

HIGHER EDUCATION REVIEW

REPORT ON THE

COMMERCIALISATION SEMINAR

PRIORITIES FOR ACTION OVER THE NEXT TWO YEARS

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MARRIOTT HOTEL, GLASGOW

PURPOSE OF THE SEMINAR

1. The seminar was arranged in order to help inform the Scottish Executive's current Higher Education review about actions that will help to stimulate commercialisation activity in the HE sector over the next two years. The seminar provided an opportunity for leading players in education, business and public sector support organisations with an interest in commercialisation to discuss and inform the way forward. The seminar was aimed at producing a short list of priority actions that participants recommended to be the most productive way forward for the various bodies/sectors concerned.
2. The seminar drew upon earlier discussions and reports, in particular:
 - 2.1 the report of the SHEFC/SEn joint task group on Research and Knowledge Transfer (March 2002)
 - 2.2 The HE review second consultation paper "Shaping our Future" (April 2002) which proposes a series of actions that might be taken in this area
 - 2.3 In addition, participants had received a paper from Ian Ritchie on this, giving his personal views.

INTRODUCTORY SESSION

1. **Lucy Hunter**, chairing the seminar, stressed the importance of this topic to the Executive. She asked participants to focus on the key actions that could be taken over the next 2 years by the 3 main sectors – higher education; government and its agencies; and the business sector – to accelerate commercialisation activity. The main objective for the Executive was to try to make sense of the wealth of commentary that already existed on this topic, in order to help compile its report on its review of Higher Education due in the autumn. She welcomed Lynne Cadenhead and Chris Masters who had agreed to set the scene for the syndicate discussions by giving the business and higher education perspectives on this topic.

Lynne Cadenhead – the business perspective

2. Lynne outlined the barriers and issues which were commonly experienced in commercialising research. There was often a large expectation gap between the academic sector and investors, with HEIs often over-valuing their IP and the readiness of this to attract investors. While progress had been made there was still considerable scope for accelerating commercialisation activity. Improvements could be made in increasing incentives for the HEIs in the metrics used to fund research; the plans for Intermediary Technology Institutes, would help bridge the gap; venture capital funds (the “fund of funds”) were being increased; improvements were needed in the status of academics engaged in commercialisation; improvements were needed in educating academics in investor needs; and greater involvement of investors at an early stage was needed.

Chris Masters – the higher education perspective

3. Chris said there was a need for Scotland gear up its economic performance, and this could come about partly through increased commercialisation activity. However, culturally there was a difficulty, because this was seen as high risk. He mentioned several developments that would help to encourage greater commercialisation – SHEFC’s work with SEN had resulted in much greater exchange of information and formation of a joint action plan helping to reduce duplication of effort; the Executive’s policy was to encourage development of an environment conducive to entrepreneurship; and SHEFC now had a Director of Research policy to support knowledge transfer. However, barriers existed at both the individual and institutional levels, and there were tensions between the HEI’s traditional goals of teaching and research and in commercialisation. Certainly, commercialisation was important, but HEIs had many other priorities. And the emphasis so far maybe had been too much on science and technology: he stressed the importance of the creative arts in generating economic wealth. Progress had been made but we should not expect rapid change in this area – there was no quick fix.

SYNDICATE ACTIVITY

4. The seminar split into 3 syndicates (see Annex 1 for participants) to consider action points for that sector in accelerating commercialisation; the syndicates were arranged so that most of those in each syndicate were from the sector concerned. The sections below give the action points agreed by the syndicate for report back to the plenary session, with some commentary explaining how these were arrived at. Comments at the plenary session, at

which the whole those from the other sectors had a chance to review the output of the syndicates, have been added separately.

Higher Education Sector Syndicate

5. Action points agreed:

- **Building capacity in the system to absorb additional funding to deliver tangible outcomes in the medium term: including addressing incentive and reward systems**

5.1 In order to enhance the rate of economic development by increasing the commercialisation activity of HEIs, the commitment of those institutions was needed. The core business of HEIs was teaching and research, and there would need to be a recognition of the importance of knowledge transfer and commercialisation by management in order to change this underpinning philosophy. Additional new funding would be required.

5.2 Knowledge transfer and commercialisation activities did not fit within the core business of most academics and there was a lack of appropriate skills and management in HEIs to drive this agenda forward. Whilst most institutions now had 'commercialisation offices/managers' there was an opportunity for collaboration between universities in order to maximise the effectiveness of their limited resources, where institutions developed specialist expertise in certain areas as a pooled resource, rather than duplicating generic services in each institution.

