

National Assembly for Wales
Enterprise and Learning Committee

The Economic Contribution of Higher
Education in Wales

October 2009



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**Enterprise and Learning Committee
Final Report on the Economic Contribution of
Higher Education in Wales**

Introduction

1. Wales faces long-term economic challenges of relatively low levels of skills and qualifications, relatively low incomes, and relatively low levels of research income and R&D investment.
2. Yet we have in Wales one of the top 100 universities in the world, and one of the best business schools. There is also a wealth of good ideas, research and Intellectual Property stored in Wales's higher education institutions. It is therefore our belief that Welsh universities and colleges have a crucial role to play in planning a way out of the current economic downturn, in the long-term development of a more skilled and more educated workforce, and in the creation of a modern knowledge economy for Wales. We hope that the conclusions and recommendations of this report will contribute to that process.

Background

3. In January 2009 we published the Interim Report of our inquiry into the economic contribution of higher education in Wales¹. This was in order to feed into Phase Two of the Review of Higher Education by the task and finish group chaired by Professor R Merfyn Jones, Vice-Chancellor of Bangor University. Our Interim Report, which was well received, focused on the issues of ensuring adequate investment in higher education; enhancing performance in relation to commercialisation; embedding entrepreneurship in the curriculum; and the importance of research and innovation in increasing productivity and the higher education sector's work on Continuing Professional Development.
4. It was always our intention to issue our final report after the task and finish group had reported so that their insight and advice on the mission, purpose, role and funding of higher education in Wales could inform our own conclusions and recommendations. We are therefore grateful to Professor Jones for the group's report, which was published on 22 June,² and to which the Minister for Children, Education, Lifelong Learning and Skills responded in the Senedd on 23 June.

¹ Interim Report on the Economic Contribution of Higher Education in Wales, Enterprise and Learning Committee, January 2009

² Review of Higher Education in Wales, Phase Two Report, April 2009

5. On 25 June, Members of the Enterprise and Learning Committee took part in a discussion on the Committee's Interim Report at a meeting of the Strategic Forum, coordinated by Higher Education Wales and the Confederation of British Industries, which involved Vice-Chancellors and senior business people from across Wales with an interest in higher level skills and R&D.
6. This, our final report on the economic contribution of higher education, is the culmination of nearly two years' work, involving a mass of written and oral evidence from a wide range of stakeholders both in this country and abroad. We wish to thank all the witnesses to our inquiry, including Vice-Chancellors, representatives of higher and further education, sector skills councils, industry, business, professional organisations and societies. We believe that credit is due, both to the Welsh Government and to higher education institutions, for focusing their minds on this issue during this period of economic downturn.
7. We trust that our scrutiny has helped to generate this voyage of soul-searching and that our final conclusions and recommendations will help shape the debate on how to optimise the economic contribution of universities in Wales in future. **We recommend that the Welsh Government's proposed higher education strategy and action plan, due for completion by the end of 2009, should take forward the findings of our report, and that the Minister update us on progress achieved in a follow-up scrutiny session at an agreed future date.**

Scope of the inquiry

8. We were aware that our inquiry came in the wake of a number of reviews and reports on the roles and responsibilities of further and higher education institutions - the Leitch, Sainsbury, Graham and Webb reviews, for example. The aim of our inquiry was:

"To consider the nature of the strategic engagement of higher education institutions with businesses in Wales and beyond and their impact on their local and regional economies and in developing regional economic analyses."

The inquiry's terms of reference are listed in Annex A.

9. The key findings of our Interim Report were:
- We were informed that for every £1 million invested in 2005/06, higher education contributed £5.3 million to the Welsh economy, which is an **appreciable direct multiplier**
 - We looked at national and **international examples of good practice** of higher education institutions engaging in business / commercial / Intellectual Property and entrepreneurial advances and so boosting local economies (e.g. we visited the University of York, one of the world's top universities, and world-renowned institutions in Massachusetts, USA as part of a wider study tour for our Dyslexia inquiry; reports of our visits are included in Annex D of this report)
 - We identified **many areas of strength and good practice** in our higher education institutions, which will help the sector rise to the challenges of the coming months and years – the University of Wales, Newport, for example, in its cultivation of a “Hothouse” for creativity and innovation
 - Yet we concluded that **performance across the country is patchy**
 - There is a general feeling that higher education institutions in Wales **must do much better** in this area if Wales is to be competitive in economic terms
 - There is a **symbiotic relationship** between innovative and enterprising higher education institutions and successful and wealthy regional and local economies
 - **Education, economic development and regeneration should not be placed in silos.** Links between skills and employment, between education and economic development, and between knowledge and wealth creation need to be strengthened if Wales is to have vibrant communities and a prosperous future
 - We agreed with the conclusions of the 2003 Lambert review³ of business-university collaboration that there has to be a **partnership** between the higher education sector, government and business, where:
 - **Universities** will have to get better at identifying their areas of competitive strength in research
 - **Government** will have to do more to support business-university collaboration
 - **Business** will have to learn how to exploit the innovative ideas that are being developed in the university sector

³ Lambert Review of Business University Collaboration, Final Report, HMSO, December 2003

- A future thriving Welsh economy is threatened by **the funding gap** between English universities and Welsh universities
- **There has to be a comprehensive culture change** where the whole Welsh Government sees universities not as a drain on dwindling public resources but as a profitable investment in intellectual and economic capital
- At the same time, more could be done to inculcate a **more enterprising culture in our students**
- Higher education institutions must **collaborate** to access funding
- There remains a “cultural gulf”⁴ – where some small and medium-sized enterprises (SMEs) find it **difficult to engage** with the higher education sector, because they are perceived as impenetrable and bureaucratic or because of complex issues associated with confidentiality and ownership of Intellectual Property. Given that SMEs are so significant to the Welsh economy (accounting for over 99% of Welsh business stock and over half of all private sector employment)⁵ this lack of engagement should be addressed
- Higher education institutions should make their facilities and expertise more readily available to SMEs
- In turn, we suggested **greater autonomy for academics** and liberalisation of the rules governing their consultancy activities.

Recent developments

10. Since our Interim Report was published, there have been several interesting developments:

Swansea University

11. Swansea University announced in June 2009 its proposals to create a new science and innovation campus, which is aimed at creating high-level skills, working with companies on wealth creation and spinning out companies that create highly paid jobs. The Vice Chancellor, Professor Richard B. Davies, who gave evidence to the Committee earlier in our inquiry, said of the proposals,

“By removing the boundaries between industry and academia, which restrict the traditional science park model, we are proposing radical new approaches to the provision of research and development, education and skills to help drive economic regeneration for the benefit of the whole South West Wales Region.”⁶

⁴ Written evidence from the Federation of Small Businesses Wales, 12 December 2007

⁵ Written evidence from the Federation of Small Businesses Wales, 12 December 2007

⁶ http://news.bbc.co.uk/1/hi/wales/north_west/8105017.stm

The “knowledge network” envisaged for the new innovation campus,⁷ where an infrastructure of local knowledge economy centres will support the regional centre – including science parks, Techniums, further education and other higher education institutions – could serve as a model for other developments in the future.

The Department of Business, Innovation and Skills

12. The United Kingdom’s (UK’s) Department of Innovation, Universities and Skills has been merged into Peter Mandelson’s Business, Innovation and Skills Department. In his earlier evidence to our inquiry, Professor Merfyn Jones told us that in respect of the old Department of Innovation, Universities and Skills,

“The innovation bit is supposed to be UK wide, but the universities bit is just for England.”

He warned us to,

“Be alert to the danger of innovation, skills and enterprise being identified with English universities.”

This is an issue that Wales should continue to influence, so that the work of the new department is not too England-oriented but remains focused on the UK aspects of the Research Councils.

Research Assessment Exercise

13. The Research Assessment Exercise provides information about the research activity performance of Welsh higher education institutions, grading them on their research quality (with 5* being the highest). Comparative figures with other UK countries⁸ indicate that Wales was slightly behind the UK as a whole in both the 2001 and 2008 Exercises. At a subject level, there were strong performances by the Welsh sector in the following Units of Assessment, where in each case, more than one institution attained grades of 3* and 4* which significantly exceeded the UK average:

- Allied Health Professions
- Computer Science and Informatics
- Civil Engineering
- Psychology
- Celtic Studies

14. There were also a number of Units of Assessment in which individual institutions performed strongly, attaining scores of 3* and 4* which again significantly exceeded the UK average. These included:

⁷ Draft confidential Prospectus, Swansea University: The Bay, Building a Sustainable Knowledge Economy

⁸ <http://www.rae.ac.uk/>

- Accounting and Finance
- Business and Management
- Communications, Cultural and Media Studies
- Psychiatry and Neuroscience
- Sociology
- Politics and International Studies
- Town and Country Planning

A Science Adviser for Wales

15. In announcing the appointment of a Science Adviser for Wales, the First Minister said,

“The promotion of science in Wales is fundamental to developing our mission as a world-respected knowledge-led economy. Building up our science base, and faster commercialisation of the science base we already have, are two of the keys to that.”

