from structural funds or loans from the European Investment Bank. This amounted to 2.5% of the total spent with UK universities, half of the accepted Welsh population share. Scotland, in contrast, far exceeded its population share.

Between 2011-12 and 2014-15 Welsh HE's income from the EU rose more than three times faster than the income from the UK Research Councils – the EU by 14.3% and the Research Councils by only 4.4%

Fig.7 EU spend on research with UK HE – FP7 2007-13

	£	%
England	2,956,461,803	84.8
Scotland	395,529,065	11.3
Wales	89,022,219	2.5
N Ireland	41,674, 460	1.2

Other EU data, calculated on a slightly different basis, give a different total for Wales, although its share of the UK is not affected significantly.

Fig. 8 FP7 signed agreements - Wales

	Total EU contrib'n €	of which SMEs €	Net for HE sector €
All activity types			
Cooperation (exc.JTI)	78,435,194	12,956,484	58,726,574
Cooperation JTI	5,455,404	426,036	3,670,149
Total Cooperation	83,890,598	13,382,520	62,396,723
European Research Council	23,899,150	0	23,899,150
Marie-Curie Actions	25,956,619	704,120	25,015,003
Capacities	10,748,471	3,789,250	6,336,164
Euratom	110,000	0	110,000
Total	144,604,838	17,875,890	117,757,040

Note: The net figure in the final column excludes not only funding to SME's but also to other non-HE organisations.

Some of the reasons for this low share of the UK total are examined below and relate to Wales's low total research capacity in terms of research staff numbers. But if the Welsh share of the UK total is low, EU funding has, nevertheless, been vitally important to the Welsh research effort, funding international collaborations, the recruitment and exchange of research staff, and sustaining research at the highest level. It is notable that HE in Wales has received more than £25m under the Marie Skłodowska Curie Actions - that funds the mobility and international interactions of research staff - more even than has been received from the European Research Council. This is another vital measure of the international dynamic.

Fig. 9 *European Research Council grants FP7*

Aberystwyth	4,424,043
Bangor	961,958
Cardiff	14,560,572
Swansea	3,952,579
Total	23,899,152

Although EU funding does not represent the lion's share of research funding for Welsh universities, it remains highly significant in sharpening the leading edge of research. Moreover, the competitive processes for obtaining EU funding also make EU funding awards an international benchmark of success. One indication of high level research is grant aid from the European Research Council. This amounted to nearly £24m to four Welsh universities during FP7.

It is notable that HE in Wales has received more than £25m under the Marie Skłodowska Curie Actions - that funds the mobility and international interactions of research staff - more even than has been received from the European Research Council.

Personal story 1: *Professor Johann Sienz, Swansea University*



Professor Johann Sienz is a native of Bavaria, Germany, who studied mechanical engineering with aerospace specialisation at the University of Applied Sciences at Augsburg, before coming to the UK under the EU's ERASMUS scheme. After a short spell at the University of Central Lancashire, in 1989 he arrived at Swansea University.

Now, nearly 27 years later, he holds a Personal Chair in the College of Engineering, is deputy head of the college and the Director of Innovation and Engagement. He is also Editor-in-Chief of the international journal *Applied Mathematical Modelling*. His wife is British and teaches biosciences to future medics, paramedics, health researchers and nurses at Swansea.

At Swansea he has led several large-scale European projects to drive research, development and innovation in high value, advanced manufacturing, delivering considerable impact on the local economy.

In 2006-7 a relatively small amount of EU funding allowed him jointly to create the 'Welsh Composites Consortium', working with many local companies, including Airbus. This consortium attracted more than £780,000 in EU funding. This led in 2010 to a much larger £27m, collaborative project on high value, advanced manufacturing. £14.7m of the £27m came from the EU. This allowed his team to collaborate closely on manufacturing-related issues with more than 300 companies, large and small, in West Wales and the Valleys. These ranged across aerospace, automotive, medical devices, optoelectronics and food products, creating an economic impact independently valued at over £200m. For each £1 in funding the project created over £8 in economic impact.

He is currently directing two projects at Swansea that in total are drawing around £30m from the EU towards their £50m cost. One of these projects will allow him to extend his work to the whole of Wales, and to establish South Wales as a centre of excellence in high value manufacturing. His latest project - on the 'Factory of the Future' - will involve collaboration with researchers across the EU, including active participation in initiatives such as a pan-European network on additive manufacturing – better known as 3D printing.

"International collaboration underpinned by free movement is absolutely essential" he says. "Without it our research and development would progress at a slower rate and we would start to fall behind. The exchange of people is unquestionably necessary for us to be good at what we are doing and to remain at the forefront. Collaboration is essential in order to go the full journey, from a blue sky idea to a product or service on the market," he said.

More than a year ago the College of Engineering including his team moved onto the university's new Swansea Bay campus, but the College of Engineering is already outgrowing that space and planning a new building. "That original investment, supported through the European Regional Development Fund (ERDF), has been so successful that further expansion space is needed. We mustn't strangle the momentum of growth and economic impact that we continue to create," he added.

"I have found the last months unsettling. Soon after I came here – from the mid nineties onwards – I felt a real freedom of movement that gave you the ability to work and live wherever you wanted across the EU. But then straight after 23 June I was exposed to not very friendly comments on the street. I was told I had better pack my bags and go home."

"Maybe I am worrying too much, but I don't want to be a second-class citizen. That is why I have now started the process of applying to the government for residency. They sent me an 85-page document. This is only the beginning of the process".

3. Horizon 2020

Horizon 2020 (2014-20) is the biggest ever European investment in research and innovation, aimed at increasing Europe's global competitiveness. It aims to invest €80 billion over the seven year period. Already it has delivered nearly €34 million to Welsh universities.

For the programme as a whole the situation as at 30 September 2016 was as follows:

Fig.10 Horizon 2020 as at 30.9.16

	Participations	€
Cardiff	43	22,306,928
Bangor	7	3,895,468
Aberystwyth	9	3,776,138
Swansea	10	3,609,659
Cardiff Met	2	251,858
Total		33,840,051

Within Horizon 2020's total programme the European Research Council was allocated a much enlarged share of the budget, in order to position itself as the funder of new and unpredictable scientific and technological discoveries that might form the basis of new industries, markets or other social innovations. These awards by the ERC, generally for five-year programmes, are made only to the highest achieving individual researchers. Currently Welsh universities host 24 of these projects - Cardiff 17, Aberystwyth 3, Bangor 2, Swansea 2.

In addition, €9,558,000 of Horizon 2020 funding has been awarded to the Welsh Government for the project *Strengthening International Research Capacity in Wales (SIRICW)*, creating fellowships at Welsh HEIs.

If we take Cardiff University – the most research intensive of the Welsh HEIs – in the EU's Framework Programmes for research and innovation between 2000-2006 it received 84 awards valued at circa £18m, but between 2007-13 this increased to 168 awards valued at €71.7m. Under Horizon 2020 programme (2014-20) it had, up to 1 September 2016, already won 43 awards valued at €22.3m. In these figures allowance has to be made for the fact that Horizon 2020 now includes part of the separate Competitiveness and Innovation Programme that, between 2007-13 (FP7), had a budget of €3.62 billion. The other part of the CIP is now included in the COSME programme.

The FP7 and Horizon 2020 programmes involved Cardiff in collaboration with 54 countries. 120 of its 168 awards in FP7 and at least 20 of the awards under Horizon 2020 were built around consortia of a minimum of three partners from at least three different EU member states or Associated Countries.¹⁰ During FP7 Cardiff led several large international consortia in areas such as health, physics and astronomy, ICT and energy. These included:

- Brain imaging and neurofeedback training for treatment of mental disorders ('BrainTrain')
- Stem cell therapies for neurodegenerative disease ('REPAIR-HD')
- Novel solutions for Type 1 Diabetes glycaemic control ('EE-ASI')
- New imaging technologies for observations in an from space ('SPACEKIDS')

- Multi-terminal DC grids for connection of offshore windfarms ('MEDOW')
- Treatment of waste water in remote areas by solar powered photocatalytic systems ('PCATDES')

Cardiff University lists at least seven projects that have attracted European Research Council grants that are awarded only to the highest achieving individual researchers. These include such widely disparate fields as cardio-vascular disease, dementia, eating behaviours, the cosmic dust and gas content of galaxies, behavioural aspects of low carbon lifestyles and our understanding of the European Neolithic period.

Amongst several high profile recent developments, Cardiff's £44m brain imaging centre - CUBRIC - was part-funded by Europe - £4.6m from ERDF. Its staff are currently in receipt of six grants of EU funding amounting to €6,891,519. CUBRIC employs senior research staff from France, Italy, Germany, Greece, Canada and China.

In 2014-15 11% of Cardiff University's total research spend was sourced from the EU - £15.2m out of a total spend of £140m.

Fig. 11 Cardiff University research-related income in 2014-15

Type of income	£m.	%
Research grants and contracts *		
Research Councils and charities	44.9	32%
Public corporations, Local Authorities, UK Government	31.6	23%
Industry and commerce	4.3	3%
EU and overseas	15.2	11%
Other	2.1	1%
Funding body grants		
HEFCW Quality Research Funding	40.4	29%
Other income		
Income from intellectual property rights	1.6	1%
Total	140.1	100%

Note: All values are presented in 2014-15 prices, and rounded to the nearest £0.1m. * Note that the income from research grants and contracts excludes a total of £9.8 million of income in 2014-15 associated with Research and Development Expenditure Credits, as this was provided to CU as part of a UK tax incentive scheme, and was received as a one-off source of income for the three financial years ending 31 July 2015. Source: London Economics' analysis of Cardiff University data.

During FP7 Cardiff University's research income grew steadily as did the percentage derived from EU funds. Although total research income continued to grow in 2014-15 and 2015-16, the percentage from the EU dropped to 10%.

Fig.12 Cardiff University research funding – FP7

	Total funding £000	EU funding £000	EU%
2008-09	89,137	6,381	7
2009-10	87,962	6,697	8
2010-11	84,633	7,059	8
2011-12	87,654	8,542	10
2012-13	88,211	9,809	11
2013-14	93,550	12,007	13
2014-15	107,363	10,663	10
2015-16	113,623	11,474	10

Like many universities Cardiff has calculated the economic impact of its research related income, particularly 'positive spillovers' that arise if firms can benefit from technologies developed at the university by employing them in their own production process, thus reducing costs. Research by London Economics inferred a weighted average spillover multiplier for Cardiff of approximately 4.2. This implies that every £1m invested in research results in additional economic output of £4.2m for UK companies.

At Swansea although the percentage attributable to the EU dropped during FP7, it rose sharply in the following two years, reaching more than 60% in 2014-15. Swansea now claims to have 31 live EU funded projects valued at more than £63m. At the same time Swansea has received £113m from EU structural funds - £79m from ERDF, £31m from the ESF, and £3m from Interreg. Its calculation of economic impact found that

- 6,830 individuals were helped back into work
- 6,115 were provided with further learning
- 8,280 went on to gain further qualifications
- 1,145 enterprises and 3,285 jobs were created.

Research by London Economics inferred a weighted average spillover multiplier for Cardiff of approximately 4.2. This implies that every £1m invested in research results in additional economic output of £4.2m for UK companies.