5.3 It was recognised that some academics did not want to be involved in business, and in the past years there has been increased pressure on staff time and it was a concern if additional duties were added to existing workloads. There was an opportunity for HEIs to consider what changes could be made to HR practices in order to facilitate, incentivise and reward knowledge transfer and commercialisation activities: (mechanism to identify & cost staff time for knowledge transfer/commercialisation activities; promotion; sabbatical; cover of duties, etc).

Plenary session commentary

5.4 It was noted that there were often difficulties in carrying out core activities in HEIs when academics left the institution to carry out commercialisation activity. At present, commercialisation was not a main stream priority for HEIs - but if it became so, then the pressures on institutions would become very great. The infrastructure and systems needed to be developed to offset this, which required core funding in addition to funding for commercialisation per se. There was also a call for a cultural shift in HEI management to recognise the importance of this activity and to support it properly - this would require additional funds.

- **Developing relationships further with the business community including SME's**

5.5 There was a discontinuity of university and business interests and motivations. Universities' behaviour was most heavily influenced by the drive to optimise funding, and each partner in commercialisation was looking to maximise their return – venture capitalists, universities, individual researchers. There was a belief that venture

capitalists generally sought simple bipolar arrangements, but these were generally not possible, as discussions regarding commercialisation were complex and between at least three parties. It was believed that there was a need for some streamlining of processes and that dialogue was required between parties to clarify positions and identify possible frameworks/models (including clarification of the role of the ‘intermediate institutes’ and the HE and business sectors should be formally engaged in these discussions).

Plenary session commentary

5.6 Graduates had a great deal to offer the business community, but they lacked knowledge of the business landscape. Business and commerce should be more involved with universities and students, to gain a better understanding of the other.

- **Developing entrepreneurial activity in students – especially postgraduates**

5.7 The role of students, undergraduate, but specifically postgraduates, and alumni in the promotion of the entrepreneurial spirit/skills and business knowledge should not be overlooked. The increased ability of graduates to start up companies would have a huge impact on the economy – more so than institutional knowledge transfer/commercialisation. The Scottish Institute of Enterprise was promoting the exposure of students to entrepreneurship skills and the enthusiasm of the students, and staff, involved in these classes was a positive indication of the possibilities that could be developed.

Plenary session commentary

5.8 It was noted that in most communities, “natural” entrepreneurs were rare and therefore we needed to train students and graduates to be “business aware” in order to increase the number going into the business/investor community. There was a need to create a supportive culture more widely in society to help graduates wishing to start up businesses, and to see Scotland as a place to put in their energies.

Business/Venture Capitalist Sector syndicate

6. Action points agreed:

Venture Capitalists

- **CONNECT Scotland to scope establishing a Venture Capitalist educational programme, to take forward in a task group with SEn/VC’s/HEI’s**

6.1 The group considered that business could do more to get involved in secondments from universities, in particular into business angel or venture capital companies, to get experience of the detail needed to make a venture capital decision.

6.2 There was no lack of desire to set up new companies or invest in new companies but there was a lack of opportunity. A survey of 400 business angels showed they were happy to invest more but there was a lack of business-ready

investments. The problem was a bottleneck in the process due to the lack of gatekeepers, all of which need experience and intuition.

6.3 The costs of drawing up commercialisation agreements are a problem - in the USA they have standard contracts/deed which reduces cost and universities here should look at this approach. However, there remained a need to increase the understanding on both sides of the others' perspectives, in order to help the process move more quickly.

6.4 The VC community are mainly lawyers or accountants with little technical background. A course for VCs is needed to address this issue, to help grow the number who can evaluate the opportunities that academics present.

Plenary session commentary

6.5 The need for increased dialogue between VCs and HEIs was noted, and the difficulties in engaging the VCs in this. HEI's objectives can be very complex, and so each agreement on commercialisation differs. There was a lack of expertise by the private sector in Scotland's research base, but the lead on this should perhaps remain with HEIs, to make themselves more accessible to investors.

SME – Business Community

- **SEn to lead on scoping a marketing initiative, with business organisations/HEI's, which might include database of R & D activity in SME's**

6.6 There is a great weakness in marketing in Scotland, particularly in SMEs and there are no specifically Scottish marketing organisations. Opportunities were being missed because management had poor marketing skills and information. SMEs needed better access to off-the-shelf technology, so that they could avoid undertaking costly and risky R&D. Marketing courses were needed for all companies – possibly through an institute of marketing, There are specialised US marketing people who could help with this.

6.7 There was a need to better define the demand in SME's for hi-tech transfer work - no database exists for this. A database had been set up for the biotech industry but Scottish Enterprise had decided not to support this even though there was demand from industry. Scottish Enterprise should therefore scope a wider initiative, drawing together a database of high tech companies from LECs, banks, and accountants, chamber of commerce.

