



University of Brighton

Submission to the Lambert Review of Business-University Collaboration

April 17th 2003

Section 1 - Introduction

The University of Brighton welcomes this opportunity to contribute to the initial data gathering phase of the Lambert Review of collaboration between business and the higher education sector. This document will be supported by a covering letter from the Vice Chancellor, Sir David Watson, and a copy of our Corporate Plan¹. We look forward to involvement in the follow-up discussions outlined in your invitation.

The University of Brighton, from the creation of its precursor institutions in the late nineteenth century, has worked closely with business. It will be our contention that there are multiple examples of best practice in the terms of the review (e.g. management, Intellectual Property, communication etc.). However no simple model applies to all higher education institutions and business relationships. While we will present many successful models of interaction, there are issues to be resolved in expanding and embedding these practices. A recurrent theme in our response will be how to expand the scale of business-higher education (HE) interaction, while avoiding activity that does not deliver appropriate returns.

- *Access & scale:* There are many types of interaction that are beneficial to business and higher education institutions (HEIs). For many universities, expansion in these activities has been limited by the capacity of the few key personnel who were able to develop them. We welcome the expansion enabled by funds such as HEIF. However there are issues to be resolved in order to ensure the HE-business opportunities are accessible to more businesses and that projects are effective in delivering desired results.
- *Timelines:* Successful partnerships evolve – from initial pilots into longer-term deeper programmes: they require investment from both sides; commitment at the highest level; alignment of goals and trust that all partners stand behind their commitments. Unfortunately market timelines, business priorities and personnel shift more rapidly than universities can always accommodate, increasing hesitation to commit to programmes.
- *Risk:* Universities have commitments to their stakeholders which span years – we are capable of rapid decision making, but our appetite for risk, where our students or employees may be negatively affected, must be low. Universities will take qualified risks, but our limited ability to speculatively use reserves or debt to build capacity cannot be used in potentially volatile circumstances and competitive environments.
- *Standardised offerings:* Increasingly we are learning to make the engagement simpler, with more open dialogue and creation of more service oriented offerings e.g. consulting and targeting sharing of best practice with groups of industrialists. These programmes take time and marketing expertise, which has not formerly been a primary skill for universities, and our resources to develop these capabilities are limited.
- *Communication & commitment:* SMEs tell us that universities are complex and hard to access. Larger businesses have discussions with HEIs on multiple levels, but the messages and commitment are not always consistent, e.g. marketing and sponsorship is critical, but also well documented and it will not be elaborated in this response. Placement discussions, to ensure continued access to graduates, is often the first focus of business liaison – but it is not always a primary board level strategic priority. Research and product development (including spin-outs and spin-ins), are the critical areas for university collaboration – with appropriately shared commitments, risks and rewards. These links can take years to develop and integrate. Managing complex relationships with multiple partners is a skill universities must develop further to

¹ University of Brighton Corporate Plan 2002-7 available at: <http://www.brighton.ac.uk/hubs/about/plan.html>

optimise business-university collaboration. Where commitments are not consistent across organisations, HE-business relationships falter.

The University of Brighton has an agreed Commercial Strategy, aligned to our Corporate Plan. We have a negotiated framework for sharing financial rewards built on the principle that shared benefits should relate to contribution. We look to the Lambert Review to provide feedback on best practice in expanding our current level of business interaction. We look for recommendations on support for better facilitating such interaction and to lowering the real and perceived barriers to commercial activity.

Benefits and barriers to interaction

- Businesses get problems solved cost-effectively: i.e. via access to highly skilled problem solvers and resources without attendant capital investment or employment costs.
- Universities share in businesses' ability to apply knowledge in an economic context, to capitalise on opportunities, to generate profits and social benefits.
- Business gets the ability to influence the education offered to potential future employees.
- Universities benefit from additional revenue streams which business can offer (e.g. commissioned research).
- Business benefits from exposure to new thinking and from universities acting as brokers for sharing knowledge.
- Students benefit from gaining experience of real working environments, enhanced employability and ability to shape their interests and career selection.
- Researchers benefit from access to an expanded range of resources (equipment, data and collaborators).
- Academic staff can enrich their intellectual activity from business interaction and also use it as support for career development.
- Universities may generate surpluses to re-invest either from short-term cash-flow or longer term ownership in new ventures.
- Both partners can achieve different goals within joint activity (e.g. consulting may provide experience or data on an academic theory which the university may value more than short-term revenue, leading to lower costs to business).

