

Summary of Issues for Discussion with DTI 2/11/2004

This Paper summarises a number of issues identified in a recent CIHE publication “The Business of Knowledge Transfer” which form part of the background to forthcoming discussions with the DTI. It then presents a series of suggestions for discussion on the basis of which some firm proposals for action may be taken forward.

1. Implications of System Perspective

Developing wealth from the research base relies upon interactions between teams from different organisations. Policies for intervention to accelerate the process should be coordinated to address system failures at least as much as they are at redressing failures of the market to delivery throughput at the level of individual transactions. This may require development of integrated policies across different sectors of government as well as the coordination and existing collation of individual policies. A good example is the affect of the RAE which should incentivise rather than penalise academic time spent with business. Examples of suggestions which address systems failure this are included in the items below.

2. Stimulation of Business R&D

It is the development and application of technology in business in response to market opportunity which will create wealth. Policies directed at activity in HEIs should reflect and not attempt to substitute for this. Business pull on technology from HEIs is limited by its low inclination towards R&D and poor perception of the market opportunity and potential for value creation, leading to both low capacity and low spend. Ability to carry out R&D is shown to be strongly correlated with the ability to absorb and apply it, hence external R&D is no substitute for, but a complement to, R&D in a business. Support for business which both encouraged the identification of opportunity by business and increased its appetite would be welcomed. This should certainly include using the purchasing power of government procurement to stimulate R&D activity and capacity in SMEs. It should also encourage the **application** of knowledge & technology in innovation as well as the production of technology as it is the former which has the potential to generate meaningful wealth in the economy. Most policies, incentives, support and publicity seem to give precedence to technology creation by commercialising R&D, as opposed to innovation by applying the outcomes or in service industries.

Collaboration is good where it enables (e.g.) businesses and universities to combine resources cost effectively to enable each together to address opportunities they otherwise might be able so to do, however funding support should allow the key risk taker (ie a business) to determine whether or not a collaborative venture or purely internal R&D (e.g. by recruitment) is the most attractive route. This would encourage universities to lower transaction costs to make themselves more accessible if they wished to participate in the projects.

3. HEI / Business Interface

Investment in HEI should primarily be aimed addressing the communication and transaction costs between the two sectors. The transaction costs include issues such as the development of model agreements and IP protocols (being addressed by the Lambert Review Working Party) but also the support and training of people at each side of the interface. It is also difficult for business to be aware of the potential market opportunities which they might pursue or the resources they might use because the complexity not only of the university system but also inside individual universities. Policies which encourage direct interaction between researchers and business would be welcomed as would those which encouraged knowledge transfer staff to facilitate rather than control these interactions.

Identification and understanding of the differences of the value systems of business and HE and recognition of the impact of this cultural divide on barriers to interaction is also key. Universities do not communicate well with business on potential opportunities for interaction, This seems partly due to a low realization of the need to translate technology into compelling value propositions and the lack of the capacity and expertise so to do – a reluctance to test ideas with potential customers. Provisions of the people who might assist in this brokerage and translation role might be considered at regional and sector level to provide a necessary critical mass of these skills.

4. Investment in HEIs – Metrics

Investment in HEIs to develop capacity for knowledge transfer should reflect the fact that productive interactions occur across a wide spectrum. Metrics which value economically and socially productive outcomes irrespective of the method used would be welcomed. At present the metrics used (such as license deals and spin out companies formed) (a) incentivise universities to concentrate on producing (apparently) commercially tangible results in anticipation of a commercial return to the university as opposed to the economy, (b) do not necessarily reflect real economic value created, and (c) militate against other and potentially more productive interactions which do not promise to produce commercial tangibles for the university. (c/f the Stanford motto – “let it go and let the bucks come back”) Although the broadening of metrics proposed in the Science and Innovation Framework is welcomed, it is not clear why (for example) it is business confidence in KT staff which is to be measured, rather than confidence and interest (satisfaction?) in dealing with the university as a whole.

Neutral measures might reflect actual evidence of knowledge transfer developing by simply measuring interactions as a process measure and actual and productive knowledge transfer evidenced by a sustainable activity stimulated by university engagement, or even simply growth in regional business R&D. Where it is essential to have robust commercial metrics to show stewardship of public finance (e.g. where HEIF funds are used to seed new ventures) then they should use ones

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which demonstrate external validation, such as vc funding leveraged, numbers of real customers, actual license income, or new companies achieving first revenues, as opposed to metrics which might be artificially inflated.

5. Action Points

1. Future initiatives could more broadly reflect in their development the interdependence of supply and demand for R&D, and in particular (a) stimulate both demand and the capacity to absorb in business and (b) the ability and inclination to respond in HEIs. This includes initiatives not specifically directed at business HEI interaction but which will influence their propensity to respond. For example:-
 - a. RAE 2008 needs to be aligned with the other funding levers and policy initiatives affecting HEIs.
 - b. CIHE can assist by providing an appropriate forum to bring these issues together.

2. Stimulation of Business R&D.

- a. Funding support (e.g. DTI products) should aim at giving business more purchasing power and provide fewer apparent incentives for funding led (rather than market led) collaborations
- b. This should be coupled with support for R&D in SMEs through government procurement
- c. a & b could be coupled in a programme with the characteristics of SBIR & STTR in the USA
- d. “government procurement” might include procurement at RDA level
- e. Provision should include education, support and assistance of SMEs interacting with HEIs. Small business support centres in the USA provide an interesting model.
- f. Products should be aimed at stimulating the application of technology, not just its production; are regional / sectoral Knowledge Transfer Networks the appropriate mechanism for stimulating this ?

3. Investment in HEIs

- a. The Lambert Working party may act as a model and/ or platform for a “standing committee” to consider issues affecting HEIs & Business on a bi-partisan basis. Consistent with 1. b, CIHE would be pleased to assist in supporting this.
- b. Investment in HEIs should be aimed at increasing their capability to respond to demand from business, reinforced by an appropriate set of metrics (qv, below). This will require the development of skills including but of a broader range than those in the current technology transfer courses. Critical mass of these could be provided at regional rather than institutional level in all cases.

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- c. Support for interaction will include the development of brokerage mechanisms (which might include best practice identified in “translation” from the Faradays and the Knowledge House in ONE). Regional models would provide for a range of different HEIs to act as suppliers (and even provide support for networks across regional boundaries where limited expertise is available elsewhere).

4. Metrics.

Metrics used to assess HEIs for 3rd leg funding are a critical issue in supporting the development of research based innovation and should support the above by encouraging and incentivising response to demand, rather than supply. Ideas for these we offer are:

- a. True output measures for commercial transactions, such as income from license agreements (not numbers) and Spin Out companies achieving VC investment or first customer revenues (not numbers formed). These could be broadened to include research income from business (paralleling RC income in the RAE) and even donations or contributions in kind to joint projects.
- b. “Mode Neutral” outcome measures, which reflect the creation of social or economic value irrespective of the means chosen; completed projects which show a sustainable transfer are an appropriate metric.
- c. Process Measures which show a development of a capability to stimulate and respond in a satisfactory fashion to demand, which might include developing interactions (numbers), further and more robust measures of these such as contact time for knowledge transfer staff with potential transferees.
- d. Evidence of Capacity Building which shows the development of skills relevant to communication with business e.g. attendance at CIM etc courses.
- e. Robust evidence (survey based?) of “awareness and attitudes” in the business community towards the institution (including dimensions of variation such as business understanding & communication); CIHE would be interested in assisting to develop an appropriate instrument and would expect it to identify evidence of the application of the skills at e. It could be built in part on the existing UPBEAT framework

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