

UNIVERSITY OF ULSTER

Response to the Lambert Review of Business-University Collaboration

1. Best practice and examples of excellence in business-industry collaboration

The University of Ulster is engaged in a wide range of joint ventures with industry involving jointly-owned spin-out companies, personnel exchange and collaborative R&D projects. Several spin-outs have been formed in collaboration with local entrepreneurs who have brought both investment and business skills to the partnership. More recently we have established several biotechnology spin-outs in collaboration with US companies which bring considerable business development expertise and market opportunities to the companies.

The University has a track record of achievement in both local and national technology transfer initiatives which promote collaboration with industry. Most notable is the institution's success in TCS which is viewed as the Government 'premier Technology Transfer Scheme'. The University has consistently been ranked amongst the top five participating institutions in terms of income generated from this source and currently has 26 active schemes, mostly with SMEs. In West Belfast the University continues to support and develop the Synergy e-Business Incubator (SeBI). This is an 'Information Age' incubator 9 start-up businesses currently in occupation. To encourage 'clustering' the emphasis is on companies focused on advanced telecommunications or e-Commerce solutions. Formerly a joint venture with Fujitsu Ltd, SeBI is now wholly owned by the University. Overall the University's technology transfer activities through its incubation and science research park activities have generated over 500 new high technology jobs in the Northern Ireland economy since 1998.

The recent decision by InvestNI to locate physical office presence within the University of Ulster Science Research Park network, is testimony to the strengthening relationship between both organisations. The InvestNI offices, located in the Magee and Coleraine campuses of the University, service the local business community and as such help to enhance the interface and stimulate opportunities for collaboration between the University, its spin-off companies and local business. It also serves to expose local business to the technology-led, innovative culture of the University Science Research Park.

The University and InvestNI collaborate on a regular basis across the full range of the latter's activities. This includes:

- *Business International:*
 - University researchers annually support InvestNI's regional technology and software showcasing activities at international trade events such as CeBIT, Germany and BIO (Canada, 2002);
 - The University supports the drive for inward investment by facilitating, on a regular basis, company and country trade missions organised by Invest NI where information on regional technology, research and skills strengths are required;
 - University academics, administrative staff and research participate in InvestNI led overseas trade missions;
 - The University of Ulster Science Research Parks Ltd., has been fully involved in the development of InvestNI's overseas trade offices, and have recently occupied physical space in Invest NI's Technology and Development Centre in Boston, USA. Further developments are planned for a similar facility in Denver, Colorado.

- *Innovation, Research and Technology*
 - The University is an active participant in Invest Northern Ireland's programmes to promote research and development and innovation within the regional business community. These include the START programme, focussed on collaborative long-term Business-University Research & Development projects; the SMART and Micro-SMART programmes, focussing on technology-led prototype development and COMPETE awards, which seek to promote the product and process development in the manufacturing industry. Other programmes such as the Manufacturing Technology Partnership source University expertise for local businesses, providing innovation credits for the implementation of simple technology-based solutions for small manufacturing industry.

- *Entrepreneurship and Enterprise*
 - The University works with the regional network of InvestNI offices to promote local enterprise and entrepreneurial activity. Recent examples include a successful "Product and Process Development programme" run by the University for a group of SMEs in the Omagh area of the region. The University's joint "Northern Ireland Centre for Entrepreneurship" with Queen's University Belfast, works with Invest NI and other actors, such as the local Venture Capital industry, through seminars and workshop activities. These are tailored both for the academic and student communities and the business community on a sectoral basis and on a general level.

- The University's *Knowledge Club* works as a forum to bring together the regional business community, on a sectoral basis with appropriate academics and researchers to facilitate and promote dialogue and enhanced interaction. Successful events to date have included a workshop on creative media business opportunities between researchers in the School of Art & Design, local creative industries and Venture Capitalists.