When unsuccessful business-HE relationships can be characterised by:

- Large amounts of wasted time for senior teams on both sides. Failure to find appropriate structures within which to execute collaborations.
- Mismatched time horizons - the business planning cycle has long term intention, but a quarterly focus: short-term shifts in goals and funding can make planning of continuous joint programs untenable. Lack of sufficiently senior business involvement can result in funds being cut unexpectedly.
- A focus on specific training topics rather than broader education – demands for increasing numbers of specifically trained graduates impacts the curriculum while having limited real effect on staff quality².
- Unrealistic expectation of capacity. Universities, like industry, have capacity and provision planning problems – we rarely have abundant immediately available spare capacity. Suddenly available industry money may not engender a quick response, when university infrastructure is already under pressure.
- Negative impact on direction of research, short-term exploitation versus longer-term creation of knowledge.

² Science-based industries are now reportedly decrying generalist skills and blame widening participation for this 'dilution' of hard science standards (*THES* 4 April 2003, p1). Yet Sussex businesses include basic IT (34%), team working (27%) and project management (18%) among skills seen as priorities for improvement (*Annual Business Survey 2002*, Sussex Enterprise (SEER consulting), unpublished). Similarly, the demand for 'good' level IT skills is forecast to increase by over 60% between 2001 and 2006 (*Skills Review Update 2002*, Skills Insight, p43). 'Training in a more generic range of skills is likely to be even more important than IT training' (*Skills Review Update 2002*, Skills Insight, p20).

Section 2 – responses to questions for consultation

Question 1

Best practice and examples in excellence in business-university collaboration in the UK & abroad.

Industry's use of information from academic publications, and academia's use of industry patents and prototypes or vice versa;

- The use of information in both directions is as varied as the types of organisations and content produced. Compare the intense focus of chemical firms reviewing the chemical abstracts and IP filings; the popular access to many business review publications or the specialist review between practitioners at highly academic conferences.
- Given electronic access has opened up vast new low cost publication routes, the targeted dissemination of information must improve. The speed of publication has been enhanced by the web, although the breadth of application of knowledge has not risen proportionately.
- Best practice can be found in the increasing number of networks of expertise sharing knowledge – but the existing processes for matching content to potentially interested audiences requires improvement, as do tools for sharing, searching and navigating publications. Facilitation in the creation of this much needed infrastructure could be a key recommendation of the Lambert Review.

Joint ventures between universities and business, e.g. personnel exchange or collaborative R&D project... Formal contacts, e.g. the use of licensing, research contracts, consulting projects, establishment of spinouts, product testing or business support.

The configurations of joint, or shared, ventures are shaped by many factors. Consider their core goals: are they support vehicles for specific academic subjects? Environments to develop teams? Engines to produce papers? Created to minimize setup cost? Created to maximize value? Subsidised under government policy; structured at a scale to deal with worldwide competition? Strategic in their vision for knowledge creation with unquantifiable benefits?

Within differing sets of constraints, the University of Brighton has experience of multiple examples of good practice, including:

- **Personnel exchange:** The university seeks to innovate at all levels. For example, it supports a number of faculty positions co-funded with industry; schemes for postgraduate students conducting research for industry and co-located with industry; student placement and TCS schemes also offer the option for knowledge transfer supported by physical co-location. Key limiting factors are the available number of benefactors who are willing to become involved in programmes and ability to predictably build the support into university plans. The key elements and benefits in such ventures are recognisable and often pre-determined outcomes, a small administrative burden and a generally 'safe' mutual introduction between universities and business, from which future, larger-scale interactions can grow.
- **Research & consulting contracts:** The university supports several research units and departments delivering research and consulting (activity spread across all our faculties). The number of business contracts has more than trebled from 2000 – 2003. Key limiting factors have been available staff time, limited marketing and lack of access to skills in the creation of organisations focused on delivery of professional services – as opposed to our existing skills in teaching and research. Clearly a major element in the business image of a university,
- **Spin-outs:** Facilities to support the progression of concepts out to the market are key elements of our commercial strategy. The University of Brighton is actively expanding its relationships with spin-outs. Involved in the first five SEEDA hubs (announced Sept 2000), we are the accountable body for the new

Eastbourne Hub and expect to announce other developments soon to expand our incubation and 'hatchery' capabilities.