Fig. 13 Swansea University research funding – FP7 + 2014-16

	Total funding £	EU funding £	%
2008-09	33,172,209	11,714,064	35.3
2009-10	65,153,818	27,802,131	42.7
2010-11	37,703,001	11,154,793	29.6
2011-12	29,712,729	7,182,746	24.2
2012-13	34,285,068	3,900,522	11.4
2013-14	51,430,717	1,095,378	2.1
2014-15	40,686,808	6,334,347	15.6
2015-16	69,590,304	43,304,130	62.2

EU funding is also significant for smaller institutions. For instance, at Aberystwyth during the FP7 period although total research funding was relatively static, EU funding tripled, with the EU contribution rising from 5.6% to 16.5%.

Fig. 14 Aberystwyth University research funding – FP7

	Total funding £	EU funding £	EU as %
2008-09	20,022,272	1,114,039	5.6
2009-10	19,670,771	1,829,721	9.3
2010-11	19,857,160	2,470,407	12.4
2011-12	19,941,699	1,559,357	7.8
2012-13	18,422,337	2,107,231	11.4
2013-14	20,034,226	3,306,008	16.5

The EU’s Horizon 2020 budget for research has been set at €80 billion, an increase of €24.1 billion or 43%.

Fig.15 Bangor University research funding

	Total funding £	EU funding £	EU as %
2007/08	15,079,000	2,995,000	19.9
2008/09	14,999,000	1,967,000	13.1
2009/10	15,959,000	2,784,000	17.4
2010/11	18,125,000	5,665,000	31.3
2011/12	18,750,000	6,375,000	34
2012/13	20,349,000	8,222,000	40.4
2013/14	22,958,000	8,946,000	39
2014/15	23,496,000	8,812,000	37.5
2015/16	16,929,000	3,107,000	18.4

Fig. 16 University of South Wales research funding

	Total funding £	EU funding £	EU as %
2010-11	4,532,000	1,159,000	26
2011-12	4,190,000	1,302,000	31
2012-13	5,488,000	1,735,000	32
2013-14	5,925,000	2,036,000	34
2014-15	5,590,000	2,271,000	41

The data above demonstrates that EU funding has been vitally important for the development of university research in Wales and - before the unquantifiable effects of the British vote to withdraw from the EU - was set to grow significantly. The Horizon 2020 budget for the EU as a whole was set at €80bn, an increase of €24.1bn or 43% on FP7. Agreements already signed under Horizon 2020 indicate that Welsh HE's research income from the EU was likely to exceed the FP7 total of €117m by a considerable margin, particularly if it also managed to increase its share of the total won by UK universities.

In the case of Wales - within which West Wales and the Valleys have access to Objective 1 funding - the ERDF and ESF funds also come into play alongside the specific research funding. The University sector and connected businesses can often take advantage of the combined effect of the research and structural funding streams. The following chart outlines ERDF and ESF contributions to various higher education projects during the current framework period.

Fig. 17 ESF and ERDF projects within HE in Wales | delivered by HE

Projects	Lead	ESF/ERDF	ESF/ERDF value £m.	Match funding by univ.	Total £m.	% grant
Leading busn's growth West Wales & Valleys	Swansea	ESF	2.7	1.3	4	68
Materials and manuf. academy	Swansea	ESF	8.6	5.2	13.8	62
MeTAL2	Swansea	ESF	1.1	0.4	1.5	73
BEACON+	Swansea	ERDF	7.9	4.1	12	66
SPECIFIC	Swansea	ERDF	14.98	11.3	26.28	57
Computational foundry	Swansea	ERDF	17.1	14	31.1	55
ASTUTE 2020	Swansea	ERDF	10	4.7	14.7	59
Swansea total			62.38	41	103.38	
CUBRIC II	Cardiff	ERDF	4.6	11.6	16.2	28
FLEXIS	Cardiff	ERDF	15.1	9.3	24.4	62
Cardiff total			19.7	20.9	40.6	
KESS II	Bangor	ESF	25.9	10.1	36	72
M-Sparc	Bangor	ERDF	10.2	10	20.2	50
Bangor total			36.1	20.1	56.2	
AIEC	Aberystwyth	ERDF	20	15.5	35.5	56
Leading busn's growth East Wales	Cardiff Met	ESF	2.4	1.7	4.1	59
CEMET	USW	ERDF	4.2	2.2	6.4	66
GWLAD	Trinity SD	ESF	2.4	1.3	3.7	65
Achieve thr' work exper'ce	HEFCW	ESF	4.6	2.7	7.3	63
SER CYMRU II	WG	ERDF	22.7	8.66	39	58
Total			174.48	121.7	296.18	59

Although our universities can bid for funds right up to the point of Britain's exit from the EU, there is already anecdotal evidence that some collaborators in other EU countries are now nervous of UK participation, let alone leadership of transnational projects. This would be a cruel development coming at the very point when the research infrastructure in Wales is being significantly strengthened and set for take off.

The UK government has said it will honour any EU research funding commitments made before our exit and up to 2020. But this does not take account of the further £250m that has come to Welsh universities via the European Regional Development Fund and the European Social Fund. The UK Government has not offered any guarantee to replace ERDF/ESF money – Wales was allocated €1.8bn for 2014-20 – or to replace low cost loans from the European Investment Bank that have funded several capital schemes, notably in Swansea and Bangor.

An ominous withdrawal?

Wales has been dropped from a European research project to promote better linkages between universities and their regional innovations ecosystems because of our impending withdrawal from the EU. Wales was scheduled to be an important case study in the project but the project leaders were advised to drop Wales in favour of a French region.

The project is part of the HESS programme (Higher Education for Smart Specialisation) which is run by the European Commission's DG Education and Culture in conjunction with the Commission's Joint Research Centre in Seville.

The Welsh case study is being dropped because it is said the project is about action research that includes policy advice on the future use of the European Structural and Investment Fund which, in the case of Wales, will be coming to the end.

Professor Kevin Morgan, from the School of Geography and Planning at Cardiff University, is familiar with the project and he said: "This is a great disappointment for two reasons: first, it provides tangible evidence of the costs of Brexit in Wales and, second, it denudes Wales of the learning opportunities associated with the HESS project at a time when university/economy linkages are more vital than ever before".

"The costs of Brexit are invariably framed in terms of a desiccated calculus of profit and loss, but there is another, more capacious metric that we also need to bear in mind and this is nowhere more relevant than in the HE sector. Here the costs are measured in terms of the loss of talent, creativity and knowledge. UK universities have punched above their weight in accessing EU research funds and there is a great danger that the UK is silently displaced from EU research networks".

"If we are not careful, young scholars could be deterred from coming to Wales and elsewhere in the UK because they see the UK as an increasingly hostile place to live and work because the talk is of borders and walls rather than the porous places and bridges that are the hallmarks of the republic of science".

"Although the HESS project did not amount to a great loss on the narrow profit and loss metric, it betokens a much more serious loss on the second metric," he added.

Personal story 2: *Professor Serena Margadonna, Swansea University*



Professor Serena Margadonna, a native of Rome, first came to the UK in 1998 to study for a PhD at Sussex University. After appointments at Cambridge and Edinburgh universities, she then moved to Norway where she started collaborating with other academics from Wales who persuaded her to bring her research to Wales because it fitted well with the engineering specialism at Swansea. As Professor of Materials Engineering she is now based at Swansea's new Bay campus that was built with a substantial EU funding contribution.

She and colleagues have been collaborating with other academics in France, Italy Spain and Norway and she is currently working on new materials for energy storage, particularly large-scale batteries that can be coupled with renewable sources of energy such as wind, solar or tidal power.

This work is fully integrated with the various expertise available throughout the College of Engineering at Swansea and strongly benefits from the available infrastructure and the Materials and Manufacturing Academy which also provides industry-led post-graduate research training in areas of advanced materials and manufacturing. The academy is co-funded via the EU, a UK research Council – EPSRC – and industry.

“This is a very important area for the future,” she said, “and we have large links with major industries – companies like Tata and BASF. We provide important professional training in the use of state-of-the-art instrumentation, data analysis and modelling. The College of Engineering offers a large number of opportunities for postgraduate students who end up working for the companies that sponsored them.”

She is particularly concerned about her own future and that of her 7-year-old son who is at school near Swansea. She does not qualify for permanent residence in the UK because she moved to work in Norway for more than a year and has been back in Swansea only since 2015.

“One of the reasons I moved back from Norway was that they were not full members of the EU. I did not like the attitude that said they were willing to take the best out of it, but not willing to be in it. I did not enjoy that closed nationalistic sense.

“I did feel outraged at the result last June, because I thought we are really changing the lives of future generations. All the possibilities that my generation had will not be there for our children. All the great opportunities I had to study at the best universities without massive charges made my career,” she said.

She has also seen evidence of European partners stepping back. “The situation is so uncertain that some don't want to collaborate and they certainly don't want us to lead projects. You have to realise that it can sometimes take 10 months to organize and write a bid for a programme. They just don't want to take the risk right now.”

4. Welsh research capacity

Concern about the relatively low share of total UK research undertaken by Welsh universities (2.5% compared with the Welsh population share of 5%) led, in 2015, to a detailed examination of the issue by the Learned Society of Wales and the Leadership Foundation for Higher Education.¹¹ This argued that the issue was not so much the quality or effectiveness of the research effort in Wales as its too small total capacity, insufficient scale or critical mass and its concentration in less expensive areas of study. “Welsh universities secured proportionally less research income from high-spending science and medical research councils, in large part due to the historical shortfall of academic science and medical researchers working in science, technology, engineering, mathematics and medicine (STEMM) in Wales.”

The authors calculated that, compared with its population share, Welsh universities had a staff shortfall of 0.5% in 2012-13 compared to Scotland’s 2.4% excess above standard share. This was the equivalent of a shortfall of 621 staff in the STEMM related disciplines in Wales, with the largest deficits being in clinical medicine, biosciences, physics, electrical and computer engineering, mechanical engineering and maths. These are areas that, in the US, “produced roughly half of all economic growth over the last 50 years.”

Fig.18 *Research staff required to bring Wales up to its UK population share*

Clinical medicine	242
Physics	84
Mechanical, aero & production engineering	78
Mathematics	76
Electrical, electronic & computer engineering	65
Biosciences	62
Architecture, built environment & planning	7
Civil engineering	5
Chemistry	2
Total	621

It is this capacity shortfall that the Welsh Government has been trying to address through the Ser Cymru initiative. The first phase of Ser Cymru concentrated on attracting star scientists to Wales. Ser Cymru II has focused on attracting rising stars. The Welsh Government’s Chief Scientific Adviser, Professor Julie Williams, is confident that the programme is on course to cut the gap of 600 by at least 200 in the next few years, and adamant that EU funding will be crucial in achieving that aim.

She said: “Another 200 research staff will make a big difference. We have already seen the first round of applications and I am delighted at the standard. We have applications from other EU countries, from MIT and Caltech in the US, and from Australia. There is no restriction on where these people come from. The EU is not a closed shop. We want the very best people. But the EU funding is making a crucial difference. The Ser Cymru II programme will cost £56m in total, with more than £29m – 51% of the total – coming from the EU.”

Her main concern, echoed by Vice Chancellors throughout Wales and the UK, is the possibility

of the erection of barriers to multi-disciplinary, global science: “Departing the EU is a real threat to funding and to the free movement of research people. Given the number of issues that we are facing which demand a global response, we would, ideally, have a global funding structure for research, but it doesn’t exist. The EU is a perfect platform from which to start.

“The biggest issue is a perceptual one. I am worried that when we are seen to be opting out of the EU, good people may just not pick up the phone. Scientists have wanted to come here to further their careers – and even the careers of their families – but some are now thinking twice. We have to give them certainty.”