16. The eighth annual Higher Education-Business and Community Interaction survey report, a joint publication by the Department for Business, Innovation and Skills and the higher education funding bodies in England, Wales, Scotland and Northern Ireland,⁹ showed that in 2007/08 Welsh universities achieved more than their expected share over a range of economic indicators, including new business start-ups by their staff and students.

Review of Higher Education in Wales

17. In their Phase Two report, Professor Merfyn Jones and the Task and Finish group made a large number of recommendations identifying key issues and priorities. They also identified three fundamental challenges for the higher education sector - the strategic leadership of higher education in Wales (the need to address the tension between the Welsh Government’s expectations of the sector and the sector’s sense of its responsibility to act autonomously); configuration of provision (the geography and organisation of higher education in Wales not being fitted to achieving teaching or research benefits); and investment (the tension and dispute surrounding the current and future planning of higher education).

18. Professor Jones later told us that the most important sentence in his report was that,

“Higher education needs explicitly to be repositioned in our national priorities from now on. It has to become central to the task of creating thriving and enquiring communities in a prosperous and culturally alive Wales.”¹⁰

⁹ http://www.hefce.ac.uk/pubs/hefce/2009/09_23/

¹⁰ Record of Proceedings column 9, 2 July 2009, Annex C

Follow-up evidence

19. The week following the publication of Professor Jones's report on higher education in Wales, we invited him to appear before the Committee, together with representatives from Higher Education Wales, the Higher Education Funding Council for Wales and the Minister for Children, Education and Lifelong Learning and Skills. The written evidence submitted and the transcript of the meeting on 2 July are included in Annex B and C, respectively, of this report.

Context

20. There are 12 higher education institutions in Wales, including the Open University, ranging in size from over 25,850 students at Cardiff University (around 70 per cent of whom are full-time) to 7,000 at University of Wales, Lampeter (where a large majority are part-time).
21. Higher education institutions in Wales contribute to the economy directly and indirectly in several ways: as employers and consumers of goods and services (much like organisations of similar scale); as providers of skilled people; through the exchange of knowledge (including research, consultancy, continuous professional development, training, conferences and networking opportunities); as attractors of business and people into Wales; and as generators of export earnings. Universities can also contribute to the regeneration of areas in which they are based. This is besides universities' wider social and cultural impacts.
22. According to Higher Education Wales,¹¹ universities in Wales represent a fast growing sector of the economy. The higher education sector had a turnover of over £1 billion in 2006/07; generated £2 billion to the Welsh economy; gained £170 million export earnings for Wales; and earned £121 million in total research grants for Wales and over £205 million from contracts and other income streams.
23. "Reaching Higher",¹² published in 2002, is the Welsh Government's ten-year strategy for higher education. The main challenges identified in the strategy were:
 - Welsh higher education institutions have historically found it hard to generate the critical mass necessary to **lift the number of successful applications for Research Council funding**. Despite a recent improvement the sector still has problems attracting funding for major projects. If the sector achieved a percentage of Councils' funding equivalent to population share, Wales would benefit by a minimum of an extra £10 million a year
 - **Welsh higher education institutions do not have strong track records for leveraging in money** from corporate sponsorship, trusts and alumni or from endowments and research contracts with funders outside the Research Councils. The result is that corporate and other

¹¹ Higher Education Wales written evidence, Annex B

¹² Reaching Higher, Higher Education and the Learning Country, A strategy for the higher education sector in Wales, Welsh Assembly Government, March 2002

sectors have a weaker relationship with Welsh higher education institutions which in turn diminishes their contribution to the economy

- The sector is **developing its relationship with the private sector** to commercialise knowledge and to spin out companies and patent rights using leading edge techniques. Wales is in an excellent position to maximise benefits and take an international lead as the UK is second only to the United States in commercialising research. While Welsh higher and further education institutions play a significant part in this, they need to do more to maximise income from these sources.

24. Two targets identified in the strategy were to:

- **Increase top-level research ratings** achieved by higher education institutions in Wales by at least a third by 2007
- **Double the number of profitable spin out companies** produced annually by 2010.

Investment in higher education

25. The economic climate has changed since we first started this inquiry and there has been even further economic downturn since we published our Interim Report last January. It is significant, for example, that universities now have an important role in supporting employees, companies and graduates hit by the recession through projects funded through the Higher Education Funding Council for Wales's Economic Support Initiative.

26. The Minister's written evidence to this final phase of our inquiry stated that higher education has a "critical role" to play in delivering the Welsh Government's vision, as set out in One Wales, of a strong and enterprising economy and full employment based on long-term, high quality jobs.

27. The Minister's response to the report of Professor Merfyn Jones and the task and finish group was to argue that "we need to make progress faster if we are to achieve our goals", and she wanted "to take [Professor Jones's] ideas further." She stated that her ambition is,

"For higher education to deliver a prosperous, vibrant economy with higher-level skills that can enable Wales to compete internationally... under-pinned by a commitment to social justice, where more people will be inspired to higher education."¹³

28. The four policy priorities that the Minister outlined in her statement to Plenary on 23 June 2009 were to develop a revised approach to a national bursary framework for students; developing new ways of providing Foundation Degrees; the creation and development of new higher education provision in the Heads of the Valleys; and driving forward the "Coleg Ffederal" concept for Welsh-medium higher education provision in the light of Professor Robin Williams's independent report. The Minister

¹³ Record of Proceedings column 108, 2 July 2009, Annex C

also indicated her intention to supply funding to support closer collaboration both within the sector and with other sectors, such as further education.¹⁴

29. The Minister stated that in 2009/10 the Welsh Government will fund higher education by £461 million a year, which is more than 40 per cent of the total income of the Welsh higher education sector. There will also be additional investment following the release of funds resulting from the Government's review of student finance - in excess of £31 million a year by 2015/16.¹⁵ Witnesses to our inquiry still referred, however, to the funding "gap" between English and Welsh universities¹⁶ - let alone the funding gap between the UK and the rest of Europe, and the USA.
30. As mentioned in paragraph 9 above, the multiplier effect of public investment in higher education is currently about five to one. While the Higher Education Funding Council for Wales considered this "a very good return,"¹⁷ we would like to see it doubled, and we wondered whether European Union money could be used to drive up the multiplier index, and whether universities could be better at attracting income from their alumni, as suggested to us by witnesses.¹⁸
31. We welcome the additional investment the Welsh Government has announced for higher education, but we believe it amounts to half of what is needed to close the funding gap. We fully accept that these are difficult economic times and that public funding settlements are tight, but **we recommend that the Welsh Government should view higher education as an economic development tool and allocate its resources accordingly. We also recommend a culture change in the language used - words such as "investment" in and "return" from funding higher education, as opposed to references to expenditure and costs.**
32. **We recommend that higher education should be much more closely bound into the strategies and thinking of the Department for the Economy and Transport, as well as the Department for Children, Education, Lifelong Learning and Skills. We also recommend that universities make more effort to exploit alternative sources of income such as their alumni.**
33. We were interested in an idea suggested by Professor Board, non-executive director of Enfis Ltd, to cut the base level of universities' Third Mission¹⁹ funding to 10 per cent but to offer Vice Chancellors a financial incentive to match fund every pound they create out of their Intellectual Property by another pound.²⁰ **We recommend that the Welsh Government consider a match funding scheme that would create a**

¹⁴ Record of Proceedings column 109, 2 July 2009, Annex C

¹⁵ Record of Proceedings column 144, 2 July 2009, Annex C

¹⁶ Record of Proceedings column 171, 10 July 2008, Annex C

¹⁷ Record of Proceedings column 76, 2 July 2009, Annex C

¹⁸ Record of Proceedings column 28, 21 May 2008

¹⁹ HEFCW's Third Mission Fund requires institutions to produce strategies which outline how they will benefit higher education and the economy, and support social and cultural well-being in the local community and Wales as a whole

²⁰ Record of Proceedings column 101, 9 April 2008

financial incentive for universities to develop their Intellectual Property.

34. We appreciate that multiplier effects are wider than this, however. **We recommend that more complex modelling be developed to measure adequately the multiplier impacts of Welsh universities, not just according to a narrow economic agenda.**
35. **We also recommend that higher education institutions should aspire to increase their procurement locally, within European Union procurement rules, in order to maximise and recycle public investment²¹ and increase their local impact as consumers and employers.**

Configuration

36. Professor Merfyn Jones's report envisaged fewer higher education institutions in Wales in future but with broader geographical provision, as well as "systematic integration between providers" through shared services, joint strategic planning and collaboration. The Minister's written evidence agreed that "we need to go further" in order to address issues over capacity and inefficiencies owing to size and duplication. The Minister referred to the need,

"To reduce overlap and competition and to ensure that we have world-class research and innovation that derives economic benefits with particular reference to science, technology, engineering and mathematics and medical subject areas."²²
37. We believe that the higher education sector in Wales needs to be cohesive and resilient and that there should be a continuum, not a mutually exclusive approach, to achieving excellence and to widening access and improving skill levels across Wales. We have therefore addressed this duality of purpose in terms of "aspiring to excellence" and "aspiration and social justice".

