

# LAMBERT REVIEW – QUESTIONS FOR CONSULTATION

## RESPONSE FROM THE EAST OF ENGLAND DEVELOPMENT AGENCY

1. *We would like to identify best practice and examples of excellence in business-university collaboration in the UK and abroad. Some examples of the types of collaboration that we would be interested in hearing about include:*

- *Industry's use of the information contained in academic publications, and academia's use of industry patents and prototypes or vice versa.*
- *Joint ventures between universities and business, for example, personnel exchange or collaborative research and development projects.*
- *Informal contacts, for example, meetings and conferences, use of science parks, business-university liaison, industry sponsored university posts or studentships, work experience for students, business contributions to curriculum development, academic secondments in industry and provision of continuing professional development training by universities for business.*
- *Formal contracts, for example, the use of licensing, research contracts, consulting projects, establishment of spinout companies, product testing, or business support.*

*We would also be interested to learn how the relationship came about. Were your local Regional Development Agency or Sector Skills Council involved? What more could be done to facilitate successful partnerships?*

### RESPONSE

#### 1.1 The East of England Context

The East of England economy is a £73 billion economy based on 350,000 businesses, a workforce of 2.6 million and a population of 5.5million. EEDA has an RDA budget of £88m with an estimated spend on SET of between £9-10m.

The growth of the region has been associated with growth in high technology clusters, such as information and communication technologies, biotech, high performance engineering, energy, and environmental and food technologies. These clusters are supported by a high level of academic and research capability with both the universities and research institutions in the region. In addition, there is an active venture capital and business angel community in parts of the region, attracted by the science base and the potential for high growth business start-ups.

The East of England records a level of expenditure on research and development (2.7% of GDP) that is significantly above the UK average (1.2%). The level of spend on research and development is a proxy for innovation. The majority of research and development spend in the region is undertaken by business (as opposed to Government or Higher Education spend), with business spend comprising a larger proportion of the total than nationally. This reflects the region's strong and innovative business sector.

This extremely strong University-driven research and development, technology transfer and innovation activity acts as a magnet for this very high level of business involvement in these areas. Cambridge University is an internationally renowned engine for company spin-outs particularly in the bio-tech and telecoms sectors. The St John's Innovation Centre, the Cambridge Enterprise Centre and CMI (Cambridge-Massachusetts Institute) which is a Cambridge/MIT collaboration, and a range of science and business parks, all contribute to healthy and robust University/business relationships around Cambridge. This is commonly known as the "Cambridge phenomenon" and is an international model of excellence.

EEDA is a major partner in the development of the innovation network across the Oxford-Cambridge Arc, which encompasses a range of high-tech businesses clustered around and between the two universities. In addition there is a range of cluster networks, such as the Eastern Region Biotech Initiative (ERBI) which support the biotech cluster around Cambridge, and Medilink supporting the medical manufacturing community in the region.

### **1.2 Leading-edge science, engineering and technology development**

EEDA is leading the proposal to develop a nanotechnology centre of excellence, based in Cambridge, but with local, national and international linkages. The proposal has been developed by industry representatives, University professors, and experienced business leaders, and funded by EEDA, in a collaborative effort over 2 years. The driver for the region's decision is to build on the excellence of the world-class research into nanotechnologies, led by Cambridge and Cranfield Universities, but focussed on those areas of industry in which the region already has world-class strength e.g. biotechnology, polymer electronics. EEDA is chairing the national RDA group advising DTI on broader implications of nano and microsystems technology across the English regions and the devolved administrations.

EEDA is supporting BT R&D developments at Adastral Park in Suffolk and developing the surrounding area to attract and support a cluster of spinouts and established ICT/telecom-related companies. EEDA is working with BT and local partners to bring together high-level research in the telecom and high tech sector. We have invested in UCL and Essex University research capacity at Adastral Park, and those 2 Universities now have EEDA-funded faculties on the Park at post-graduate level. They are directly linked to the needs of the growing business community around the Park. This is an interesting example of the 'Cambridge phenomenon' in reverse, whereby we have brought University capacity in to supplement and support existing business driven R&D and technology transfer.

EEDA has lent its support to the establishment of the Genetic Knowledge Park, a partnership between Cambridge University and Addenbrooke's Hospital with clear linkages to research and teaching hospitals, such as the Norfolk and Norwich University Hospital NHS Trust.

