

# Enterprise and Learning Committee

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## Commercialisation in Wales; Evidence Submitted by the Independent Task and Finish Group to the Enterprise and Learning Committee Enquiry into the Economic Contribution of Higher Education.

### Introduction.

1. The Independent Task and Finish Group (the Group) was asked in Autumn 2006 by Andrew Davies AM, then Minister for Innovation, Enterprise and Networks, to conduct an independent assessment of publicly funded commercialisation activities in Wales. The terms of reference can be found in Appendix.1.

### The Group.

2. The Group consisted of four people. Collectively it contains unparalleled experience of identifying and developing intellectual property for the purpose of building and realising value to the benefit of shareholders, employees and the Welsh economy.

3. Its Chairman was Simon Gibson, the Chief Executive of Wesley Clover. Wesley Clover is a privately held investment group chaired by Sir Terry Matthews with extensive interests in networking, software and telecommunications companies in Europe and North America. Immediately prior to taking up this position he was co-founder of Ubiquity Software Corporation. Simon is a former Board member of the Welsh Development Agency and is a Non-Executive Director of a number of Welsh quoted companies.

4. Professor Board was the Head of Electrical Engineering at Swansea University for seven years and held the WDA-sponsored chair of Entrepreneurship there, being an original instigator of the Technium programme in 1999. He founded the University's subsidiary, UWS Ventures and was the co-founder of 2 spin-out companies, Rockfield Software in 1985 and Enfis plc in 2001. The latter was floated on the AIM market in 2007. His current Emeritus status enables him to pursue his interest in identifying and nurturing future entrepreneurs from within the FE and HE student body in Wales and matching them with commercialisable IP at the University.

5. Mark Barry is the co-founder and Chief Executive Officer of Q Chip, a Cardiff based life science Company that has adapted innovations created by academic staff at Cardiff University. After four years of operation and having raised over £3.5M in equity finance Q Chip has established the basis for a range of new high value products in the field of drug delivery and point of care molecular diagnostics. Before founding Q Chip Mark spent a year with the Welsh Development Agency charged with responsibility to promote collaboration between higher education in Wales and the business community. Prior to his brief period with the WDA, Mark spent 18 years working in the private sector across a range of industries including IT, Energy and Finance. This included five years with the PA Consulting group where he led programmes for a number of blue chip organisations in both Europe and North America.

6. Ian Courtney is the Chief Executive Officer of TM Communications and Media Ltd. TM is a marketing consultancy supplying its services to technology based entities. TM has supported a number of Welsh businesses that have listed on publicly traded markets. Prior to establishing TM he was Director of Communications for Ubiquity Software Corporation.

7. The experience of Ubiquity is instructive. This successful Welsh company is now owned by Avaya, a trans-national Fortune 500 telecoms company. Ubiquity's success owes much to its ability to exploit innovations created at Columbia University, New York. It received the British Venture Capital Association's Innovator of the year Award in 2001. It is the only Welsh company to have received this accolade.

### Background to the Work of the Group.

8. The Committee is considering the relationship between business and higher education and its impact on local and regional economies. As part of its enquiry it is seeking views on entrepreneurial education, start-ups and higher education's progress in meeting the needs of business. These lines of enquiry cover topics the Group was asked to review.

9. Considerable energy has been invested by the Lambert Review (2003), the Welsh Assembly Government's Nexus Task and Finish Group (2004) and the development of its science policy into aspects of the relationship between higher education and the functioning of the economy.

10. We chose not to cover this ground again. We felt the most productive use of time was to review the processes by which intellectual property, inventions and innovations created within higher education, are developed to form wealth, employment and value. We believe this is one of the most urgent tasks on the Welsh economic development agenda.

11. Specifically the Group was asked to;

assess the impact of existing publicly funded Welsh commercialisation activities;

if appropriate, to recommend measures to improve their performance;

consider where appropriate recommendations for new measures to enhance the contribution of commercialisation activities to economic performance in Wales.

### **Knowledge and Higher Education as Economic Assets.**

12. The Group believes the emergence of China and India as major economic powers constitutes an industrial challenge the like of which will not have been faced by the current generation of industrial leaders and policy makers. This factor alone provided an important context for the work of the Review. We believe there is an irresistible tide of change that is gathering pace. Wales, along with other industrial economies, must learn to live with and adapt to these changes.

13. It is increasingly apparent that 'Knowledge' is an important asset providing the basis for a robust economic development trajectory. We believe the value of what has been labelled the 'Knowledge Economy' will grow. One of the most important sources of Welsh knowledge is its higher education institutions.