Aspiring to excellence

Postgraduates

38. The economies of China and India are likely to be strengthened as they emerge from the global recession, and it is significant that both of those powers are not letting up, either on a radical expansion of their universities or on a heavier emphasis on high-level skills.²³ We believe this poses both challenges and opportunities to higher education in this country.
39. Wales is weak in terms of companies that form in Wales, stay here and generate profits here. We therefore agree with the Higher Education Funding Council for Wales that Wales needs to go faster if it is to catch up

²¹ Record of Proceedings column 47, 2 July 2009, Annex C; column 179, 5 March 2008

²² Record of Proceedings column 110, 2 July 2009, Annex C

²³ Higher Education Wales written evidence, Annex B

with the nations and regions in front of it. In terms of economic levers, we believe that increasing Wales's potential as a first-class location for postgraduate students is a key area for generating longer-term increases in gross value added (GVA) levels. We would therefore like to see Welsh universities become a destination of first choice for postgraduates from overseas countries as well as Wales and the rest of the UK, and for as many postgraduates as possible to stay in Wales to take up business and career opportunities here. It is those people with enterprising, technical ideas and ideas for new businesses who are more likely to develop and generate higher-level profits in the economy. The most entrepreneurial people apparently are those with PhDs or Masters Degrees.²⁴

40. Professor Merfyn Jones suggested to us that this could be achieved by better collaboration, not only across Wales but across the border with England and internationally. This was particularly true of STEM subjects (science, technology, engineering and mathematics), although it should be acknowledged that wealth creators also come from the arts and humanities and the creative industries:²⁵ the arts centre at Aberystwyth University and the residency of Theatr Genedlaethol Cymru (the Welsh language National Theatre of Wales) in Trinity College, Carmarthen, are cases in point.²⁶
41. We heard of other initiatives in this area, such as GO Wales - Wales's new Graduate Opportunities programme - which encourages graduates to find work or work experience in Wales and encourages Welsh businesses to look to home-grown talent to meet their high-level skills needs. The scheme has been backed by European funding (£10 million from the Convergence Fund) and has been made available to almost 4,000 students and graduates, who will receive training and development opportunities and valuable work experience.²⁷ **We applaud the achievements of the Graduate Opportunities programme (GO Wales) in linking students with local small and medium-sized enterprises, and we recommend that it continue to be expanded in the future.**
42. We also heard about the Bologna Process, an intergovernmental initiative between 46 participating countries aimed at creating a European Higher Education Area by 2010, and promoting the European system of higher education worldwide. The aspiration is that the Bologna Process will play a key role in contributing to the European Union's Lisbon Strategy goals for delivering stronger, lasting growth and more and better jobs, and it will serve as a platform and springboard for raising Welsh universities' international profile and ambitions.²⁸
43. We heard from CBI Wales, the Federation of Small Businesses and the Open University that it was also important for higher education institutions to deliver graduate and postgraduate opportunities to the

²⁴ Record of Proceedings column 21, 2 July 2009

²⁵ Record of Proceedings column 25, 2 July 2009, Annex C

²⁶ Record of Proceedings column 133, 6 February 2008; column 144, 5 March 2008

²⁷ Record of Proceedings columns 121 and 129, 2 July 2009, Annex C

²⁸ Written evidence from Swansea University, 30 January 2008

existing workforce in ways and times that are more convenient and accessible to them.²⁹ As we were told by the University of Lampeter,

“We need to stop thinking of the full-time school leaver as the paradigm of the student model.”³⁰

44. The growth of the “virtual” university, where courses can be provided any where, is an approach that more and more higher education institutions are likely to follow. However, we were concerned that for many areas of Wales, the broadband service is not even close to being appropriate for individuals or companies that require that kind of access to higher education resources.³¹
45. A move to encouraging more Masters and PhD students in Welsh higher education institutions may have to be traded off, however, by having fewer undergraduates - assuming no additional funding, that is - but **we recommend that the Welsh Government should at least hold a debate with stakeholders over the relative value and funding implications of encouraging more postgraduate students into Wales, particularly in the context of attracting European Union funding for this area.**

Research

46. Wales punches below its weight in terms of attracting research funding. We were told by the Higher Education Funding Council for Wales (HEFCW) that research council grant capture in Wales constitutes only 3.2 per cent of the UK total.³²
47. There are examples, however, where institutions have significantly enhanced their research capacity to better compete for funding and improve their international profile. HEFCW told us about the Wales Institute of Cognitive Neuroscience, a collaboration between Cardiff, Swansea and Bangor universities, which is known worldwide and has received £5.2 million in HEFCW funding, resulting in an increase in grant capture.³³ The Minister also mentioned the Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth where the Welsh Government and the Biotechnology and Biological Sciences Research Council have provided a funding package, including capital, of £55 million over five years. The work that IBERS is doing is also international and links to research council priorities.³⁴ We were also made aware of the Research and Enterprise Partnership, a strategic collaboration between Aberystwyth and Bangor Universities, intended to deliver a “step change” in the research performance of the two institutions.
48. We were reassured by the Minister’s recognition of the major impact that higher education research has both internationally and on the societies and economies in which those institutions are located. We welcome the

²⁹ Record of Proceedings columns 44 and 155, 12 December 2007; column 77, 5 March 2008

³⁰ Record of Proceedings column 192, 5 March 2008

³¹ Record of Proceedings columns 186-189, 5 March 2008

³² Record of Proceedings columns 60 and 84, 2 July 2009, Annex C

³³ Record of Proceedings column 85, 2 July 2009, Annex C

³⁴ Record of Proceedings column 152, 2 July 2009, Annex C

Minister's action in writing to higher education institutions in Wales to announce how the Welsh Government will focus European Union structural funding and other Research & Development investments around the strategic priority areas of Digital Economy (ICT), low carbon economy (including climate change mitigation/adaptation), health and biosciences, and advanced engineering and manufacturing. We also welcome the move towards integration and coordination of research between the Department for Children, Education, Lifelong Learning and Skills and the Department for the Economy and Transport.

49. Professor Merfyn Jones and the Task and Finish Group made several recommendations on how the research base in Welsh higher education institutions can attract a greater share of research funding. In their oral evidence, Higher Education Wales also mentioned the major European bid that they are putting forward for a range of areas of activity, from Foundation Degrees through to Masters and postgraduate work. The Welsh Government has been involved in assisting them in elements of that project and in ensuring that employers play a central role.³⁵
50. We heard from several witnesses that the current Research Assessment Exercise (RAE) was no longer an appropriate model for funding departments and institutions in Wales as it tended to promote a culture of chasing research income, rather than capitalising on research outcomes. Higher Education Wales told us that the successor system to the RAE should include an evaluation of the economic and social impacts of proposed research, and that universities should concentrate on what they should be, and are, best at.³⁶ The University of Wales Newport, for example, believed that the RAE should focus on entrepreneurship and wealth creation as well as on academic output.³⁷
51. **We recommend the research potential of higher education in Wales should be fulfilled through increased and sustained collaborations between higher education institutions so that smaller operations can combine forces in competing in a bigger league, as opposed to competing amongst themselves. We also recommend that higher education institutions should adopt a more strategic approach to research management, including focusing more cleverly on research council priorities and those that the Welsh Government has outlined to them. We recommend that there should be a focus on those research departments that are achieving excellence on a national or international scale and that the Welsh Government should commission more research from higher education institutions.**
52. As regards research collaborations between higher education and companies, CBI told us that,

"The notion that we could get clusters of small and medium-sized enterprises together to fund research in universities and that they will all have common needs from a university is unrealistic. Smaller companies... are far more likely to work with a university around developing or

³⁵ Record of Proceedings column 130, 2 July 2009, Annex C

³⁶ Record of Proceedings column 123, 2 July 2009, Annex C

³⁷ Record of Proceedings column 127, 20 February 2008

enhancing a particular product as opposed to doing more fundamental research into new technologies. Getting funding out of small businesses for anything is a challenge, which is why I think that knowledge transfer partnerships are probably the way to involve SMEs with universities, because it is about getting bright grads out into companies that might not otherwise have employed them and bringing knowledge out. The innovation vouchers that we highlighted in our paper look like a really interesting scheme...that acts as a seed-corn for getting a small company to work with a university when it would not have done so before.”³⁸

We recommend that the Welsh Government consider an innovation vouchers scheme that would enable businesses to access expertise at a participating university and work together, such as generating innovation for a particular product.

