

**Department of Enterprise,  
Trade and Investment**

**Netherleigh**

Massey Avenue, Belfast BT4 2JP  
Telephone (028) 9052 9900 ext  
Facsimile (028) 9052 9550  
Textphone (028) 9052 9304

Mr Tom Orlik  
Lambert Review of Business-University  
Collaboration  
1 Horse Guards Road  
LONDON  
SW1A 2HQ

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Dear Tom

**LAMBERT REVIEW OF BUSINESS-UNIVERSITY COLLABORATION**

I am sorry I was unable to join you at the meeting on 21 May with my colleagues to discuss the Northern Ireland response to the Lambert Review.

We are grateful for the opportunity to contribute to the review from a Northern Ireland perspective. As you are aware, the views expressed in this letter have been coordinated through an inter-departmental working group (IDWG) which is currently in the final stages of developing "*think|create|innovate*: The Regional Innovation Strategy for Northern Ireland". This IDWG represents all eleven Northern Ireland Government Departments, and also Northern Ireland's economic development agency, "Invest Northern Ireland" (an NDPB of the Department of Enterprise, Trade & Investment).

***"think|create|innovate"***

*"think|create|innovate"*, aims to co-ordinate and sustain a systemic approach to innovation, creativity and R&D across all sectors of Northern Ireland's economy and society, with the overall purpose of making Northern Ireland a genuinely world-class, competitive innovating region. *"think|create|innovate"* makes it clear that in order to achieve this goal, it is essential to coordinate a sustained, systemic and collaborative effort by the three key stakeholder groups - the Higher and Further Education sector, the business community and the public sector.

Northern Ireland has an established tradition of collaboration between academia and business, notably through their participation in a suite of industrial research and development programmes offered by Invest Northern Ireland's Innovation, Research and Technology Division. Many of these involve multi-national companies, but there are an increasing number of SMEs developing mutually beneficial partnerships with Northern Ireland's two main universities - Queen's University, Belfast and the University of Ulster.

It is a key aim for *"think|create|innovate"* to encourage further collaboration between the business and university sectors by facilitating the development of more responsive interface points, developing business-university networks and clusters, and supporting targeted technology and knowledge transfer in all its forms.

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## INVEST NORTHERN IRELAND - BEST PRACTICE EXEMPLARS

Invest NI has encouraged business/university collaboration through the provision of two distinct programmes. The first of these, the *Start Programme*, provides financial assistance to companies wishing to progress an industrial research project with a university. The programme offers up to 50% support for projects, up to a maximum of £2million per project. The START Programme is evaluated every 5 years, with the last evaluation having been conducted in 2001. This evaluation concluded that the START programme was responsible for an additional 9% increase in Northern Ireland Business Expenditure on R&D (BERD) and an additional 50% increase in business expenditure on industrial/strategic research, when expressed as percentages of Gross Domestic Product. These findings highlight the considerable value of the Start Programme to the local economy.

The second of the programmes referred to is the *RTD Centres of Excellence programme*. This programme, which is funded under the EU supported PEACE II programme, was launched in September 2001 and supports 18 major R&D Centres that enhance the market driven technological capability within Northern Ireland industry and the universities. It represents the largest single funding of commercially focussed R&D in Northern Ireland in recent years and is expected to total around £80 million in public/private sector investment. Of that total, £11 million provided through the Department for Employment and Learning has been allocated to university-only projects. The programme follows on from the Technology Development Programme (TDP) which was supported by the European Union under Measure 1.1.4 of the Northern Ireland Single Programme (NISP) 1994-1999.

TDP itself was introduced in 1994 as a successor to earlier EU-funded initiatives, particularly the STRIDE programme. The overall aim of the TDP was to strengthen Northern Ireland's technological research infrastructure and produce self-sustaining research centres that would ultimately improve the competitiveness of Northern Ireland industry. The programme supported 6 industry, 2 joint industry/university and 10 university Centres of Excellence and provided £21.2 million investment support towards total project costs in excess of £36 million.

The new RTD Centres of Excellence programme will increase the number of leading-edge, industry-focused Research Centres in Northern Ireland to 42, representing an overall investment in Northern Ireland's R&D infrastructural base of £170m over the period 1990 – 2006.

As a direct result of this investment Northern Ireland today has a wide range of industry based Research Centres with links to academia, joint industry/university collaborative Research Centres and university based Research Centres with extensive links to industry. Each of these Research Centres of Excellence is pre-eminently market and commercially focused, and is an exemplar of regional, national and EU innovation policy and best practice.

TDP was subject to a mid-term financial review in August 1998. The consultants commented, "It is very apparent that the vast majority of the University TDP Centres were focused on trying to demonstrate to local SMEs the importance of R&D, technology transfer and developing collaborative partnership arrangements between industry and universities. It is acknowledged that it is very difficult to quantify the infrastructure benefits in monetary terms. However, the assignment team observed a very significant change in culture and attitude to market driven and commercially focused research from the time the same staff carried out the original financial appraisals for the TDP programme"

The consultants continued, "There was considerable evidence to suggest that the concepts of Industrial Advisory Boards for university TDP Centres and Project Managers for each of the TDP Centres had been successful and contributed to more commercially focused research and closer relationships with SMEs".

