

Submission to the Lambert Review of Business-University Collaboration

April 2003

The first section of this report, produced by consultants for Universities UK, is based on:

- evidence drawn from a series of seminars, which brought together people from business, higher education institutions (HEIs), regional associations and external business support to inform the review;
- desk research drawing on existing published material; and
- examples of good practice supplied by HEIs.

The second section of this report considers university governance and management and includes the results of a survey conducted by Universities UK. This section also raises wider governance and management issues drawing upon the Universities UK submission to the DfES Issues Paper and the proposals for the Leadership Foundation.

Contents

Higher Education and Business snapshot	iii
Summary of key points	iv
Section 1: Consultants' report on Business-University collaboration	
1. Introduction	1
2. Background	2
2.1 The Perspective of Business	
2.2 Small and Medium sized Enterprises (SME's)	3
2.3 The Public Sector	4
2.4 Internal considerations	
2.5 Diversity of Institutions	6
2.6 The Government's White Paper – The Future of higher education	8
3. Types of Activity and Income	10
4. Consultation Questions	12
4.1 Identification of Good/Successful Practice	
4.2 Perceived Barriers to improved collaboration between business and HEIs	15
4.3 Helping Business to Recruit and Retain Graduates with the skills that Business requires	25
4.4 The Role of Financial Incentives in improved business-HE collaboration	31
5. Recommendations	36
Section 2: Universities UK report on Governance and Management	
1. Introduction	38
1.1 Background to University Governance	
2. Summary of responses to the Governance and Management Survey - <i>Expertise of members of governing bodies</i>	39
3. Summary of responses to the Governance and Management Survey - <i>Decision making processes and links with business and industry</i>	41
4. Leadership and Management	42
Annex A	44
Annex B	45
Annex C	53

Higher Education and Business snapshot

UK Higher Education 2003 – 2004

- 171 Higher Education Institutions (HEIs)
- Educating 2 million students
- 25% of students participate in organised work experience.
- Provided 500,000 graduates for the UK workforce

Economic impact in 2000 – 2001

UK Higher Education is a major contributor to competitiveness and the economy. It is also a major 'business' in its own right:

- Total income of HEIs = £12.8 billion
- Output generated by the UK HE sector = £34.8 billion
- Jobs created by the UK HE sector through direct and knock on effects = 562,600
- Equivalent to 2.7% of the UK workforce in employment

Research activity

Research is undertaken by HEIs to ensure the quality, relevance and vitality of their teaching and includes not only blue skies research but:

- Research carried out in collaboration with business
- The exploitation of intellectual property
- Consulting services
- New businesses creation via spin-outs
- Training
- Economic regeneration programmes

Research income in 2000 – 2001

- Income from the UK private sector accounted for £3.7 billion or 27% of all HEI income.
- HEI overseas income (or gross export earnings) were £1.3 billion.

Kelly, Marsh & McNicoll *The impact of higher education institutions on the UK economy*, Universities UK 2002

Summary of key points

Sector diversity

While the diversity of UK business is well understood, policy makers and others outside higher education commonly overlook a similar diversity that already exists within the UK higher education sector. HEIs in the UK range from small, highly specialised agricultural, music (Royal College of Music 552 full time equivalent (fte) students), drama and art colleges through to the large (The University of Leeds 25,509 fte students), multi-disciplinary and research-led universities which compete globally in scientific and technological arenas.

This diversity is a major strength of UK higher education and is reflected in the sector's ability to react to change, and in its contribution to the economy. Some HEIs will naturally and appropriately relate to the big 'corporates', others more to small to medium sized enterprises (SMEs) or to alternative kinds of employers such as the health service, local authorities and other not- for-profit sectors.

It is important to remember that the primary role of HEIs is knowledge transfer, not merely technology transfer, and that the creative and performing arts, for example, have an important part to play in this. As the CBI acknowledges¹ "collaboration with higher education is not limited to science and technology. There are also links with higher education institutions in fields as diverse as new media, entrepreneurship, management, food, law, tourism, transport logistics, retail operations, risk, psychology and stress management".

In addition, all HEIs have some non-commercial element to activities undertaken as part of their mission to support their wider community and, for example, the goal of social inclusion.

With this in mind, solutions designed to maximise the links between higher education and business need to recognise the diversity of the sector. There is no single model for HEI-business collaboration and generalisations, whether of business or of HEIs, are unhelpful. The relationships and interchanges are complex, but essential for the UK economy. It is essential to distinguish between the kind of collaboration with business that properly forms part of an HEI's mission to support its wider community, and that which is unequivocally commercial.

Collaboration

Few businesses wishing to maximise their advantage, innovate and grow can do this alone. Most will need to call upon outside sources of knowledge for new ideas. This, coupled with the continuing demand for highly skilled employees, provides a fertile environment for collaboration with HEIs.

There is already a huge range of collaboration on which to build. All HEIs are now engaged at some level in collaboration with business. For a small number of HEIs this collaboration is spread across the whole institution. But for most, the level of engagement varies between subjects and departments.

¹ The Confederation of British Industry (CBI) response to the Lambert Review, April 2003

Many point to long traditions of working with business and spectacularly successful, mutually beneficial collaboration². For others, engaging in commercially driven collaboration is more recent and has required major cultural and behavioural change. For these HEIs, considerable commitment is needed to achieve this change. Nevertheless, some elements of the contrasting environments within which HE and businesses operate (for example, their legislative, regulatory and financial conditions) may restrict an individual HEI's ability to change. Regardless of the level of institutional commitment, many of these factors lie outside the HE sector's control.

There has been much progress - UK HEIs earned £126 million from UK industry and commerce in 2000/2001³ - and the sector deserves praise for what has been achieved. But the level of change required of HEIs should not be underestimated. Unrealistic expectations of the timescale for the achievement of these changes should be avoided – and consistency of Government policy and continuity of public funding and other supportive initiatives are critical to their continued development.

Barriers to collaboration

HEIs need support in a variety of ways as both the marketplace and their capacity to deliver grows in scale and sophistication. There is a need for greater understanding from business people, and those who support them, of the potential for engagement with HEIs. They need to know how to approach HEIs and be given evidence of the direct benefits of doing so – and there is a role for universities in breaking down these barriers, which might be as much a perception as a reflection of reality.

Regional role

Regional Development Agencies and local business support organisations have the market intelligence and experience to address the regional roles of HEIs. The use of these, via strategic partnering, will become increasingly critical to successful long-term reach-out from HEIs, especially those involving SMEs. A new impetus within the regions to collaborate between intermediaries both those outside (e.g. RDAs, Small Business Service), and those within HEIs (e.g. Industrial Liaison Offices), would be timely.

Public sector risk

Many collaborative activities with business have a degree of risk for HEIs. In common with their counterparts in other organisations in receipt of substantial public funding, senior managers in HEIs have to be mindful of their accountability for public funds. Clear acknowledgement of the risks involved and systems to minimise the consequences of failure are required. The development of this approach requires the support and guidance of appropriately experienced members of University Councils or Boards of Governors.

Where collaborative activities with business are undertaken on a full commercial basis, businesses need to understand that these activities will not be publicly subsidised. Businesses must expect to be charged a price that reflects the full economic cost of that

² Case studies illustrating good practice in HEIs are provided in the main report

³ *Higher Education Business Interaction survey*, Academic Year 2000-2001. HEFCE, March 2003

activity. So it may be that HEIs are unable to compete on price with alternative suppliers and businesses may find that some HE services are too costly.

Governance and Management

Universities UK, in conjunction with the Committee of University Chairmen (CUC) and the Association of Heads of University Administration (AHUA) conducted a survey of institutions on governance and management issues relating to business and industry links. The survey sought information on the business and industry links of the external members of the governing body, the level of business and industry input into decision-making processes, and how the university-business interface is managed.

The survey results demonstrate that:

- institutions call upon an extensive range of professional and business expertise in their governance arrangements;
- this expertise is incorporated into key areas of the decision making structure of institutions; and
- a variety of ways of interacting with business are flourishing in institutions.

Principles

There are a number of recommendations produced by the consultants, all of which have Universities UK support. The key principles underpinning these recommendations are set out below:

- Strategies need to be developed by HEIs to enable the business community to gain a better appreciation of the diversity of universities and colleges and especially, what they can offer and how that can be a major contributor to business competitiveness. In this task they need the full support of Regional Development Agencies and local business support organisations.
- HE reach-out to business needs to flow from the core teaching and research activities of HEIs, and should not be regarded as a separate 'third leg'.
- Project management training across HEIs needs to be given a much higher priority so that those wishing to engage with business, and those with a responsibility to promote and support engagement, acquire the skills to succeed. Government should be aware that resources will need to be provided for this.
- HEIs and businesses should be more actively encouraged by Government to offer work experience to students, for example on sandwich courses, and existing provision must be protected when the new tuition fees arrangements come into play.
- Best practice for the handling of IPR in university - business interaction needs to be agreed and promulgated to minimise barriers to co-operation.

- Mechanisms need to be developed to ensure that businesses can input effectively into curriculum design and delivery at undergraduate and postgraduate levels and especially into Foundation Degrees.
- A clearer definition is needed of the roles and remits of HEIs and businesses, intermediaries (e.g. RDAs, Small Business Service) and those who are promoting knowledge transfer both within and outside HEIs.
- There must be consistency of Government policy, and continuity of appropriate public funding, for HE-business collaboration. Commitment of HEIs to reach-out will be directly related to the degree of commitment by Government and the funding bodies.

Section 1: Consultants' report on business – university collaboration

1. Introduction

This evidence has been prepared through desk research drawing on existing published material, on the outcome of three seminars organised by Universities UK, held in Newcastle, London and Edinburgh, and on examples of good practice supplied by higher education institutions (HEIs). The desk research drew on the survey of HE-business collaboration undertaken by HEFCE⁴ as well as a range of publications offering guidance to institutions and examples of good practice.

The three seminars brought together people from business, senior managers from HEIs, dedicated “reach-out” staff from within HEIs, representatives from regional associations of HEIs and representatives from external business support organisations with a potential or actual intermediary role. The seminars were designed to inform the debate about barriers to collaboration as perceived by businesses of different types, and to identify ways in which such barriers had been or could be overcome in practice.

The case studies of good practice and success in HE-business collaboration presented in the text have been chosen to complement those included in the documentation already provided to the review team.

Although the terms of reference of the Lambert review are focused on science and technology and the role of HE-business collaboration in technology transfer, Universities UK considers it important to stress that all disciplines can and do contribute to business development and success, especially where business includes the creative industries, health services, local authorities and other not-for profit organisations. This evidence therefore relates to the contribution of higher education to all business activities and not simply those related to science and technology – knowledge transfer rather than just technology transfer.

We should also emphasise that we were asked by Universities UK in preparing this evidence to reflect the perceptions of businesses, the demand side, and not simply the views of HEIs. It is, however, often difficult to secure views from the demand side. This coupled with the diversity of UK businesses in terms of size and type of activity, and the diversity of HEIs make it difficult to draw general conclusions. Nevertheless, we believe that the number and range of businesses that were represented at the seminars, taken with other published evidence, has enabled us to draw some useful pointers and recommendations.

⁴ *Higher Education Business Interaction Survey Academic Year 2000-2001*, HEFCE March 2003

2. Background

2.1 The Perspective of Business

The terms of reference of the Lambert review make clear the importance attached to securing the views of businesses on the effectiveness of their relationship with HEIs. It is essential in our view to recognise at the outset the sheer diversity of business in the UK.

The Table at Annex A provides a breakdown of the number of businesses, employment and turnover by size of business in 2001⁵. The main features are summarised in the box below.

The Business Scene in 2001

- Over 3.7 million UK businesses
- 99% were small enterprises with fewer than 50 employees
- less than 28,000 were medium sized with 50 to 249 employees
- less than 7,000 were large businesses with 250 or more employees

Employees

- 43.4% in small enterprises,
- 12.0% in medium sized businesses
- 44.6% in large businesses

The high proportion of employees in SMEs is particularly marked in certain sectors such as agriculture and construction where well over three quarters of employees work in SMEs.

In general it is larger businesses and hi-tech, sophisticated research-driven businesses of any size that tend to relate readily to HEIs. For example a recent CBI survey of its 200 largest members found that 84% have some links with universities. In 2000-2001, 37% of research contracts between HEIs and businesses were with SMEs. However these contracts only represented 13% of the total value of such contracts⁶.

Few businesses that wish to maximise their advantage, innovate and grow can do this alone. Most will need to call upon outside sources of knowledge, new ideas and obtain help with developments. 52% of respondents to the CBI survey stated that the most significant benefit of working with higher education is access to world class research and thinking - the quality and intellectual ability of researchers:

46% of respondents said that access to potential recruits – to prepare job seekers and improve the quality of graduates – was the most significant benefit of working with higher education, reinforcing the fact that demand for highly skilled employees remains strong.

⁵ *Small and Medium-sized Enterprise(SME) Statistics for the UK, 2001* SBS Press Release, updated October 2002

⁶ *Higher Education Business Interaction Survey Academic Year 2000-2001*, HEFCE March 2003 (Table B2)

Together, it is clear that these provide a fertile environment for mutually beneficial collaboration with HEIs.

2.2 Small and medium sized enterprises (SMEs)

Even for smaller, unsophisticated companies that wish to grow and develop and with little knowledge or experience of HEIs, input from an HEI into business operation, products or processes can have a dramatic impact on the company concerned. However there are often difficulties at the point of initial engagement as neither party is fully equipped to make the connection:

- SMEs are very often short term - concerned about survival above all else and this provides little time to seek external solutions from HEIs, or others.
- SMEs may not be able to afford the full economic price charged for advice by an HEI and HEIs cannot afford to subsidise such activity unless it can be justified in investment terms or it can be contained within the wider mission of support to its community.
- The needs of SMEs tend to be different in kind than those of larger businesses. It is not simply a matter of scale.

For the reasons above SMEs are always a more difficult group with which to engage whether for an HEI or regional/national government or agency. Some may ask the question “are SMEs worth the effort?” despite the fact that many of those SMEs are essential to the development of the local or regional economy.

i. University Tie-Up

A new type of low-cost wall tie has been developed by a small company with the help of design experts at Northumbria University.

Cavity walls are held together by wall ties, which are traditionally made in mild steel in a fishtail shape with a galvanised finish. Unfortunately, some are not galvanised and over time, these old style metal ties can corrode and lead to the potential collapse of the wall. The replacement of old ties, especially in houses, is a significant sector in the building trade but the work involves several processes and is time consuming and expensive. Using these new ties the job involves just one quick operation saving hours of work and expense.