53. Finally on research, we discovered on our visit to Massachusetts that academics there are given far greater freedom and incentives to undertake consultancy work and innovation activities. **We recommend that Welsh universities give their academics greater autonomy and liberalisation of the rules governing their consultancy activities.**

Commercialisation and knowledge exchange

54. CBI Wales told us that although knowledge transfer (we prefer the term exchange) is about far more than business start-ups, public policy makers tend to focus very much on start-ups as an indicator of whether universities are passing knowledge out. They said that the best way of commercialising research in universities (translating good ideas into economic value) is through existing businesses bringing the work to market. Knowledge exchange is also about the transfer of graduates themselves – skilled individuals going to work in companies. The knowledge transfer partnership scheme is one that the CBI supported very strongly, and we were encouraged to look more widely than simply start-up business spin-out indicators.³⁹
55. We were struck by the disparity between the degree of academic support for Knowledge Transfer Partnerships (KTPs)⁴⁰ – Bangor University in particular appears to excel at these – and the lack of awareness of that programme by the business community. We were told that the recent Sainsbury review proposed a doubling of the funding for the KTP programme. Further and higher education institutions in Wales have pioneered “mini” KTPs, which are shorter engagements than the typical long-term engagements between individuals and companies.⁴¹ **We recommend that the Welsh Government promote the opportunities offered by Knowledge Transfer Partnerships and the Academic Expertise for Business (A4B) scheme to increase awareness among the business sector.**

³⁸ Record of Proceedings column 86, 12 December 2007

³⁹ Record of Proceedings column 25, 12 December 2007

⁴⁰ The KTP programme has been running for over 20 years. It enables people from universities to engage with, typically, small businesses through involving three parties: the university, the individual, and the company

⁴¹ Record of Proceedings column 84, 23 January 2008

56. We were also struck by initiatives such as University of Wales, Newport's "strategic insight" programme which enables university employees to go into private, public and voluntary sector organisations to gain an insight at a strategic level into the issues faced by those bodies.⁴²
57. In 2006, an independent task and finish group chaired by Simon Gibson was commissioned by the then Minister for Innovation, Enterprise and Networks, to carry out an independent review of publicly funded commercialisation activities in Wales. The group concentrated on the creation of sustainable value-creating companies such as spin-outs rather than on licensing, which is the other favoured route for exploiting Intellectual Property.
58. The group's report was published in July 2007 and included ten recommendations to be taken forward by the Welsh Government, the Higher Education Funding Council for Wales, and individual higher education institutions. The group identified a need for the Welsh Government to develop a commercialisation strategy that would provide a framework for public policy design for all Welsh publicly funded agencies with an interest in the issue. The group also advised that there should be an intensification of the relationship between higher education and senior business people and it therefore recommended the creation of advisory panels consisting of experienced and successful entrepreneurs working with academics. The Welsh Government responded formally to the review in May 2008.
59. When Simon Gibson appeared before this Committee he told us that Welsh higher institutions were,
- "Stuffed with good ideas that were rotting on the vine."⁴³
- We were also told that,
- "There is not enough of a culture or community of entrepreneurs, risk-takers and people who have access to venture-capital organisations and good IP attorneys. We lack that kind of cultural and support infrastructure. With the best will in the world, the public sector cannot replace that, and it would be naïve to think that it can."⁴⁴
60. These views were shared by the Chief Executive of Park Place Research Ltd, a commercial research company.⁴⁵ We were therefore interested to take evidence from Biofusion,⁴⁶ a company that works in partnership with leading universities in the UK to help them to commercialise their world-class research. Founded in 2005 Biofusion has agreements with Sheffield University and Cardiff University, which give the company a ten-year exclusive first-look option at Intellectual Property that comes out of the university and the right to put that Intellectual Property into a spin-out company; in return, the university takes a major shareholding in

⁴² Record of Proceedings column 133, 20 February 2008

⁴³ Record of Proceedings column 16, 9 April 2008

⁴⁴ Record of Proceedings column 34, 9 April 2008

⁴⁵ Record of Proceedings column 189, 12 June 2008

⁴⁶ Record of Proceedings column 80, 7 April 2008

Biofusion. In other words the university concentrates on doing what it is good at - creating Intellectual Property - and Biofusion works with the university's technology transfer team and Finance Wales⁴⁷ to commercialise those ideas that have the potential to be a business. The university is also given a shareholding in any spin-out company. **We recommend that the Welsh Government and higher education consider replicating or tailoring the model of Biofusion to enable academics from Welsh institutions to work with commercial teams in turning blue-sky research into world-class businesses. We also recommend that universities should develop closer relationships with people that have benefited from successful spin-out companies to bring income back into their organisations.**

61. Successful commercialisation requires time and substantial investment, much of it dependent on having entrepreneur and financial expertise as close as possible to the genesis of a good idea, something that few higher education institutions possess. **We recommend that the Welsh Government continue to make progress in implementing the recommendations of the Gibson Report, in particular encouraging higher education institutions to invest in partnerships or panels where knowledge and Intellectual Property are combined with entrepreneurial expertise and networks of support from people who have empathy with the commercialisation process and access to capital.**
62. While, as we said in our Interim Report, we do not wish "brilliant academics to be turned into mediocre managers", we do perceive that the link between educational achievement and entrepreneurial activity also needs to be strengthened within higher education institutions themselves. **We recommend that entrepreneurship needs to be embedded more effectively both in the higher education curriculum and within the professional development of research staff: programmes should be established so that Masters and PhD graduates and research staff receive training on commercialisation and on handling relationships with business.**
63. At the same time, there needs to be an emphasis on enterprise training outside of the educational system, as a conduit into further economic activity or training. **We recommend the establishment of more enterprise agencies with a policy concentration on achieving real businesses that survive and prosper in the long term.**
64. As regards patenting, and Wales's slow record in this area, we were intrigued to hear from Swansea University that life is changing so rapidly, the new, fast, open approach to innovation is making the traditional approach to patenting largely redundant,⁴⁸ a point echoed by Simon Gibson.⁴⁹ **We recommend that higher education needs to change its approach to Intellectual Property towards releasing it for commercial development as soon as possible.**

⁴⁷ Record of Proceedings column 10, 5 June 2008

⁴⁸ Record of Proceedings column 100, 30 January 2008

⁴⁹ Record of Proceedings columns 30-33, 9 April 2008

65. Regarding Techniums, we heard from the Gibson review team, which included Professor Ken Board who devised the Technium concept, that they had not developed along the lines originally envisaged. They were intended to align, in a state-of-the-art facility, support services for the outflow of ideas and Intellectual Property from universities. In the review team's view, the Techniums had somehow lost their way, and become "a property play as opposed to an intellectual property play."⁵⁰ Swansea University told us how important it was for the Techniums to have close links and proximity to higher education institutions so that people could meet, chat and get back to work easily.⁵¹ **We recommend that the Welsh Government commission a review of the effectiveness of Techniums and reconsider their role in establishing the "missing link" between higher education and small and medium-sized enterprises.**
66. We were interested to learn from our visit to the York Science Park (Innovation Centre) Ltd, situated on the University's campus, how "spin-in" companies can also benefit higher education institutions. This particular example is the outcome of partnership between the university, City of York Council and local businesses. The need for Wales to respond to this kind of development will intensify should Bristol, like York, be designated a Science City, and we were encouraged to hear that Cardiff University was developing working relationships with Bristol University. **We recommend that the Welsh Government should look at the science park approach to sustaining local and national economies, including some thought as to whether local and national government has the flexibility and capacity to respond to such developments.**

Individuals

67. In aspiring to excellence, the importance of the individual student experience should not be forgotten. As the Higher Education Funding Council for Wales told us,
- "The benefit of higher-level skills to the individual, but, more broadly, to the economy and society, is clear."⁵²
68. We were therefore encouraged by the Minister's statements that the Welsh Government will ensure that it considers measures to promote the quality of the student experience, including part-time students, and the role of students in the development of higher education policy at a national level and of quality assurance at an institutional level.⁵³
69. The National Union of Students highlighted the importance of instilling entrepreneurial opportunities throughout a student's education, from building foundations in schools through to developing experience in further education and putting experience into practice in higher

⁵⁰ Record of Proceedings column 55, 9 April 2008

⁵¹ Record of Proceedings column 79, 30 January 2008

⁵² Record of Proceedings column 92, 2 July 2009, Annex C

⁵³ Record of Proceedings columns 110 and 147-148, 2 July 2009, Annex C

education.⁵⁴ We are aware that NESTA has published a whole review of this issue.⁵⁵