- The University engages in a wide range of Continuing Professional Development training for business. This includes in-house delivery of bespoke training courses by the Faculties of Informatics, Engineering and the Built Environment and Business & Management.

2. Strengthening University-Business Relationships

In order to succeed in the true creation and sustenance of innovation, it is critical that the national strategy must:

- ensure that adequate funding is made available to enable the universities to create the research and development outputs which can then be exploited by the private sector;
- ensure that adequate financial support is given to the universities to allow for the maximum development of spin-outs and support for graduate innovation;
- encourage and enable companies and individuals to absorb, adapt and exploit the research, development and innovation that is created and disseminated by the universities;
- foster 'clustering', which has been shown to be a key driver of economic development elsewhere. Clustering based on university strengths has been shown to be particularly successful. A stronger university/industry interface, particularly with regard to areas of key strength (biotech, ICT, creative industries, etc) should be encouraged wherever possible.

The key to success will be forums within which the full engagement of the private sector and Universities can be achieved. This can be achieved through the inclusion of private sector and University representatives within the structures and discussions of the economic development agencies rather than through ad hoc dialogue.

Industry and academia must be encouraged to work more closely together within the regions, becoming increasingly attuned to one another's needs. An "industrial pull" and "university push" dynamic will develop if closer interaction can be stimulated and sustained. It should be noted that emphasis should be placed on this being a two-way process and that universities should be encouraged and appropriately enabled to allow them to engage with industry but also that industry has to give time and resources to liaison with universities to ensure complementarity of aims.

Engaging the large proportion of the SME sector that does not carry out R&D will be the greatest challenge. Practicalities such as the lack of infrastructure within the companies for the conduct of research and the lack of appropriately experienced staff mean that the companies, even if they wish to, could not put R&D at the forefront of short-term objectives, though they might aspire to do so in the future.

The public sector can be involved as it is there, in government locations or universities, that the infrastructure and human resources necessary for R&D

are located. Closer partnerships between public and private sectors are needed.

3. Graduate Skills

The education and training system in the UK must remain broadly based, covering the arts, humanities, social sciences, science and engineering. However there must be an emphasis on, and selective support for, the key wealth-creating sectors. These include the life and health sciences, information and communication technologies, and business and management studies. There must also be breadth in terms of the levels of the programmes provided in order to provide a balanced workforce.

Graduates are typically satisfied or highly satisfied with the skills they have acquired in higher education. A majority of graduates, however, record a low level of utilisation of these skills and a failure of most of their employers to provide mechanisms for the development or enhancement of those skills. Too few employers have a training policy and the identification of training needs and their implementation are largely left up to individual employers. SMEs in particular are unlikely to utilise graduate skills or have training policies.

Recruitment of PhD students in IT, Engineering and some areas of Science remains a serious problem. If we are to attract home-based students to research programmes we must provide competitive stipends. Recent increases in PhD stipends are welcome but do not go far enough. Similarly, pay scales within the R&D sector, whether in industry or academia are insufficient to attract and retain the best minds.

National skills shortages are most acute in areas such as biotechnology, electronic engineering and advanced IT. The shortages in these areas are across all levels, from technicians through to experienced professionals. A problem faced by the universities is that there has been a marked decline in the numbers of students studying at 'A' level those subjects, such as Mathematics and Physics that are essential pre-requisites for many engineering programmes. Targeted programmes are necessary to increase recruitment in these key sectors. This can involve liaison with industry.

An effective national credit accumulation and transfer system (CATS) is vital. We are now at the stage where learning is for life and where people will drop in and out of learning throughout their lives. CATS will enable them to build on credits already achieved so that they don't have to repeat or duplicate learning. The impact of new technologies on learning, such as, for example, global, web-based, online learning opportunities are now offering alternatives both to learn and to demonstrate achievement. In this context it is significant to note that through its virtual Campus One the University now offers an extensive range of flexible programmes and that in the 2003/04 academic session some 25% of the University's large part-time student population will be studying through Campus One.