Centre of Excellence exemplars of excellence include:

### **Northern Ireland Centre for Diet & Health (NICHE)**

Established in 1996 from the existing Human Nutrition research group at the University of Ulster, NICHE is an integrated, multidisciplinary Centre of Excellence providing greater understanding and insight into diet-related health issues for the benefit of both the consumer and the food industry. The Centre has two main objectives, namely: to advance basic knowledge in the area of nutrition and the relationship between diet and health; and to provide scientific support to the Northern Ireland food industry for developing and evaluating new food products. Its areas of specialist expertise are used by Government departments, the EC and the local food industry and include: Diet and health research (influence of diet on heart disease, cancer, stroke); Consumer research (consumer requirements for food products, factors influencing food choice, consumer responses to new or improved food products, consumer-led product development); Dietary, social, demographic and lifestyle surveys; Functional food development and evaluation; Food intake and energy metabolism (appetite & satiety); Aspects of food safety.

### **Northern Ireland Centre for Advanced Materials (NICAM)**

NICAM, which was established in 1995, is a collaborative and multi-disciplinary partnership between Queens' University Belfast and the University of Ulster. The world-class facility brings together the scientific and engineering expertise necessary for Northern Ireland industry to compete in the international marketplace by facilitating the development of new materials, products and processes in the fields of:

- Magnetic materials
- Ferroelectrics/Ceramics
- Thin films; metals, diamond like carbon, semiconductors, bioceramics
- Surface morphology
- Corrosion analysis
- Surface analysis

Already, pioneering advances have been made in areas such as Scanning, Probe Microscopy, magnetic and magneto-optical recording, biomedical and environmental sensors, biomaterials, flat panel displays, diamond-like carbon, semiconductor and other thin film devices, surface coatings and fabrication techniques.

The *Northern Ireland Science Park* has been established to facilitate the commercialisation of Northern Ireland's renowned research base. The key stakeholders are the Queen's University of Belfast and the University of Ulster, as well as the public and private sectors. The aim of the Science Park is "*to promote, facilitate and encourage the development and exploitation of science, technology, research and innovation of all kinds*".

The NI TCS Scheme (soon to become the *Knowledge Transfer Programme*) has been particularly successful, with 56 current "live" programmes. Invest NI aims to promote TCS vigorously and increase that number to 70 over the next two years. Again there is a high strike rate of TCS associates taking employment in their host companies, thereby strengthening industry/academia links and promoting effective technology transfer. TCS in Northern Ireland is regarded as an exemplar scheme within the UK.

*NICENT* (the Northern Ireland Centre for Entrepreneurship) supports potential entrepreneurs within academia in establishing knowledge based businesses and in developing national and international networks of influence, information sharing and market penetration. Students from the Life & Health Sciences, Informatics and the Engineering & Built Environment faculties have completed entrepreneurship training as part of their programme of study. Invest NI and the private sector contributed to this training. This initiative has been extremely successful, to the point where Invest NI is considering broadening it to include other faculties such as Arts, other Engineering faculties, Science & Agriculture, and medicine. The organisation would also be keen to promote inter faculty projects and teams where appropriate.

Invest NI is currently working with *NICENT* to develop a comprehensive programme of enterprise support for academics and researchers seeking to commercialise product or service ideas.

The UK-wide *STEP programme* (Shell Technology Enterprise Programme) has been run in Northern Ireland for a number of years. The uptake in Northern Ireland is low compared to the rest of the UK, but represents an ideal route for companies into the TCS Scheme and also acts as a catalyst for potential entrepreneurs from among the *STEP* graduates. This programme provides benefits to both the students and the businesses. It gives businesses access to talented undergraduates and it increases the employability of the students. It would benefit however from increased promotion within the business and university sectors.

Invest NI currently sponsor the *£20k Student award*, targeted at students at the local universities. This year Invest NI and Enterprise Ireland in the RoI are jointly sponsoring a student award targeted at students in all of the universities and FE colleges throughout Ireland. This is an excellent way of exposing students to entrepreneurship and at a practical level to develop business plans. The awards help stimulate entrepreneurial thinking, and have resulted in a number of new businesses start-ups.

*QUBIS Limited* and *UUtech Limited* are companies formed to commercialise R&D in Queens University and the University of Ulster respectively. Both provide examples of best practice.

*QUBIS* has successfully invested in around 30 technology businesses emerging out of research at Queens. The established businesses employ over 500 people, mainly graduates, with a combined turnover of around £20m pa.