70. CBI Wales expressed concern at the lack of transferable and generic employability skills of graduates today.⁵⁶ Cardiff University told us that it is skills such as confidence and leadership, team-working, communication and customer-relations that give individuals a more entrepreneurial attitude.⁵⁷ SkillsActive also spoke about the importance of softer - people and communication - skills.⁵⁸
71. On our visit to Babson College and the Massachusetts Institute of Technology in Boston we heard how students were taught from the very beginning how to pitch their ideas – “preparation, confidence, persistence and creativity.” By the time they graduated, they were equipped with an armory of soft skills.
72. **We recommend that Welsh institutions, including student unions, join up in the development of a strategy for involving students in entrepreneurial activity and transferable skills throughout the continuum of their education, from primary school through college and into higher education, and throughout the whole of the curriculum.**
73. We heard from Simon Gibson about an entrepreneurial competition that he and Sir Terry Matthews ran where they took on board engineering, science, technology and some business graduates and sent them to Canada for six months to live in Sir Terry’s house where they were mentored and taught entrepreneurial skills. Those successful in getting through the programme were awarded a company. Every year, they were able to create four new companies out of the graduates. On a larger scale, they believed it could “transform the economy pretty quickly.”⁵⁹ **We recommend that the Welsh Government consider involving the top ten corporations in Wales in a mentoring scheme for new graduates where the award for the top students would be their own company.**
74. We were also informed about the Enterprise Fellowships scheme that is funded by Scottish Enterprise and run by the Royal Society of Edinburgh.⁶⁰ Enterprise Fellowships provide one year’s salary, business training, a business development fund and access to networks of mentors, business experts and professional advisers, for researchers, postgraduates and recent graduates who have a business idea they wish to develop into a spin-out company based in Scotland. **We recommend that the Welsh Government consider developing a similar scheme to Scotland’s Enterprise Fellowships to encourage entrepreneurial initiative and business development by individuals.**

⁵⁴ Written evidence from the National Union of Students Wales, 5 March 2008

⁵⁵ Developing Entrepreneurial Graduates: Putting entrepreneurship at the centre of higher education, NESTA, September 2008

⁵⁶ Written evidence from CBI Wales, 12 December, 2007

⁵⁷ Record of Proceedings column 54, 23 January 2008

⁵⁸ Record of Proceedings columns 27-31, 12 June 2008

⁵⁹ Record of Proceedings columns 70-72, 9 April 2008

⁶⁰ Record of Proceedings column 34, 21 May 2008

75. There was some concern expressed by many in the business and industry sectors that they needed more graduates in the STEM subjects (science, technology, engineering and mathematics),⁶¹ although the Higher Education Funding Council for Wales argued that the shortage is not as acute in Wales as in England.⁶²
76. We are aware of the dilemma where industry is calling for more STEM graduates, where students prefer to do courses other than STEM subjects, and where higher education is being caught in the middle. CBI Wales thought there was a big challenge for higher education and the business community to come together to sell career opportunities for school pupils in those subjects.⁶³ We believe the sector skills councils should also have an involvement in that process.
77. There is much that individual higher education institutions can do, such as the outreach work by Cardiff University's school of Physics.⁶⁴ **We recommend that higher education should collaborate with Careers Wales, schools and employers on encouraging more science, technology, engineering and mathematics students.**

Small and Medium-sized Enterprises

78. Only five of Wales's 12 higher education institutions are members of the Confederation of British Industry; many medium-sized enterprises are not members either. Collaboration between higher education institutions and small and medium-sized enterprises (SMEs) is also patchy. For example, there are currently no cost-effective incubator facilities available for SME or start-ups to conduct laboratory chemistry research in Wales, a major hurdle for new enterprises to have to overcome.⁶⁵ This is in stark contrast to the situation we found at the University of York's Department of Biology where the Technology Facility there provides access to a wide range of key bioscience technologies for researchers both within the university and external laboratories and commercial businesses, who would not otherwise have the resources to purchase the equipment themselves. This activity amounted to a quarter of the Facility's income. **We recommend that university departments consider the win-win situation of making their laboratory and other research facilities available to external clients, including small and medium-sized enterprises.**
79. Another example of collaboration between higher education and SMEs was University of Wales, Newport's productive dialogue with local industry over course content (such as film) and student placements with companies.⁶⁶

⁶¹ Record of Proceedings columns 37 and 138, 7 May 2008

⁶² Record of Proceedings column 35, 10 July 2008

⁶³ Record of Proceedings column 37, 12 December 2007

⁶⁴ Record of Proceedings column 21, 23 January 2008

⁶⁵ Written evidence from Park Place Research Ltd (an independent research-intensive SME), 12 June 2008

⁶⁶ Record of Proceedings column 116, 20 February 2008

80. Good practice aside, there is still some way to go to close what the Federation of Small Businesses referred to as “the communication gap” between businesses and higher education institutions.⁶⁷ The lack of engagement also between higher education and the voluntary sector was a point made by the Royal Society for the Protection of Birds, put down to the fact the RSPB did not have “a significant amount of money to bring to the table.”⁶⁸ Some higher education institutions frankly admitted that they had “minimal” interaction with local industry because they had “not developed the appropriate channels and mechanism for interacting.”⁶⁹
81. We were interested in evidence from Universities Scotland, the body that works for the Principals or Directors of Scotland’s 20 higher education institutions, about the “Interface” initiative, which provides a central point of access and brokering service for companies - particularly small and medium-sized enterprises - to establish new partnerships with academics from Scottish universities and research institutes.⁷⁰ The National Federation of Builders told us that higher education institutions needed a better understanding of the realities faced by businesses, which would be assisted through a network of “intermediaries” – people who have experience of both sides of the relationship and are dedicated to making that relationship more dynamic. Such people were referred to as “boundary spanners” in the recent NESTA report,⁷¹ an approach echoed by representatives from Airbus UK,⁷² and already implemented by the North East Wales Institute (NEWI) through its Entrepreneurship Developer.⁷³
82. **We recommend that the links between higher education and the business sector should be improved, and that universities need to tailor their language to be more accessible and engage better with business. In order to overcome the biggest challenge of developing a more lucrative relationship between higher education and small and medium-sized enterprises, especially over the long term, the Welsh Government should consider the establishment of a central brokering or intermediary service.**
83. Finally, it is important that higher education institutions engage with the sector skills councils to help ensure that the experiences and skills of the graduate supply meet the complex and fast-changing requirements of employers; and that the structuring and design of education is sufficiently flexible and sustainable to meet learners’ and employers’ needs.
84. We were heartened to hear from the Higher Education Funding Council for Wales that there is good engagement in Wales with all the sector skills councils, arguably one of the best relationships in the UK on this issue.⁷⁴ This relationship has obviously moved on considerably since we began

⁶⁷ Record of Proceedings column 187, 7 May 2008

⁶⁸ Record of Proceedings column 131, 19 June 2008

⁶⁹ Record of Proceedings column 76, 5 June 2008

⁷⁰ Written evidence from Universities Scotland, 21 May 2008

⁷¹ The Connected University: Driving Recovery and Growth in the UK Economy, NESTA Research Report, April 2009

⁷² Record of Proceedings column 43, 25 April 2008

⁷³ Record of Proceedings column 90, 25 April 2008

⁷⁴ Record of Proceedings column 99, 2 July 2009, Annex C

our inquiry in 2007 when it was obvious that several of the sector skills councils lacked the requisite capacity and structure. A very good example of engagement with higher education institutions is Skillset Cymru's rapid expansion of short-term training places for people entering the broadcasting and media industries. It was argued that with a little more money it would be possible to ramp up very quickly the extent of training that is available, and that the approach is beginning to be adopted more broadly across the whole field although it is easier with some sector skills councils than others. **We recognise the importance of all 25 of the sector skills councils in bringing together employers, colleges and universities in the content and delivery of vocational training courses and we therefore recommend that those sector skills councils that cover a workforce where a high proportion are graduates should develop a dedicated higher education strategy. We also recommend that there should be investment in building the capacity for short-term training places across all the sector skills councils.**

85. We were also told by CBI Wales that Welsh companies would benefit (as they do in England) from being allowed to accredit in-house training which would give existing employees some form of qualification for the amount of work that they have done that could be recognised by employers around the world.⁷⁵

Aspiration and social justice

86. We are aware of initiatives such as "Reaching Wider," which aimed to increase higher education participation from under-represented groups and communities in Wales, and Cardiff University's "Step Up to University Scheme," which encourages relationships between the university and secondary school pupils within Communities First and other disadvantaged neighbourhoods.⁷⁶
87. There is no doubt in our minds, however, that more needs to be done to distribute the economic - and social - prosperity generated by higher education more fairly across Wales. The Minister told us that there was a need also to develop and deliver a more coherent strategy for part-time learners, including greater use by universities of flexible and work-based delivery, ensuring that the Welsh Government's funding mechanisms genuinely facilitate part-time learning provision.⁷⁷ She also thought there was a need to tackle issues surrounding learner engagement and completion by an evaluation of overall measures to raise aspiration, to widen access, and to support student retention and the work on the national bursary framework.
88. We therefore warmly welcome the proposals for the University of Heads of the Valleys, a project led by the University of Glamorgan and the University of Wales, Newport and other partners, now close to inception and due to receive Government financial support for the first time in 2009/10. We believe it will be a step change for widening access to

⁷⁵ Record of Proceedings column 45, 12 December 2007

⁷⁶ Supplementary evidence from Cardiff University, 23 January 2008

⁷⁷ Record of Proceedings column 110, 2 July 2009, Annex C

education and raising the aspirations and skills base of communities in that area, as well as contributing to the local economy.