- **Industry sponsored research activity:** As well as a broad range of engineering consulting, the School of Engineering hosts the Ricardo Universities Internal Combustion Engines Research Centre. Sponsored by Ricardo plc, a leading powertrain and vehicle engineering technology provider and strategic consultant to the world's automotive industries. The benefits of a university being supported, and thus endorsed, by a world class company are clear.
- **Industry supported course development:** For example, the MSc Digital Television Management and Production (MSc DTV), which has been developed in collaboration with Victoria Real Ltd. a Brighton-based digital media company with a prominent international reputation. Leading companies and individuals in the industry (including the BBC and Channel 4) were consulted on its development, and support the teaching and facilities. Hewlett Packard is the technology sponsor with donations to date of over £100,000's worth of equipment. Industry involvement in course and/or validation committees, such as a recent internal review of chemistry, which included visiting employers' premises to discuss how graduates can meet their needs, can be an effective tool. In our experience, employers prefer purposive encounters arising out of actual need rather than an additional layer of regular meetings.
- **Government sponsored knowledge transfer initiatives:** Brighton TCS Centre supports the development of businesses across the south east. TCS is business led and delivers results that meet the needs of businesses that take part. TCS programmes can produce benefits such as new product lines and markets, highly skilled employees and reductions in costs and lead times. Brighton TCS Centre has a track record of over 60 successful programmes (cases available). The value and appeal of TCS lies in its tightly focused, solution-driven approach.
- **Government sponsored initiatives:** the Brighton Environmental Body Ltd (BEB), set up by the university under the Landfill Tax Credit Scheme, and its university-based Waste and Energy Research Group undertakes environmentally beneficial research. To date, the BEB has won contracts worth approximately £800,000.
- **University & RDA developed initiatives:** The University of Brighton is active in responding to the SEEDA cluster funds. Great Ideas in Science and Technology (GRIST) is a SEEDA-backed pilot loan scheme to support the development of ideas and help turn them into fundable businesses. The GRIST pilot is collaboration involving the Universities of Brighton, Surrey & Kent, and will initially manage a fund of £1 million. In this instance, the availability of (RDA) funding to pilot a novel approach was the critical factor in getting the initiative off the ground.
- **University & business developed initiatives:** the university's Centre for Research in Innovation Management (CENTRIM) runs an agile manufacturing programme that has been designed in response to the rapidly changing business environment. The project involves a core group of SMEs and a wider group of companies interested in exchanging experience and improving their own development. This scheme is a classic example of mutual, but different, benefit – business improvement for the companies and increased access to research subjects and data for the university.
- **Public sector joint initiatives:** (a) Currently the Chelsea School is involved in a number of sports partnerships with the Sports Development Unit, Sport England et al., facilitating knowledge transfer. (b) Schools within the university, have a number of local authority links, for example Chelsea School has been involved in informing the Eastbourne Borough Council leisure policy; the School of Languages has contributed to the formulation of the new Brighton and Hove City Council language policy.
- **International initiatives:** Because of the need to effectively protect and exploit IP generated through a EU Brite-Euram Framework IV Research Programme, a joint venture is in the process of being established by all the consortium members. They are the universities of Brighton, Nottingham, Ghent (Belgium), Naples (Italy), Eastern Piemonte (Italy), and Destiny Pharma Ltd (UK SME) and SAMO SpA (Italian SME). The joint venture will have responsibility for holding and licensing the IP to other parties. This protects against

the EU requirement for EU Access Rights to technology and ensures that all participants benefit from their joint collaboration in developing the IP.

Business-university liaison

- The university has used third stream funding to: appoint sector and geographically based business development managers; create a one-stop shop for business and the public sector to contact the university and build the necessary back office to support these developments.