Most innovatively, EEDA has just recently intervened in a leading edge global industry where the parent company has withdrawn from the UK. EEDA has established The Centre for Integrated Photonics at Adastral Park from the former Corning Research Centre. We have purchased the site, equipment and retained some of the key staff to ensure that the technological excellence in photonics R&D is not lost to the region or the UK. We expect this to become a world-class centre of excellence in photonics, which will be focused on both University research projects, and also on the development and production needs of the photonics and ICT companies in the UK. Thus, funding is being sought from EPSRC for the University

research, but also from DTI and from contract work for the industry R&D. This is an excellent example of a resource that will be available to both Universities and companies, fostering linkages between academia and industry.

### **1.3 University Initiatives**

Over the past few years, there have been an increasing number of HEFCE funded initiatives to encourage Universities to work with the business community particularly at a more local level through 'third-leg funding'.

EEDA have worked to establish and maintain a strong strategic relationship with the Association of Universities in the East of England (AUÉE). The AUÉE was the last such association to be developed in England and emerged at the same time as the RDA came into being. Probably for this reason, we have an excellent understanding of each others position and in fact EEDA contribute to the funding of the association and in addition, annually contract a portfolio of HEI based project activity. Our universities have therefore been quick to respond to the emerging regional mission and the need to significantly increase University links to business.

EEDA have taken an increasing role in working with the university sector in developing collaborative activities, which deliver improved services to business. Under HEIF, EEDA was instrumental in achieving a pan-university regional bid to establish the 'Regional Innovation Infrastructure' (RII) project, which seeks to offer the full range of R&D university expertise across the region to any business (especially SMEs), thus overcoming the barriers of geography and access. This is the first time that the 12 HEIs in the East of England have come together for a project.

The extensive range of Faraday Partnerships, which exist across the UK, funded by the DTI, link university R&D excellence directly to business product development propositions through a network of business/sector experts. Continued DTI funding came into question at the end of 2001, when RDAs were approached by DTI to pick up that funding. RDAs could not (and must not) be seen as subsidizers of central government initiatives and so did not respond positively. However, most RDAs and indeed EEDA recognize the enormous potential of these partnerships and seek ways to support their continued development.

*2. If you do not have, or would like to strengthen such relationships, what are the main barriers to doing so?*

*These might include:*

- *Management and organisational issues. How can businesses and universities best organise themselves in order to benefit from each other's resources? Do the present mechanisms for priority setting, decision-making and funding in the university sector help or hinder business-university collaboration? What changes might encourage collaboration?*
- *Technology transfer. What are the barriers? How can it be made more effective?*
- *Intellectual property. Are the present arrangements understood and appropriate?*

## **RESPONSE**

### **2.1 Management and organisational issues.**

Since 2000 the universities funding body has encouraged the sector to develop a regional mission and to increase services for businesses at local and regional level. However, the funding mechanisms for this activity remain marginal and additional to 'core university business'. The latest of these (HEIF) is a case in point: the projects are directly funded through HEFCE, so universities are not encouraged to work collaboratively with other agencies who also provide services to business at local and regional level. Thus, the universities tend to try to establish the entire relationship with the business sector themselves, duplicating approaches to business, confusing the number of sources of support and dramatically slowing progress of the HEIF project. If universities were able to see the benefit of establishing brokerage relationships with the Chamber network, the Business Links, Enterprise Agencies, and the extensive range of innovation centres, science parks and enterprise centres, they would establish a ready-made route for marketing their services. What seems to be happening is a reliance upon university resources - the small number of Business Development Officers within each university and a website - to establish direct links with businesses, an approach which is unlikely to reach the volume of businesses necessary to achieve the objectives of HEIF.

The increasing move towards inclusion of RDAs in HEFCE developments, as rehearsed in the recent HE White Paper, will help universities to broaden their thinking about how they use existing mechanisms to achieve their objectives. RDAs are well placed to facilitate pan-agency co-operation and to broker relationships with particular sectors and clusters of business. EEDA are seeking to develop this role with its universities on their HEIF (RII) project, as described in part 1 above. Recognition by HEFCE that their university/business initiatives should always include RDA involvement and support would begin to persuade universities that they do not need to work in a vacuum at regional and local levels.

### **2.2 Technology Transfer**

This is an area where the DTI Faraday Partnership Initiative seems to have solved the problem in theory, but is not able to maximise the benefits due to the 'small initiative' status it seems to have. Having failed to pass the funding across to RDAs, Government should look again at the funding possibilities across the DTI/HEFCE spectrum. This is a valuable university/business collaboration which is working well, but has not been given sufficient resource to make a real impact. Again, there are volumes to be gained through effective brokerage by the range of government funded and private sector business service organisations in place.

RDAs are also increasing their role in supporting technology transfer and brokering relationships at regional and local level, often through their sector and cluster activities.