Using the latest computer aided design (CAD) technology, University engineers from the Centre for Rapid Product Development assisted in the design of the new wall tie, the production of a prototype and test work.

The company plans to go into full production with the new product before the end of the year and is confident that it can corner a significant part of the lucrative wall tie replacement market.

Brian Tellum, who runs 1st Remedial Products, said: *“We wanted a unique wall tie that could be put in place quickly and at low cost but we could not have turned our ideas into reality without the help of Northumbria University. It meant a massive leap forward in terms of product development. I cannot stress enough how helpful Northumbria University have been to us”*. He added *“Small businesses like ours really need to be aware of the wide range of services they can access through universities, not just technical but also help in such areas as marketing and business development. **The sooner the small business community ‘cotton on’ to the idea of seeking help from the universities, the quicker their business will grow.**”*

The project has been so successful that the company is now working on another new product in collaboration with both Northumbria and Sunderland Universities.

2.3 The Public Sector

Much of this evidence is concerned with collaboration between HEIs and with private sector businesses but is equally applicable to other employers in public sector organisations such as the NHS, local authorities and not-for-profit organisations. For some HEIs, because of the nature of their profile, collaboration with public sector bodies or not-for-profit organisations may be more common than collaboration with traditional businesses.

Furthermore, for industries such as pharmaceuticals and biotechnology, the university/NHS partnership is crucial where university staff are also working in the health service, and can provide the necessary research expertise and link to patient care. The relationships and interchanges are complex, but essential for the UK economy, and its healthcare. Of the world's top 50 pharmaceutical companies, 48 have chosen London or the South East for a base. The concentration of medical education and research expertise in the region is also a factor in attracting the 40 US biotechnology companies based there.

2.4 International Considerations

The role of universities in knowledge transfer has been raised by the European Commission in a recent consultation paper⁷, which addresses some of the issues raised by the Lambert Review. However the Commission's emphasis appears to be on big science and technology transfer with little reference to knowledge transfer from creative

⁷ *The role of the universities in the Europe of knowledge*: Communication from the Commission of the European Communities, February 2003

arts, social sciences or humanities. The consultation also fails to address the importance of highly trained personnel as a vehicle for knowledge transfer.

One element of the strategy set out in the consultation paper is the development of “effective and close collaboration between universities and industry”. However, the EU’s own data from the Community Innovation Survey suggests that less than 5% of innovative companies in the EU considered information from universities or other HEI’s or similar public sector research organisations as being a very important source of information⁸. It is worth noting that 1996-1997 data is used in this recent report.

There are, nevertheless, many examples of good practice in business-higher education collaboration in other European countries such as the Fraunhofer Institutes in Germany. These are the subject of frequent study by UK HEIs. International benchmarking in knowledge transfer is beset by definitional issues and operational differences that do not compare without difficulty.

ii. World Class Logistics

FWL Technologies is a rapidly growing, Liverpool based company with around 400 employees, £20 million turnover and 5 sites worldwide. It provides software, consultancy and hosting services to companies engaged in transport and logistics. The company is now a world leader in web-based, e-commerce solutions for intermodal logistics and supply chain management. This was made possible by a collaboration with researchers at Liverpool John Moores University who introduced the company, via an EU funded Framework Programme grant, to new and emerging technologies.

Neil Garland, Chief Executive of the company, said: *“Without the collaboration with JMU we would not have been able to access the funding and the international network that we did to support the R&D that has underpinned our current generation of products and services. The technical expertise of JMU in advanced technologies, for reactive and flexible planning and scheduling, was fundamental in opening our eyes to new possibilities for software supported logistics management. The JMU staff are comfortable working in a business environment and extremely professional.”* The products and services that emerged from this R&D project now account for some 30% of turnover and are sold world-wide to customers including 5 major global freight companies and 8 of the world's largest shipping companies. The project provided direct support to the University’s research activity, has resulted in ongoing collaboration, and has been instrumental in bringing both partners together in the Mersey Maritime initiative in which they collaborate with over 500 Merseyside-based transportation companies in business development, research and training.

⁸ *Statistics on Innovation in Europe data 1996-97*, EUROSTAT

2.5 Diversity of Institutions

In practice the range of collaborative activities that any HEI is likely to be involved in will depend on the HEI's particular strengths and will be grounded in either the teaching or research activities of the HEI. Participants in the seminar felt it was wrong to treat these collaborative activities with business as if they were independent from teaching and research. These activities build on existing areas of expertise or the research interests of individual academics or groups of academics. Furthermore, collaboration which starts from addressing a business problem can convert to a research opportunity for the HEI, and will very often be followed up with the need for skills training for the business's employees.

All those concerned to see more effective collaboration between HEIs and business must understand the relationship between research, teaching and reach-out to business. Engagement with business can be seen as the third element of an HEI's mission within a single domain alongside teaching and research (as commonly described by actively engaged and successful 'champions' within HEIs).

What policy makers and others outside the system also commonly overlook is the enormous variety of HEIs in the UK, each with very different characters and traditions that can be reflected in their mission, governance and leadership. This diversity of HEIs is typically made up from:

- Universities established before 1992, usually with a strong research focus, with between 10% and 50% of total income from research activities;
- New universities, formed after 1992 from Polytechnics, usually with a strong vocational focus to their programmes and a concentration on applied research and consultancy rather than pure or strategic research and often with a long tradition of working in collaboration with business;
- General colleges, similar in some aspects to new universities although many having their origins in teacher training, from which they have subsequently diversified;
- Specialist art, agriculture, design, music and drama institutions.

This diversity is one of the strengths of UK higher education and will be reflected in the way different HEIs react to the kind of change implied by the current agenda.

It is unrealistic to expect that all HEIs could engage in a similar way, across a full spectrum of interaction with business and begin to deliver results quickly: some parts of HEIs have little experience of engaging with business. Despite this, impressive progress has been made by HEIs in developing effective collaboration with business, as evidenced by the recent HEFCE survey.

It is important that this kind of activity is not seen as just confined to science and technology. Too often the term 'technology transfer' is used, instead of 'knowledge transfer'. This places false constraints on a debate that should encompass and recognise that HE knowledge transfer includes not least the education of some 2 million students at any one time, as well as the work of UK Business Schools and the wide spectrum of work related to the health services, local authorities and other not-for profit organisations.

There is a danger of overlooking one of the fastest growing sectors of the economy - the creative industries grew by an average of 9% a year between 1997 and 2001. Exports have grown at around 13% a year between 1997 and 2000 and in 2000 contributed £8.7billion to the balance of trade (3.3% of all goods and services exported). In December 2001, creative employment totalled 1.95 million jobs and between 1997 and 2001 employment in the creative industries grew at a rate of 5% a year compared to 1.5% for the economy as a whole. Creative industries accounted for 7.9% of GDP in 2000⁹.

The UK has exceptional and world-renowned skills in these sectors. In music, media, animation, PC games, product design and fashion, UK graduates are widely considered to be among the most innovative in their fields. There is a longstanding tradition that academic staff in the creative arts are themselves practitioners, thus providing a basis for fruitful collaboration with business.

There is substantially more to knowledge transfer between HEIs and business than that from the science and technology base in HEIs as the example of the creative/media industries illustrates. It follows from this that there can be no single model for mutually beneficial relationships between business and HEIs. There are, however, some common factors that can apply to successful relationships of very different kinds. This point is addressed further below.

The Higher Education Business Interaction Survey (HEBIS) for the academic year 2000-2001¹⁰ seeks to bring out these differences by analysing data on the basis of the research intensity (RI) of institutions. RI is defined as the total of the HEFCE 'R' (research) grant and the DTI's Office of Science and Technology (OST) research grant as a percentage of total income. Institutions are then placed in order of RI and divided into three groups of equal number – higher, medium and lower. Although, as would be expected, analysis of the data using these three categories shows marked differences for such indicators as the number and value of research contracts and patents applied for, there is much less difference on other indicators such as providing courses for business. As the HEFCE report acknowledges, this indicator of research intensity is arbitrary and does not indicate specific strengths of HEIs¹¹.

Many HEIs have had relationships with businesses for many years, but these have usually been with larger businesses and have sometimes been at the periphery of the HEI's core activities. The introduction of public funding support (so-called 'third leg' or

⁹ http://www.culture.gov.uk/creative_industries/default.htm (Creative Industry Facts and Figures, DCMS)

¹⁰ *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003

¹¹ *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003

'third stream' funding) through initiatives such as Higher Education Reach-out to Business and the Community (HEROBC) and, more recently, the Higher Education Innovation Fund (HEIF) has enabled HEIs to make collaboration with business part of their core business. These initiatives have made a good start in providing HEIs with funds to invest in the infrastructure and staff that are critical to the successful integration of this activity within HEIs, and the development of appropriate protocols and procedures. This sort of systematic approach, so necessary to the longer-term development of higher education-business collaboration, has only recently been recognised and funded by Government

Many HEIs increasingly understand how to play to their strengths in this field and recognise the importance of both incorporating these activities within their strategic plans and the need to monitor performance. By the academic year 2000/2001 nearly half of all HEIs had in place a strategic plan for business support that was largely accepted across the institution¹².

2.6 The Government's White Paper – *The Future of Higher Education*

Universities were pleased that the White Paper, *The Future of Higher Education*, recognises the benefits of higher education as key to the economic health of the nation and recognises the importance of knowledge transfer. However knowledge transfer is carried out across the sector and not just in "the less research-intensive universities" and through "knowledge exchanges". It would be wrong to seek to restrict in this way universities' options to work with business. This risks a fragmented higher education sector unable to respond to expectations for regional and national economic growth and development. Applied work depends on the link between research and knowledge transfer and would be put at risk by any artificial stratification of the system.

Universities UK's response to Government on the White Paper asked for consultation on the methods by which knowledge transfer and the knowledge transfer centres will be assessed, in order to avoid any unintended consequences. In addition, it urged that changes to the funding streams for research and knowledge transfer be co-ordinated to ensure that any financial fluctuations are minimised, and that institutions have the ability to respond positively to this agenda.

The key area of concern in this section of the White Paper is the proposal to 'promote a clear and crucially important mission in knowledge transfer for the less research-intensive universities. We wish to see these universities concentrating on acquired technology and working mainly with local companies through consultancy rather than licensing new technology' [para 3.5]. This is seen as an attempt to balance the proposals in the chapter on the funding of basic research.

This issue is linked to Government's belief that there is a lack of strong evidence about the relationship between teaching and research. Furthermore, it does not seem to take account of the fact that 46% of university research funding comes from external sources

¹² *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003 (Table A2i and Fig A2ii)

(including industry) – including substantial sums earned by HEIs that do not receive significant public funding for basic research - and their increasing involvement in the knowledge transfer process.

This focus on the role of less-research intensive universities on knowledge transfer needs to take into account the RDA agenda, regional science strategies, and the scope for greater institutional collaboration at regional level. A wide range of universities are already making a substantial contribution to these agendas.

iii. ROYAL COLLEGE OF ART ‘Selected Works Scheme’

Since 1998, the Royal College of Art has actively selected student design work with promising commercial potential and has worked with the student to protect the intellectual property, develop the project and liaise with industry to commercially exploit it. Students enter into an agreement with the College whereby any profits made from the licensing of the product are shared between the College and the graduate on a 70% student, 30% college basis. The selection is made by a jury of specialists that includes external business input.

In 1999 the College selected a project by Andreas Raptopoulos, a final year industrial design engineering student. Andreas had designed the ‘Sound Curtain’- a partitioning curtain device that could be used to create private, quiet spaces within otherwise busy, noisy environments. The curtain housed microphones, loudspeakers and a digital signal-processing system that recognised disruptive noise and filtered it to create a smoother sound output. Andreas saw the curtain being used primarily in open plan office environments but also saw other applications in domestic, airport and hospital markets. The College applied for a patent.

Andreas won the British Standards Institution Award and received wide press coverage for the curtain. Following his graduation, contact was made with a number of office furniture manufacturers resulting in one large furniture manufacturer, based in the United States, expressing great interest in the ‘Sound Curtain’. The College, its lawyers and Andreas have negotiated a world-wide licensing deal resulting in a down payment and an initial two-year royalty deal.

Since that licensing agreement was agreed, Andreas has worked with the furniture manufacturer to develop the product further. The product is currently undergoing user testing in readiness for its launch on the market next year.

The College is now working with Andreas to exploit the principles of the ‘Sound Curtain’ in fields other than office furniture.

3. Types of Activity and Income

There is a very wide range of activities that come within the scope of business-higher education collaboration. These activities have been usefully defined in the recent HEFCE Higher Education Business Interaction Survey¹³ as follows:

- **Collaborative research with business**- this includes such publicly funded schemes as CASE¹⁴ studentships and the TCS programme, but also includes the provision of equipment-related services such as analysis, measurement and testing. UK HEIs earned around £260m from contracts with UK Industry and Commerce in 2000/2001, representing 12% of total research grant and contract income;¹⁵
- **The exploitation of Intellectual Property** – this includes patenting and licensing to businesses. UK HEIs earned around £18m from the exploitation of IPR in 2000-2001;¹⁶
- **Consulting activities for business** - UK HEIs earned £126m from UK Industry and Commerce in 2000-2001 - 19% of total income from Other Academic Services;¹⁷
- **Spin-off firms** - Spin-off firms of all types from HEIs are estimated to have had a turnover of £340m in 2000-2001 and the income from the sales of shares by HEIs in such companies was around £30m in 2000-2001;¹⁸
- **Training and personnel links** – this includes the monitoring of skills needs and changes in business sectors through gathering Labour Market Intelligence (LMI), the development of content and the regular reviewing of the curriculum of individual courses, undergraduate placements in business, and the provision of courses for business. In 2000-2001 the total income from the provision of courses for business was estimated to be around £150m, a significant increase compared to 1999-2000;¹⁹
- **Economic regeneration activities** - funded by the EU or central government funded regional development programmes and other partnerships with regional or local players. Income from EU sources for UK HEIs for research grants and contracts and for other services rendered in 2000-2001 was £225m: this is 8% of total income²⁰.

The total income from these activities of just over £800m was about 6% of total HEI income of £13.5bn in 2000-2001. This compares with 54.3% of total income for teaching and 24.2% for research activities in 2000-2001. However there is some

¹³ *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003

¹⁴ *CASE – the Collaborative Awards for Science and Engineering* funded by the Engineering and Physical Sciences Research Council (EPSRC)

¹⁵ *Resources of Higher Education Institutions 2000-2001*, Higher Education Statistics Agency 2002

¹⁶ *Resources of Higher Education Institutions 2000-2001*, Higher Education Statistics Agency 2002

¹⁷ *Resources of Higher Education Institutions 2000-2001*, Higher Education Statistics Agency 2002

¹⁸ *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003 (Table E1 Table E2)

¹⁹ *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003 (Fig F5ii)

²⁰ *Resources of Higher Education Institutions 2000-2001*, Higher Education Statistics Agency 2002

overlap between the incomes from collaboration with business and teaching, and research income.