14. We were particularly conscious of the inspiration policy makers draw from the relationship between higher education and industry in North America. We drew attention to the role of California's Stanford University in helping to create the conditions for the existence of world class technology companies such as Intel, Sun, Cisco, Yahoo and Google located in Silicon Valley. Reference was also made to Massachusetts Institute of Technology, which has a long record of developing collaborative relationships with industry.

15. The Group referred to these examples for a number of reasons. Firstly by making the distinction between Stanford's status as a private institution and the largely publicly funded position of Welsh higher education we wished to draw attention to different financial incentives and governance structures. These variations in cultural conditions were important factors in emphasising the point that it was inappropriate to import an unrefined Stanford style model to Wales, even if it was practicable. Secondly in spite of the fact that MIT's technology transfer office had been in existence for nearly seventy years we mentioned the existence of independent research (From Science to Growth". The Hughes Hall, Cambridge University, 2006 City Lecture given by Stephen Allott, City Fellow, Hughes Hall, 6 March 2006) which strongly suggests that after making a prudent allowance for expenses both MIT and the vast majority of US universities lose money on technology transfer operations. It seemed to us this should have an important influence on policy expectations. Namely successful commercialisation takes a long time and requires substantial investment. Another equally important lesson from North America is that commercialisation activity works best when it involves an intense relationship between academics and successful business men and women capable of providing access to high quality human and finance capital.

### **Welsh Commercialisation Activity.**

16. The Group conducted a significant interview programme with civil servants, higher educationalists, investment managers and the Welsh business community. Almost without exception participants endorsed the importance of commercialisation to the economy and WAG policy objectives. There were mixed views about the success with which it was being conducted not just in Wales but across the United Kingdom. Representatives of business and investment managers consistently made the point that higher education was not appropriately staffed for the task a view also held in many instances by higher educationalists.

17. To help assess the impact of commercialisation activity in Wales we collected performance and other data for eleven Welsh Assembly Government funded programmes with objectives connected to commercialisation. In 2005/06 Assembly expenditure on commercialisation related programmes, in part funded by European Union Structural Funding, was a little over £6.0 million. Further analysis of un-audited data conducted by officials suggests that Grant in Aid expenditure in 2006/07 by the Knowledge Exploitation Fund, the main vehicle by which the Assembly supports commercialisation in both further and higher education, was £9.7 million. The proportion of this spending allocated to commercialisation is unclear as the Assembly Department records and reports data on a programme rather than activity basis. It is not clear whether either of these figures include staff employment costs. In addition we made our own estimate of funding associated with the Technium Programme, a large proportion of which relates to capital expenditure. The estimate indicates funds applied to it since its inception in 1999 through to March 2007 were a little over £85.0 million.

18. The Review sought data for the number of public employees involved in commercialisation programmes. We were initially informed that an internal Assembly exercise identified 249 individual knowledge transfer professionals with possibly a further 50 with a similar role in NHS trusts. Subsequently officials conducted further analysis of the data. This analysis indicated the figure comprised 60 staff employed in further education, 139 in higher education including members of industrial liaison offices and staff at CETICS, 33 Assembly Government staff and 17 from industry and other organisations. From our own deliberations and interviews we believe, alongside many people interviewed, as a group they do not possess sufficient experience of commercialisation and developing businesses with a high growth potential.

19. To obtain information on the value created by commercialisation activities HEFCW circulated a return to all higher education institutions. The vast majority of the returns were incomplete and therefore the exercise failed to provide a clear picture.

20. We believe the objectives of many individual commercialisation programmes are admirable insofar as they are intended to improve the competitiveness of Welsh firms and economic performance by increasing the level of innovative activity. We do not doubt that many of them have had beneficial consequences. We were not though persuaded they will bring about a fundamental shift in the long term consequences for the creation and realisation of commercial value. The Group's opinion was the current approach contains systemic weaknesses and accordingly we recommended a number of remedies.

### **Recommendations from the Review.**

21. The Group offered recommendations it felt would improve commercialisation performance. These include a number of internal WAG measures relating to management, strategy and resources; an action to be taken by HEFCW to monitor and report on value created within higher education; and a series of actions to intensify the relationship between higher education and seasoned business men and women with experience in the successful development of start-ups. Finally based on the experience of a member of the Group, Professor Board, we suggested the introduction of an intensive programme of graduate entrepreneurship education.

22. The ten individual recommendations were;

The Assembly Government should prepare a Commercialisation Strategy that provides a clear framework for public policy design for all Welsh publicly funded agencies with an interest in the topic.

The Strategy needs to contain a realistic set of expectations of what is achievable and define relevant publicly funded actions.

In parallel with the preparation of the Commercialisation Strategy the Assembly Government should conduct an exercise to refocus existing resources to ensure effective implementation of the Strategy.

As part of its periodic monitoring of university third mission activities HEFCW should consider seeking information on the value of intellectual property created within Welsh higher education.