89. **We recommend that the partners of the proposed University of Heads of the Valleys should build links with local employers to make them part of the deal offered to those people that the new university is aiming to attract so that work placements, job opportunities and training and education that meet local employment needs become real from the outset. We also recommend that the new university take the initiative and build links with local schools and colleges to help develop young people's affinity with the opportunities the institution has to offer.**
90. Indeed, the need for increased collaboration between higher education, further education and schools is a theme that has permeated our whole inquiry, as well as a number of strategies over the last twelve months, e.g. the Transformation Agenda which is setting up Learning Partnerships; the Learning and Skills (Wales) Measure (May 2009) that will lead to local area curricula; and the Apprenticeships, Skills, Children and Learning Bill, which includes powers for further education colleges in Wales to award Foundation Degrees (already possible in England).
91. We were pleased to read from the Minister's written evidence that the Welsh Government is already working on the development of a strategic policy on the delivery of Foundation Degrees. **We believe that Foundation Degrees will be pivotal for raising technical and vocational skill levels, and we recommend they be firmly embedded into the hierarchy of qualifications and, by working closely with the sector skills councils and local business, satisfy the diverse needs of employers and learners.**
92. On our visit to Massachusetts we learned about the National Foundation for Teaching Enterprise, an international organisation operating in 13 countries with a mission to provide entrepreneurship education to young people from low income communities. In this country, we were informed about a range of good work achieved through partnerships between higher education and schools,⁷⁸ and between higher and further education institutions.⁷⁹ We also heard from SkillsActive, one of the sector skills councils, about the register of professional fitness instructors in Wales, which they developed by working with the Welsh Government and the Sports Council for Wales, supported by local authorities. As a result Wales was moved from the position of having the fewest number of qualified people at level 3 (advanced instructors) to being the most qualified area in the UK, achieved through building links with universities and vocational providers, and up-skilling people so that they can work in communities towards a more active Wales.⁸⁰

⁷⁸ Supplementary evidence from North East Wales Institute of Higher Education, April 2008 and from Corus Strip Products UK, May 2008

⁷⁹ Supplementary evidence from Higher Education Wales and from University of Wales Institute, Cardiff (UWIC), February 2008

⁸⁰ Record of Proceedings column 36, 12 June 2008

93. **We recommend that universities and further education colleges should work together productively and collaboratively across Wales to distribute higher education to places where, for geographical reasons, it has not been able to reach before and to supply skilled labour and other resources to local businesses. We look to the Third Mission strategies of individual universities to improve their economic, social and cultural engagement.**

Higher education at the heart of economic policy debate

94. The Welsh Government's new strategy and action plan for higher education, due by the end of 2009, will be the vehicle for driving the sector forward over the coming years. The Minister said in her written evidence that her vision for higher education in Wales is,

"A truly integrated higher education community, in which higher education institutions work with government, other higher education providers and sectors (especially further education) to deliver tangible benefits for Wales, whilst projecting a positive and vibrant image of Wales across the world. I will seek to develop a Manifesto for Change for higher education which delivers this."

95. We want to see higher education move more centre-stage in the Government's forward planning. In his oral evidence to us, Professor Merfyn Jones told us that higher education had not played a sufficient role in the recent economic summits coordinated by the Welsh Government, primarily because the sector had not initially been invited. He could not think of another country where higher education would not have been involved in those kinds of discussions. That situation was eventually rectified and higher education was now playing a vital role in discussions as institutions and as employers.⁸¹
96. We believe it is essential for all partners in team Wales to be well-prepared for major announcements over policy and funding decisions so that Welsh institutions are geared up to respond to and maximise the research and development opportunities that will emerge over the coming months and years. That involves different Welsh Government departments working together as well as involving the higher education sector in drawing up their plans. Professor Jones commented that in England, universities come under the business government department – although the Conservative Party has retained a separate universities department in shadow. In Scotland, universities have left the business portfolio and gone back into education, while in Wales, higher education falls within the Department of Children, Education, Lifelong Learning and Skills.⁸²
97. We do not believe it matters which Welsh Government department has responsibility for higher education, but **we do recommend that there should be closer working and sharing of information across all relevant departments, and a better relationship and communication with higher education stakeholders so that they are apprised of**

⁸¹ Record of Proceedings column 36, 2 July 2009, Annex C

⁸² Record of Proceedings column 44, 2 July 2009, Annex C

Government forward planning on issues where the sector needs to be prepared to respond. A memorandum of understanding or some other protocol might be helpful in formalising this culture of working.

98. **We also recommend that the Welsh Government engage with the new UK Department of Business, Innovation and Skills, and cooperate with the Scottish and Northern Ireland Governments in doing so, to ensure that its work is not too England-oriented but remains focused on higher education throughout the UK.**

99. Talking of focus, we were warned by the Director of engineering company GTW Development of the,

“Fear that we are subjecting ourselves not to a promotion of collaboration with universities in order to move outward, but to a new kind of commercial imperialism where...the capital is offshore, the decisions are made offshore, every executive issue is offshore, and we are welcoming that structure in.”⁸³

We therefore recognise the importance of ensuring indigenous growth.

100. The report by Professor Jones and the task and finish group recommended a National Compact (an “enduring commitment...and a framework for a new working relationship”) between higher education institutions, other providers of higher education, the Higher Education Funding Council for Wales (HEFCW) and the Welsh Government. It is obvious that that relationship will be affected by the governance review of HEFCW, due in September 2009. **We recommend a key element for the suggested National Compact should be improving the strategic and forward planning of the higher education sector generally and specifically its economic impact.**

⁸³ Record of Proceedings column 185, 12 June 2008

Conclusions

101. The small clever countries of the European Union, such as the Scandinavian nations and the Baltic States, have prioritised investment in higher education in the face of escalating economic globalisation. We believe that if Wales is serious about becoming a knowledge-based economy, the Welsh Government should follow a similar route of investment in high-level skills.
102. There are considerable challenges facing the higher education sector, however, if it is to fulfil its potential to make substantial economic, social and cultural contributions to post-devolution Wales. While there may be external forces at work to develop and expand higher education's economic contribution, there also needs to be an internal culture change within those institutions to create an element of commercialisation and value added.
103. Higher education institutions must reach out more to engage with companies of all sizes. In turn, small and medium-sized enterprises must get more involved with other SMEs and larger companies to create a hotbed atmosphere of collaboration. Higher education must collaborate better with further education and sector skills councils and ultimately with schools. Welsh Government must work closely with the new Department for Business, Innovation and Skills in England to explore opportunities for joint strategies and investment. Connection is therefore the key.
104. Yet the trigger for converting good ideas into economic enterprises may lie in more interventionist approaches, which we have sought to outline in our report. Evidence submitted to this inquiry shows that team-based entrepreneurial activity, where academics and business people spark off each other, works.
105. It is important, however, not to take too narrow a view of higher education's "economic" contribution: in Professor Merfyn Jones's words, higher education is "not simply an instrument to make us wealthier".⁸⁴ Neither should there be any blinkers about subject areas. The sciences are hugely important but all subjects have the potential to create wealth. We recognise that higher education needs to offer successful leaders and entrepreneurs generic skills and qualities such as the ability to communicate effectively, and think critically and creatively, in order to be employable and active citizens. University can be a life-transforming experience for many people, so the impact on the individual student should also be at the heart of all this. We remain wedded to the importance of cultivating people's intellectual skills as much as their occupational skills. Universities' contribution to the social and cultural development of Wales is as important as their economic impacts.
106. Regarding a way forward, we see the need for more clearly defined roles, responsibilities and expectations for all parties in reaching an agreed common purpose with the public investment they receive – Professor

⁸⁴ Record of Proceedings column 11, 28 November 2007

Merfyn Jones's proposed partnership or Compact approach should be the mechanism.

107. There should also be a smooth progression in developing entrepreneurial and other transferable skills from the early years of education right through to postgraduate research and employment. People should aspire to acquire higher-level skills throughout their lives.
108. We look to see our recommendations enshrined within the "Manifesto for Change", the Minister's strategy and action plan for higher education, which must address the economic contribution of the higher education sector as the engine room of economic transformation. We shall seek opportunities to check the content of the Manifesto against our own findings.
109. In conclusion, we believe there is now evidence, since we published our Interim Report, of greater drive and leadership at a Ministerial level. Yet there is still evidence of defensive attitudes in some areas of the higher education and business sectors. We believe it will require major commitment and initiative from across Government and the higher education sector if there is to be cultural change on the scale needed to increase the economic contribution of higher education and for Wales to be the small, clever country to which it aspires. The Welsh Government may have been slow in responding to the Gibson Review, but we believe the higher education sector's response has been similarly pedestrian.
110. As the Higher Education Funding Council for Wales has observed, higher education is only one contributor to the economic development of Wales.⁸⁵ There needs to be integration between all the contributors because "linking education, training, research, enterprise and the economy is the only way forward."⁸⁶

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⁸⁵ Supplementary evidence from HEFCW, 10 July 2008

⁸⁶ Written evidence from Coleg Menai, 19 June 2008

Summary of Recommendations

Recommendation 1

We recommend that the Welsh Government's proposed higher education strategy and action plan, due for completion by the end of 2009, should take forward the findings of our report, and that the Minister update us on progress achieved in a follow-up scrutiny session at an agreed future date.