In addition businesses have a more crosscutting engagement with HEIs through:

- Working with HEI Careers Services and academic departments to assist with the attraction, employability, development and retention of graduates.
- Providing vital support and direction through serving on Councils or Boards of Governors and HEI Committees.

iv. Disaster Monitoring Constellation

Surrey Satellite Technology Ltd (SSTL) specialises in the design, manufacture and operation of high-performance, low-cost small satellites provided against rapid timescales to meet both civil and military Earth observation, communications and space science applications. Over the past 22 years SSTL has launched 21 small satellite missions into low Earth orbit for international customers, pioneering the use of commercial 'off-the-shelf' technologies. Its experience of missions and in-orbit operations is unmatched by any other commercial satellite manufacturer, earning the company more than £75 million in contract sales, 90% in export trade.

Established in 1985, SSTL is a University of Surrey owned company employing 150 staff at the Guildford campus. Three spacecraft are currently under construction at SSTL's purpose-built facilities for the Disaster Monitoring Constellation (DMC). This is a novel international co-operation in space, led by SSTL, bringing together organisations in Algeria, China, Nigeria, Turkey and the United Kingdom to launch a constellation of small satellites to provide Earth observation images to the international disaster relief community in partnership with Reuters AlertNet. The DMC is an example of a new generation of advanced small satellites pioneered by SSTL that can work together to provide outstanding capability at an exceptionally low cost. It will also form the first-ever micro satellite constellation bringing remarkable Earth observation capabilities both nationally to the individual satellite owners, and internationally to benefit international humanitarian aid efforts.

The first satellite, AISAT-1 for Algeria, was launched on 28 November 2002 and is fully operational, delivering outstanding Earth observation imagery. AISAT-1 will be joined in orbit by a further three satellites for Nigeria, Turkey and the UK in July 2003 – all built at the Surrey Space Centre in Guildford – with a contractual value of almost £30 million. A further DMC satellite is planned for China in 2004.

As a University spin-off company, SSTL also has the distinctive capability of providing knowledge transfer and training programmes to participating nations in the DMC programme so that they may acquire a core of experienced and technically competent satellite engineers able to develop their own independent small satellite programmes. Teams of engineers from each country spent 18 months at Surrey working alongside SSTL engineers to build their participating DMC satellite.

4. Consultation Questions

4.1 Identification of Good/Successful Practice

Within the body of this submission several case studies of successful and good practice of collaboration between HEIs and businesses are provided. These represent the tip of the iceberg of examples of successful collaboration. Other evidence has also been sent to the review team²¹.

We have sought to identify from these examples, from the business people we have talked to during our recent series of seminars, and from desk research, the generic features of good practice in this area and, in particular, what works. These include:

- **HEIs** led by visionary, enthusiastic champions of change that make clear to their communities, within and without, where the activity of engagement with business sits within the core values of higher education in general, the importance of that to their particular HEI as part of a single domain alongside teaching and research, and of the benefits of engaging. Consistent with this, coherent strategic planning that incorporates collaboration with business alongside teaching and research.

Essentially a consistency of vision, mission and strategic planning is essential if leadership at all levels is to communicate its enthusiasm more widely and effectively to other staff within the HEI.

- **Business people** who understand the potential contribution HEIs can make to the competitive advantage of their business in both the short and long term and who know how to access appropriate people within an HEI. Businesses that understand and are prepared to make allowances for the differences of culture in their engagement with HEIs.

Within the huge diversity in size and type of businesses in the UK, in practice it is usually the larger or more sophisticated businesses, central to the knowledge economy and its future growth, that have this understanding and ability to access their needs from HEIs.

- **An HEI** that knows its own strengths, knows its potential customers, knows what it can effectively deliver of value to itself and to its customers and communicates that message effectively to whoever might be interested.

HEIs that also understand and utilise the tactical importance of intermediaries such as the Small Business Service through its Business Link network and internal

²¹ *The University Culture of Enterprise – knowledge transfer across the nation*, Universities UK May 2002
Meeting of Minds – how business gains from working with Universities and how universities gain from working with business, Design Council 2001
Spin-offs and start-ups in UK universities, Universities UK 2000
The impact of higher education institutions on the UK economy, Universities UK 2002

Business Development Units, whether these are internal or external, in assessing markets and in communicating those messages.

Most HEIs have already set up physical or virtual portals to communicate what they can offer and these are seen as a helpful first step in directing enquiries and responding to requests from business. Some, like 'Knowledge House' in the North East, represent all HEIs in the region and can provide an overview. Ultimate success is measured by the extent to which an HEI delivers services and products that please its customers. The case studies within this submission attest to many such successes.

- **An HEI** that appreciates the importance of, and engages in, strategic partnerships to deliver its long-term mission to contribute to business and the economy.

Entering into such partnerships is something that requires a recognition of the investment in time required. Success often depends upon the willingness of **both parties** to accept the opportunity costs as an investment and to plan accordingly.

- A clear understanding and acceptance by **both parties** of when it is appropriate for collaboration to be carried out on a clear commercial basis, including a need for some up-front investment.

This requires HEIs to have in place a framework of procedures and protocols able to accommodate the very wide range of interactions with businesses that can occur from contract-based, through collaborative, to the more speculative and uncertain exploitation of discovery. Arrangements need to be flexible and of a kind in which all partners can have confidence. Such arrangements also assume **businesses** are willing to pay a price based on the full economic cost of services, taking into account the competitive pressures on prices.

- The provision by HEIs of facilities such as Research Parks, Science Parks and Innovation Centres that provide businesses with access to more general HEI facilities such as Libraries and ICT centres. Experience indicates that such facilities tend to attract the kind of businesses that can see the benefits of collaboration with an HEI and know how to access them.
- **An HEI** that has changed its behaviour so that it helps, not hinders, the successful pursuance of engagement with business, consistent with what the leadership of the HEI is saying about the relative importance of such engagement.

This includes help for staff with engagement especially where business problems need translating into opportunities ('complementarity') and other consistent behaviour such as that reflected in incentive and reward arrangements that are equitable with those for teaching and research.

- The provision of training by **HEIs** so that those who wish to engage with business, and those who have a responsibility to promote and support engagement, are given the skills to succeed.

Contributions to the design and delivery of that training, by business, can be very effective.

- **An HEI** that actively engages appropriately experienced members of its Council, or Board of Governors, in the management of the increased risk that will emerge from increased collaboration with business. An HEI that is able to accept, manage and learn from failure. A willingness of Governors or Council members from business to accept an active and responsible role in helping to bring about the necessary culture change.

v. **Fully Committed Industrial Partners**

The Queen's University Environmental Science and Technology Research Centre (QUESTOR) is an example of an Industry/University Co-operative Research Centre (IUCRC) as developed by the American National Science Foundation. It was founded in 1989 and is the only Centre of this type outside the USA. QUESTOR is a partnership between the University and industry and features high quality, industrially relevant, fundamental environmental research and the transfer of knowledge to industry for commercial exploitation. The Centre employs a staff of 45, has a current turnover of £1.6 million and makes a significant contribution to the Northern Ireland economy.

A key factor in the success of the Centre has been the way communication between academic staff and staff from the industrial partners has been managed to ensure that the needs of both are met. Industry partners are represented on the Industrial Advisory Board (IAB) which is an integral part of the management of QUESTOR, advising the Director on all aspects of the Centre, from selection of research projects to strategic planning and, from the outset, close attention was given to the manner in which academics interacted with the industry. All IAB members have common ownership of the research portfolio.

Perhaps the strongest indication of the QUESTOR Centre's success has been the continued participation of industrial partners, even during periods of economic fluctuation. This follow-on investment by companies provides the most tangible evidence of the industrial relevance of the research and of the successful transfer of knowledge and ideas.

4.2 Perceived Barriers to Improved Collaboration between Business and HEIs

- **Misconceptions about values and benefits**
- **Organisational Behaviour**
- **Staff Training**
- **Lack of understanding by business of universities**
- **The need for improved marketing**
- **The role of intermediary bodies**
- **Risk**
- **Time**

- **Misconceptions about values and benefits**

Evidence from the discussions at the seminars and from other sources suggest that the main barriers to success are a set of mutually interlocking aspects. Not surprisingly these barriers mirror the features of successful collaboration.

There is an element of received wisdom that believes that an academic must substitute the values of business for those of academe if they are to collaborate successfully. Similarly, there is a common belief that successful collaboration is all about money. Studies²² have demonstrated neither of these to be the case but these beliefs remain significant and are common cultural barriers to successful business-university collaboration.

It has been the job of HEI leadership, at all levels, to communicate across the institution a real understanding that the engagement with business can be:

- part of the set of 'core values' of higher education (the acquisition of knowledge and knowledge transfer via the education of people), alongside the conduct of teaching and research;
- capable of providing substantial benefits that map directly on to those core values.

These substantial benefits typically provide universities with access to acquiring knowledge not otherwise available to them. They ensure the vitality of materials used in teaching and provide the means by which other activities, including cutting-edge research (of long-term importance to HEIs), can be resourced.

It is clear from our responses that successful reach-out from HE to business is to become embedded as a core activity for an HEI, it must be something motivated by much more than simply the means of compensating for short-term deficits in funding from conventional sources.

²² *Higher Education Winning with Business*, Department of Trade and Industry (DTI) in collaboration with the CBI, the Association of University Research and Industry Links (AURIL), Universities UK, SCOP, OST, DfES 1998

Both business and the HE sector need to recognise that they are working from quite different motivational bases. Business is driven by profit and the 'bottom line' whilst academe is driven by a curiosity that fuels the pursuit of knowledge through research and scholarship, together with a desire to communicate such knowledge through research publication, higher education teaching and practical application.

For successful collaboration the benefits of engaging need to be clear to both parties in an environment of complementarity. This requires an effective infrastructure with highly skilled staff that can translate the requirements of business into a research or teaching opportunity for academe and vice versa.

The Research Assessment Exercise (RAE) is an example often quoted to demonstrate these misconceptions that can result in a pecking order of research, followed by teaching, followed by enterprise. Whilst contract research for business does not automatically lend itself to the requirements of the RAE, it is nevertheless equally as important as other areas of research endeavour.

Business too needs to be aware of what those core values and activities are for a university, how they differ from business, and have an appreciation of some of the elements that might usefully contribute to mutually beneficial collaboration. Too often businesses seem to think that engaging with a university is all about trading ideas for money, which could not be further from the reality²³.

vi. Mediated access to academics

The School of Chemical, Environmental and Mining Engineering at the University of Nottingham has operated a dedicated knowledge transfer unit since 1996 - the Environmental Technology Center (ETC). To minimise disruption to the School, it has a philosophy of mediated access to academics where business support is undertaken by specialist staff with academics only becoming involved as appropriate. The general approach is for ETC staff to visit a company, identify potential areas for collaboration and provide an action plan for their academic colleagues and the company.

One typical case involved a very small engineering company (4 employees) that approached the ETC for assistance with the design of a compactor to process plastic wastes. The intention was to reduce the volume that plastics use up in landfill. ETC staff suggested refinements that improved the design and resulted in a compact, user-friendly unit that reduces plastic volumes by up to 40 times. They also facilitated a demonstration to a very high profile client and, as a direct result, a prototype has been installed in a major government building. The outcome has been a huge reduction in the number of trips required by their local waste disposal contractor - with attendant cost and environmental advantages. ETC suggested alternatives to landfill for the compacted plastic and brought in School academics to discuss technical options.

²³ *Meeting of Minds – how business gains from working with universities and how universities gain from working with business*, Design Council 2001

The School is undertaking a sponsored MSc project to provide a lifecycle analysis of the process and the company and two of their customers would like to sponsor PhD projects to look into the manufacture of fuel pellets and process feedstock from the compacted material.

Further work is to be carried out in the areas of handling and mechanical preparation of the waste prior to processing.

- **Organisational Behaviour**

There is a perception that many HEIs need to change their policies so that they provide a supportive environment that helps (not hinders) staff who are motivated to engage with business. There are many examples of discovery within HEIs where a business partner, by serendipity, saw the commercial opportunity and was able to exploit it on a spectacular scale. Equally, within most HEIs there are the 'champions', determined people who succeed despite whatever obstacles prevail. For the majority of academic staff however, the behaviour of the organisation itself has a big influence upon how they react to change: whether they take the rhetoric of the leadership seriously; whether they trust the changes will be long term and worthy of them making an effort; and whether they believe their engagement is likely to be in the organisation's and, especially, in their own personal best interest.

Many of the characteristics required for HEIs to deal effectively with business are no different to those required to forge any conventional successful relationship between a supplier and customer, involving business-like preparation, presentation, management and delivery. These characteristics are, however often perceived as significantly different to those which have served HEIs well in the past within their academic environment.

Those HEIs whose substantial involvement in collaboration with business is relatively recent appreciate that these changes in behaviour will need to take place. The commitment required to effect those changes will in turn be influenced by behaviour outside the control of HEIs – that of the demand side and those responsible for setting and supporting the general framework within which HEIs operate.

Typically, HEI policies for the treatment of intellectual property rights (IPR) and the distribution of royalties are well developed, dating back to Funding Council directives in 1992. They:

- incentivise and reward individuals and internal budget holders;
- integrate this activity alongside teaching and research within the management of workload; or

- provide an effective and disciplined approach to costing, pricing, the drawing up of contracts and the disbursement of income. Central advice^{24, 25} is now available on this following the Transparency Review²⁶.

However, some institutions were slower to develop such effective systems to underpin collaborative working with business. The advent of the ‘third stream’ of public funding over the past three years has provided a focus for the kind of changes required. Most HEIs that did not have them already have been able to use the funding to appoint business development and liaison managers with an uncommon set of interdisciplinary skills, able to relate to the business world and to academe. However, few of these have been in post long, most are under pressure and are likely to remain so until change in the organisation of their HEI itself becomes systemic.

- **Staff Training**

A particular issue that businesses frequently identify is the inability of many university staff to relate to the urgency of a particular problem as seen from the perspective of an owner-manager of a small business; or to the impact of the marketplace on pricing and value for money. This is not surprising. Many academic staff within HEIs have, until recently, had little need to engage with business and have therefore had little chance to develop the kind of behaviour necessary for them to succeed in that engagement. If HEIs are to engage to a greater extent, more staff will need to be prepared and this represents a significant training requirement.