“Departing the EU is a real threat to funding and to the free movement of research people. Given the number of issues that we are facing which demand a global response, we would, ideally, have a global funding structure for research, but it doesn’t exist. The EU is a perfect platform from which to start.”

5. The make up of UK university staffs

It was Stephen Hawking who underlined the importance of the wider research ecosystem: “Free movement of scientists is as important for science as free trade is to market economics.” This belief has lain at the core of the EU’s development of education and research policies – affecting the movement of both staff and students. This, allied to the quality of the UK’s higher education sector, has allowed us to attract large numbers of both.

While there is a natural focus on a small group of academic stars and rising stars when looking at the research capacity in Wales, we should not forget that these are only the most visible peaks. The number of academic staff and non-academic university staff from other EU countries is considerable. In 2014-15 there were 403,835 staff at UK universities – 198,335 academic staff and 205,000 non-academic staff, of whom 43,015 (10.6%) were from other EU countries.¹² Total numbers of university staff in the four countries of the UK are quite close to their share of the general population.

Fig. 19 UK University staff numbers

	Academic		Non-academic	
England	165,180	83%	167,645	82%
Wales	10,410	5%	10,820	5%
Scotland	19,250	10%	23,650	11%
N Ireland	3,495	2%	3,385	2%
Total	198,335		205,500	

Unlike the make up of the student population, amongst university staff the proportion from other EU countries represents the largest non-UK group in both academic and non-academic categories, exceeding the numbers from the rest of the world combined.

Staff from other EU countries are much more heavily represented (16%) amongst the academic staff than amongst non-academic staff (6%). Amongst academic staff, in addition to the 31,635 from other EU countries, there were a further 2,255 from other European countries outside the EU. The next largest non-European geographic group of academic staff were staff from Asian countries, 9,040 or 4.6% of the total.

Unlike the make up of the student population, amongst university staff the proportion from other EU countries represents the largest non-UK group in both academic and non-academic categories, exceeding the numbers from the rest of the world combined.

Fig. 20 UK university staff by country of origin

	Academic		Non-academic	
UK	139,195	70%	183,330	89%
Other EU	31,635	16%	11,380	6%
Non-EU	23,360	12%	7,760	4%
Not known	4,145	2%	3,030	1%
Total	198,355		205,500	

At Swansea, for example, of its 3,243 staff 228 (7%) are from the rest of the EU, including 127 academic staff, of whom 27 are at professorial level. At Aberystwyth, of its 2,247 staff 167 (7.4%) are from the rest of the EU, including 96 academic staff, of whom 9 are at professorial level.

At the higher academic levels staff movement between EU countries is facilitated not only by the broad research programmes, but also by specific measures such as the Marie Skłodowska Curie Actions (MSCA) – a programme providing grants to researchers at all stages of their careers – be they doctoral candidates or highly experienced researchers to acquire skills, international experience and access to research facilities and networks. It also embraces global fellowships that allow researchers to work anywhere in the world.

This is not just a marginal activity. During the FP7 period (2007-13) this MSCA funding contributed €25.9m to Welsh universities, with €15.6m going to Cardiff University alone.

Fig.21 MSCA funding Welsh HE – FP7

	€
Aberystwyth	3,840,310
Bangor	3,651,856
Cardiff	15,636,334
Swansea	2,107,090
UOWTSD	714,842
Other	6,185
Total	25,956,617

Personal story 3: *Professor Valerie O'Donnell, Cardiff University*



Professor Valerie O'Donnell, an Irish citizen, is Co-Director of the Systems Immunity Research Institute at Cardiff University. After taking her first degree in Dublin and other academic studies in Bristol, Switzerland the United States, she and her Welsh husband came to Cardiff in 1999, when she won a Wellcome Trust fellowship to study at the then University of Wales College of Medicine that later merged with Cardiff University.

She is currently engaged on inter-disciplinary research aimed at developing new treatments for inflammation and excess bleeding and understanding how circulating cells respond to common cardiovascular therapies. In 2014 she was awarded a prestigious €2.9m European Research Council grant that funds a team of five people, plus specialised equipment over 5 years. There are or have recently been German, Irish, Portuguese and Italian nationals in her research group.

"I wouldn't have been able to fund this research project from any other scheme. The ERC is willing to look at projects in emerging technologies that involve high risk, with potential for high gain, in a way that UK Research Councils are unlikely to do.

"There is no doubt I owe my career to the EU," she said. "It was a two and a half year grant from the 'Marie Sklodowska Curie Actions' programme that funded my first post doctoral job in Berne, Switzerland in the mid 1990's. Mobility is very important in the MSCA scheme which is about sending people out to other countries to pick up new skills. It's a unique scheme for junior scientists, enabling them to travel to other research centres and learn and bring new skills back to Europe, expanding our knowledge base."

Since then, Professor O'Donnell has become a member of the panel that decides on MSCA fellowship applications and travels to Brussels twice a year to undertake that task. Two members of her research group also won their own MSCA fellowships to travel to the USA and Canada. Both returned to faculty posts in the UK, facilitated by these prestigious EU awards.

"I am worried that the UK research base will lose out massively post Brexit. I was quite shocked by the referendum result, as were my colleagues. Things didn't change immediately, but the uncertainty now is creating real problems and altering the approach of colleagues in the rest of Europe. For instance, the best people may not want to come here if they cannot apply for ERC or EU grants any more, and we are already seeing evidence of this. We are also seeing evidence of British based scientists not being included in EU collaborative grant applications because their EU colleagues are worried it will prejudice the outcome.

"International collaboration is massively important. We are all specialised and I depend on input from other countries. If I find a new molecule I may need advice from a colleague in Denver, or I might be collaborating with a German scientist on how blood clots. This sort of collaboration is essential in scientific research."

Professor O'Donnell is less concerned about her personal status than some of her colleagues from other EU countries, as Irish citizens have always retained a right to reside in the UK, although she acknowledges that we do not know if this will continue post Brexit. But she is concerned at any possibility of exclusion from the European Research Area, and thinks the UK government should make every effort to stay within it. "It would make sense for us to put money into the EU pot for research as we have always won more back" she added.

6. An international student population

The success of British universities has meant that they have been an attractive destination for both staff and students, perhaps the most internationalised university sector in the European Union. The total number of students in the UK in 2014-15 was 2,266,080.¹³ A fifth of the total are overseas undergraduate and post-graduate students, with a quarter of them coming from the EU and three quarters from the rest of the world.

Fig. 22 UK Student population 2014-15

UK domicile	1,829,200	81%
Other EU	124,575	5%
Non-EU	312,010	14%
Not known	295	0%
Total	2,266,080	

But this figure masks a considerable difference between undergraduate and post-graduate studies. Whereas only 13.4% of undergraduates come from overseas, the figure rises to 38.1% for post-graduates, and to 43% for those taking higher research degrees. Proportionately, Scotland stands out from the other three UK countries in attracting undergraduates from the EU.

Fig. 23 UK Undergraduate students

	Total	UK	%	Other EU	%	Non-EU	%
England	1401515	1212250	86.5	58925	4.2	130310	9.3
Scotland	176370	149210	84.6	14300	8.1	12860	7.3
Wales	104860	92225	87.9	3730	3.6	8880	8.5
N Ireland	45150	42065	93.2	1385	3.1	1695	3.7
Total	1727895	1495750	86.6	78340	4.5	153745	8.9

The total number of students in the UK in 2014-15 was 2,266,080. A fifth of the total are overseas undergraduate and post-graduate students, with a quarter of them coming from the EU and three quarters from the rest of the world.

Fig.24 UK Post graduate students

	Total	UK	%	Other EU	%	Non-EU	%
England	442,580	274775	62.1	36695	8.3	130885	29.6
Scotland	56200	33330	59.3	6505	11.6	16345	29.1
Wales	28105	16490	58.7	1685	6	9935	35.3
N Ireland	11295	8850	78.3	1345	11.9	1100	9.7
Total	538,180	333445	61.9	46230	8.6	158265	29.4

Fig.25 Total post-graduate higher degree (research)

UK domicile	62,745	57%
Other EU	14,280	13%
Non-EU	32,415	30%
Not known	10	0%
Total	109,450	

The figures above show that Welsh HEIs, compared with the other UK countries, have attracted proportionately more students from the rest of the world than from the rest of the EU, at both undergraduate and post-graduate levels. This is particularly noticeable for post-graduates. A report for Universities Wales in November 2015 argued that “this tends to reflect the current state of demand in the global student market rather than the characteristics of Wales as a student destination in that these are also significant markets for other UK institutions.”¹⁴

On the post-graduate side, where Wales has a much higher proportion of non-EU students, another factor may be the relatively small size of the total Welsh research base, dealt with above, the remedying of which is already a central concern for science policy in Wales. Scotland and North Ireland have particularly high proportions of post-graduates from other EU countries.

However, a closer examination of post-graduates in Wales studying for higher research degrees, rather than higher taught degrees, shows that the cohort from the rest of the EU is still the second largest behind Asia.

On the post-graduate side, where Wales has a much higher proportion of non-EU students, another factor may be the relatively small size of the total Welsh research base, the remedying of which is already a central concern for science policy in Wales.

Fig.26 Wales - Non-UK Post-graduates – Higher Degree (research)

Asia	430	26%
EU exc. UK	400	24%
Middle East	375	23%
Africa	260	16%
N America	110	7%
Other Europe	45	3%
S America	20	1%
Other EEA	5	0.50%
Australasia	5	0.50%
Total	1655	

Within Wales the different size and research intensities of the different institutions, produces considerable variations in the proportions of undergraduate and post-graduate students drawn from the rest of the EU and from the rest of the world. Aberystwyth and Glyndwr are the only two universities accepting more undergraduates from the rest of the EU than from non-EU countries.

As for particular countries of origin the largest overseas student cohort in Wales is from China, and the largest EU country cohort from Germany.

Fig.27 Wales – Undergraduate student population 2014-15

	Total	UK	%	Other EU	%	Non-EU	%
Aberystwyth	8500	7440	87.5	665	7.8	395	4.6
Bangor	8105	7055	87	215	2.6	835	10.3
Cardiff	21575	18045	83.6	725	3.4	2805	13
Cardiff Met	8920	7405	83	220	2.5	1295	14.5
Glyndwr	5875	4540	77.3	680	11.6	650	11.1
Open Univ	6960	6960		0		0	
Swansea	13465	11690	86.8	270	2	1490	11.1
UoW TSD	8660	8155	94.2	140	1.6	365	4.2
USW	22795	20935	91.8	815	3.6	1045	4.6
Total	104855	92225	87.9	3730	3.6	8880	8.5

Fig.28 Wales – Post-graduate student population 2014-15

	Total	UK	%	Other EU	%	Non-EU	%
Aberystwyth	1,335	1020	76.4	100	7.5	220	16.5
Bangor	2660	1420	53.4	170	6.4	1070	40.2
Cardiff	8,905	5450	61.2	590	6.6	2865	32.2
Cardiff Met	4750	1540	32.4	160	3.4	3045	64.1
Glyndwr	895	540	60.3	30	3.3	325	36.3
Open Univ	325	325		0		0	
Swansea	2,555	1540	60.3	190	7.4	825	32.3
UoW TSD	1760	1360	77.3	75	4.3	330	18.7
USW	4,920	3290	66.9	370	7.5	1255	25.5
UoW Central	0	5		0			
Total	28,105	16490	58.7	1685	6	9935	35.3

Fig. 29 Wales – International students by domicile 2014-15

China	4,027
India	1,374
Nigeria	1,242
Germany	1,232
Malaysia	1,158
France	1,001
Bangladesh	987
Pakistan	675
Saudi Arabia	646
USA	630
Hong Kong	623
Ireland	581
Greece	533
Spain	441
Poland	440

7. Wales and the ERASMUS programme

One of the most successful EU educational initiatives has been the ERASMUS programme, named after the peripatetic Dutch philosopher, Desiderius Erasmus, and designed to encourage student and staff mobility. Following six years of a pilot scheme, the programme was formally adopted in 1987, when 3,244 students took part. For the period 2007-13 the budget for the ERASMUS programme was increased to €3.1billion, and by 2012-13 270,000 students and 52,000 staff from 33 countries were participating, involving 4,600 HE institutions. In the same year the total number of student participants passed the 3 million mark, while total staff participants passed the 350,000 mark.¹⁵

The new ERASMUS+ programme for 2014-20 has set a goal – as part of the Bologna process that established the European Higher Education Area – that by 2020 20% of all graduates should have spent a period of time studying or training abroad. Between 2015 and 2020 it is also aiming to increase the number of ERASMUS graduates from 3.5million to 5.5million. By now the scheme also has vocational education and volunteering strands. The aim is not only to allow students to develop language skills, but also other employment-related skills. The programme has offered work placements in companies since 2007, and this has accounted for the largest increase in the number of students. Significantly, 30% of them received a job offer from the hosting enterprise.