Work experience for students

- As referenced in the recent *Future of HE* White Paper - over half (55%) of all first degree and diploma students at the university undertake formal work experience placements as part of their courses. Students are placed with multinational corporations, privately owned companies, government offices, local authorities, consultancies, research institutes and educational establishments. Placements can last from two weeks to one year. Students also benefit from the university's excellent graduate employment record. Placement interactions are the most frequent form of contact, and therefore provide the greatest opportunity to gauge employers' views. The university is working hard to make the best use of these contacts as both information/opinion exchanges and stepping stones to other interactions.
- 'Graduate into business' is a SEEDA-funded project initiated by the Faculty of Arts & Architecture, aimed at improving arts graduates' business skills, particularly in relation to starting-up their own businesses or working successfully as freelancers.

Business contribution to curriculum development

- Examples include: MSc DTV (see above); our flexible use of industrial advisory boards, liaison panels and other more informal employers groups – the nature of such groups needs to reflect the appropriate level of engagement for the companies concerned. Ely Lilly, who offer several IT student placements per year, subsequently wished to help with curriculum development and contribute as external lecturers - highlighting how the theory gets put into practice. Their long term goal is to get better qualified and more relevantly qualified students.
- Foundation degrees: although HNDs traditionally provided vocational sub-degree qualifications, foundation degrees bring HE and business closer together to meet specific intermediate level needs of employers. They address the demand for qualified professionals who can combine extensive work-based experience and high level education. Developed in consultation with local employers, delivered by further education colleges and led by the university. For example the University of Brighton degree in eSystems Design & Technology, delivered via an internet environment and kept current through continuous employer involvement consolidated through an industrial board.

Academic secondments in industry

- A substantial number of part time university staff are still active in business, which offers an alternative, and potentially better, means of maintaining awareness of trends and developments in industry.

Provision of CPD training by universities for business

- The university offers short courses, catering specifically for people wishing to update or increase their professional knowledge and skills in the areas of art and design, business and management, health and social care, teacher education, language, IT and engineering. Since 1997-8 the number of students enrolled in non-award bearing courses has increased 50%. CPD provision by the University has diversified and time to market has shortened, in recognition of the needs of the target markets. There are still issues around successfully gauging the true size of the market for specific short courses – a few companies expressing a need is not conclusive evidence of a viable market. Even using labour market intelligence and skills data can be misleading; the Sussex Enterprise *Annual Business Survey 2002* found that businesses overestimate

how much they intend to spend on training, in this instance by 37%. There could be a role for RDAs in assessing need, possibilities for consortia of HEIs providing integrated provision and the franchising of CPD between HEIs.

How such relationships came about. Were the Regional Development Agency or the Sector Skills Council involved? What more could be done to facilitate successful partnerships?

- Many historical and valued relationships with individual organisations came about via personal contacts or research relationships initiated via professional organisations, conferences, university-facilitated working groups, special interest groups and many networking opportunities. The difficulty lies in the unpredictability of serendipitous encounters, and the pressure of not wishing to reject opportunities arising out of personal relationships.
- We are involved with organisations such as AURIL and locally with Sussex Enterprise (e.g. active in Sussex Enterprise Advanced Engineering Steering Group with its activities in renewable energy). Broader contact initiatives include sponsorship of one of the Sussex Business Awards, to celebrate university-business collaboration.
- Increasingly opportunities are being channeled via multiple new organizations, which require the creation of yet more contacts e.g. local council economic redevelopment initiatives; the Learning and Skills Councils and the RDAs and their programmes. The Sector Skills Councils (SSCs) will increasingly contribute.
- Partnerships take time to develop and not all partnership opportunities can be sustained. Partnerships are successful when there are overlapping goals and shared activities – e.g. the potential for access to funds and benefits.
- Due to the costs involved for all participants, the ability of newer intermediaries to facilitate the creation of partnerships between HE & businesses is key to the successful expansion of HE-business working.

Question 2

If you do not have, or would like to strengthen such relationships, what are the main barriers to doing so? These might include: management and organisational issues - how can business and universities best organise themselves in order to benefit from each other's resources? Do present mechanisms for priority setting, decision making and funding in the HE sector help or hinder business-university collaboration?