Recommendation 2

We recommend that the Welsh Government should view higher education as an economic development tool and allocate it resources accordingly. We also recommend a culture change in the language used – words such as “investment” in and “return” from funding higher education, as opposed to references to expenditure and costs.

Recommendation 3

We recommend that higher education should be much more closely bound into the strategies and thinking of the Department for the Economy and Transport, as well as the Department for Children, Education, Lifelong Learning and Skills. We also recommend that universities make more effort to exploit alternative sources of income such as their alumni.

Recommendation 4

We recommend that the Welsh Government consider a match funding scheme that would create a financial incentive for universities to develop their Intellectual Property.

Recommendation 5

We recommend that more complex modelling be developed to measure adequately the multiplier impacts of Welsh universities, not just according to a narrow economic agenda.

Recommendation 6

We recommend that higher education institutions should aspire to increase their procurement locally, within European Union procurement rules, in order to maximise and recycle public investment and increase their local impact as consumers and employers.

Recommendation 7

We applaud the achievements of the Graduate Opportunities programme (GO Wales) in linking students with local small and medium-sized enterprises, and we recommend that it continue to be expanded in the future.

Recommendation 8

We recommend that the Welsh Government should at least hold a debate with stakeholders over the relative value and funding implications of encouraging more postgraduate students into Wales, particularly in the context of attracting European Union funding for this area.

Recommendation 9

We recommend the research potential of higher education in Wales should be fulfilled through increased and sustained collaborations between higher education institutions so that smaller operations can combine forces in competing in a bigger league, as opposed to competing amongst themselves. We also recommend that higher education institutions should adopt a more strategic approach to research management, including focusing more cleverly on research council priorities and those that the Welsh Government has outlined to them. We recommend that there should be a focus on those research departments that are achieving excellence on a national or international scale and that the Welsh Government should commission more research from higher education institutions.

Recommendation 10

We recommend that the Welsh Government consider an innovation vouchers scheme that would enable businesses to access expertise at a participating university and work together, such as generating innovation for a particular product.

Recommendation 11

We recommend that Welsh universities give their academics greater autonomy and liberalisation of the rules governing their consultancy activities.

Recommendation 12

We recommend that the Welsh Government promote the opportunities offered by Knowledge Transfer Partnerships and the Academic Expertise for Business (A4B) scheme to increase awareness among the business sector.

Recommendation 13

We recommend that the Welsh Government and higher education consider replicating or tailoring the model of Biofusion to enable academics from Welsh institutions to work with commercial teams in turning blue-sky research into world-class businesses. We also recommend that universities should develop closer relationships with people that have benefited from successful spin-out companies to bring income back into their organisations.

Recommendation 14

We recommend that the Welsh Government continue to make progress in implementing the recommendations of the Gibson Report, in particular

encouraging higher education institutions to invest in partnerships or panels where knowledge and Intellectual Property are combined with entrepreneurial expertise and networks of support from people who have empathy with the commercialisation process and access to capital.

Recommendation 15

We recommend that entrepreneurship needs to be embedded more effectively both in the higher education curriculum and within the professional development of research staff: programmes should be established so that Masters and PhD graduates and research staff receive training on commercialisation and on handling relationships with business.

Recommendation 16

We recommend the establishment of more enterprise agencies with a policy concentration on achieving real businesses that survive and prosper in the long term.

Recommendation 17

We recommend that higher education needs to change its approach to Intellectual Property towards releasing it for commercial development as soon as possible.

Recommendation 18

We recommend that the Welsh Government commission a review of the effectiveness of Techniums and reconsider their role in establishing the “missing link” between higher education and small and medium-sized enterprises.

Recommendation 19

We recommend that the Welsh Government should look at the science park approach to sustaining local and national economies, including some thought as to whether local and national government has the flexibility and capacity to respond to such developments.

Recommendation 20

We recommend that Welsh institutions, including student unions, join up in the development of a strategy for involving students in entrepreneurial activity and transferable skills throughout the continuum of their education, from primary school through college and into higher education, and throughout the whole of the curriculum.

Recommendation 21

We recommend that the Welsh Government consider involving the top ten corporations in Wales in a mentoring scheme for new graduates where the award for the top students would be their own company.

Recommendation 22

We recommend that the Welsh Government consider developing a similar scheme to Scotland's Enterprise Fellowships to encourage entrepreneurial initiative and business development by individuals.

Recommendation 23

We recommend that higher education should collaborate with Careers Wales, schools and employers on encouraging more science, technology, engineering and mathematics students.

Recommendation 24

We recommend that university departments consider the win-win situation of making their laboratory and other research facilities available to external clients, including small and medium-sized enterprises.

Recommendation 25

We recommend that the links between higher education and the business sector should be improved, and that universities need to tailor their language to be more accessible and engage better with business. In order to overcome the biggest challenge of developing a more lucrative relationship between higher education and small and medium-sized enterprises, especially over the long term, the Welsh Government should consider the establishment of a central brokering or intermediary service.

Recommendation 26

We recognise the importance of all 25 of the sector skills councils in bringing together employers, colleges and universities in the content and delivery of vocational training courses and we therefore recommend that those sector skills councils that cover a workforce where a high proportion are graduates should develop a dedicated higher education strategy. We also recommend that there should be investment in building the capacity for short-term training places across all the sector skills councils.

Recommendation 27

We recommend that the partners of the proposed University of Heads of the Valleys should build links with local employers to make them part of the deal offered to those people that the new university is aiming to attract so that work placements, job opportunities and training and education that meet local employment needs become real from the outset. We also recommend that the new university take the initiative and build links with local schools and colleges to help develop young people's affinity with the opportunities the institution has to offer.

Recommendation 28

We believe that Foundation Degrees will be pivotal for raising technical and vocational skill levels, and we recommend they be firmly embedded into the

hierarchy of qualifications and, by working closely with the sector skills councils and local business, satisfy the diverse needs of employers and learners.

Recommendation 29

We recommend that universities and further education colleges should work together productively and collaboratively across Wales to distribute higher education to places where, for geographical reasons, it has not been able to reach before and to supply skilled labour and other resources to local businesses. We look to the Third Mission strategies of individual universities to improve their economic, social and cultural engagement.

Recommendation 30

We recommend that there should be closer working and sharing of information across all relevant departments, and a better relationship and communication with higher education stakeholders so that they are apprised of Government forward planning on issues where the sector needs to be prepared to respond. A memorandum of understanding or some other protocol might be helpful in formalising this culture of working.

Recommendation 31

We recommend that the Welsh Government engage with the new UK Department of Business, Innovation and Skills, and cooperate with the Scottish and Northern Ireland Governments in doing so, to ensure that its work is not too England-oriented but remains focused on higher education throughout the UK.

Recommendation 32

We recommend a key element for the suggested National Compact should be improving the strategic and forward planning of the higher education sector generally and specifically its economic impact.

Annex A – Terms of Reference for the Inquiry

- The success of higher education institutions in accessing funding from a range of sources, including the use of European Structural Funds
- The extent to which entrepreneurial education has been embedded in Welsh higher education institutions; how its success is evaluated and what the levels and types of graduate start-up are across Wales
- The contribution that higher education institutions can make to the skills agenda and the collaboration with employers' organisations, Sector Skills Councils and trade unions, and whether they are meeting the needs of businesses
- The scope for collaboration with the further education sector following the Leitch and Webb reviews
- The drive towards mergers and collaboration between higher education institutions
- The wider contributions of universities to their localities, including community work, cultural contributions, student and graduate retention, mobility and markets and improving access and participation.