Although participation in the scheme by UK students and staff has grown, it remains very low compared with the other major countries in the EU. In 2011-12 only 2% of British graduates participated, compared with 6% for Germany and Italy, and 5% for France. On the same measure the most active participating countries have been Luxembourg (35%), Lichtenstein (15%), Finland (10%), Latvia (10%), Spain (10%), Estonia (9%), Austria (8%), Lithuania (8%), and Slovenia (8%). It is a matter for debate whether this low level of participation by UK students is a factor of low commitment by our universities, poor language skills or general cultural insularity.

Nevertheless, during the 7-year period 2007-8 to 2013-14 89,430 UK students and 13,704 staff from British universities took part in the scheme. Participation by Welsh universities – a total of 4,501 students and 733 staff, around 5% of the UK totals – was in line with its share of the general population. Participation by students from Scotland (12.9%) and Northern Ireland (3.05%) was ahead of their respective population shares, but England (79%) was well below its share. Staff participation shows much the same picture, except that Northern Ireland's share (1.7%) was much nearer its population share.

During this period the number of students going from Wales to study abroad rose by 41%, from 499 to 646 per annum, while the number going to work abroad under the scheme rose five fold from 41 to 201. In the same period the number of staff going to teach abroad rose by a third, from 72 to 96 per annum. The numbers of staff going to train abroad are small and have fluctuated, rising from only 2 in 2007-8 to 26 in 2011-12, then dropping back to 10 in 2013-14.

Amongst the top 500 HE institutions in the EU, only three UK universities get into the top 100 for receiving ERASMUS+ students – Edinburgh, Glasgow and Sheffield. Amongst Welsh universities only Cardiff gets into the top ten of UK universities. In the data for 2013-14 for those institutions receiving ERASMUS alumni only three Welsh institutions feature: Cardiff at 106th received 428 students, Swansea at 356th received 183 students, and Bangor at 401st received 162. But Cardiff is the fourth highest in the UK, after Edinburgh (466 students), Glasgow (460 students), and Sheffield (455 students). Wales may have much to learn from Scotland in this field.

Fig. 30 ERASMUS+ - Top 10 receiving universities in the UK

EU ranking	University	Students received
87	Edinburgh	462
91	Glasgow	460
95	Sheffield	455
106	Cardiff	428
114	Leeds	412
132	Manchester	387
144	UCL	355
150	Strathclyde	150
152	Warwick	342
156	U. West Scot	338

In the table of institutions sending ERASMUS students out to other countries only two Welsh institutions feature: Cardiff appears at 208th, sending out 339 students and Aberystwyth at 438th sending out 184 students. Cardiff is 11th among UK universities in this category.

Fig. 31 ERASMUS+ - Top 11 UK sending institutions

EU ranking	University	Students sent
67	Nottingham	593
127	Exeter	454
128	Sheffield	453
131	Manchester	441
147	Edinburgh	417
160	Durham	396
168	Birmingham	386
169	Bristol	386
188	Warwick	359
199	Bath	344
208	Cardiff	339

In terms of specific ERASMUS+ projects in 2015 the percentage of successful applications from Wales was – at 60.6% – the highest of the home nations – 40 successes from 66 applications. These involved 13 projects in higher education, 8 projects involving vocational education and training, 5 schools projects, 3 adult education projects and 11 youth projects. However, this masks the fact that the number of applications from Wales was much lower than from Scotland or Northern Ireland. Applications from Wales accounted for 4% of the UK total, whereas Northern Ireland accounted for 6.3% and Scotland 16.4%.

Nevertheless, this still represents significant investment. For example, in 2015 Swansea University received €618,000 from ERASMUS+ for staff and student outbound mobility, and a further €500,000 in 2016. In 2015 it received a further €171,000 for inward and outward staff and student mobility with Texas, China, and New Zealand, and a further €334,000 in 2016 for exchanges with Australia, Canada, Hong Kong and Texas.

In a report to the Welsh Government in March 2016,¹⁶ three “EU funding ambassadors” – one of whom is the Welsh architect of the Erasmus scheme, Dr Hywel Ceri Jones – urged even greater involvement by Welsh HEIs in the ERASMUS+ programme with its “support for the creation of cross national partnerships and knowledge alliances, both of which in turn encourage innovation and entrepreneurship, and the mobilisation of universities to work with each other and with the world of industry and commerce.”

The report recommended that the sector should carry out a ‘stocktake’ of its participation in the ERASMUS programme to provide “a clearer all-Wales view of the strategic value of investment in internationalisation so as to enhance the attractiveness of Wales and Welsh universities on the world stage.”

The authors wanted Welsh universities and the FE sector to scale up participation in ERASMUS+ and the related ERASMUS MUNDUS schemes, to use these funds to build up strategic partnerships with specific European regions and to present an annual report on progress to the Welsh Government as part and parcel of its Global Wales initiative.

Their report – written before the June referendum – urged the higher education sector in Wales to become much more active in this area. Now that the UK has voted to leave the EU, the issue will be how Wales and the UK can prevent a debilitating loss of momentum in the internationalisation of the university sector, both in research and in widening student and staff experience.

Many parts of the ERASMUS programme are open to participation by countries outside the EU and are grouped in three categories:

- i)* Non EU programme countries who can take part in all the “Actions” of the ERASMUS+ programme – Iceland, Lichtenstein, Macedonia, Norway, Turkey
- ii)* Partner countries neighbouring the EU in the Western Balkans, eastern Europe, Russia and in the southern Mediterranean
- iii)* Other ‘partner countries’ in other parts of the world who can be admitted to specific programmes, but subject to different rules that depend on “the financial instruments of the EU external action”.

But these lower categories do not offer the same benefits of free-flowing participation that the UK currently enjoys. It remains to be seen whether the UK will be able to negotiate an arrangement close to that which exists now, or whether we will be forced to take a significant backward step.

Personal story 4: *Professor Vincenzo Crunelli*



Professor Vincenzo Crunelli is from Sicily and grew up on the slopes of Mount Etna. After working in Milan, Israel, New York and Cambridge he moved permanently to the UK 36 years ago in 1981. Ten years later he was offered the first Chair of Neuroscience at Cardiff University. “I remember the Welsh Language Board had to give us the word for neuroscience,” he said.

During his time in Cardiff he has won research grants totalling more than £20m for his work on the mechanism of sleep and childhood/juvenile epilepsy. Over the years he says that a good 50 per cent of his research team have come from other EU countries. He himself also spends time on research in Malta.

Although based in the biosciences area at Cardiff, he also works closely with CUBRIC - the university’s world-leading brain imaging centre that opened last year, having been built with the help of £4.6m of ERDF funding. It is now supported by 3 grants worth £3.9m under the Horizon 2020 programme.

He is particularly concerned about the impact of leaving the EU on academic networks. At present he is participating in a €3m International Training Networks scheme, under the EU’s Horizon 2020 programme, that will train 15 PhD students from Wales, Germany, France, Italy, Norway and the Netherlands – a grant that was awarded only two weeks before the EU referendum in 2016. “The worry is whether this sort of money will continue to flow. The UK is going to have to contribute if it still wants to benefit,” he says.

His team also takes advantage of the COST initiative that funds the creation of networks, and allows academics to meet with those in other countries who are working in the same field. “I can’t tell you how valuable it is to go to other places and to brainstorm from seven in the morning to seven at night and be exposed to new ideas,” he says.

This is also why he values the EU’s ERASMUS scheme. “For me this is the biggest question and the biggest worry when I look at young people. People think it is just support for students, but now we have ERASMUS+ that allows graduates and lecturers to move to other countries and be exposed to another reality – different kinds of medical practice, different ways of handling outpatients, different ways of thinking.

“I send students to France, Germany, Italy and Malta, and we get students from all those countries. Those who come here learn about the work we are doing in our labs. They leave as much more experienced people. I will cry if we lose the ERASMUS scheme. If it disappears it will be the major cost of leaving Europe – losing the chance to see how people are thinking differently in different countries.”

He and his Italian wife – and their two daughters who live in London – have had to think about their future status. “My personal life – mentally, psychologically – was right down for days after the referendum. My sons in law and my four grandchildren are going to ask for Italian passports as a precaution. My wife and I certainly don’t want to leave Cardiff. We shall have to wait and see. I hope it won’t come to that,” he said.

Notes

- 1 *Curiosity driven 'Blue Sky' research: a threatened vital activity?*, Sir John Cadogan. Learned Society of Wales 2014
- 2 *The implications of International Research Collaboration for UK Universities*, Jonathan Adams and Karen Gurney. Digital Science and Universities UK 2016.
- 3 US National Science Foundation (NSF) 2016 Review
- 4 US NSF 2016 Review
- 5 *Examining implications of Brexit for the UK research base*, Daniel Hook and Martin Szomszor. Digital Science. May 2016
- 6 *UK Research and the European Union*, The Royal Society 2016.
- 7 *International Comparative Performance of the Welsh Research Base 2010-14, August 2016 Update*, Elsevier Analytical Services, August 2016.
- 8 <http://www.rcuk.ac.uk/about/aboutrcs/research-funding-across-the-uk/>
- 9 HESA 2014-15
- 10 As of 7.11.16 the following countries are regarded as Associated Countries for H2020: Albania, Armenia, Bosnia and Herzegovina, Faroe islands, Georgia, Iceland, Israel, Norway, the former Yugoslav Republic of Macedonia, Moldova, Montenegro, Serbia, Tunisia, Turkey, Ukraine, Switzerland (partial association only).
- 11 *The case for growing STEMM research capacity in Wales*, Professor Peter W Halligan and Dr Louise Bright, Leadership Foundation for Higher Education and the Learned Society of Wales. May 2015.
- 12 HESA data, 2014-15
- 13 HESA data, 2014-15
- 14 *The economic impact of international students in Wales*, Universities Wales. November 2015
- 15 *Erasmus - Facts, figures, trends*, European Commission 2014
- 16 *Europe Matters to Wales: EU policy and funding opportunities for Wales 2014-2020*, by Dr Grahame Guilford, Dr Hywel Ceri Jones and Gaynor Richards.

b. **Further
Education**

1. EU funding in Welsh FE

EU funding has also been playing an increasing role in further education in Wales. Colegau Cymru / Colleges Wales, the umbrella body for the sector, has recently compiled a report setting out the extent of that involvement.¹⁷ The report stated that the sector had received more than £285m of EU funding during the 2007-13 period and the first years of the 2014-20 period. This amounted to a 47% contribution to projects whose total value exceeded £598m. The report claims that already in the 2014-20 period it is on target to exceed the funds committed during 2007-13.