- As outlined earlier there are continuing barriers to effective collaboration. Due to their inherent potential, pilot projects are often initiated, but changes in policy, strategy or staffing can mean programmes get disrupted and the long term benefits lost.
- Most academics do not have commerce as their focus. The major mechanisms for evaluation are research and teaching quality assessments. Business collaborations are difficult to promote to an already overworked internal audience. If we wish to embed these behaviours in an institution they must be evaluated as part of the core activities and goals of the university.
- Where sufficient volume of university-business project work is generated, employment can be assured and careers developed. However without operations at scale universities cannot always respond to short-term needs as quickly as industry (e.g. appointing staff onto a short-term project).
- Longer-term relationships allow exchange of information that can support both partners with positive benefits (e.g. business has a steady flow of solutions and universities new data for research). Longer-term relationships allow universities to apply their problem solving skills to the development of new processes and tools to ensure the relationships are optimised. However, this approach requires more action, training and investment on the part of both partners.

What changes might encourage collaboration?

A representative list of suggestions from the university includes:

- Better recognition (financially and departmentally) for staff engaging with businesses. Even where funding can be allocated to support 'third leg' development, the career risks are seen as greater. It is difficult to promote commitment to new, untried business initiatives which may 'fail' rather than more predictable success in research or teaching.
- Funding, e.g. to allow the cultivation of contacts, the application of resources, training, skilled facilitation and promotion.
- An IP exchange whereby projects rejected by businesses for whatever reason can be assessed for their potential for exploitation by other routes (e.g. collaboration; private funding; integration with other IP to form a broader proposition).
- Business investing more time in industry advisory groups to understand how they can best contribute, and academics being similarly ready to understand better what they can contribute.

Technology transfer - what are the barriers, how can it be made more effective?

Intellectual property - are the present arrangements understood and appropriate?

- The barriers mainly revolve around costs and funding. Current mechanisms for IP protection are expensive. Most universities have insufficient funds to protect IP and lack the expertise to bridge the gap between invention and exploitation. We welcome additional funding and continued work on lower cost mechanisms to protect IP.
- Industry holds large amounts of data which it perceives as a strategic asset and which it is reluctant to publish. Even sharing new ideas with external partners to test or research is considered competitively high-risk. Building trust and the processes to protect confidentially while supporting collaboration is an ongoing area of development.
- The difficulty for HE in identifying realistic potential partners. While the number of 'technology fairs' and similar events have been increasing, a more comprehensive infrastructure - perhaps a technology transfer 'dating agency' - would be welcome.

- The difficulty for HE to move technology beyond research publication and to the point of potential exploitation is still being addressed (e.g. requirement for additional data for patents, or building more than demonstration code to secure funding). The provision of loan schemes and incubation facilities is supportive, but the availability of early stage funding remains an issue.
- IP management and exploitation requires a constant programme of education and update within the university. The complexities introduced by shared exploitation and requirements for confidentiality are now part of our standard staff induction.
- The problems are hard for HE to fix alone. Collaborative approaches, such as The Virtual Company, pioneered by Business Link Wessex, may offer a model. A team of experts (typically a specialist academic, an engineering partner, a skilled marketer and a legal adviser) work at no cost, but for shares that become valuable if the company succeeds.

Question 3

How can business attract the best graduates and postgraduates with the skills they require, especially in technology? Is the quality of graduate recruits satisfactory? Are there any obvious gaps in terms of skills and disciplines?

- Employers express a need for graduates with a certain range of skills and sometimes these can be lacking, but overall there is no major difficulty in sourcing good graduates. Retention can be more of an issue as many graduates view their first job as a stepping stone to others. Communication and the management of expectations between employers and graduates are not always satisfactory. Employers feel their expectation of graduates who can hit the ground running is not always met; graduates can also feel that career-enhancing training and development is lacking. Major skill shortages are not currently apparent to the university's careers professionals: on the contrary, in some areas, such as IT, graduates are struggling to find employment. Close co-operation between the university and employers does help with course design and placements.
- Mathematics weaknesses and poor basic science understanding are currently the two main deficiencies in student recruits to universities. The former has been in steady decline for a decade and seems to be an insoluble problem despite the best efforts and interventions of a number of bodies.

How do businesses, individually and collectively, communicate their needs for specific scientific or technical skills and for the development of relevant courses in universities?

How could more attractive career paths for science and technology graduates and postgraduates be developed?