Annex B – Written evidence submitted since Interim Report published

Higher Education Wales

www.assemblywales.org/bus-home/bus-committees/bus-committees-third1/bus-committees-third-els-home/bus-committees-third-els-agendas.htm?act=dis&id=134498&ds=7/2009

Welsh Assembly Government

www.assemblywales.org/bus-home/bus-committees/bus-committees-third1/bus-committees-third-els-home/bus-committees-third-els-agendas.htm?act=dis&id=134607&ds=7/2009

Annex C – Transcript of evidence session on 2 July 2009

www.assemblywales.org/bus-home/bus-committees/bus-committees-third1/bus-committees-third-els-home/bus-committees-third-els-agendas.htm?act=dis&id=136295&ds=7/2009

Annex D – Reports of visits

University of York

www.assemblywales.org/york_visit_note.pdf

Massachusetts, USA

http://www.assemblywales.org/massachusetts_visit_note.pdf

Annex E – Written evidence to Committee and transcripts of meetings

EL(3) 12-07 : 28 November 2007

EL(3) 12-07(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Higher Education Wales submission](#)

EL(3) 12-07(p2): [Terms of Reference for the Committee inquiry into the economic contribution of higher education](#)

EL(3) 12-07 : [Transcript](#)

EL(3) 13-07 : 5 December 2007

EL(3) 13-07(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Higher Education Funding Council for Wales submission](#)

EL(3) 13-07 : [Transcript](#)

EL(3) 14-07 : 12 December 2007

EL(3) 14-07(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – CBI Wales submission](#)

EL(3) 14-07(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – FSB submission](#)

EL(3) 14-07 : [Transcript](#)

EL(3) 02-08 : 23 January 2008

EL(3) 02-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Cardiff University submission](#)

EL(3) 02-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – Cardiff University \(Prof Dylan Jones-Evans\) submission](#)

EL(3) 02-08 : [Transcript](#)

EL(3) 03-08 : 30 January 2008

EL(3) 03-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Swansea University submission - Annex](#)

EL(3) 03-08 : [Transcript](#)

EL(3) 04-08 : 6 February 2008

EL(3) 04-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Aberystwyth University submission](#)

EL(3) 04-08 : [Transcript](#)

EL(3) 05-08 : 20 February 2008

EL(3) 05-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – University of Wales Institute Cardiff submission](#)

EL(3) 05-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – University of Wales, Newport submission](#)

EL(3) 05-08 : [Transcript](#)

EL(3) 07-08 : 5 March 2008

EL(3) 07-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – National Union of Students submission](#)

EL(3) 07-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – The Open University Wales submission](#)

EL(3) 07-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education – Trinity College, Carmarthen submission](#)

EL(3) 07-08(p4): [Evidence to the Committee inquiry into the economic contribution of higher education – University of Wales, Lampeter submission](#)

EL(3) 07-08 : [Transcript](#)

EL(3) 09-08 : 9 April 2008

EL(3) 09-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Gibson Review – Commercialisation in Wales – Report by task and finish group](#)

EL(3) 09-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – Institution of Civil Engineers in Wales submission - Annex](#)

EL(3) 09-08 : [Transcript](#)

EL(3) 10-08 : 16 April 2008

EL(3) 10-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – Minister for Children, Lifelong Learning and Skills and Minister for Economy](#)

EL(3) 10-08 : [Transcript](#)

EL(3) 11-08 : 25 April 2008

EL(3) 11-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – North East Wales Institute of Higher Education submission](#)

EL(3) 11-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – Fforwm submission](#)

EL(3) 11-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education – Deeside College submission](#)

EL(3) 11-08(p4): [Evidence to the Committee inquiry into the economic contribution of higher education – Llandrillo College submission](#)

EL(3) 11-08 : [Transcript](#)

EL(3) 12-08 : 30 April 2008

EL(3) 12-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education - Written evidence to the Committee inquiry into the economic contribution of higher education from SkillsActive Sector Skills Council submission](#)

EL(3) 12-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education - The Chartered Institute of Marketing in Wales submission](#)

EL(3) 12-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education - Written evidence to the Committee inquiry into the economic contribution of higher education from Skillset Sector Skills Council submission](#)

EL(3) 12-08(p4): [Evidence to the Committee inquiry into the economic contribution of higher education - Written evidence to the Committee inquiry into the economic contribution of higher education from ConstructionSkills Sector Skills Council submission](#)

EL(3) 12-08 : [Transcript](#)

EL(3) 13-08 : 7 May 2008

EL(3) 13-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Corus Group submission](#)

EL(3) 13-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education - Biofusion submission](#)

EL(3) 13-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education – Technology Alliance Wales submission](#)

EL(3) 13-08(p4): [Evidence to the Committee inquiry into the economic contribution of higher education – National Federation of Builders submission](#)

EL(3) 13-08 : [Transcript](#)

EL(3) 14-08 : 14 May 2008

EL(3) 14-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Merthyr Tydfil College submission](#)

EL(3) 14-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – University of Glamorgan submission](#)

EL(3) 14-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education – Education Business Partnership submission](#)

EL(3) 14-08 : [Transcript](#)

EL(3) 15-08 : 21 May 2008

EL(3) 15-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Universities Scotland \(Video Conference Session\)](#)

EL(3) 15-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – Royal Society of Chemistry submission - Annex](#)

EL(3) 15-08 : [Transcript](#)

EL(3) 16-08 : 5 June 2008

EL(3) 16-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Finance Wales submission](#)

EL(3) 16-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – School of Medicine, Cardiff University submission - Annex](#)

EL(3) 16-08 : [Transcript](#)

EL(3) 17-08 : 12 June 2008

EL(3) 17-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Summary of written evidence from SSCs](#)

EL(3) 17-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education - Skillsactive submission](#)

EL(3) 17-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education - Semta submission](#)

EL(3) 17-08(p4): [Evidence to the Committee inquiry into the economic contribution of higher education – Proskill submission](#)

EL(3) 17-08(p5): [Evidence to the Committee inquiry into the economic contribution of higher education – Asset Skills submission](#)

EL(3) 17-08(p6): [Evidence to the Committee inquiry into the economic contribution of higher education – Go Skills submission](#)

EL(3) 17-08(p7): [Evidence to the Committee inquiry into the economic contribution of higher education – EU Skills submission](#)

EL(3) 17-08(p8): [Evidence to the Committee inquiry into the economic contribution of higher education – IMI Automotive submission](#)

EL(3) 17-08(p9): [Evidence to the Committee inquiry into the economic contribution of higher education – Skillset submission](#)

EL(3) 17-08(p10): [Evidence to the Committee inquiry into the economic contribution of higher education – Skills for Health submission](#)

EL(3) 17-08(p11): [Evidence to the Committee inquiry into the economic contribution of higher education – Skills for Justice submission](#)

EL(3) 17-08(p12): [Evidence to the Committee inquiry into the economic contribution of higher education – Skills for Care and Development submission](#)

- EL(3) 17-08(p13): [Evidence to the Committee inquiry into the economic contribution of higher education – Government Skills submission](#)
- EL(3) 17-08(p14): [Evidence to the Committee inquiry into the economic contribution of higher education – GTW Developments submission](#)
- EL(3) 17-08(p15): [Evidence to the Committee inquiry into the economic contribution of higher education – Park Place Research Limited submission](#)
- EL(3) 17-08(p16): [Evidence to the Committee inquiry into the economic contribution of higher education – People 1st submission](#)
- EL(3) 17-08(p17): [Evidence to the Committee inquiry into the economic contribution of higher education – Construction Skills submission](#)
- EL(3) 17-08(p18): [Evidence to the Committee inquiry into the economic contribution of higher education – Creative and Cultural Skills submission](#)
- EL(3) 17-08(p19): [Evidence to the Committee inquiry into the economic contribution of higher education – E-Skills submission](#)
- EL(3) 17-08(p20): [Evidence to the Committee inquiry into the economic contribution of higher education – Financial Services submission](#)
- EL(3) 17-08(p21): [Evidence to the Committee inquiry into the economic contribution of higher education – Improve Limited submission](#)
- EL(3) 17-08(p22): [Evidence to the Committee inquiry into the economic contribution of higher education – Lifelong Learning UK submission](#)
- EL(3) 17-08(p23): [Evidence to the Committee inquiry into the economic contribution of higher education – Skills for Logistics submission](#)
- EL(3) 17-08(p24): [Evidence to the Committee inquiry into the economic contribution of higher education – Skillsfast UK submission](#)
- EL(3) 17-08(p25): [Evidence to the Committee inquiry into the economic contribution of higher education – Skillsmart Retail submission](#)
- EL(3) 17-08(p26): [Evidence to the Committee inquiry into the economic contribution of higher education – Summit submission](#)
- EL(3) 17-08 : [Transcript](#)

EL(3) 18-08 : 19 June 2008

- EL(3) 18-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education – Bangor University submission](#)
- EL(3) 18-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education – Coleg Menai submission](#)
- EL(3) 18-08(p3): [Evidence to the Committee inquiry into the economic contribution of higher education – RSPB Cymru submission](#)
- EL(3) 18-08(p5): [Evidence to the Committee inquiry into the economic contribution of higher education – Broadband Access in Wales – Ofcom Cymru submission](#)
- EL(3) 18-08 : [Transcript](#)

EL(3) 20-08 : 10 July 2008

EL(3) 20-08(p1): [Evidence to the Committee inquiry into the economic contribution of higher education - HEFCW submission](#)

EL(3) 20-08(p2): [Evidence to the Committee inquiry into the economic contribution of higher education - Higher Education Wales submission](#)

EL(3) 20-08 : [Transcript](#)