Plenary session commentary

6.8 It was suggested that a common pool of market data information was needed, possibly through establishing a new unit – but it was noted that with such a wide range of output and markets, it might be simpler to buy in expertise.

7. Executive/UK/Government/SHEFC/Scottish Enterprise

8. Action points agreed:

- **Fewer initiatives – prioritise and co-ordinate**

8.1 It was noted that pressures on HEIs were immense and that commercialisation initiatives were competing with others on teaching etc. There was a need to rethink the “announcement a day” culture – institutions would perhaps react in undesirable ways to access initiative funding.

- **Map value of HE to Scottish economy – identify strengths and develop a range of metrics to reward desired behaviour**

8.2 It was noted that commercialisation was only one of a range of activities that helped the economy. There was a suggestion that commercialisation had perhaps been over-promoted. There needed to be a rigorous analysis of the metrics used to stimulate activity.

- **Identify and remove barriers**

8.3 A skills gap in HEIs commercialisation was noted, and in the management process. Private sector involvement might be one solution, although this model had been found wanting before. Scotland lacked a critical mass even in its strong areas and it lacked a first class business school.

- **Additional activity must be properly funded**

8.4 There was a view that funding of HEIs had been declining while at the same time more was being asked of them – so more funding would be needed for any new activity.

Plenary session commentary

8.5 The added value of promoting commercialisation in HEIs was questioned, because it was a diversion from their main activities, and displaced other activities. However, the Government’s current Spending Review was addressing this issue. Better efficiency in IP exploitation was an issue for Government to lead on, in consultation with HEIs and business. A more competitive environment, possibly involving a separate commercialisation body, was one possibility, but there would be difficulties in creating a level playing field. There could well be a need for greater collaboration between HEIs in business development skills, and it was suggested that an action point could be added to the list, for Government to aid institutions in sharing experience.

8.6 There was a suggestion that fewer initiatives by Central Government, and monitoring by them, were needed and that instead a more productive model would be to provide funds and allow HEIs freedom to use these – and for Government then to measure results on hard criteria later. If commercialisation was now to be a core

activity it should receive core funding – and the emphasis should be on encouraging diversity rather than a few chosen projects.

SUMMING UP

Lucy Hunter offered some closing reflections on the morning:

- there was a level of consensus about the opportunities and what needed to be done – but also a great deal of unresolved business
- there was a genuine debate still to be had on the most effective approaches to the commercialisation of research
- commercialisation was one of many activities being considered under the HE review
- there was a need for wide participation in the debate about the metrics on which any funding for HEI commercialisation activity should be based
- there was a need for much better mutual understanding between HEIs and the business community of each other's priorities and motivations
- there was still a divergence of views on how the handling of IP issues could be accelerated
- there was a need to look in more depth at the scope for more collaboration between institutions, to share technical expertise on commercialisation issues.

SYNDICATES**1. Higher Education Sector**

Professor Geoffrey Boulton, OBE	University of Edinburgh
Mr David Caldwell	Universities Scotland
Dr William Duncan	Royal Society of Edinburgh (syndicate chair)
Professor David Gani	SHEFC
Dr Cathy Garner	University of Glasgow
Ms Lucy Hunter	Scottish Executive
Ms Catherine Leckie	Scottish Executive (notetaker)
Mr Brendan McGuckin	Napier University
Mr Michael McPartlin	SHEFC
Mr Gerhard Mors	Scottish Executive
Mr Douglas Mundie	Technology Ventures Scotland Ltd
Mr Hugh Thomson	University of Strathclyde

2. Business/Venture Capitalists

Dr Andy Bishop	Scottish Executive (syndicate chair)
Ms Barbara Blaney	Bioindustry Association
Mr Stuart Brown	Scottish Enterprise
Ms Lynne Cadenhead	Far Blue
Mr Kevin Cullen	University of Glasgow
Mr Erik Fallstrom	CST Global Ltd
Mr Matthew Farrow	CBI
Mr David Grahame	LINC Scotland
Mrs Margaret Irving	Scottish Executive (notetaker)
Mr Andrew McNair	Connect

3. Executive/UK/Government/SHEFC/Scottish Enterprise

Dr Janet Brown	Scottish Enterprise
Dr Avril Davidson	Scottish Science Advisory Committee
Ms Alison Graham	Scottish Enterprise
Mr James Houston	Research & Innovation Services
Dr Chris Masters	SHEFC
Mr Roger McClure	SHEFC
Mrs Bernadette McDonald	Scottish Executive (notetaker)
Mr Ian Ritchie	Scottish Enterprise
Mr Calum Scott	Scottish Executive
Professor Wilson Sibbett	Scottish Science Advisory Committee
Mr Tom Tumilty	Scottish Executive (syndicate leader)
Dr Gayle Wilson	Universities Scotland