This need for experience is particularly important in university middle managers, such as Deans of Faculty and Heads of Department. Within increasingly devolved and empowered management structures, it is precisely this group of people upon which the motivation of others and changes in behaviour and delivery can be critically dependant.

There has been much analysis of training needs in this area but not enough concerted effort in the past to providing tailored training programmes. Universities UK is working with the funding bodies and other interested parties to develop a more systematic approach to management training, including in particular those having leadership roles within institutions. These initiatives are timely and will clearly need to reflect the changing pattern of activities being undertaken by universities.

Training for engagement with business across universities needs to be given a much higher priority so that those that wish to engage, and those with responsibility to promote and support engagement, are given the skills to succeed.

²⁴ *Optimising Consultancy – a good practice guide to the management of consultancy in universities and college*, Universities UK in collaboration with AURIL, 2001

²⁵ *Partnerships for Research and Innovation between industry and Universities*, AURIL, CBI, DTI, EPSRC, Universities UK and HEFCE, April 2001

²⁶ www.jcpsg.ac.uk/Transpar/ (Report on the Transparency and Accountability of Research JM Consulting July 1999)

vii. Young Archeologists Grasp Opportunities from Changes in Legislation

Glasgow University's Archaeological Research Division (GUARD) was established in the late 1980s as a contract research and consultancy unit. It came about as a considered response to government-led changes to the way in which archaeology and heritage management were funded and organised. The key change was from public sponsorship (channelled through government departments to archaeologists working as civil servants) to developer funding predicated upon the "polluter pays" principle. These circumstances created a demand, by developers, for a professionally organised and commercially competitive archaeological service. Initially staffed mainly by a small number of young postgraduate students, GUARD was set up to provide these services, and explicitly elected to do so from within the University.

The unit has always been and remains entirely self-funding. It provides additional income for the University but it also successfully harnesses commercially sourced projects for research ends that have contributed to national research assessment exercises (RAE). Other important achievements of the unit have been the provision of training for students, job opportunities for new graduates and feedback into undergraduate, postgraduate and adult and continuing education teaching programmes of the latest developments in the applied side of the subject. There has also been a clear economic benefit to local businesses around the university, through use by GUARD of their services.

Since its inception, GUARD has grown to a unit currently employing 32 staff that provides services to clients of all types and sizes from government organisations and major multinational companies, to small businesses and private individuals. It continues to operate in both commercial and research contexts, and often orchestrates mutually beneficial crossover between the two. Though its core business market and area of research interest has always been and remains Scotland, it currently operates throughout Britain and has experience of operating in countries across three continents. As it has grown, it has also sought to diversify. Perhaps the most notable example of this has been its successful development of a highly specialised forensic service, achieved by adapting some of its in-house archaeological specialisms to assist police forces and international aid organisations in their work.

- **Lack of understanding by business of universities**

It is not always clear to business what universities have to offer and how universities can contribute to their 'bottom line'.

Many businesses argue that they find universities impenetrable. Some of this can be explained by the nature of the majority of small businesses. Generalisations can be unhelpful but many have had little up-to-date knowledge or experience of higher education, or any other source of knowledge transfer, because of their size and style of operation. Those that do have experience are positive – the CBI's 2001 report

about company culture and the use of collaboration in the innovation process is positive about higher education – business engagement. 60% of the businesses surveyed monitored academic research on a regular basis, to pick up relevant ideas. Overall, companies reported fewer problems dealing with universities when compared to other potential partners.

For sophisticated, hi-tech, or larger businesses, which commonly have specialists with personal contacts and networking capability, the situation is even better. Because of these personal contacts and subject-based networks, such specialists know exactly where to source knowledge and where to get assistance with knowledge transfer on a global basis.

There can also be communication difficulties. Academics often say that businesses do not know what they want and have a poor understanding of, for example, the distinction between education, training and the different levels of study and award. Even for the most sophisticated businesses, those distinctions are often immaterial, and many are very clear about their needs: the advent of 'corporate universities' in several large businesses is evidence of this.

They are able to source and deliver their training needs without reference to HEIs as evidenced by the low proportion (some 10%) of the estimated spend by business on training of £23.5bn spent with external providers of all kinds²⁷.

In addition, businesses see opportunities and problems on a multi or interdisciplinary basis and are organised similarly. HEIs seek outlets for their endeavours, usually of a single subject or narrower kind based on the academic organisation of the HEI by departments or schools or even by individual academics. Added to poor understanding of each other's purpose, motivation and priorities it can, as a consequence, be difficult for HEIs and business to see how each might be able to add value and where the 'win, win' opportunities lie.

Business people may not always be aware of the diversity of provision in the higher education sector and that individual HEIs can be very different and have particular strengths and weaknesses. Typically, HEIs have been accused of claiming unrealistically that they are 'good at everything'; of being unwilling to be flexible in offering 'bite-sized' tailored training modules; and of claiming that the solutions for business can only be found in their standard offerings.

A common refrain from higher education is that business people make little effort to understand what universities can offer, preferring instead to rely upon their own personal experience - which can be half a generation or more out-of-date. The net result of this can be business people looking in the wrong place and finding unsatisfactory answers that can fuel prejudice. As a consequence, they often underestimate the potential of HEIs to respond to the needs of business.

²⁷ DfES *Learning and Training at Work 2000*

- **The need for improved marketing**

It is possible that HEIs' contribution to these impressions may have come from a pressure they have felt to respond positively to enquiries regardless of circumstances and in the absence of strategic direction. Whatever the provenance of the remarks and experience of both sides, not much of this has been helpful to fostering mutually respectful collaboration. Considerable effort is required to help the business community gain a better appreciation of the diversity of what HEIs can offer and how that might be of value. HEIs have in the past concentrated their marketing effort on student recruitment, with little resource available to market themselves effectively to the business community. It is therefore not surprising that few have communicated to businesses and business support agencies what they have to offer.

The situation is improving rapidly. Most HEIs now appreciate the need for a systematic investigation into markets, customers and products and many have started to move their marketing activities away from being wholly dedicated to student recruitment and begun to address alternative markets. Once that process gets well underway, an increasing number of HEIs will begin to be able to differentiate products and services appropriate for them to offer, taking into account their own priorities, strengths and the particular needs of the markets they might concentrate upon.

HEIs will need the fullest support of regional economic and development agencies and local business support organisations in this task. This is discussed further below.

viii. University Support for Lone Inventor

An inventor had devised a new stone-based building material that could revolutionise the way homes of the future are built. It reduces erection time to a single day whilst vastly increasing insulation, lifespan and overall robustness of the structure. The inventor had the idea several years earlier but had never been able to build a successful business around the idea.

Working through Wessex Business Link's acclaimed Virtual Company Scheme - designed to help lone inventors in this kind of predicament - Southampton University joined with others to create a dynamic, complementary and highly motivated team able to provide for free the necessary facilities, technical, business and financial expertise to support the inventor and his idea. After 8 months a company was formed that gained a £60,000 SMART award, brokered several new business opportunities with major construction companies and is already bidding for further funding and housing contracts to support future growth.

The main reason for success in this project was not the excellence of the invention, the determination of the inventor or the need of the market. Success was built on the teamwork, vision and the "let's just do it" attitude of Southampton University, a private company, independent consultants and Business Link. All now own a part of the invention and all will benefit from the fruits of their labour.

- **The role of intermediary bodies**

There are a number of intermediary bodies that have a potential role in brokering between the supply and demand sides. These are of particular relevance to SMEs. For SMEs the most significant of those that are publicly funded is the Small Business Service (SBS) of DTI operating through Business Link outlets at local level. Whilst Business Link accepts it has a responsibility to broker advice from supply side players such as HEIs, with limited exceptions HEIs are not seen to be a high priority.²⁸,²⁹. In the past there has been a poor track record and with notable exceptions neither HEIs nor Business Link have seen any significant advantage in collaboration. Indeed, under pre-April 2001 arrangements, many Business Links were in competition with HEIs. Despite cross-representation at a formal level on governing boards, in general, universities and Business Link operators know little about each other. This lack of interest, lack of understanding and lack of brokerage creates a particular problem for SMEs who otherwise have very little idea about what assistance might be available to them from HEIs.

Business Link does not consider that it should be its responsibility to assist HEIs to develop their capability to work with SMEs. In its view this should be the responsibility of the new business development staff being employed by HEIs but this assessment fails to take into account the nature of the intermediary role required.

Matching supply and demand between an HEI and an unsophisticated business requires much more than simply knowing what is on offer and where to get it. It requires a high level of 'translation' involving an understanding of how the problem from business can be translated into a research or teaching opportunity for academe so that both parties can see the benefits of engaging. That translation can be provided by the HEI 'in-house' business development and liaison managers and by a small number of specialists scattered across organisations such as Business Link. It is also within the Regional Development Agencies, Business Link, the Chambers of Commerce and other support organisations where the basic intelligence on business resides. HEIs need to avoid trying to replicate this.

There needs to be a new impetus to collaboration over marketing knowledge transfer within the regions in which regional associations of HEIs work closely with RDAs.

²⁸ *Opportunity and Change in Higher Education Institutions and Business Link*, HEFCE, Universities UK, SBS, East Midlands Development Agency, August 2001

²⁹ *Assessing the Potential for Collaboration between Higher Education Institutions and Business Link in the South East Region* SBS South East, May 2002

x. University helps SME develop new logging cradle

Steven Farrell, owner operator of a small forestry and agricultural engineering business, has developed the UK's first high tech tree transporting system for timber hauliers. The new cradle has many technical advantages over the standard system and is an idea that Steven had been working on for a number of years. The breakthrough came when he linked up with design engineers at Newcastle University on Tyneside. *"I could not have done it without their help. The expertise and facilities they have are far beyond what a small businessman like myself could ever hope to have,"* he said. *"I had been developing my idea for a while before the University's engineers and computer aided design (CAD) experts really made it work."*

Mr Farrell's new system radically updates the traditional way that felled trees are transported on trailers from the forest to the timber yard. Using the latest CAD technology, the university engineers produced new designs and assisted in the production of prototypes. They also helped to source components and ensured the device was fit for purpose with rigorous testing. Following final field-testing, the new cradle system is being marketed throughout the forestry industry including the lucrative European market.

The link came through Knowledge House, a collaborative venture involving all six universities in the North East (Durham, Newcastle, Northumbria, Open University, Sunderland and Teesside) that acts as an intermediary, encouraging and enabling collaboration between universities and businesses. Stephen Farrell added *"Not only did I get access to some of the cleverest people in the country and cutting-edge equipment but Knowledge House also arranged a grant to pay for a substantial part of their work."*

- **Risk**

Cultural and practical concerns about risk and profit can, for some HEIs, represent a significant barrier to business - higher education collaboration. The continuing general pressure on institutions' income and the requirements of public accountability can encourage risk aversion. This is not unique to HEIs and is similar to that found in other organisations with public sector origins and with a continued dependence upon, and accountability for, public funding.

Many collaborative activities with business can be risky and whilst most parties affected by the fortunes of a business (shareholders, financiers, management, staff and customers) accept a degree of risk alongside reward, this is not necessarily so for HEIs.

Many HEIs continue to be concerned about protecting IPR when working with business. Protecting IPR is an expensive and time-consuming process with very uncertain returns but it is important that HEIs do make that investment, not least within the context of disclosure through publication.

Some HEIs are also concerned, given their charitable status and the requirement for public accountability, about activities that are intended to generate profits. This kind of cultural barrier can be overcome through clear leadership with explicit recognition and acceptance of risk backed up with systems for minimising the financial consequences of failure and a willingness to learn from failure. However, such an approach to risk acceptance requires the explicit support and guidance from appropriately experienced members of University Councils or Boards of Governors and a clear-cut policy on risk taking by HE and Government.

Other concerns about profit can be dealt with through the establishment of separate companies to badge such activities.

There is, however, one other area of risk to the HEI that can impact upon staff willingness to participate in collaboration with business. Most HEIs permit some degree of retention of funds from profitable 'enterprise' to be held in local department budgets on a roll-forward basis, for spending on projects of importance to those that made the effort to secure the funds. Those funds can accumulate and be used to purchase resources of value to them not otherwise affordable - typically additional research staff and equipment. In reality these local 'discretionary accounts' are no more than earmarked elements within an HEI's general reserves and, as such, they and the associated incentives to staff can be at risk if the HEI finds itself short of money. The support of the governing body can be critical to providing a degree of protection to those funds and, more importantly, give confidence to the incentives and underlying trust between the HEI and the individual and their department.

- **Time**

The development of collaboration with business requires the investment in new posts, in equipment and other infrastructure, and in publicity. As with any other significant development it also requires a massive investment of time. This was something to which all the participants in the seminars drew our attention. This is not simply for HEIs. To develop long-term mutually beneficial relationships both businesses and HEIs need time to learn.

With the exception of a small number of dedicated posts, collaboration with business will be an added task to the workload of many staff in HEIs. Thus it is the opportunity cost of the time requirement that forms the biggest barrier for individuals. This difficulty is alleviated where collaboration with business is properly planned.

4.3 Helping business to recruit and retain graduates with the skills that business requires

- **Employers' concerns**
- **Involvement in curriculum design and development**
- **Student work placements**
- **Working with HEI careers services**

The single largest element of the relationship between HE and business is in the employment of graduates. In 2001 over 65% of first-degree graduates (around 130,000) had entered employment six months after graduation³⁰. Of these graduates entering employment around 20% of the total entered professional jobs where the main employer is the public sector. Some of the remainder will have also entered public sector jobs, but this still leaves a substantial number of graduates each year being recruited by private sector businesses.

These figures raise the question as to whether graduates are in jobs that require graduate skills. Analysis of the annual Labour Force Survey data by the Institute for Employment Studies³¹ shows that the percentage of graduates in non-professional occupations decreases with age. Many graduates that enter non-graduate occupations initially gain experience and move on to more demanding jobs in which they can apply the skills and knowledge acquired in higher education. At age 25-34, the vast majority of graduates (over 85%) are either in professional occupations, associate professional and technical occupations or working as managers or senior officials.

- **Employers' concerns**
Nevertheless, businesses often argue that they cannot get graduates with the skills they require. In part this may reflect the decline in the number of students studying the physical sciences and engineering and the consequent reduction in numbers of graduates in these subjects. There was a decline of 8.7% between 1994/95 and 1999/2000. With the overall rise in student numbers of 18.3% over the same period, the share of total numbers of those studying engineering and physical sciences has fallen from 13.5% to 10.4%.