*Fig. 32 EU funding for Welsh FE sector 2007-20 - £m**

	2007-13	2014-20***	Total
LLP plus Erasmus+	3,080,321	2,688,331	5,768,652
ERDF + ESF	96,237,613	79,094,963	175,332,576
Work based learning**	100,811,170		100,811,170
Interreg	3,213,156		3,213,156
Total	203,342,260	81,783,294	285,125,554

* Based on average exchange rate of £1 = €1.20

** Estimate - 40% of total project cost

*** Figures for first two years of the 2014-20 period only

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On the back of this investment the sector is targeting a sharp increase in the numbers participating in ESF funded training as well as in the numbers gaining qualifications during the 2014-20 period compared with the previous period.

Fig. 33 ESF funded projects 2007-13 + 2014-20 (Target)

	Participants (Target)	No. gaining qualifications	Proj. value inc match funding
2007-13	16,081	12,907	23,426,360
2014-20	25,687	20,091	54,450,000
Increase	9,606	7,184	31,113,640
% Increase	60%	56%	133%

Currently, five colleges are leading four ESF projects valued at £56.4m, of which the ESF is contributing £35.8m. This is divided between the West Wales and the Valleys (total value £39.6m of which ESF is £27.6m) and Eastern Wales (total value £16.7m of which ESF is £8.1m). The main objective of these projects is to enable at least 20,000 people to gain a qualification.

There are three other projects in which 11 colleges are 'joint beneficiaries'. The total value of these projects is £64.8m, of which the ESF is contributing £43.3m.

During 2007-13 the ESF contributed c. £93m to 14 FE projects in Wales with a project value of £120m.

During 2007-13 the ERDF was a major contributor to the costs of two major capital developments in the sector: £6.7m towards the £38.7m cost of the Coleg y Cymoedd building at Nantgarw, and £7.2m towards the £30.9m cost of the new building for the Blaenau Gwent Learning Zone.

2. ERASMUS and FE

Students and staff from the sector have also taken advantage of the ERASMUS scheme, with the number of participants more than doubling between the 2007-13 period and the first years of the 2014-20 period. Six Welsh FE institutions have participated directly in ERASMUS+, Key Action 1 for learners. These were Coleg Cambria, Coleg Gwent, Coleg Sir Gar, Gower College, Grwp Llandrillo-Menai and The College, Merthyr Tydfil. Together they accessed €2,451,552 for this programme.

Since 2014 Colegau Cymru has also facilitated the coordination of five consortium applications to ERASMUS+ involving 12 colleges. This has represented a 50% increase in EU funding compared with its predecessor programme, the Lifelong Learning Programme during 2007-13. There has been a similar increase in the numbers of students and staff taking advantage of the scheme.

*Fig. 34 Mobility programmes in Welsh FE
Lifelong Learning Programme 2007-13 and Erasmus+ 2014-20*

	No of participants		Project value (€)	
	LLP	ERASMUS+	LLP	ERASMUS+
Learners	140	307	465,640	702,630
Staff	0	55	0	71,815
Total	140	362	465,640	774,445

The report does issue a warning. It says, “the potential gap in resources that we face with the end of EU funding programmes, both in terms of finance and of capacity, will undoubtedly have a major impact on the Welsh economy, especially on the skills agenda....It is paramount that the sector has sufficient resources to fulfil the role that it has undertaken to date with such demonstrable success.”

In the period before the EU funds come to an end Colegau Cymru have suggested that “the current ESF programmes should be deployed to devise and test future strategic activities for skills and qualifications that respond to the demands of the Welsh economy for a qualified technical workforce.” It also wants the Welsh Government to pursue the objective of retaining access to the ERASMUS+ programme, and if that fails to set up a similar mobility scheme.

Notes

- 17 *Involvement of Welsh Further Education colleges and institutions in EU funding, Colegau Cymru / Colleges Wales. 2017.*

c. Creative
Europe

1. Entwined with our neighbours

For a small country like Wales sport and culture play an unusually large role in defining its international profile. In the official sphere the Welsh brand can often struggle for visibility within the British envelope. But sporting teams carry the Welsh flag and the name as do many of our national arts organisations and individual performers when they operate within their traditionally international markets. Our film and television sectors rely more and more on international co-production, much of it with the USA but increasingly in recent years with Europe. Other creative industries, especially new borderless digital industries such as video games, make extensive use of personnel from many countries and sell into worldwide markets.

In the cultural sector this international dimension starts with Europe. It does not exclude the rest of the world, but it starts with Europe not only because of proximity but also because we are part of the same shared civilisation stretching back over millennia. Much is made - by British people especially - of the barrier of language within Europe, but language is only one facet of culture, important though it is. Each European country claims its own distinctiveness in language, culture, politics and institutions, but those distinct features are mostly woven from threads we share rather than existing in opposition to them.

Europe is a continent shaped by Greek and Roman civilisations, with common roots in Christian, Jewish and, yes, even Muslim traditions. No language has borrowed more from other European languages than the English language, while over the centuries no European country's culture has been immune to the periodic movement of people - sometimes born of aggression, at other times persecution. English literature, French painting and German music are merely the more obvious examples of a shared kaleidoscopic heritage to which even a country as small as Wales has made its own unique contribution.

That being so, it is hardly surprising that no section of society was keener to retain membership of the EU during the recent referendum than the cultural sector. Various surveys registered support in the high nineties. This near unanimity was rooted not only in intellectual conviction but, for many organisations and artists, in the extent of their current international engagement. In this way higher education and the cultural sectors share a common view and interest - the need for internationalism and their investment in a world where ideas, good practice and people can travel without let or hindrance.

Generally, practitioners have regarded artistic exchange and collaboration and the development of networks as much the most important aspect of their engagement with Europe. Their main concern in the wake of the referendum has to do with the possible cultural impoverishment that might result from insensitive restrictions on freedom of movement and consequential additional costs.

2. Wales' soft power

The above concern is a pressing worry because the sector's engagement with the rest of Europe is in fact impressive and has been increasing, yet is not always fully appreciated. The following list is not exhaustive.

Welsh National Opera

In recent years it has co-produced with European opera houses and festivals in Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Greece, Italy, Netherlands, Poland and Spain, as well as beyond Europe in Canada, the United States, Oman and Dubai. In many cases, it would argue, this has resulted in artistic benefits as well as cost savings.

It is involved in a European network of 15 opera houses that has launched an online opera service - *The Opera Platform* - that has been supported by Creative Europe and the cultural broadcasting channel ARTE. This platform streams operas worldwide for six months at a time. They are sub-titled into six languages. In 2016 it streamed WNO's production of *In Parenthesis*, a new opera commemorating the centenary of the Battle of Mametz Wood. The company employs a steady stream of singers from the rest of Europe and the company's current Music Director is from the Czech Republic. His predecessor was from Germany.

National Dance Company of Wales

Four out of nine contracted dancers with NDDC come from other EU countries - Italy, Spain, France and Belgium. In the past year the company has also worked with choreographers from France, Belgium and Poland, and next year will work with two from Spain. The company says this has been necessary to raise standards, partly because of the "patchy quality of dance training in the UK". The company has plans to offer a residency to an artist from the EU. In 2016 it led a significant Welsh presence at the Tanzmesse International Festival in Germany. The company is also further developing its international touring, with plans over the next two years to tour to Denmark, Germany, Italy, Sweden and Switzerland.

NoFit State Circus

Over the last five years this Cardiff-based company has toured to Belgium, Denmark, England, France, Germany, Ireland, Netherlands, Portugal, Scotland and Spain. It has also been to Australia, India, Canada and the USA. It mounts at least one major co-production with European partners each year, and international touring accounts for nearly 40% of its turnover. Four of its resident artistic collaborators are from other European countries - Italy, Austria, Hungary and Ireland. It also employs non-EU overseas performers from Brazil, Chile and Canada. (See *Case Study*)

Fiction Factory

This Cardiff-based television production company is one of at least 12 independent production companies that have received funding from the EU since 2007. Fiction Factory first received funding via the EU's Media programme in 2003 - €90,000 towards developing a television series for S4C. More recently it received €500,000 of non-recoupable EU funding to produce the first series of *Hinterland/Y Gwyll* that has since been sold worldwide. A further €500,000 was received to support the third series of the same project. Ed Thomas, founder of Fiction Factory, says the series would never have got off the ground without that initial non-recoupable EU finance. During the production of this series the company employed two students from Germany and Spain via the Erasmus scheme.

Amgueddfa Cymru / National Museum Wales

The National Museum's collections are rich in European natural sciences specimens and works of art - such as Impressionist and post-Impressionist paintings. It is dependent on partnerships

with museums and universities across Europe to help the museum to interpret them. To do so it has developed relationships with museum professionals in 23 of the 27 EU member states. It also employs eight people from other EU countries in specialist positions in the organisation.

It is currently partnering with a Swedish museum in an Erasmus funded 'sharing and learning' project, and with nine other open air museums in the 'OpenArch' project, again funded by Erasmus. NMW also has a long-term partnership with the Szentendre Open Air Museum in Hungary. The Museum of Welsh Life at St Fagans and the National Industrial and Maritime Museum at Swansea are currently involved in two EU Interreg bids with Swansea University and Cork County Council in Ireland. NMW is concerned about "increased isolation from best museological and scientific research and practice" and says it is "already detecting a loss of influence and resources as we get fewer invitations to participate in European projects."

Volcano Theatre

This Swansea-based company has toured regularly within Europe, since its inception more than 25 years ago. It has toured to Croatia, France, Germany, Greece, Hungary, Italy, Romania and Spain. In 2016 the company completed a £400,000 project with French company, Transplanisphere, funded by Creative Europe. It is now bidding for an even bigger project, with a Finnish partner, Tinfo, aimed at connecting European designers with other European artists. It is bidding for support from the Erasmus fund for a second project with Transplanisphere. Each of these projects involves up to eight European partners.

Gregynog Festival

Music festivals across Wales regularly draw on artists from the rest of the EU. Amongst the most active is the Gregynog Festival that has, in recent years, been increasing its international programme of work, featuring artists from Belgium, France, Germany, Ireland, Italy, The Netherlands and Spain/Catalunya. In 2015 this included 12 debuts in Wales by French soloists and ensembles. In addition the festival has been asked to showcase its work in Belgium and Ireland. It is a member of REMA, a prestigious early music network based at Versailles.

Llangollen International Eisteddfod

This world-renowned international Eisteddfod was established in 1947 in the aftermath of the Second World War. Since then it has attracted participants from all over the world, and especially from the EU. In 2016 its finalists and winners came from Czech Republic, England, Estonia, Finland, France, Germany, Ireland, Wales and, from two European countries outside the EU - Albania and Norway.

Mercator / Literature across frontiers

The Mercator Institute at Aberystwyth University was established in 1988 as a direct result of a recommendation by the European Parliament that the European Commission should take positive action to recognise regional and minority languages. It hosts a number of projects specialising in languages, creative and literary translation, media, publishing and culture. Since 1988 it has received approximately €10m in EU funding. It has been awarded successive competitive contracts under the previous culture programme (2000-2006 and 2007-13, and Creative Europe 2014-20).