### **2.3 Intellectual Property and business creation**

The HEFCE report March 2003 "Higher Education – business interaction survey 2000-01" shows that universities tackle IP issues in a range of ways. IP is closely connected to the universities with strong research bases, and 'is probably the most highly developed field of HE-business interaction, although not necessarily that with

the greatest impact'. The report suggests that universities are increasingly developing in-house capability for licensing patents and taking ownership of IP as a source of income to the institution. There is some evidence that some university staff are now being rewarded directly for their IP, with many offering 40% or more to the inventor if income exceeds £100,000.

EEDA believes that the most effective way to encourage effective exploitation of University research concepts into profitable enterprises is to allow the researcher (and not the University) to have a controlling stake in the IP. By this means there is a clear motivation towards business creation and product exploitation of University research ideas that is clearly lacking without this incentive. This link between research and business has positive effects back in the University:

- by changing the mindset of the University towards business issues,
- improving the access of industry into the University,
- and encouraging entrepreneurship and business knowledge among the graduates.

An excellent example has been the growth of a world-leading number of companies in polymer electronics and display technologies, all emanating from the Cavendish Laboratory at Cambridge. If the UK is to benefit more significantly from its huge expenditure on University research, this is a tangible illustration of how to do it.

*3. A third set of questions relates to how business can attract the best graduates and postgraduates with the skills that they require, especially in technology. Questions include:*

- *Is the quality of graduate recruits satisfactory? Are there any obvious gaps in terms of skills and disciplines?*
- *How do businesses, individually or collectively, communicate their needs for specific scientific or technical skills and for the development of relevant courses in universities?*
- *How could more attractive career paths for science and technology graduates and postgraduates be developed?*
- *What plans does business have to attract the best talent in the future and are the universities made aware of them? If not, what more could be done to facilitate such a dialogue?*

## **RESPONSE**

### **3.1 Recruitment and retention of graduates**

The East of England is unusual in consistently recording a net export of its graduates from the region at first destination. The proximity of London, the proportion of foreign students, and the match between university offerings and the needs of the region's business sectors all have an effect, but the net loss of over 50% of the graduate body each year needs to be reversed. The region has very high graduate skills shortages reported by the business community and an increasing trend by business to 'buy-in' highly qualified graduates is driving up salary costs in some growth sectors. The

universities are working together with EEDA to get behind this trend to see what we can do to attract and retain students for the benefit of our businesses.

### **3.2 Business needs**

Businesses report that graduates often do not have sufficient business knowledge or experience when they begin work. This suggests that the range of 'work experience' included in many degree courses may not be having the desired impact. (See also point 2.3 above). When businesses seek to fund the development of specific university courses, universities respond well – however, very few (and almost always larger) businesses are this proactive. Most businesses do not expect to invest in universities in this way. It is therefore very difficult for universities to respond to skills needs of business: they have traditionally responded to the demands of school leavers, and there is a growing divergence between those demands and the needs of business. EEDA are beginning to develop a role as an intermediary for business needs, but the student driven funding mechanisms (reinforced through the recent HE White Paper) mean that new university offerings will need to be subsidised in development and will remain a high risk for universities in filling places.

The reality of the global market also has an effect in this arena. Many companies in the East of England now seek the talent they need from across Europe and the US. The globalisation of learning through the internet also has an impact – e-learning is reaching HE institutions and students will be able to choose to learn anywhere in the world without leaving home. All of these global impacts will have their effect upon both universities and business decisions about the relationship between graduate courses and the skills needs of business.

*4. The review team will also want to understand whether financial considerations currently help or hinder the relationships between business and universities.*

*Questions include:*

- *Are there ways in which the present financing arrangements could be made more effective?*
- *Has the introduction of R&D tax credits influenced business demand for research and skills, and if so, how? Are there other means to the same end?*

### **4.1 Financing Arrangements**

The funding regimes for universities have recently been reviewed and changed through the HE White Paper. This is therefore not an appropriate time to be considering the financing issues. However, there are some issues which would help solve some of the difficulties for business–HE connections which have been rehearsed in this response.

### **4.2 The role of RDAs**

RDAs will take a greater role in the delivery of HEIF funds from 2004. This will help resolve the dislocation between business and HE described in 2.1 above. However the HEIF funds (only ca. £90m) are not significant enough to make the business competitiveness impact that RDAs believe is possible from the full exploitation of the excellent University research available.

There are other areas, such as the development of specific university offerings in response to industry sector or business cluster needs which RDAs could broker, but this will require additional developmental funds, which currently universities have to find from the private sector or from within their budgets. It would be greatly advantageous if additional funds were set aside for this clear involvement of Universities with their regional industry strengths.

#### **4.3 R&D Tax Credits**

It is too soon to measure the impact of tax credits on business demand for research and skills.

Response prepared by The East of England Development Agency  
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