However, large employers of science graduates have been reported recently as being concerned about the 'dumbing down' of science degree programmes³². More generally the concerns of employers are often less to do with shortfalls in technical knowledge, but more about the lack of personal skills. Graduate employers tend to take the acquisition of a degree as 'given' and look for added value such as confidence, ability to present themselves and their arguments well, and students that have some form of prior work experience. Acquisition of some of these personal skills can hark back to pre higher education and often family origins. In the area of work experience, most HEIs have developed a number of strategies aimed to both

³⁰ *What do Graduates Do?* 2003 Association of Graduate Careers Advisory Services and the Careers Service Unit

³¹ *Graduating into Employment: the IES Annual Graduate Review, 2001update, part 2*, Institute for Employment Studies

³² "Industry hits out at diluted degree trend" The Times Higher Education Supplement, 4 April 2003

help undergraduates acquire employment skills and to provide opportunities for businesses to work with undergraduates from an early stage and to observe them.

Typically these strategies include:

- seeking increased involvement in curriculum design and the incorporation of work-based learning from businesses that employ graduates;
- student work placements;
- HEI careers services seeking to involve potential employers at an early stage as part of wider developments aimed at increasing the employability of graduates;
- Co-operation with the increasing trend for students to take 'gap years'.

xii. Victoria Real and the University of Brighton

Victoria Real is an award-winning digital communication company specialising in the delivery of cross-platform solutions. It creates value for its clients through its expertise across all digital media platforms - principally web, interactive digital TV, and wireless devices. Solutions combine strategic insight, technological innovation and creative implementation. Victoria Real has worked with an extensive list of blue chip brands on a variety of interactive media projects. These include BBC, Channel 4, British Telecom, Cable and Wireless, EMAP, The Guardian Media Group, Tesco Personal Finance, Pizza Hut, Norwich Union, UKTV, Telewest, The Scottish Parliament, Freeserve, UEFA, William Hill, Thomson Holidays, Ladbrokes, and Camelot.

The Interactive Technologies Research Group (ITRG) at the University of Brighton undertakes research into the design of useful and usable interactive technologies, from conventional desktop systems to newer technologies such as video games, mobile phones and interactive television. Its members are teaching/research staff in the School of Computing, Management and Information Sciences, and include computer scientists, interaction designers, information scientists and socio-cultural researchers. Recent consultancy clients include Amnesty International, iDesk (distance learning developers), the Pensions Agency and the BBC.

Two years ago Victoria Real approached the University with a view to developing an MSc course. The University saw an excellent fit with the work the ITRG was pursuing and the MSc Digital Television Management and Production was quickly ratified. This year the course has attracted 22 students from a wide variety of backgrounds including a large number from the broadcast industry.

With fast moving TV technologies, having up-to-date information is important. With this in mind the University and Victoria Real have successfully invited key industry figures including Scott Gronmark (Head of iTV, BBCi), Chris Townsend (Director of Interactive Services, Telewest), Peter Good (Head of ITV, Channel 4) to sit on the industrial board. Their presence has been extremely valuable in ensuring the industrial relevance of the program and the employability of its graduates.

- **Involvement in curriculum design and development**

Many academic departments, especially those experienced in the more vocational subject areas, have traditionally appointed course advisory committees to include representatives from relevant businesses that are likely to be employers of graduates from the relevant courses.

In the past such representatives tended to be drawn from larger businesses. With the wider recognition of the potential role of work-based learning in higher education, and the emphasis now placed by Government on the employability of graduates, many academic departments within HEIs (and in some cases as a matter of policy across the whole HEI) are seeking much more active involvement from relevant businesses and public sector employers in curriculum design, review and in the assessment of work-based learning within the overall assessment regime.

This kind of approach has been identified by DfES and HEFCE as especially appropriate for the new Foundation degree programmes currently being piloted across 80 HEIs. These are intended to provide students with programmes (of 2 years full-time and three years part-time) that equip them for employment at the higher technician level. It is intended, even for those who study full-time, that part of the learning will be work-based. The pilot programme is now being thoroughly evaluated by HEFCE and the Quality Assurance Agency. Experience suggests that it has proved more difficult than hoped to involve private sector businesses in the design and development of these programmes. On the other hand public sector employers like the NHS and local authorities have been more involved in the development of Foundation degree programmes for sub-professional staff such as healthcare assistants and classroom assistants. The real test of Foundation degrees will, however, come from the willingness of employers to recruit and reward appropriately those obtaining Foundation degrees.

There is a need for continuing dialogue between representatives of different kinds of business, such as the newly formed Sector Skills Councils, and HEIs to identify improved approaches to involving businesses in curriculum design, especially for Foundation degree programmes. It is clear that even those working for larger businesses find it difficult to find the time required to engage with course development and academic planning. Any collaboration in this area will need to offer results to both parties in terms of supplying real labour market needs or provide a basis for other types of collaboration.

xiii. Loughborough University and Ford Motor Company

In 1997 the Ford Motor Company and Business School at Loughborough University joined forces to launch what was believed to be the world's first BSc in Retail Automotive Management. This was quickly followed by an MSc programme and Diploma and Certificate courses. The aim of the partnership was to improve the management within the dealership network of the Ford Motor Company and in so doing improve the quality of service received by customers. The success of the programmes led Ford to investing over £10 million in the building of a purpose-built college facility on the campus of the University, opened by the Chancellor, Gordon Brown, in February 2001.

Teaching is undertaken by members of the Ford Faculty - a unique group made up of University academics, private sector training agency staff (Anne Gray Associates) and Ford Motor Company personnel led by Professor Jim Saker. The group operates to Hefce QAA criteria and, in an external subject review conducted in 2001, the BSc programme was graded as 'excellent.' It is believed that this was the first corporate programme and facility to be opened up for academic inspection in this way.

The curriculum is underpinned by University-led research that also receives funding from Ford. The success of the partnership has led to courses being offered to Volvo, Jaguar and Mazda with research being undertaken in conjunction with Vauxhall, Peugeot, Toyota and many of the major dealership groups.

- **Student work placements**

The traditional method of providing undergraduates with relevant, integrated work experience was the sandwich course. These were characterised by preparation of students before the placement, supervision during their period of work experience, and a development of that experience in their concluding studies. The commonest model was the 'thick sandwich' in which students spent a whole year, part way through their course, working in industry, commerce or for a public sector employer although there were other models in which one or more, shorter periods of work experience were integrated into the programme. At least one university has until very recently required all of its undergraduates to undertake a year of professional development within their undergraduate programme. In 2000-2001 there were around 125,000 students on sandwich programmes of all kinds - a figure that had changed little since 1996-97³³. This figure is consistent with the figure of 31,000 for the number of one-year sandwich placements in 2000-2001 in the HEFCE survey of Higher Education-business interaction³⁴.

Concern was expressed that sandwich courses need to be protected within the context of the Government's developing fees policy. The extra year of study involved in a sandwich programme with the implication of an extra year's fee and

³³ *HE Planning Plus2000-2001*, CD-Rom Publication 2002, Higher Education Statistics Agency

³⁴ *Higher Education Business Interaction Survey for the Academic Year 2000-2001*, HEFCE March 2003 (TableF3)

correspondingly increased graduate debt could be seen by students as a disincentive to undertake sandwich or similar programmes that increase the length of the study period.

The Higher Education-Business Interaction Survey also shows that there were some 68,000 other placements which were either required or organised by HEIs as part of courses in UK institutions in 2000-2001. This means that, in total, around 25% of all full-time undergraduates will have experienced during the course of their undergraduate programme some formal, integrated work experience. Although such placements tend to be with larger employers they do provide very useful opportunities for businesses to observe and assess individual students as potential future employees as well as providing work experience for the students.

In addition, a number of HEIs working either directly or with local Business Links are seeking to establish short-term placement programmes for graduates or undergraduates to spend up to six months working with an SME on a particular project or range of projects.

Part-time undergraduates, particularly if they are sponsored by their employers, will also be receiving work experience that may be relevant to their future employability. In addition, many full-time undergraduates now work part-time during term-time to reduce debt or support their lifestyle. Many HEIs are now working with their student unions, often through the careers service, to assist undergraduates to find suitable employment.

Student placements can also provide a basis for wider collaboration between HEIs and business and there are a number of publicly supported schemes that seek to use students to cement relationships between HEIs and, in particular, small businesses. These include:

The Shell Technology and Enterprise programme (STEP) which is now operated by the Small Business Service (SBS). This places undergraduates with small businesses to undertake particular business projects.

The Teaching Company Scheme (TCS), also operated by SBS, which facilitates research projects within SMEs by funding one or more postgraduate students to work within the SME. It also part-funds administrative costs and some back-up equipment and facilities.

The Collaborative Awards for Science and Engineering (CASE) studentships funded by the Engineering and Physical Sciences Research Council. These awards provide funding for doctoral students to work on collaborative research programmes with businesses.

Those businesses that we have talked to, who have participated in these programmes, have been critical that the bureaucracy that surrounds these awards

often prevents them from getting the kind of help they need as quickly as they would have liked.

- **Working with HEI careers services**

HEI careers services are now seeking to work with undergraduates from an early point in their programmes and to encourage local and regional employers to mount presentations about available employment opportunities and to meet with undergraduates. Such approaches are intended to complement or substitute for the traditional 'milk-round', which now only applies to a few large employers and a correspondingly small number of HEIs. In the past larger employers were willing to pay for the privilege within the "milk round".

The careers services in HEIs are also now much more active, especially but not wholly, in the light of the Harris Report on Higher Education Careers Services³⁵, in developing relationships with local and regional employers and establishing local and regional labour market intelligence. This kind of work can be of value to the HEI more generally in helping to identify potential markets for business collaboration and the role of the careers service in this respect needs to be recognised within institutional business collaboration strategies.

In some regions, EU regional economic development funding has been made available to enable the development of regional databases of employers across some or all of the universities in the region, and to support specific projects, for example, work with ethnic minority students and businesses. Such work programmes are designed to retain a higher proportion of graduates from universities and colleges in the region.

As noted above HEI careers services are often more widely involved in term-time work placements for undergraduates and sometimes involved more widely in student placements.

³⁵ *Developing Modern Higher Education Careers Service*: Report of the review led by Sir Martin Harris, Vice Chancellor, University of Manchester, January 2001

4.4 The Role of Financial Incentives in Improved Business - HE Collaboration

- **Continued financial support**
- **Fostering longer-term relationships**
- **Performance-funding metrics**
- **Role of Regional Development Agencies (RDAs)**
- **Service provision on a commercial basis**
- **IPR ownership**
- **R&D Tax Credits**

The introduction of mainstream public funding support for knowledge transfer activities from 1999-2000 has undoubtedly had a major impact upon both the willingness and ability of HEIs to invest in the infrastructure required to underpin an integrated approach to collaboration with business in knowledge transfer activities. Universities UK has welcomed this public support and the commitment in the recently published White Paper on Higher Education that this funding stream will be a permanent feature of public funding for higher education.

- **Continued financial support**

The development of change expected as a result of this funding within HEIs remains at an early and relatively fragile stage. The funding originated with the Higher Education Reach-out to Business and the Community (HEROBC) initiative and only started to come on stream in 1999/2000. In the first year the allocations were deliberately very small to accommodate the preparations HEIs would need to make. For some, the allocations were substantial and amounted to over £1 million over four years plus other funds from collaborative projects. For other smaller and less well prepared HEIs, equivalent funding was as little as £50,000. That funding is therefore only just beginning to make an impact within HEIs with the appointment of specialist and difficult-to-find hybrid staff and the creation of dedicated support structures needed to embed these activities. Progress is good but understandably slow and unevenly spread. This is to be expected given past under-funding, the consequential pressure on staff and the scale and nature of change required, representing as it does for most a significant cultural shift in attitude and behaviour.

Continuity of purpose of public funding is as important as continuity of funding. HEIs are concerned that, as the various knowledge transfer initiatives have been introduced, the purpose of the funding has changed. This has meant that it has not been possible to use the funding on a continuing basis to support certain key elements of the infrastructure. This kind of investment in the infrastructure cannot be expected to deliver short-term returns.

- **Fostering longer-term relationships**

The activities that are likely to bring the greatest mutual benefits to business and HEIs depend on the establishment of long-term relationships and trust. In the short-term, opportunity costs and actual costs can outweigh any benefits. As with funding for infrastructure, short to medium-term public funding support for businesses or HEIs

can be very effective in helping to meet these short-term costs. Both TCS and CASE studentships have an element of this kind of innovation funding. There is, however, a concern that the bidding process that is usually involved in such schemes is both bureaucratic and time-consuming and that it requires the demonstration of results on too short a timescale. These characteristics may mean that the HEI cannot respond to the SME within an appropriate timescale and might be unable to continue to work with the SME over the medium term.

- **Performance-funding metrics**

HEIs remain very concerned about the bureaucracy involved in funding allocations based on competitive bidding. Not only is this time consuming but it provides a very uncertain basis for developing the kind of longer-term relationships with business that are likely to lead to mutual benefits. A performance based allocation system would address both these problems with the bidding systems, but there are no broadly accepted performance measures for this type of activity. In part this reflects the range of such activity and, until recently, the absence of any common approach to organisation or costing.

This lack of agreed metrics is now being addressed through the annual HE-business survey and DfES has asked HEFCE to pursue this work as part of the underpinning requirement for the implementation of its own White Paper proposals. It will be important to ensure that performance indicators reflect the full range of these activities.

xiv. Salford Money Line – a Prototype Community Reinvestment Trust

As an enterprising university for many decades, Salford has always made the best use of its pioneering science and technology in its enterprise out-reach. Whilst this has not diminished, the University has recognised that it must now also develop high quality knowledge sharing and nurturing support for all its enterprise partnerships to enable them to flourish within situations that are becoming increasingly complex and uncertain. 'Sophisticated Knowledge Sharing' is the phrase used at Salford University to describe the total process by which staff are learning to understand better the needs and demands of students and other real-world partners and this will become the critical factor of success.

Salford Money Line (SML) is an example of how that process of generating, sharing, using and evaluating knowledge-based projects is working. SML, launched in December 2000 and located at the University of Salford, is a non-profit community based organisation that provides banking services and financial advice for economically excluded people, small businesses and communities. Based on a model developed through research by sociology academics, Academic Enterprise at the University of Salford got together with Barclays Bank, Lloyds TSB and the Housing Corporation to develop Salford Money Line as a real alternative to the credit unions, unlicensed money-lenders and loan sharks which are endemic to many deprived and underserved communities such as Salford.