Literature across frontiers is Mercator's largest current project. It seeks to advance intercultural dialogue through literary exchange and translation. It has worked with organisations in 76 countries, including every country in the EU. In 2015-16 it was awarded €450,000 with an additional €500,000 for 2016-17 for its Literary Europe Live project which brings together 16 European literary festivals and venues to develop writers, translators and literary curators as well as a quality label to recognise Europe-wide programming.

Chapter Arts Centre

Over the last five years Chapter has received €208,000 via the Europa Cinemas scheme

and the Cooperation strand. The Europa cinema circuit actively promotes European cinema. Chapter has also supported Coreo Cymru's Dance Roads project involving four other EU countries. This supports innovative choreographers and is specifically designed to introduce them to international stages. The European Commission selected this project as one of 33 'success stories' (out of a total of 738 projects) "that have distinguished themselves by their impact, contribution to policy-making, innovative results and/or creative approach and can be a source of inspiration to others." There were only three such projects from the UK picked out in this way. One of the other two was another Welsh organisation, Ffotogallery.

With its partners Chapter is now contemplating a further €800,000 bid to Creative Europe, of which €100,000 would come to Chapter. It also received €870,000 towards its capital redevelopment programme from a variety of European sources.

Ffilm Cymru

In the past decade, of the 52 feature films funded by Ffilm Cymru 23% have been European co-productions with Ireland, Sweden, France, Spain and Luxembourg. Half of these have been with Ireland. In the case of 10 recent European co-productions that Ffilm Cymru co-funded, £6,418,145 (46%) came from European sources, although only 3.4% came from EU funds. In its January 2017 development round 3 of the 9 films supported were European co-productions. Even where Ffilm Cymru may not be a funder, international collaboration in the sector is underpinned by the European Co-production Convention that allows production companies here to co-produce with companies across Europe and to access local financial incentives in EU member countries.

Ffilm Cymru has also been a long-standing member of the network of European film funders – Cineregio – that advises the European Commission on the approach to 'cinema communication' and is also inputting into discussions on the Digital Single Market. It is possible that the above arrangements may continue as the Co-production Convention falls under the Council of Europe rather than the EU.

Pauline Burt is Ffilm Cymru's Chief Executive: "Our relations with European colleagues form a bedrock for how Wales is perceived in the World – through the films that we curate and profile, the talent that collaborates and the research and platforms for innovation that we share. We have richer lives from a social, cultural, economic and educational perspective because we are part of Europe."

Wales Arts International

Wales Arts International is the international arm of the Arts Council of Wales. Since 2008, Wales Arts International has had a Europe Desk charged with increasing the engagement of the arts sector in Wales with European networks, opportunities and projects. This has been particularly important for projects and relationships developed through transnational European funding streams. This post should not be confused with the Creative Europe culture desk that is housed within the Welsh Government.

WAI has worked as a partner in strategic European projects including the pilot mobility network Practics (2008-2011) and the INTERREG IVC project Toolquiz (2010-2012). It has also established the Wales European Arts Forum, an informal network of arts organisations based in Wales that are active in, or seeking to engage with, EU networks and projects. It disseminates information on matters concerning EU cultural policy, networking and potential project opportunities, signposting relevant sources of transnational funding.

WAI is a member of the following international and European networks: IETM (International Network for Contemporary Performing Arts), Culture Action Europe, Res Artis and the artist mobility network, On the Move. This last network of 35 organisations from 20 countries will hold its General Assembly in Cardiff in April 2017.

Case Study: *NoFit State Circus*

NoFit State Circus was founded in 1986 by five friends from Cardiff University who had got together the previous year to create a street show for the Live Aid charity. In its first decade it concentrated on small-scale circus theatre productions, but was also invited by Welsh National Opera to participate in a larger community event. Lottery grants in the early 1990s enabled it to develop large-scale shows, that concentrated on a cost-saving promenade style, fusing original music, circus movement and a narrative form.

Around the turn of the millennium it moved from being semi-professional to fully professional, leading up to its 2004 show, “Immortal”. In 2016 it took the deliberate step of taking a large scale show to the Edinburgh Festival and to another showcase festival, Tarrega in Spain, with the explicit intention of securing international bookings.

This was the beginning of a heavy involvement in Europe. By now the annual touring programme covers the whole of the UK and western Europe, and occasionally countries beyond. Over the last five years it has toured to Belgium, Denmark, England, France, Germany, Ireland, Netherlands, Portugal, Scotland and Spain. It has also been to Australia, India, Canada and the USA.

It is involved in at least one major co-production in Europe each year. Its current show, Block – a co-production with an English company, Motionhouse Dance - has three EU partners: Cirque Jules Verne in Amiens, Centre des Arts de la Rue in Paris and Biennale Marseilles.

In 2011 it received a commission of £465,000 from ZEPA, a consortium of 9 French and English festivals in the south east of England and north west France. This was funded by the EU’s Interreg fund. It also received c. £20,000 from the EU to stage an international conference of European youth circuses in October 2015 in Cardiff. This was funded by the EU’s Erasmus fund, via the British Council.

In 2015-16 international touring, mainly in the EU, generated £850,777 (39%) out of the company’s total turnover of £2,190,460. Alison Woods, NFS’s Executive Director, says that the EU touring is critical to the company’s creative development and financial sustainability. She says it is the profit generated through touring that sustains the work in Wales, on which there is a substantial deficit. The company’s Creative Producer now spends around half her time in other European countries. The company is one of only two Welsh companies funded by both the Arts Council of Wales and the Arts Council of England. The other is WNO.

NFS belongs to two European networks IETM (Informal European Theatre Meeting) and Circostrada. NFS believes it can retain membership of these networks, as they both have existing members from outside the EU.

Woods believes that the European connection, especially the strong circus tradition and training regime in France, has been invaluable in developing the company’s skills and artistic ambition, that has also fed into extensive community work in Wales.

Staff

By now NFS employs 60 FTE staff, of whom 25% are non-UK EU/EEA nationals. These include two members of the core team – Camille Baumier, a Creative Producer from France who joined the company in 2012 and Olga Kaleta, an Instructor from Poland, who joined in 2013; 4 UK resident artistic collaborators – Firenza Guidi, a writer-director from Italy, Annette Loos, a musician from Austria, Jani Foldi, a performer from Hungary, plus nine freelance performers (from Italy, Finland, France and Switzerland). The company also employs non-EU overseas performers from Brazil, Chile and Canada.

Woods says the referendum vote has proved destabilising: “We have had tears and real fear. Many of our people have been here a long time, but do not have British citizenship and are not married to British citizens. Suddenly, the vote made them feel they were not welcome here. They are really worried. It’s natural that they have thought of leaving”.

Costs and mobility

Like many arts companies, one of NFS’s main concerns is continued easy access to skilled staff and performers across the EU, without the administrative burden and inconvenience of having to arrange work permits and visas. Employing someone from outside the EU can add up to £1,000 to the cost of contracts to cover things such as visas and health insurance. Extra medical insurance for a six-month contract can cost £1,500.

One of Woods’ main concerns is about the additional cost and administrative burden of operating outside the EU domestic market, and the loss of flexibility this entails. At a post-referendum seminar in Swansea in 2016 she outlined the additional cost of touring to the United States compared with a tour to a European city. This she put at £46,000, comprised of £13,406 for visas, £9,384 for the necessary carnet and £4,250 for insurance – a total of £27,040, plus £19,002 for extra certification required by New York City. None of these costs would apply within the EU.

Woods says the company needs mobility – inwards and outwards – “for people and stuff”. Visas can often take days or weeks to secure, especially if the country in question insists that the applicant attend the embassy in person. Although, in the wake of the referendum, the company is seeking partnerships outside the EU, she is concerned the financial and administrative burden on the company once it is outside the EU, will limit the company’s opportunities.

“We have had tears and real fear. Many of our people have been here a long time, but do not have British citizenship and are not married to British citizens. Suddenly, the vote made them feel they were not welcome here. They are really worried. It’s natural that they have thought of leaving.”

3. The EU and culture

Despite a shared heritage stretching back over millennia, culture has never assumed a central place in the development of the European Union, although many senior figures have from time to time regretted that fact. There is little doubt that the cultural sector in Europe has tended to march ahead of the development of European cultural policy. The historian, Anthony Everitt, a former Secretary General of the Arts Council of Great Britain, writing in 2003,¹⁸ admitted that the union did encourage multi-national cooperation on arts projects, “but a trend in this direction on the part of national cultural institutes throughout Europe, acting on their own initiative, has been detectable in any event in the last two decades.” Nevertheless, there has been a steady growth in the importance and the money given to cultural policy.

It was in 1985 that the EU began to designate an annual City of Culture – the first being Athens. (The designation was changed to EU Capital of Culture in 1999.) In 1992 culture was written into the objectives of the newly renamed European Union in the Treaty of Maastricht. Clause 1 of Article 128 stated: “The Community shall contribute to the flowering of the cultures of the member states, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore.”

At about the same time the MEDIA programme had been launched to help film and television. This was followed in 2000 by the Culture programme and further built upon in the European Agenda for Culture in 2007 (that accompanied the EU’s Treaty of Lisbon) before the adoption of the *Creative Europe* programme for 2014-2020 that merged the culture and media programmes. This superseded the previous programmes and was given a budget of €1.46bn for the period, a 9% increase on the previous budget.

From 2016 Creative Europe has also included a €121m financial guarantee instrument to help the sector get better access to finance. The sector can also be supported by the Erasmus+ programme, Horizon 2020, and COSME (Competitiveness of Enterprises and SMEs).

This succession of programmes has been aimed primarily at three objectives: promoting diversity and dialogue between cultures, supporting creativity and innovation and the promotion of culture as part of the EU’s international relations. In tandem with its Audiovisual Media Directive, the Creative Europe programme covers several fields including:

- the development of skills and knowledge, especially in the digital field;
- the strengthening of cultural organisations;
- enhancing international cooperation, including assisting people to internationalise their careers within the EU and beyond;
- protection of copyright and the establishment of resale rights on intellectual property;
- the conservation of cinema heritage;
- and support for a European Youth Orchestra and Baroque Orchestra.

Creative Europe operates through four strands of work:

- i) **Platforms** – that fosters mobility and visibility of creators and audience development
- ii) **Networks** – that supports networks that develop skills and experience and enable more international collaboration
- iii) **Cooperation** – that supports small projects involving at least three countries, and large projects that involve at least six countries.

- iv) **Literary translations** – that supports the translation and publication of packages of fiction works into eligible languages.

It also supports prizes and initiatives aimed at raising the profile of European culture. These include:

- EU Capital of Culture
- European Heritage Days
- EU prizes for literature, contemporary architecture and heritage
- EU Border Breakers awards

4. Creative Europe funding in Wales

It is difficult to establish an all-encompassing estimate of the total financial value to Wales of these cultural programmes for several reasons:

- i) Much of the expenditure by Creative Europe goes towards international consortia of organisations. The allocation of that total between the various countries is not identified. For instance, the European opera digital project - *The Opera Platform* - that involves 15 opera houses across Europe - was awarded a total of €1,855,688. Approximately €85,000 of that figure would be receivable by Welsh National Opera over two years.
- ii) Where an organisation from Wales performs at a festival elsewhere in Europe, any EU funding for the festival will be recorded under the name of the host festival and its country, not the ultimate destination of the spend.
- iii) It is difficult to extract a complete picture of the benefits to the cultural sector from other funds, such as ERDF, ESF and Interreg.