Advisory panels of internationally experienced business men and women should be set up to intensify the links between academics and business. The panels would help identify prospects for the creation of intellectual property by conducting scouting exercises. They would also advise on the route to commercialisation. Panels should be supported financially by the Assembly Government.

Depending on the higher education institution panels might be set up at individual faculties, departments or schools. We believe advisory panels are appropriate for establishments with an identifiable potential to create intellectual property with commercial relevance.

In parallel with investment in intellectual property advisory panels should also be encouraged to invest in talented individuals or teams of individuals.

The work of university alumni programmes should be tied into the composition of advisory panels. Former students who have achieved successful careers in business provide an immediate and obvious source of talent.

To balance the work of advisory panels the Assembly Government should commission the preparation of an Innovation Toolkit. The Toolkit would create a structured approach to commercialisation by establishing a number of tests and tasks to ensure a smooth and effective commercialisation process.

There should be a substantial campaign to offer intensive and relevant educational courses on the rudiments of commercialisation and business building aimed at students from relevant disciplines.

23. In concluding this written evidence the Group believes it would be helpful to repeat a passage from its Report, "we would like to underline our belief the relationship between the Welsh economy and its higher education institutions will be enduring and grow in importance. For the nation's citizens to benefit from this relationship it needs to be properly managed and resourced."

## **Appendix.1 – Terms Of Reference For Independent Review Of Commercialisation.**

### **Background.**

The belief that Wales' future economic prosperity is closely linked to its ability to participate successfully in what has been labelled the "Knowledge Economy" has been well documented. The role and performance of Welsh higher education institutions, both in their teaching and research capacities, is regarded as pivotal in influencing the ability of Welsh companies to compete effectively in the Knowledge Economy. It is no co-incidence that some of the most vibrant regional and local economies are also home to some of the world's leading universities, providing evidence of the strong relationship between economic growth and higher education. At the United Kingdom level this relationship has been the subject of an extensive review conducted by Richard Lambert (Lambert Review of Business-University Collaboration, Treasury 2003). In Wales the Report of the Welsh Assembly Government's Higher Education and Economic Development Task and Finish Group (March 2004) explored similar issues as part of its exercise.

The Task and Finish Group identified evidence (page 9, paragraph 2.4) from the third annual UK Higher Education Business Interaction Survey to suggest an increasing contribution from Welsh higher education to economic performance. Whilst the statistics quoted must be welcomed as an indication of an increased level of interaction between higher education and business they do not alone provide compelling evidence of any lasting beneficial impact. Nonetheless it can probably be concluded that this increased level of activity reflects the introduction by the Welsh Assembly Government and its agents of a variety of programmes intended to sharpen the contribution of higher education to economic performance. Included amongst these programmes are the Knowledge Exploitation Fund, the Technium Programme, Centres of Excellence for Technology and Industrial Collaboration and the Finance Wales administered Wales Spinout Programme.

### **Review Priorities.**

The purpose of this Review is not to repeat the exercise conducted by the Task and Finish Group. As part of its report the Task and Finish group acknowledged the importance of "ensuring commercialisation from higher education institutions is maximised." This

underlined the significance attached by economic policy makers to what has been called higher education's 'third mission'. The Review will build on the work of the Task and Finish Group in this area by focussing on the impact to date and future potential of publicly funded commercialisation activities. For the purposes of the Review commercialisation involves the activities by which new inventions and innovations created within higher education are marketised to form value. The Review will;

Assess the impact and performance of all areas of publicly funded commercialisation activities taking place in Wales. This will incorporate an assessment of all programmes intended to support the commercialisation process, their cost and other aspects of resource allocation and the realisable value created by individual projects with which they have been involved;

Consider and where appropriate make recommendations regarding the sustainability of existing commercialisation programmes and any measures felt necessary to improve their performance;

Consider and where appropriate make recommendations regarding the introduction of new measures which it is felt necessary to enhance the overall contribution of commercialisation activities to Welsh economic performance over the short, medium and long terms.

### **Outputs and Timetable.**

The Review will produce its findings in the form of a report. It is anticipated the first draft of the Report will be available by the end of the year. The Review will have the ability to request the preparation of background information on topics of relevance to its enquiry.

### **Members of the Review.**

The Review will be conducted by;

Simon Gibson, Chief Executive Officer, Wesley Clover Corporation.

Professor Ken Board, Chairman UWS Ventures, Founder Enfis Ltd.

Mark Barry, Chief Executive Officer, Q-Chip.

Ian Courtney, Chief Executive Officer, TM Communications and Media Ltd.

Supported by:

James Price, Director of Strategy, Department of Enterprise, Innovation and Networks, Welsh Assembly Government.