The scope of services that SML aimed to offer the community is wide ranging, including; family loans, home improvement loans, 'fresh start' loans to replace high-interest loans, bridging loans, community business loans, rent deposit loans, debt counselling and saving links to credit unions. This alternative "Reach-out to Business and the Community" won the first North West Innovative Enterprise Award for its "outstanding innovative solutions" from NW Business Excellence and NW Business Leadership team in December 2002.

Salford Money Line was launched in December 2000 and reached its first target for lending £1 million in February 2003. From its beginnings in Salford's most deprived areas, the overarching scheme has now rolled out to create 4 spinout community banks, Salford Money Line; Portsmouth Area Regeneration Trust; East Lancs Moneyline; and 'Change' (in London) with 6 others under development. Total staff employed number 17.

SML also operates to overcome economic exclusion by creating networks with the communities they serve with local residents sitting on the boards of each of these Community Reinvestment Trusts. In further support of this, SML initiated a course - 'Roles and Responsibilities of a Board Member' - run by a local college, with the aim of recruiting local residents as board members.

- **Role of Regional Development Agencies (RDAs)**

RDAs, through their responsibilities for economic development within their regions and for the skills strategies to support that development, need to identify the potential benefits of collaboration between business and higher education in their regions. From within the funding they have available they can also promote effective collaboration by providing investment funding and supporting innovation.

The HEIs in all regions have established their own regional associations to work with regional agencies and to respond collectively to regional initiatives. These relationships between RDAs and HEIs in their region are at different stages of development, but there are examples of solid achievements.

Universities UK believes that it is important that HEIs individually, and working through their regional associations, recognise the strategic importance of working with RDAs in developing effective collaboration with business.

- **Service provision on a commercial basis**

Some businesses are very comfortable with receiving services from an HEI on a full commercial basis, as with any other supplier of services. In the past business may have expected to pay a reduced price, or even that the services might be available free, because HEIs are in receipt of public funding. Private sector suppliers of similar services have frequently questioned whether the prices charged by HEIs reflected an element of public subsidy and therefore represented unfair competition.

The Transparency Review³⁶ examined the degree of cross-subsidy between different activities in HEIs and showed that the pricing of many commercial activities failed to take account of the full economic costs of the activity. In this respect the recent introduction of ‘transparency’ rules³⁷ by the Funding Councils alongside those of the Treasury on ‘transfer pricing’ usefully remove existing ambiguities.

It could be that, as more HEIs move towards a fuller commercial approach with full economic cost based pricing, some of the services they offer will become uneconomic to deliver. HEIs might find themselves unable to compete with alternative suppliers or find that some of their services will not be affordable by some businesses

xv. Atracurium – An ongoing licensing success

Chance and coincidence played a part in the development of Atracurium, the muscle relaxant used by anaesthetists in more than half of all operations worldwide. This ongoing licensing success story ranks as one of the University of Strathclyde’s most notable commercial achievements.

The starting point for Atracurim was curare, the naturally occurring resinous substance that South American Indians used to tip their poison arrows. When introduced into the blood stream the poison paralyses the victim. Surgical muscle relaxants work in the same way, but in a highly controlled manner.

Professor John Stenlake was drawn into muscle relaxant research shortly after joining the University of Strathclyde in the early 1950s. A chance discussion with a colleague whose avenue of interest was neuro-muscular agents led him to realise that the intermediates he was using would also serve as intermediates in synthesising a new class of muscle relaxants.

Further developed by a team of pharmacists in the Department of Pharmaceutical Chemistry from 1969 to the mid 1970s, Atracurium is one of the few drugs to have been designed and synthesised in a University environment. Through licensing to what is now GlaxoSmithKlein it was subsequently developed and launched commercially in 1982.

Atracurium won the Queen’s Award for Technological Achievement in 1986 and to date has brought in more than £28.5 million in royalties to the University of Strathclyde.

³⁶ www.jcpsg.ac.uk/TRANSPAR/ (Report on Transparency and Accountability of Research, JM Consulting July 1999)

³⁷ JCPSG Standard Definitions of Costing and Pricing October 2001

- **IPR ownership**

Although most universities have in place guidelines on IPR for the exploitation of discovery from their research activity, these are usually focused upon the distribution of benefit internally. Only a few HEIs have experience of exploiting IPR on a regular basis with business such that they have in place well tried and tested procedures in which all interested parties can have confidence. Particular difficulties can arise where the collaboration involves speculative research or the nature of the relationship is open-ended.

- **R&D Tax Credits**

The general feedback on R&D tax credits from the consultations undertaken was positive although some of the SME representatives had been warned by their accountants of the complexity of the scheme. They are seen, nevertheless, as potentially helpful in encouraging businesses to use services provided by HEIs.

It was suggested that HEIs as they developed their own expertise might be able to assist SMEs to secure the potential benefits of R&D tax credits. Since the Chancellor has extended the scope of these tax credits in his recent budget it is clearly important that HEIs understand the potential incentive effect for businesses and in particular SMEs.

5. Recommendations

There are a number of general recommendations that Universities UK wishes to draw out from the evidence of current activity and barriers to future development:

- Generalisations, be they about business or HEIs need to be used with care, because they can be damaging to both national and international reputations.
- It is critically important to ensure the continued international reputation of UK higher education for the benefit of the sector, the economy and the nation.
- The encouragement of genuine strategic partnerships between individual HEIs and business partners is an important factor in meaningful knowledge transfer.
- Successful reach-out from HE to business has to become something which for HEIs needs to be motivated by much more than it simply being another stream of funding. It needs to be embedded in the core activities of HEIs alongside and part of, not separate from, teaching and research.
- A distinction should be drawn by HEIs themselves and external commentators between those activities all HEIs undertake to help business, as part of their general mission to support their local community, and those activities that are unequivocally commercial. Such a distinction is common within business.
- Visionary leadership within HEIs has to include matching words with policies and actions.
- Most universities appreciate that changes in practices will need to take place but, for many, they represent a significant challenge to effect a change in culture. Our consultations indicate that they accept that challenge but it will take time to achieve the changes required. Equally, the commitment required to effect these changes will in turn be heavily influenced by behaviour outside the control of universities – that of the demand side and those responsible for setting and supporting the general framework within which universities operate.
- Training across HEIs needs to be given a much higher priority so that those who wish to engage with business, and those who have a responsibility to promote and support engagement, are given the skills to succeed, particularly in the area of project management.
- Many HEIs are now undertaking systematic investigations into markets and customers, and into the products and services they can deliver that reflect those markets and their strengths. They then need to communicate those conclusions effectively to whoever might be interested.

- Strategies need to be developed by HEIs to enable the business community to gain a better appreciation of the diversity of HEIs, and especially, what they can offer and how that can be a major contributor to business competitiveness. In this task they need the fullest support of Regional Development Agencies and local business support organisations.
- There needs to be a much clearer definition of the roles and remits of the various players, intermediaries and translators who should be promoting knowledge transfer both within and outside universities.
- Explicit support and guidance from appropriately experienced members of Council or the Board of Governors of HEIs is required to manage elements of risk that are inherent in increased collaboration with business.
- The commitment of HEIs to reach-out is directly related at present to the commitment being made by Government and funding bodies, as evidenced by 'third stream funding'. Consistency of Government policy, continuity of public funding and of other supportive initiatives are critical.
- Business needs to be aware of what the core values and activities are for a university, how they differ from business and, as a consequence, have an appreciation of some of the elements that might usefully contribute to mutually beneficial collaboration.
- Mechanisms need to be developed to ensure that business can input effectively into curriculum design and delivery at undergraduate and postgraduate levels and especially in Foundation degrees.
- The highly beneficial arrangements in many universities for sandwich courses, giving students valuable insights into the world of work should be more widely encouraged and existing arrangements must be protected within the new fees structure. Mechanisms need to be found to ensure that such students are not discouraged from additional time spent at university.
- Best practice for the handling of IPR in university-business interaction needs to be agreed and promulgated to minimise barriers to co-operation.

Section 2: Universities UK report on Governance and Management

1. Introduction

As part of its submission to the Lambert Review on Higher Education and Business Links, Universities UK in collaboration with the Committee of University Chairmen (CUC) and the Association of Heads of University Administration (AHUA) conducted a survey of Governance and Management in UK universities.

The survey asked for:

- A full list of Council Members, particularly indicating those with business and industry links and backgrounds (divided into categories derived from the government Foresight programme).
- Information on the decision making and management processes within institutions, indicating lay/external membership and how the university-industry interface was handled in structural/management terms.

A total of 31 universities responded (25 English, 4 Scottish, 1 Welsh, 1 from Northern Ireland). This paper outlines a summary of the responses and then goes on to comment on university leadership, management and governance more widely. However, before these details and comments are outlined, a brief background to university governance is given.

1.1 Background to University Governance

It is worthwhile appreciating the essential difference between institutional governance and institutional management. The Scottish Higher Education Funding *Council Guide for Members of Governing Bodies* explains it thus :

“There is a fundamental and important difference between institutional governance – which is the primary concern of the governing body – and institutional management – which, save in exceptional circumstances, is the responsibility of the Principal/Director. The governing body has primary responsibility for developing and approving a plan to allow the institution to meet its strategic objectives. In practice the planning process will normally be led by the Principal/Director. The Principal/Director is accountable to the governing body for the implementation and delivery of the agreed strategy and for his or her stewardship and management of the institution.” (Paragraph 15, page 3)

All universities are legally independent corporate institutions, have charitable status and are accountable through a governing body which carries ultimate responsibility for all aspects of the institution. The detailed constitution, powers and arrangements will differ between institutions according to their historical origins and development.

Most of the pre-1992 universities were established by a royal charter granted through the Privy Council, together with an associated set of statutes. A small number of pre-1992

institutions, including the ancient universities of Scotland, were established and/or governed by various Acts of Parliament. The Universities of Oxford and Cambridge are governed by a body of statutes and one pre-1992 institution, the LSE, is a company limited by guarantee.

The executive governing body for pre-1992 institutions is the Council (or Court for the ancient universities of Scotland) and the university statutes will normally state that, subject to the powers of Senate in academic matters, the Council has responsibility for the conduct of all affairs of the university.

Most post-1992 universities will have been established as Higher Education Corporations by the 1988 Education Reform Act (as amended by the Further and Higher Education Act 1992), although five universities are established under the Companies Act as companies limited by guarantee. The articles of government of post-1992 universities state that the executive governing body will be the Board of Governors. They go on to state that the Board should consist of not fewer than 12 and not more than 24 members. Of those members 13 must be independent, namely people appearing to the appointing authority to have experience of, and to have shown capacity in, industrial, commercial or employment matters or the practice of any profession, and who are not members of staff or students of the institution or elected members of the local authority. The institution also has the possibility of co-opting up to nine other members. The equivalent of the Senate for post-1992 institutions is the Academic Board.

With all universities a great deal of Council business will be conducted through committees, either reporting directly to the Council/Board of Governors, sub committees of these committees or joint committees with the Senate/Academic Board.

All universities are required by the funding councils to have Audit committees chaired by an external member of Council, with a majority of external members of Council on it. Universities are also required to have remuneration and nomination committees. The further key responsibilities of governing bodies outlined in the CUC and SHEFCE Guides for members of governing bodies are Strategic Planning, Finance, Estates, Staffing, Students Union and Health and Safety. All university committee structures will incorporate these key areas often with external members of the governing body chairing them and forming a substantial part of the membership.

2. Summary of Responses to the Governance and Management Survey – Expertise Of Members of Governing Bodies

UUK received 31 responses from UK universities (25 English, 4 Scottish, 1 Welsh and 1 from Northern Ireland). 30 institutions identified 434 independent lay or external governors and detailed their areas of expertise. The total areas of expertise do not equal the total number of governors for a number of reasons. Firstly, many governors may have a number of organisations with which they are associated. A governor who is the director of a company may also be a director of other companies in different business sectors, he or she may also participate in any number of local organisations such as an

NHS trust, a charitable trust or an educational organisation. As far as possible the areas of expertise are current but governors may have had a range of employment in different companies and sectors. The institution doesn't just seek to benefit from the governors' current employment but welcomes judgement that draws upon the totality of a governor's knowledge and experience. Whilst the majority of governors identified are currently employed some are recently retired and the benefit of having recently retired governors is their breadth of experience and the time they can devote to the task.

Governors Areas of Expertise

Total Areas of Expertise (including other)	444
Financial Services	77
Manufacturing, Production and Business Processes	44
Health and Life Sciences	32
Leisure and Learning	28
Construction	22
Energy	17
IT/Electronics	16
Communications	15
Agriculture	11
Retail and Distribution	11
Natural Resources & Environmental	8
Chemicals	7
Food and Drink	7
Transport	7
Materials	5
Defence and Aerospace	4
Marine	1
Other	132
Legal Profession	23
Local Government	22
Civil Service and Government Agencies	16
Schools	10
Consultants	6
PLC, Ltd Cos Chairs/CEOs	6
Other Education	5
Armed Forces	2
Church	2
Other Miscellaneous	40

The significant proportion of governors in the "other" category is partly a result of the shortcomings of the original categories used but also reflects institutions calling upon a

wide range of backgrounds and experiences to inform the management of the institution. Each category can generalise over a wide range of experience for example, the “Legal Profession” category includes solicitors, barristers, magistrates and judges. The “Local Government” category doesn’t simply refer to local councillors, many of whom, as co-opted members might not be included in this survey, but includes chief executives and directors of local councils, county councils and regional development agencies. However it should also be borne in mind that the majority of local councillors are part time and can be employed or have specialist expertise separate from their contribution as local councillors.

What the survey does not also refer to is the significant expertise that staff members of governing bodies can bring. Many academic staff have significant outside links and experience, either working with industry and business on a daily basis, having come from industry and business or still partly employed by them. Specialist managers in higher education also often have qualified, specialist expertise to offer.

The survey results demonstrate the depth and variety of external expertise of those that participate in the governance of institutions. Indeed because it partly ignores the varied experiences of governors and fully ignores the external expertise of university staff, it understates the reality. It also demonstrates that this expertise is drawn upon by the range of committees below the level of the governing body so that the interaction with external expertise is spread more widely throughout the HEI.