The EU funding received by Welsh companies from the Culture and MEDIA programmes over the 2007-13 period and to date in the 2014-20 period is listed below. It does not include any monies received via ERDF or ESF.

Fig. 35 Creative Europe – Culture

CULTURE 2007-13	Project	Welsh Partner	Project funding €
2010	Dancing cities	Taliesin	80,000
2012	Dance Roads	Chapter	163,916
2012	Art, Science, Tech network	Cardiff Met	200,000
2012	European prospects	Ffotogallery	200,000
2012	Artistic Gestures	Welsh Rock Art	195,000
	Total		838,916
2014-20			
2014	The Opera Platform	WNO	1,855,688
2015	Literary Europe Live	Bangor	
	Literary Europe Live	Hay Festival	
	Literary Europe Live	Literature across frontiers	455,426
	Total		2,311,114

Fig. 36 Creative Europe - MEDIA

MEDIA 2007-13	Project	Beneficiary	Award to beneficiary €
2007	PS15	Calon	50,000
2007	Europe's Big Walk	Element	46,497
2007	The Devil's Horn	Ffilmiau'r Nant	30,000
2007	Slate funding 1 - Animation	Griffilms	80,000
2007	Road of Bones	Modern Television	40,000
2007	Eliffant	Teledu Apollo	40,000
2007	Gone to Spain	Truth Department	30,000
2007	Igam Ogam	Calon	268,000
2008	Chloe's Closet	Mike Young Prods.	300,000
2009	Arty's Make&Do Combat	Dave Edwards Ent.	86,014
2009	The Wordles	Dinamo Prods.	53,771
2009	String theory	Vision Thing	24,999
2010	Runt	Fragrant Films	24,950
2010	Cyrano	Red & Black Films	24,980
2010	Transmedia Lab	Newport University	69,942
2011	Red	Little Lamb Media	24,957
2011	Slate funding 1 - Fiction	Machine Prods.	165,022
2011	Lost on Infinity	Rondo Media	150,000
2011	Transform @Lab	Newport University	70,000
2012	Slate funding 1 - Animation	Dinamo Prods.	150,000
2012	Hinterland / Y Gwyll	Fiction Factory	500,000
2012	Hinterland / Y Gwyll	Fiction Factory	45,000
2012	Transform @Lab	Newport University	83,129
2013	Abadas Interactive	Dinamo Prods.	50,000
2013	Transform @Lab	Newport University	92,902
	Total		2,500,163
2014-2015	Hinterland / Y Gwyll	Fiction Factory	500,000

Fig. 37 Creative Europe 2014 and 2015 - Culture Large Cooperation Projects (up to €2m)

	Projects	%
London	20	43%
South East	7	15%
North	10	22%
Midlands	2	4%
South West	1	2%
England	40	87%
Scotland	2	4%
Wales	1	2%
N Ireland	3	6%
Total	46	

Source: Creative Europe Desk UK

Fig. 38 Creative Europe 2014 and 2015 - Culture Small Cooperation projects (up to €200k)

	Projects	%
London	16	37%
South East	7	16%
North	10	23%
Midlands	4	9%
South West	1	2%
England	38	88%
Scotland	4	9%
Wales	0	0%
N Ireland	1	2%
Total	43	

Source: Creative Europe Desk UK

It is instructive to analyse the 'cooperation projects' supported in the first two years of the Creative Europe programme, since there was UK involvement - as a leader or a partner - in 47% of all projects supported EU-wide. In the above 86 projects, a UK organisation was a lead partner in 17 (20%) of them - in five large projects and in 12 small projects. It is noteworthy, too, that London and the South East of England account for well over half of these projects, although the north of England also seems to have done well. Of the 17 projects where the UK provided the lead partner, 12 of these were organisations in London and the South East. Nine of the 86 projects also involved higher education institutions. The sole 'Cooperation' project listed for Wales refers to Welsh National Opera's participation (with the Royal Opera House and 13 other European companies) in the online opera project, *The Opera Platform*.

Although, for the reasons stated above, the involvement of Welsh arts organisations in Europe is much greater than might be suggested simply by the level of funding received from the EU's own cultural programmes, the results do seem disappointing. This is especially so given the fact that the UK's total take from these funding sources is larger than most other EU states. For instance, in 'Cooperation projects', the most significant part of the Culture programme, the €4.4m won by the UK was the largest amount awarded to a country participating in Creative Europe - a success rate of 24% well above the EU average of 15%.

Even in the MEDIA programme - where some Welsh companies have received significant investment in projects - it is notable that of the 26 grants listed above only seven are for more than €100,000. Nevertheless, even these smaller sums have often been crucial building blocks in developing projects and constructing viability. One significant factor affecting Welsh uptake on the MEDIA side is that one of our largest independents, Boom Cymru, can no longer apply for support from the MEDIA programme because it is now owned by a broadcaster, ITV Studios. The regulations for the programme state that "applicant companies must be independent - no more than 25% of the share capital can be held by a single broadcaster (50% when several broadcasters are involved." ITV Studios bought the Two Four group - Boom Cymru's parent company, in June 2015.

So, in the matter of the relationship between Wales's cultural sector and the EU, we are faced with a paradox. On the one hand, we have the sector's passionate commitment to the European cause and deep engagement with Europe on the part of many key players while, on the other hand, we see relatively little recourse to direct EU funding programmes. The media sector in Wales may have been more active on this front than the culture sector, but across the board Wales has, on the face of it, made less use of this funding than England or Scotland.

It is not easy to discern why the Welsh share should be so low. We have no easily available data on the number of applications from Wales, so do not know whether the success rate of our applications is better or worse than that of other parts of the UK. Is it because Wales has a very limited number of urban centres of a scale that tends to generate cosmopolitan links? Or is it that many Welsh cultural organisations - that tend to be small scale - can find the administrative requirements of EU funding daunting? Or is there a structural problem? Are we properly organised to maximise our presence both in Europe and the world?

The first thing to emphasise is that the figures above do not capture the full impact of EU funding on the cultural ecology of Wales. ERDF funding has played a significant role in the capital funding of our arts infrastructure, especially in West Wales and the Valleys. Cases in point have been Galeri at Caernarfon, Theatr Mwldan at Cardigan, Aberystwyth Arts Centre and, most recently, Pontio, Bangor University's arts and innovation centre that alone received £15m from ERDF. Unlike the EU's culture funds, the structural funds do not require international involvement.

On the revenue funding side, smaller organisations have often lacked the knowledge and skills to tap into EU funding sources. Some have found it easier to use the more modest EU funds such as Interreg, which promotes cross border activity. This has been used for several Wales/Ireland projects. Another formidable barrier for smaller organisations entering wider partnerships is the requirement to find 50% match funding.

Then there is the issue of organisation, which raises the question of why the arrangements in Wales seem to differ from that in other UK countries. The Creative Europe Desk UK is a joint operation between the British Council and the British Film Institute. The Creative Europe Desk Scotland is based within Creative Scotland – the Scottish equivalent of the Arts Council – with a MEDIA desk in its Glasgow office and a Culture desk in Edinburgh. The Creative Europe Desk Northern Ireland is located within the Arts Council of Northern Ireland. But the Creative Europe Desk Wales is located within the Creative Industries section of Welsh Government's European Funding Office, and aside from MEDIA work, work on the culture brief is staffed by a part-time secondee from Arts Council of Wales. This may not be the optimal arrangement.

One consequence is that the European Commission's own Creative Europe website does not list a culture desk for Wales. Under the UK, it lists Culture and Media desks in London and a Culture desk in Manchester, but no desk for Culture or MEDIA for Northern Ireland. For Wales it lists a MEDIA desk and another desk for Creative Industries within the Welsh Government's Department for Economy, Science and Transport (sic), more recently renamed Economy and Infrastructure.

In the short term there would seem to be a *prima facie* case for moving the Creative Europe Wales desk into the Arts Council of Wales/Wales Arts International where it would benefit from the Council's intimate knowledge of the sector, including its links through to the British Council via the WAI joint venture. Since WAI already operates a lottery-related International Opportunities Fund, and since the British Council is a major player in international arts, there would be further obvious synergies. One might hope that the British Council would pivot more towards Europe in these new circumstances although, perversely, in 2020 it is due to lose £50m of its government funding – that third which is not devoted to Official Development Assistance countries. In Wales this would be the moment to increase the International Opportunities Fund and broaden its remit. The fact that the economic and cultural briefs fall within the same ministerial portfolio in Wales means that no new disconnect would be created.

Given the result of the referendum last June, the obvious response is to ask whether this would be a case of shutting the stable door after the horse had bolted. The answer is, definitely not. Just as it is in the interests of higher and further education in Wales to retain participation in the European Research Area and in the Erasmus+ scheme, it is in the interests of the cultural sector to remain part of Creative Europe, and was stated in the Welsh Government white paper.¹⁹

With the Welsh Government's increasing focus on the cultural sector and the creative industries, were we to remain within the EU we would almost certainly have seen Welsh organisations seeking to make greater use of the EU's programmes over the next five years. Some structural changes in managing these funds could have accelerated that growth. For that reason exclusion from the Creative Europe programme would be a set back for the cultural sector.

Commitments by the UK government to replace lost EU funding beyond any exit point currently seem equivocal, especially in the cultural field. Such commitments will be of even less comfort if indirect funding – such as hires from festivals in the rest of Europe, or in kind benefits – are excluded, as they almost certainly will be, from any baseline defined by the UK Treasury.

To counter this danger there is a need to conduct urgently an audit of international activity by the cultural sector in Wales, to establish a more accurate and robust baseline, lest this become a negotiation with the UK Treasury. This should aim to capture the full economic value of that international engagement, whether or not it is funded via EU programmes. The Arts Council of Wales would be best placed to conduct this audit, although it will also need the cooperation of higher education institutions and local government.

As in the field of higher education research, the focus in negotiations needs to be on retaining UK participation in the EU's cultural programmes, for artistic as much as financial

reasons. There seems to be no obstacle of principle involved since, even now, under the EU Article²⁰ that established the programme, some non-EU states do participate. In 2014 Iceland, Norway, Albania, Bosnia-Herzegovina, Macedonia, Montenegro and Serbia were able to access the programme. All but Macedonia were also able to access the MEDIA sub-programme. In 2015 Turkey, Georgia and Moldova were added to the list, but with only partial participation in the MEDIA programme.

Similarly, there have been instances of European capitals of non-members of the EU participating in the European Capital of Culture programme – Bergen and Reykjavik in 2000, Stavanger in 2008, Istanbul in 2010. Novi Sad in Serbia is scheduled for 2021. It was supposed to be the UK's turn to supply a European Capital of Culture in 2023, but this is now in doubt. Much will depend on the outcome of any deal between the UK and the EU. In June 2016 the EU Commission proposed a new policy framework for the period from 2020 to 2033. Under this it would be possible for cities in a candidate country or a potential candidate country to bid for the title, along with cities in EFTA/EEA countries. Only a 'hard Brexit' would definitely put UK cities outside the ambit of this competition.

5. ACW and ACE surveys

At the end of July 2016 the Arts Council of Wales and Wales Arts International (a partnership between ACW and the British Council) launched a survey of arts organisations “to better understand the actual and potential impacts of withdrawal from the EU.”²¹ 73 responses were received, of which 23 were from ACW’s main portfolio of clients. 25 of the respondents had participated in EU funded projects worth £4.8m.