*Andor Technology Ltd* is an example of the university and business working together to develop a world-class business. *Andor* grew out of the Physics Dept of Queens University. It manufactures spectroscopy instruments that are exported around the world. The early role of *QUBIS* was to 'pull the project through to commercialisation', to invest in equity and encourage others to do likewise. Queens also provided premises on campus for many years. The company has around 60 employees, 60% of whom are graduates. The company has offices in the US where it is a market leader. *QUBIS* continues to be involved as a shareholder of the company, recently helping to attract local and US venture capital to fund further expansion.

The University of Ulster, acting through *UUtech Ltd*, works with researchers to identify opportunities for commercialisation. The Technology Transfer Section of the University identifies and exploits commercial opportunities arising from intellectual property and research park activities. Almost £1m per week is invested in research activities in UU. The main areas of specialism include Biomedical Sciences (only UK university with 5\* rating), ICT and advanced engineering.

Researchers from the Department of Agriculture and Rural Development and Queen's University Belfast have performed joint research that has led to the establishment of spin out company "XenoSense Ltd". XenoSense develops biosensors or analytical antibody based kits for use on Biacore's (a Swedish NASDAQ quoted company) instruments for the life science and food sectors. Biacore is an investor in XenoSense alongside the founding research staff and University Challenge Fund NI.

The Department for Employment and Learning (DEL) has responsibility for administration of *the Higher Education Reach-Out to Business and the Community (HEROBC) fund* which has enabled both universities to establish regional offices that serve as conduits between the university, business and community sectors. Over the period 1999-2003, DEL funds of £2.2m have contributed to this development.

An additional £400k was allocated to HEROBC for 2001-2003 in response to the introduction in England of the Higher Education Innovation Fund (HEIF). As a result, 'business fellowships' were created to strengthen university/business interactions.

## **MAIN BARRIERS TO STRENGTHENING BUSINESS/UNIVERSITY COLLABORATION**

From a NI business perspective, the main potential barrier to further collaboration with the universities is the issue of IPR ownership. The increasing tendency for the universities to retain IPR in collaborative and other contractual arrangements has created a chill factor in local companies approaching universities for research or technology transfer services. Indeed, there are examples where business/university relationships have broken down when the company has become aware that the university would seek to retain ownership of IPR. Furthermore, IPR arrangements within the TDP Centres referred to above, have also created problems that have impacted on the long-term sustainability of the Centres. A more transparent and workable arrangement would benefit both industry and academia.

In addition to the IPR issue, some companies have reported that, when engaging the universities to carry out work, there is a lack of commercial realism shown by the university that ultimately leads to delays in the completion of research contracts.

## **GRADUATE/POST-GRADUATE SKILLS ISSUES**

Invest NI and DEL are closely involved in helping the business community with the selection of staff.

One of Invest NI's key initiatives in this area is the Graduate into Business (GIB) Scheme that is aimed at encouraging SMEs to recruit more raw graduates and, encouraging more graduates to see SMEs as a good career choice.

Through GIB, Invest NI funds 50% of the salary of a raw graduate for two years when recruited to a management or trainee management position in a client company. It also funds a development programme (New Managers Programme) for the graduates assisted. This covers personal development rather than functional knowledge.

As one of the four UK HE funding bodies, DEL is currently involved in a programme aimed at enhancing the quality of research training across the UK by developing a set of minimum standards to which all HEIs and research funders, including the Research Councils, would subscribe. The programme has its origins in concerns expressed to the funding bodies in several recent reviews of research policy and funding about the quality and consistency of research training.

The review paper puts forward a set of minimum standards for post-graduate training, which, if adhered to, would produce a calibre of post-graduate more attractive to business and industry.

As part of the current consultation process, both Queen's University Belfast and the University of Ulster have expressed their broad agreement with the review paper recommendations.

## **IMPACT OF CURRENT FINANCIAL ARRANGEMENTS ON BUSINESS/UNIVERSITY COLLABORATION**

Northern Ireland is in a unique position within the UK because it borders the Republic of Ireland, which can boast a corporation tax rate of 12½ %. The UK R&D tax credit, whilst helpful, is of limited appeal when compared to the RoI rate. A recent report by the Ulster Society of Chartered Accountants "*Financing for Growth*" recommends the use of enhanced tax allowances (say 200%) for R&D, product development, marketing and/or training.

The University Challenge Fund has also proved useful to early stage technology businesses that would not attract fully commercial equity funding. The NI universities won a total of £3m from the fund for seed capital investment and have invested in projects that are prime examples of the universities working with such businesses to bridge the equity gap.

In order to keep this level of collaboration going, it is important that any funds made available to English HEIs as part of the English HEIF are also available at a comparable level to the Northern Ireland HEIs.

## **CONCLUSION**

The Lambert Review is to be broadly welcomed and, from a Northern Ireland perspective, is timely in that it coincides with the development of a NI regional innovation system which will encourage and promote closer working relationships between business and the universities. I look forward to seeing the outcome of the review.

In the meantime, should you require additional information, please do not hesitate to contact Jenny Pyper or Bernard McKeown on 028 9052 9577 or 028 9052 9302 respectively.

**MIKE WARNOCK**  
**Head of Strategic Policy Division**