3. Summary of Responses to the Governance and Management Survey – Decision Making Processes and Links with Business and Industry

The Survey confirmed that all institutions have audit, remuneration and nominations committees or committees reporting to the governing body that include these responsibilities. The survey also confirmed that in the key areas of strategic planning, finance, human resources, estates and health and safety, university committee structures ensure that these are addressed by appropriate committees with a reporting link to the governing body, be it an external chair, external membership or direct lines of reporting. A number of universities have established other committees covering such areas as ethics, equal opportunities, investments, enterprise, external relations and risk management. However, the establishment of a specific committee neither means that the topic in question was not addressed before, nor that the topic is not being addressed in institutions without specific committees. Whilst many of the core structures and functions across institutions are similar, there are many different structures for the more detailed work of the institution. This reflects the differing histories, missions, priorities and development of institutions which change over time. It was clear that many institutions regularly reviewed their committee structures to take account of changing circumstances and to ensure efficient and effective operation, invariably guided in the review by appropriate external members of the governing body.

In relation to the management of university-business relations, one director of business development summarised the relationship as “a complex and multi-faceted one covering

commercial services, access to facilities, research collaboration, development activity, student projects, sponsorship, intellectual property commercialisation and placements. Organisational and management structures must reflect this complexity or opportunities for interaction will be restricted. Relationships with companies vary from focussed one-off activities to more long-standing relationships. The University's strategy is one of ensuring direct engagement by academic staff in working with industrial partners, as well as ensuring where appropriate co-ordinated interactions."

A number of institutions mentioned in more detail the arrangements they have for managing university-business interactions. It often related to the level of activity in support of the Pro-Vice-Chancellor responsible. Often the activities related to specific areas of the university-business relationship such as exploitation of intellectual property rights, outreach, contract research and joint ventures. A number of institutions mentioned offices devoted to research and industry or innovation and entrepreneurship and some had established wholly owned subsidiary companies, whilst others with research or innovation parks used these to as a vehicle for interacting with a wider range of companies.

4. Leadership and Management

Institutions, like businesses, are working in an ever-changing environment. Structures and management needs to evolve to ensure that past success can be sustained in changing circumstances. Institutions are regularly reviewing and developing their management organisations and committee structures and the governing bodies themselves conduct regular reviews of their operation often utilising the checklist of possible review points provided by the CUC. Indeed five of the 31 institutions responding to the survey had recently undertaken major reviews of their committee structures.

However, whilst acknowledging the need to review and develop in the face of a changing environment, universities can already claim a significant track record in terms of performance and responding to change. In the words of Charles Clarke, the Secretary of State for Higher Education in the recently published White Paper, British universities "are a great success story" (page 2). The White Paper goes on to outline the success of British Universities in :

- Tripling participation whilst maintaining high quality and good value despite a halving of the unit of funding.
- Directly and indirectly generating £34.8 billion of output and over 562,000 full time equivalent jobs throughout the economy.
- Having a significantly higher than average share of the world's scientific publications and citations.
- Very high levels of student satisfaction, employment rates and retention.
- Considerable success in attracting overseas students.
- Strong growth in the creation of spin-out companies and the number of patents filed.
- A higher proportion of research income funded by companies than the United States

(Paras 1.1-1.8)

This confidence in the leadership, management and governance of UK universities is also highlighted in the response made by Universities UK to the original DfES Issues Paper (Annex B) which preceded the White Paper. In it the confidence expressed by the Dearing Review, the Nolan Review, the Treasury, National Audit Office and the Better Regulation Task Force is detailed. The extracts outlined in Annex B also highlight the significant commitment to developing the skills of UK higher education management and governance evidenced by the work of the CUC, specialist staff associations and institutions themselves. Institutional leaders are supported by a highly professional and well-qualified management and administration who are committed to continuing professional and institutional development. Despite the very successful track record of UK higher education the sector is well aware of the significant challenges ahead and that it needs to build on these strengths and address areas that need further development. The proposals for the new higher education Leadership Foundation (Annex C) aim to enhance university leadership, management and governance by building on and sharing existing good practice whilst drawing in best practice from the private sector and other public sectors both nationally and internationally.

Annex A

Structure of UK Business

Numbers of Businesses, Employment and Turnover by Size of Business

Number of Employees	Number of Businesses	% of Total			Employment as % of Total		Turnover as % of Total
Self employed	2,596,420	69.3			12.8		7.2
1-4	747,655	20.0	94.6	99.1	9.9	43.4	8.2
5-9	200,315	5.3			6.3		5.8
10-19	112,690	3.0			6.9		7.0
20-49	54,485	1.5			7.5		8.0
50-99	18,145	0.5			5.5		6.7
100-199	7,895	0.2			4.9		6.4
200-249	1,625	-			1.6		2.0
250-499	3,245	0.1			5.0		7.4
500+	3,540	0.1			39.6		41.2
Total	3,746,340	100.0			100.0		100.0

Source: SBS Press Release, updated 25 October 2002, "Small and Medium Enterprises (SME) Statistics for the UK, 2001"

Annex B

Extract from Universities UK Response to the DfES Issues Paper

Freedom and accountability

7.1 Key facts

- Universities are financially audited by the Higher Education Funding Council for England (HEFCE) for five days every five years (the “institutional” audit).
- The Quality Assurance Agency (QAA) has shifted away from an inspection regime of academic provision towards internal audit, except where there are concerns about performance.
- The research assessment exercise (RAE) is being reviewed to eliminate unnecessary bureaucracy and deliver better value for money.

Freedom from and accountability to Government

- 7.2 Universities have often expressed concerns about excessive bureaucracy from Government bodies, which increases their administrative burden. The QAA’s teaching inspection regime was a particular focus of discontent. The RAE commands more widespread confidence, but was nevertheless also identified by the Better Regulation Task Force (BRTF) as a cause of some unnecessary bureaucracy in higher education.
- 7.3 As a result of such complaints, there have been considerable changes in the audit systems for universities. The teaching inspection burden has been radically reduced. Rather than inspecting every university department, the quality assurance regime will now rely mainly on universities’ internal audit procedures, and focus more detailed inspections only where there are problems.
- 7.4 HEFCE has attempted to reduce the need for bidding and is working more closely with the Office of Science and Technology (OST) to avoid duplication of effort. Its own institutional audits now take place every five years, rather than every three, concentrating more on those in financial risk. Performance Indicators are published annually by HEFCE, which is also reviewing research assessment, including the RAE.
- 7.5 Permission to award degrees (and become a university) rests with the Privy Council. Fees are effectively regulated by government, with a maximum set for all HEFCE funded universities. This is only true for full-time home and EU undergraduates. If they exceed this fee, universities lose HEFCE grant. Only a handful of universities, such as the University of Buckingham, are run privately. Furthermore, some funding is allocated to achieve particular purposes, for example money linked to human resources strategies which must be used to help recruit, retain, reward and develop staff.

Does freedom for institutions have a value in and of itself? Given that the taxpayer provides almost half of all University funding, what say should government have over issues like fees or access?

- 7.6 Academic freedom is an essential element of an effective, vibrant and successful UK higher education sector. The Dearing Report highlighted “academic freedom within the law. properly understood and combined with academic responsibility” as one of the cornerstones of effective academic governance (paragraph 15.60). The Second Nolan report acknowledged the importance of academic freedom and recommended that institutions should clearly state to all staff the value of academic freedom (page 37).
- 7.7 The Nolan Report acknowledged that higher education institutions themselves are “independent bodies”. All higher education institutions are legally independent corporate institutions, accountable to a governing body. This status serves to support, protect and encourage the academic freedom that is “so fundamental to teaching and scholarship” (page 34) and indeed research. The success of a higher education institution is to a large extent dependent upon the responsible exercise of academic freedom.
- 7.8 However, academic freedom and institutional autonomy are combined with a responsibility and accountability to the governing body of the institution, the government of the day, the laws of the land and wider stakeholder interests such as taxpayers. As HEFCE argued to the Nolan Committee, accountability meant that “universities could be required to act reasonably, not to misuse public funds, not to withhold information from HEFCE, and not to ignore probity, value for money, or good governance” (page 37). Universities and their governing bodies have always acknowledged that they have these responsibilities and take them seriously. The fact that higher education discharges these responsibilities effectively is vindicated by the National Audit Office view that the sector is low risk (BRTF page 10) and the Treasury view that the sector can claim a good record in terms of quality, productivity, cost effectiveness of public services and good use of public money (HEFCE Better Accountability through Partnerships Newsletter August 2001).
- 7.9 The Dearing report encapsulated the relationship between autonomous institutions and a government rightly concerned with the effective use of public funds: “institutional autonomy should be respected. Whilst we take it as axiomatic that government will set the policy framework for higher education nationally, we equally take it as axiomatic that the strategic direction and management of individual institutions should be vested wholly in the governance and management structure of autonomous universities and colleges” (paragraph 15.4).
- 7.10 We support this statement. However, higher education is accountable by a variety of means to a wide range of stakeholders. It is not simply accountable to an individual department or solely to the government. This has led to a significant accountability burden that has been acknowledged by HEFCE, the Better Regulation Task Force and the Department for Education and Skills. This burden arises from multiple, duplicated accountability requirements that are uncoordinated. Any consideration of the accountability relationship between higher education institutions and the government that is concerned about the effective use of public funds must take account of existing shortcomings in those relationships that undermine the effective use of public funds, for example through excessive cost such as identified in the PA Consulting report to HEFCE (00/36).

7.11 For the past five or six years, government has sought to steer the HEFCE towards a greater planning and interventionist role. HEFCE, in turn, has become more directive in allocating its funds, tying these to particular initiatives, outcomes measured by performance indicators and set against benchmarks. It has instigated increasingly prescriptive reporting procedures through the annual operating and financial statements, in which institutions have to account for their actions in meeting particular funding council and government purposes. With reduced bureaucracy should come greater self-regulation and HEFCE should revert to its role of allocating funds and refrain from attempting to 're-engineer' the higher education sector?

How do we measure standards of education and financial probity in universities? Is there too much or too little accountability to students and taxpayers? How can we balance freedom and accountability?

7.12 The higher education sector claims that it has maintained comparable threshold standards both for its awards and for the different degree classes of its awards. In this it is supported by professional and statutory bodies who review **all** programmes across different providers to guarantee output standards for a licence to practice. The QAA's "points of reference" in the "Framework for Higher Education Qualifications" and the "subject benchmarking statements" underpin this equivalence of outcome threshold standard, and for the manner in which higher education is provided, the QAA Code of Practice sets minimum expectations. The QAA's new review process is checking standards, provision, and information, as specified in the Cooke report on Information. The outcome of the Bologna process is likely to be a similar system that applies across the whole of Europe.

7.13 Financial probity is measured and accountability is maintained by a combination of layers of audit and a risk-based approach to scrutiny. Higher education institutions are required by the HEFCE Audit Code of Practice to have an effective internal audit function, covering the whole of the internal control system of the institution. The function reports to an audit committee that is made up of independent members of the governing body that itself reports to the governing body. The Audit Committee's annual report is submitted to HEFCE, which then carries out its own audit to check compliance with the code. The HEFCE audit service has access to all records, information and assets and can require any officer of the institution to give any explanation which it considers necessary to fulfil its responsibilities. The National Audit Office also has inspection rights that allow it to investigate any financial or value for money matter at institutions funded by HEFCE. These arrangements provide significant and substantial public safeguards.

7.14 In terms of their financial reporting, the higher education sector has robust accounting and auditing procedures in place. Institutions' accounts are prepared each year in accordance with the Statement of Recommended Practice Accounting for Further and Higher Education (SORP). The higher/further education SORP is prepared as a collaborative activity between all the key stakeholders in further and higher education, including the representative bodies, funding councils, accounting practitioners and the Accounting Standards Board (ASB).

7.15 The SORP sets out the underlying accounting principles and incorporates recent changes in accounting standards. It guarantees that the financial statements of institutions are prepared on a comparable and consistent basis. The SORP is approved by the ASB on a three-year basis

and subject to annual review. It has UK-wide coverage and takes account of the requirements of funding councils. Institutions are required to submit consolidated accounts on an annual basis prepared on a similar basis to the accounts of other corporate organisations.

- 7.16 All higher education institutions are required to submit their accounts to the funding council together with certain specified disclosures and an Annual Operating Statement (AOS). The funding councils also require institutions to submit detailed strategic plans every three years, and monitor performance as reported in the accounts and in the AOS against the strategic plan. Every institution is required to appoint external auditors to examine the accounts and report to the funding council to ensure that they are without qualification.
- 7.17 Responsible use of public money applies in relation to the exercise of accountability as well as the reason for accountability being exercised in the first place. It is not an effective use of public money to place a high level of scrutiny on organisations that have a successful track record. The principles of the Turnbull Report, which originally provided guidance on internal control and risk management for companies quoted on the stock exchange, have been adopted by the public and private sector in order to reflect good practice. They have informed HEFCE's guidance on risk management. The Turnbull Report highlights the importance of focusing controls on "significant" risk (paragraph 20). HEFCE's Risk Management Briefing for Governors and Senior Managers highlights the fact that "control comes with a cost" and that "institutions will not want to deploy all possible controls when managing risks" (HEFCE 01/24). This principle, of control and intervention in direct relation to risk, is essential to ensuring effective use of resources and public money and should be applied to all audit processes both internal and external.
- 7.18 The HEFCE Audit Service, the Quality Assurance Agency and the National Audit Office are all adopting a risk-based approach to the exercise of accountability. The Better Regulation Task Force has encouraged HEFCE in adopting this approach by stating that "there is room to lighten the burden further by focusing only on those HEIs at greatest risk and to limit to an absolute minimum the work carried out elsewhere" (page 26). The BRTF also highlighted that the NAO "considered the higher education sector to be a low risk sector" (page 10).

Could the idea of 'earned autonomy' work in HE to free successful universities from restrictions without losing all accountability?

- 7.19 Higher education institutions are already autonomous institutions. Alongside reiterating the importance of this to the effectiveness of institutions, Dearing, Nolan, HEFCE and indeed institutions themselves have acknowledged the responsibility of government to hold any publicly funded body accountable for the public funds provided to it. The framework provided by Dearing, where government establishes the policy context and higher education institutions are responsible for strategic direction and management allows the freedom necessary for institutions to effectively function whilst retaining sufficient accountability to stakeholders. Autonomy is essential to the success of an institution and it should not be considered as a "reward". The vast majority of institutions are successful and as both consultancy work for HEFCE and the BRTF Report outline, the accountability burden on higher education institutions is indeed proving counterproductive.

Accountability to students and the wider community

- 7.20 With over 2 million students, universities have many 'customers' who want to be sure they are getting the best teaching and facilities. Many now pay fees (or have them paid by parents) and expect value for money. Most universities have students on their governing body, often the student union president. And most now ask students what they think about the quality of their courses and lectures, though the way they use this information varies.
- 7.21 While universities have developed a variety of links with industry at national and regional level, and these are valued, local employers sometimes have a different perspective and are less aware of these links. Structured work experience is much better developed and organised in some universities and some departments than others are.