Although most of the responses were anonymous and did not cover all ACW portfolio organisations, it was clear from this survey that the primary concerns of the sector have to do with:

- i) external perceptions that we will be less open to collaboration,
- ii) new obstacles to operating across borders
- iii) concerns that restrictions on freedom of movement will impose prohibitive costs and bureaucratic burden. These loom much larger than the threat of reduced EU funding.

The sector fears that creative, artistic and commercial isolation will result in the loss of opportunity for cultural exchange and enrichment. 56% of respondents were concerned that touring work in the EU might reduce while, on the other side of the coin, 60% thought fewer artists and organisations would visit the UK.

In the months after the referendum Arts Council England too published a report²² based on a survey of its client organisations, but it also presented a fuller account of UK data, some of which were based on the DCMS’s Creative Industries Economic Estimates. The DCMS estimates that between 2009 and 2014, the UK’s ‘music, performing and visual arts’ sector saw an increase in the value of exports from £286m to £644m., of which exports to the EU constituted the largest single element.

Fig. 39 Music, performing and visual arts exports

	£m	%
EU	362	56
USA	173	27
Asia	81	13
Australia	19	3
Africa	5	0.8
Total	640	

The breakdown given of the export and import of cultural goods was as follows:

Fig. 40 Exports and imports of cultural goods - 2014²³

	UK exports €m.	UK imports €m.
Works of art	3589	1502
Books	2136	1212
Antiques	983	687
CDs, DVDs and gramophone records	414	354
Films, video games and consoles	382	1121
Newspapers, journals and periodicals	382	123
Musical instruments	73	241
Fabrics, embroidery and tapestries	65	97
Maps	65	11
Photographic plates and films	32	5
Architectural plans and drawings	8	5
Total cultural goods	8121	5365

There were 450 respondents to the ACE survey, including 353 national portfolio clients and 28 major museums. One third of the respondents were based in London and one fifth in the north of England. Among these respondents, 9.3% had received funds from Creative Europe, while 6.4% had acted as the lead partner in a European festival, network of platform.

As in Wales it proved difficult in England to determine the precise value of international activity but earned income from this source was important to 229 of ACE's respondents who, on average, claimed that this represented 14.2% of their total earned income. This was higher in theatre (17%), literature (16.9%), and dance (15.6%). Interestingly, smaller organisations in England appeared to be more dependent on international activity with a clear linear correlation between proportion of income coming from international activity and the size of the organisation measured in staff numbers.

A previous study by ACE in 2015 revealed that 65% of the 276 national portfolio organisations interviewed had undertaken international activity, earning a total of £34m, an average of £139,500 per organisation. Seven of the top 10 countries for international work were in the EU, although the USA was the most popular country.

As with ACW's report on Wales, ACE found that the primary concern of organisations was the potential negative artistic impact. 70.8% thought that leaving the EU would impact negatively on touring, while 75.3% thought it would affect their ability to bring artists to the UK. They also feared other indirect effects - such as the loss of funding to festivals and arts centres that would lead to a reduction in hires or commissions - a loss that would only compound the difficulties created by sharply reduced local authority spending on culture.

6. Creative Industries Federation Report

The Creative Industries Federation produced a report²⁴ in late 2016 following a series of meetings around the UK, including one in Swansea held jointly with the Arts Council of Wales and Wales Arts International. Essentially, this urged the government to negotiate arrangements for the creative industries on the basis of no detriment compared with the status quo. The report went far wider than the cultural sector, considering the full range of creative industries, not least because UK creative industry exports are growing much faster than other sectors. Between 2009 and 2014 creative industries exports grew by 48.9%, whereas the export value of services as a whole increased by only 29.6%.

Its recommendations centred on four concerns: talent and skills, EU funding, Trade and Investment, and regulatory frameworks (issues to do with the digital single market, intellectual property and copyright). It urged the government to secure access to the EU market for the creative industries without the imposition of non-tariff barriers. It is also seeking continued ease of movement between the UK and EU countries for 'time-limited activities, such as individual performance events, concert tours and film production.' It also wants to see continued UK participation in the European capital of culture programme.

In relation to the free movement of talent it emphasised that the government should take account of particular skills shortages in the creative sector, the international make-up of the creative workforce, the economic benefits of an international workforce and the need for a visa system appropriate for the creative industries. The last of these means recognising that current systems are not appropriate for a variety of reasons: technical skills not always being commensurate with high salaries in this sector; the minimum salary threshold of £35,000 to qualify for permanent residence being too high; the limited number of visas and the speed of issuing them (it can take up to a month).

On funding the CIF report conveys a powerful sense of the effects of combinations of funding from different sources: direct investment in culture from Creative Europe; investment in new arts facilities from sources such as ERDF; investment in micro businesses and SMEs - especially in new digital businesses - via ERDF or EIB loans; investment in research and development in new creative businesses via Horizon 2020.

On the regulatory side the CIF report emphasises the need to preserve existing protections for intellectual property and copyright, many of which derive from EU directives. It also seeks protection for the 'country of origin' framework for audiovisual media services that allows media companies operating across the EU to be regulated in one state. It points out that of the 2,200 broadcasting licences granted to channels in the EU, half are granted by Ofcom in the UK. This has helped create the UK's huge £10bn media sector.

One major concern is the possible impact of our withdrawal from the EU on current discussions regarding the Digital Single Market. These discussions on the harmonisation of regulation in this sphere could, if successful, enable the addition of 0.9% to the UK GDP and an extra €415billion a year to the EU economy.

7. An international strategy for Wales

There is little doubt that the result of the referendum was a rude awakening for many in Wales – in education, in the cultural sphere and in government. EU membership has provided Wales with an open route to international engagement across a broad front that is all the healthier for not having to be mediated every time by central UK organisations. If we leave the EU we must make every effort not to lose that healthy mindset. To do so we will need to be even more assiduous in connecting with those networks that do remain open to us in Europe. There is no shortage of them, but we need to identify those that might be most important for us, and use them.

Regardless of the result of negotiations between the UK and the EU, the time is overdue for a total reassessment of Wales's international strategy, including our cultural capital and how effectively that can be deployed and where. Thankfully, there are already signs of sharply increased attention to international strategy by the Welsh Government.

In its Programme for Government published after the 2011 Assembly elections, the Welsh Government made scarcely any mention of international issues, apart from the need to arrange trade missions. In contrast, in the wake of the 2016 Assembly elections and the EU referendum seven weeks later, the new Programme for Government made explicit mention of the need to “work harder and more actively to give substance to our outward looking character.”²⁵ It added:

“Wales’ reach goes far beyond our borders. This Government is outward facing and will help position Wales as an internationally focussed, ambitious country. We will seek investment and trade opportunities around the globe. Where Wales has a voice on issues that concern us, we will use it. We will continue to foster international links in higher and further education and to promote and share international best practice in healthcare.”

Another sign of a new emphasis is the statement on culture²⁶ published by Ken Skates, the Cabinet Secretary for the Economy and Infrastructure, in December 2016. Although Ken Skates' title refers only to the Economy and Infrastructure, his portfolio includes - usefully in this context - culture, tourism, the historic environment and major events, all of which require an outward-looking approach.

Apart from aspiring to make Wales “the most creatively active nation in Europe,” the statement was determinedly outward looking:

“In post-Brexit Wales soft power will have an increasingly important role to play if we are to convince others that Wales is a modern, outward-facing nation for to them to visit and do business with. If our soft power can be deployed effectively there are huge benefits in terms of developing trade, helping to attract inward investment and encouraging more tourism from overseas.....Part of ensuring that we as the Welsh Government have a clear agenda for international engagement will be to work closely with Wales’ international activists in the cultural sector.”

Another important statement within the document was the assertion that “culture is at the heart of the new Wales brand.” That has not always been the case in the past in the tourism field, although culture has gained a more prominent place in the last few years. Changes in personnel and responsibilities within the Welsh civil service, not to mention the appointment of the UK's Deputy Permanent to the EU, Shan Morgan, as the Welsh Government's Permanent Secretary, are also encouraging developments.

Despite these good omens it remains fair to say that a full-blown international strategy for Wales and its government is still in the making. The process poses a number of difficult organisational dilemmas, whether or not we remain in the EU. More detailed study is needed to define the solution, but there is no shortage of questions.

Where should responsibility for international affairs lie within the Welsh Government? Should it, as now, lie with the First Minister, or should it become a specific ministerial portfolio, as in Scotland, where international strategy has had a higher profile for a longer period.

The Scottish Cabinet includes a Cabinet Secretary for Culture, Tourism and External Affairs supported by a Minister for International Development and Europe. Their combined briefs include responsibility for the creative industries, fair trade, international development and the Scottish diaspora as well as cross government coordination on the EU, international relations and major events.

A case for and against can be made. The Scottish model creates a precise ministerial focus for external affairs that is not muddled by the range of responsibilities that a First Minister inevitably carries. However, the Scottish minister for the Economy, Jobs and Fair work, also has responsibility for 'internationalisation and European structural funds' as well as trade and inward investment, so a potential for boundary disputes exists. The Scottish model also involves the separation of the economic and cultural portfolios that are currently fused to good effect in Wales. But if external affairs are to play a much more important role in Wales in future, will they not need increased focus and resource and an infusion of additional ministerial effort?

The contrast between the Welsh and Scottish models also raises the question of the relationship between the arts and the wider creative industries, the latter having been designated a priority sector by the Welsh Government. In 2015 the creative sector employed 84,000 people in Wales, 53,000 working in the creative industries and 31,000 in creative occupations outside the creative industries. Cardiff University has embarked on an exercise to map their precise extent.

This relationship has not always had a happy history in Wales, with the Arts Council of Wales having been excluded from the Creative Industries Advisory Panel when the culture and economic portfolios were under different Ministers, a separation that has not yet been rectified despite the fact that both portfolios now come under the same Minister.

In the digital economy the organic links between the arts and the wider creative industries are bound to increase. An effective and enduring bridge has to be created, that has regard for the economic development aspect but also for the delicacies of the arm's length principle in managing the arts sector. That should not be beyond the wit of man.

It would be a mistake to think that the internationalisation of Welsh artistic endeavour will happen only at the behest of government. As we have seen, many arts organisations in Wales have simply followed their outward looking instincts to powerful effect. But if we are to effect a further step change in Wales's soft power we will need to build an internationally-focused infrastructure that can assert a Welsh presence not only internationally but also in the UK's cultural networks. This could be done by building on the foundation of Wales Arts International, strengthening its developmental role and operating an International Opportunities Fund sufficiently large to make Wales an attractive international financial/ artistic partner.

In virtually all areas of cultural activity Wales can field individuals and organisations of international calibre. They need to be put to work beyond our borders, always remembering that 'global' is not an alternative to 'European', it is an extension of it.

Notes

- 18 *Europe: United or divided by culture?* by Anthony Everitt. Institute of Welsh Affairs / European Cultural Foundation. 2008.
- 19 *Securing Wales' Future: Transition from the European Union to a new relationship with Europe.* Welsh Government. 2017.
- 20 European Commission, Article 8 of Regulation No 1295/2013
- 21 ACW submission to National Assembly's Culture, Media and Sport Committee inquiry on impact of Brexit on creative industries. 2016
- 22 *The arts and culture sector and exit from the European Union,* Arts Council England. 2016
- 23 Arts Council England analysis of EUROSTAT figures
- 24 *Brexit Report. The impact of leaving the EU on the UK's arts, creative industries and cultural education.* Creative Industries Federation. October 2016.
- 25 p12, *Programme for Government 2016.* Welsh Government. 2016
- 26 *Light springs through the dark: a vision for culture in Wales.* Welsh Government. 2016

Author

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