What plans does business have to attract the best talent in the future and are the universities made aware of them? If not, what more could be done to facilitate such a dialogue?

- Businesses will often state their needs, in terms of skills and qualifications, to the university careers service in an ad hoc manner, but some SMEs need help in understanding the range and suitability of the available options. Contact with businesses of this sort varies between academic departments, and in some cases professional bodies, rather than businesses, drive the skills debate. There are specific, successful courses run for employers, particularly at postgraduate level, showing that where dialogue can be initiated, solutions can be found. Locally/regionally the university careers service liaises with development, enterprise, and careers contacts, but there are no effective formal local forums for exchanging views. Given the diversity in the economic base, it hard to envisage an all-encompassing solution and national overviews, as developed by SSCs and others, are not always applicable locally.
- HEIs could do more in terms of helping postgraduates and/or researchers to understand career opportunities by identifying transferable skills in a way that can be communicated to employer and student. To offer more attractive career paths would also need employers to recognise these students as potential recruits rather than only looking at the undergraduate market.
- Larger employers regularly implement new initiatives to give themselves an advantage in the undergraduate market, such as recruiting ambassadors who spread the word about them to other students, paying off loans, offering jobs after work experience and paying students' final year fees etc. Most will inform universities of their activities but often such links are limited to a small number of institutions, to the detriment of graduates from elsewhere. This is perhaps not a major problem, but it is evidence of the understandable business preference for unilateral action to achieve cost-effective solutions. A further concern is that some employers still seem to use A level grades as a means of evaluating candidates, rather than looking at achievement during a degree course.
- The university runs careers fairs for employers and students, and careers officers visit companies whenever they are asked or are able. Increased dialogue may be realised by organising events at the university, targeting specific local employers, to explain what HE is aiming to achieve in preparing students, and exploring ways in which the curriculum could be altered or adapted to meet employers' needs. However, this consumes rare time and resources for both parties, and at present the perception is that difficulties are

sector-specific rather than general. Keeping in contact with graduates, tracking their progress, experiences and views, can provide valuable, if anecdotal, intelligence.

- Course design and development is a time-consuming and skilled activity often not fully understood by the majority of businesses. The timeframe of the complete new-course cycle – from concept through to graduation – is also not widely appreciated. Industry needs to become more involved in genuinely co-operative activities (such as Industrial Advisory Boards) in order to understand the complexities and make more effective and timely inputs.
- There is a particular challenge in trying to meet the needs of SMEs due to the speed of change of their perceived requirements and their tendency to seek very specific (as opposed to generic) skills. However, work such as the EPC Output Standards Project, where an Employers Working Group explored the generic proposals in depth, indicates a way forward.
- Business in general takes insufficient time to study the actual content of courses, and sometimes makes judgements based on superficial comments in the media. Real understanding of the strengths (and weaknesses) of graduates will only come from closer cooperation and involvement.
- A good example of university/business/Government cooperation is the recently announced National Council for Graduate Enterprise.

Question 4

Do financial considerations currently help or hinder the relationships between business and universities?

- As in all business partnerships, potential mismatches in financial goals can hinder relationships (e.g. inability of universities to match funding and investment or business drive toward short-term revenue over publication). The perception that the short-term cost may not deliver a significant pay-off certainly inhibits exploration of possibilities.

Are there ways in which the present financial arrangements could be made more effective?

Has the introduction of R&D tax credits influenced business demand for research & skills and, if so, how? Are there other means to the same end?

- The role of Government as facilitator, where limited seed funds can be highly leveraged to encourage business-HE liaison is essential. Schemes with some Government contribution such as TCS; funding suitable to support posts in knowledge transfer such as HEIF; R&D tax credits, when properly explained, and programmes to support forums and on-going dialogue between HE and business are critical.
- The efficacy of many existing schemes is limited by the level of awareness of the tools and an inability to build them into strategic planning. Many SMEs we have had discussions with have a limited or erroneous understanding of the latest R&D tax credits. Even when explained, the perception of bureaucracy and potential delay appears to limit engagement. The tax credits are seen as performance enhancing – but not sufficient to promote new activity. Targeted communication and education, for both HEIs and businesses, on programmes such as tax credits would be beneficial.