Is there more that universities could do to listen to their students? Are the existing quality measures sufficiently robust to enable them to choose between courses?

- 7.22 Increasing pressures on staffing resources following from reductions in the unit of resource have made it difficult to maintain the traditional levels of staff-student interaction. Universities are making strenuous efforts to find mechanisms to listen to students, often through use of feedback questionnaires, one-stop student support service operations and use of email communication. The excellent report for Universities UK and the Standing Conference of Principals on *Student Services: effective approaches to retaining students in higher education* launched in November 2002 shows that good practice is widespread and makes helpful recommendations to assist the communication with students.
- 7.23 There is a recurrent theme through the discussion paper that students do not have enough information to choose between courses. In reality there is an enormous amount of information available to potential students. It is equally clear that students do not make choices between courses or institutions on the basis of a narrow range of quality indicators. Research indicates that the decision-making process is much more complex and a wider range of factors are taken into account. We could probably do more to ensure that students know the environment in which they will study and the nature of the course, which are both key issues for students and areas where a mismatch of expectation is more likely to cause student dissatisfaction and poor performance than crude performance indicators of the sort used by newspapers in creating league tables. These probably do more harm to informed student choice than any other factor.
- 7.24 Standards are subject to the QAA "points of reference" which cover teaching methods as well as academic outcomes, and reports are made public. Student feedback is regularly and extensively used during courses and a national system of graduate feedback is being established following the Cooke report (HEFCE 02/15), which has also provided for extensive statistical and other information to be published, including the outcomes of periodic institutional reviews of departments which will be audited by QAA.

To what extent do universities meet the needs of employers – and enable graduates to have the skills employers are seeking?

- 7.25 Universities' first responsibility is to their students, in preparing them for a lifetime of work and

probably many changes of employer and even career. Some employers complain about the lack of preparedness of graduates but are reluctant to be more precise about their requirements. Many universities pay much attention to ensuring that their curricula address many of the employability issues yet there are sections of the employment market that do not see these as important in their graduate recruitment processes. Work experience is almost certainly the best preparation for post-graduation employment and this is increasingly hard to obtain for students on course. It is a source of continuing frustration to hear employers complaining about a lack of employability skills yet they practice recruitment processes that exclude graduates from vocationally designed programmes with strong employment related activities on the grounds that they are comfortable with recruitment in the mould that they themselves came from. We need better dialogue with employers, better opportunities for work placement and employer input and less conservatism about the background from which employers will seek graduates.

Should Universities build better and closer links with schools – perhaps through student volunteering, or through academics working in a certain subject supporting teachers in that subject?

7.26 Many, if not all, universities already have well developed links with schools and colleges (these too are largely ignored in the discussion paper), as exemplified by recent research and case studies on widening participation. Mentoring programmes using university students in schools are now well established. There is probably less work done with academic staff working with schoolteachers. Partnerships for Progression projects will almost certainly strengthen links with schools.

Management and governance

Are universities sufficiently good at managing and governing themselves to take on more freedom?

7.27 The BRTF Report categorically stated that “there is no evidence that the sector as a whole is particularly prone to financial and/or management failures or failures to deliver on academic performance” (page 10). The Treasury believes that the higher education sector can claim a good record in terms of quality, productivity, cost effectiveness and good use of public money (HEFCE Better Accountability through Partnership newsletter August 2001). The research done by PA Consulting for HEFCE, when they interviewed stakeholders in relation to HE found that “... most [stakeholders] remarked on the infrequency of control and/or performance lapses in the higher education sector, and on the minor nature of those problems which have occurred” (page 17).

7.28 In relation to governance the second Nolan report stated that “the firm view of our witnesses and those who wrote to us was that the standards of conduct in higher and further education were generally very good” (paragraph 47). Nolan commented on the “majority of excellent governors” (paragraph 48) and that where there were problems “we’re dealing with isolated cases that indicate no deep-seated trend” (paragraph 48). This view was echoed by Dearing that stated “the recent instances of difficulty have been few and ... these do not represent any wider evidence of failure” (paragraph 15.35). Since these two reports the sector has implemented their recommendations, have reviewed and reissued the Committee of University Chairmen (CUC)

guidance to governors, CUC has established a Governor Development Programme and the Standing Conference of Principals (SCOP) has established, with support from HEFCE, a Governors network, further supporting and reinforcing the excellent governance of the sector.

- 7.29 Both the work of HEFCE and a whole range of stakeholders under the Better Accountability initiative and the work of the Better Regulation Task Force highlight the key aspect of the accountability relationship. This is that it is not just about institutional effectiveness, competence, control or risk but it is about an already successful, low-risk sector being hindered in continuing this track record and in providing effective accountability because of an excessive, duplicated, uncoordinated and contradictory accountability burden.
- 7.30 Some universities, for example, the former Inner London Education Authority polytechnics, are companies limited by guarantee and thus subject to Company regulations as well as governance rules set out for the post 92 sector when they moved from Local Education Authority (LEA) control in the late 1980s. HEFCE audit (and probably also the Scottish Higher Education Funding Council and the Higher Education Funding Council for Wales) set out and audit internal governance and management arrangements. There are many layers of audit, HEFCE audit, internal and external audit as well as academic audit, which suggests that universities are not subject to too little audit. Indeed it is a recurrent debate by some external governors that universities are over-audited compared with their experience in the private sector. The Better Regulation Task Force review also suggested that there is too much regulation not too little.

Do they have to little – or too much – freedom over audit issues? Can we be sure that the taxpayer’s £5bn is being well spent ?

- 7.31 Institutions do not have any freedom about whether they comply with or participate in audit by HEFCE or the National Audit Office. This is entirely appropriate. Where institutions should have “freedom” or perhaps more accurately a large degree of independence and autonomy is in the management of their functions and the responsibility for their strategic development. A combination of layers of audit, with a risk-based approach where scrutiny is in direct proportion to risk, within the framework outlined by Dearing, provides the most economic, efficient and practical approach to balancing effective institutional management with justifiable accountability. Institutions are well managed and successful, under all the guidance both within the public and private sectors, this should lead to an appropriate and low level of scrutiny, any more detailed scrutiny can only be justified on the basis of clearly elucidated, evidenced and significant risk.
- 7.32 The need to focus on effective risk management has been highlighted by a number of organisations including the National Audit Office and the Public Accounts Committee. We welcome the recent Strategy Unit Report where the Prime Minister sees risk management as “central to the business of government” (page 2) and the report acknowledges the importance of “placing risk where it can best be managed” given the considerations of amongst other things value for money (pages 62-63). Giving full effect to this principle points to the need for significant reductions in the regulatory and accountability burden across the sector.

Chapter 7: Freedom and accountability - references

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Annex C

Business Case for a Leadership Foundation for Higher Education -Executive Summary

Proposal

1. Universities UK (UUK) and the Standing Conference of Principals (SCOP) propose the establishment of a high profile Leadership Foundation for Higher Education. Its aim is to enhance the competitiveness, efficiency and effectiveness of the sector by further developing the professionalism and reputation of leadership, management and governance. The Leadership Foundation would have a strong international and cross-sector focus.

Why establish a Leadership Foundation?

2. Higher education faces demanding challenges both globally and nationally. In Sir David Watson's words, the position of the sector is "perhaps the most volatile and turbulent since the 1980s". Pressures on leaders, managers and governors can only increase as institutions seek to respond to expanding regional and international markets and to tough public policy targets.
3. To date, higher education's success has been achieved without significant investment in leadership and management development. Higher education leaders and governors recognise that the challenges ahead require a different level of response and investment. Through the UUK and SCOP Steering Group, chaired by Professor Adrian Smith, they have designed a targeted national strategy that will assist them to increase their institutional capacities and enhance individual capabilities to lead and manage significant change. Working with Vice Chancellors and Principals, international partners and stakeholder groups to add value to the sector, the Leadership Foundation will lead and deliver the strategy.

Four reasons for a dedicated Leadership Foundation for Higher Education

4. A Leadership Foundation has an ambitious aim of bringing the world's leading management practitioners and thinkers together in support of British higher education. The strategy is to create networks and affiliations with the leading centres of expertise in all the relevant disciplines globally. The rationale that underpins this ambition rests on four premises:
 - i. Higher education institutions are distinct, autonomous businesses with diverse missions and markets. The value of a dedicated Leadership Foundation is that it can be sensitive to different customer needs and market drivers as well as the specific higher education context.
 - ii. Higher education must work increasingly closely with other sectors (business, health, further education and schools) and internationally to achieve social and economic goals. A Leadership Foundation, having access to multiple sources of expertise and resources, would broker and procure high quality products and services for the sector and create new opportunities for institutions and individuals.

- iii. By creating a clear focus on higher education leadership, management and governance, a Leadership Foundation will create a higher profile for these roles within and outside the sector and will promote cross-sector dialogue about comparable strategic challenges. Better understanding and improved dialogue through joint development opportunities will increase the confidence of stakeholders in the management capabilities of the sector.
- iv. A Leadership Foundation offers the opportunity to build on existing provision, expertise and commitment in the sector. It will provide for unmet demand and will stimulate further demand for development by increasing the volume, quality and variety of what is available to institutions and individuals.

Guiding principles

5. The best organisations recognise that leadership, management and governance are vital drivers of organisational performance. Their approach to leadership development drives and supports their business strategies. Developmental activities are used to deliver business objectives and to provide opportunities for growth, advancement, change and renewal at individual, team and organisational levels. It is this broad vision of 'leadership development' that a Leadership Foundation would actively promulgate.
6. To achieve and sustain world-class performance, leaders need not only to develop the skills but also to create the conditions in which to exercise their role. The challenges ahead call for an integrated development agenda to modernise human resource strategies, revitalise business processes and structures and provide development and support for leaders, managers and governors. A Leadership Foundation will support this agenda, in partnership with others, by providing access to world-class performers to stimulate debate and action in key areas.

What would a Leadership Foundation do?

7. The task of a Leadership Foundation is to extend and enhance provision, not duplicate what already exists. The Foundation has six objectives that will be delivered through four core activities. Their purpose is to add value to what institutions are already doing.

Objectives

- Improve the supply of development opportunities, particularly in relation to international and cross-sector opportunities
- Stimulate further demand for development
- Identify, support and disseminate good practice
- Work with institutions, agencies and professional associations to build an integrated and co-ordinated approach to leadership development
- Raise the profile of higher education leadership, management and governance
- Challenge the sector to broaden perspectives and continue to 'raise its game' in relation to leadership, management and governance.

Activities

- Individual Development (provision aimed at individual leaders, managers and governors)
 - Institutional Capacity-building (provision of resources and good practice to support and extend institutional activity)
 - A Futures Lab (foresight activities to ensure that future needs are identified and that the currency and relevance of all provision is maintained)
 - Acting as Champion and Co-ordinator (for leadership, management and governance development in the sector, working closely with partners and stakeholders).
8. A Leadership Foundation would be the strategic focus, central resource and co-ordinating point for leadership, governance and management development in the sector, with its deliverables designed and dispersed to meet the diverse needs of institutions and individuals in different parts of the UK. To increase higher education's strategic capabilities, the Foundation will broker international and cross-sector opportunities, commission and design programmes and projects for its clients, undertake market research, identify and disseminate good practice and resources, assist institutions to develop their own capacity and lead the debate on enhancing individual and institutional performance. The business model identifies 22 deliverables across the 4 areas of activity.

Clients and markets

9. A Leadership Foundation aims to serve individual senior managers, governors and leaders, institutions and professional associations in the UK. It will use a variety of partnerships to create and deliver tailored products, services and opportunities for its clients. A Leadership Foundation could provide an international shop window for higher education leadership and, when operating at its full potential, could open new markets and bring further prestige to the UK's higher education sector. A key early task is to confirm the needs' analyses undertaken to date and to translate these into precise information about the range and nature of demand from each client group. For this reason, a marketing/demand study will be commissioned by the Steering Group during the set-up period.

Outcomes and benefits

10. A Leadership Foundation will increase demand for, and the supply of, relevant, high quality development opportunities, will improve cross-functional working and increase levels of cross-sector understanding and collaboration and assist institutions to achieve public policy targets. The Foundation will spearhead institutions' own drive to enhance their leadership and management skills and strategies to meet the competitive challenges ahead. The Foundation's activities will also enhance institutions' positioning as good business partners and employers of choice in a regional and international context.

Measuring performance

11. Each area of activity and deliverable from the Foundation will have specific outcome measures. At this stage, the business case identifies a range of indicative performance indicators for the Foundation as a whole. These include performance against objectives, volume measures of take-up of the Foundation's services by institutions, the range of clients and client satisfaction data,

range of international and cross-sector opportunities brokered for the sector and impact data reported by institutions. A key role for the Foundation will be to enhance institutional evaluation frameworks so as to capture the value and contribution of leadership development to the achievement of business goals.

Governance, staffing, structure and location

12. The higher education sector has taken the lead in developing the concept of a Leadership Foundation in the light of its own perceived needs and challenges. It is appropriate that the sector should take the main part in the direction and governance of the Foundation since institutions are the key stakeholders. The Foundation should be established as a company limited by guarantee with a Board containing UUK and SCOP members, funding body nominees, a Teaching Quality Academy representative, external members and governor representation. The Board would take responsibility for strategic and financial direction, with separate international and national advisory groups to provide guidance on the work programme.
13. The Leadership Foundation should be led by a high profile Chief Executive Officer with status as a strategic thinker and with the reputation and skills to represent the sector in the territories of leadership, management and governance. A small professional staff of ten would support the Chief Executive Officer. The Steering Group recommends an independent location for the Leadership Foundation.

Financing the Foundation

14. The business case is based on the assumption that the Foundation obtains its funding from four sources. These are annual grants from the funding bodies (subject to a 3-year evaluation); fees paid by participants or institutions; contracts with agencies in the UK or overseas; and contributions in cash or kind from foundations or partners in the public and private sectors.
15. The detailed calculations made of the cost of the Foundation's projected activities and the suggested infrastructure indicate a requirement for net funding from the funding bodies of £9,043,000 over 3 full operational years and a set up period of 9 months.

Assessing and managing risk

16. The business case identifies six key areas of risk and the associated strategies for managing them.

Next steps and timing

17. A set-up period of 9 months from April 2003 is outlined with a calendar of key events. In the transition period it is proposed that the Steering Group acts as an Interim Board, supported by a project manager, to create the new legal identity, commission a demand and market strategy study, select a location and appoint an appropriate Chief Executive Officer.