

UNIVERSITY OF HUDDERSFIELD

Submission of Evidence to the Lambert Review Of Business – University Collaboration

A Business – University Collaboration: Best Practice and Examples

1. Mission and Values

The mission of the University of Huddersfield is to enable its students to reach their full potential by equipping them with the knowledge, skills and attitudes to meet the requirements of work and society in the 21st century.

To achieve its mission, the University has strategic aims in four major areas of activity, these are:

- Teaching and Learning
- Research and Scholarship
- Relationships
- Resources

A key component of our relationship strategy is working in partnership with other institutions, industry, business and the community, where the aim is to enhance the economic and social development of the region and surrounding areas.

The types of outcomes we expect from working in partnership include:

- enhanced contribution to the economic, social and cultural development of the region and surrounding areas
- commercial exploitation of the university's intellectual property
- increased transfer of knowledge and technology to industry, business and community organisations
- enhanced rate of business growth in West Yorkshire
- support for local and regional industry and business
- provision of applied research and consultancy
- development of a 'sense of place' within the community

Working in partnership and networking with individuals and organisations is the way in which the University operates to achieve its strategic aims and mission.

2 Knowledge Transfer

- The University provides a comprehensive portfolio of part-time vocationally orientated courses leading to self standing awards, geared mainly to employment needs, in science, engineering and technology, information, business and professional subjects, health and social care, music and humanities. In 2000/01, 39.86% of the University's students studied part-time, and are typically aged over 21, with approximately two thirds supported by their employers. Many of the programmes of study are recognised by professional bodies. This provision makes a significant contribution to the local economy by updating the education and training of employees in local firms.
- The University has strong links with industry, commerce and the arts, and is among the UK's top five providers of 'sandwich courses' where students can take advantage of a paid work placement in industry or commerce. Over 600 undergraduates a year benefit from a year's

work placement in industry with a further 1,084 engaged in semester or shorter length placements. This amounts to half of our undergraduates undertaking work placements whilst studying at Huddersfield. All are engaged in projects which add value to the organisations in which they work. It is estimated that up to a third of students returning from sandwich placement are in receipt of some form of company sponsorship and many go on to carry out company sponsored projects.

- The excellence of the University's placement provision has been recognised by HEFCE with the award of a FDTL project "Improving Student Learning on Sandwich Placements". The project produced an IT-based solution to mapping the placement process allowing for the articulation of placement activity within the curriculum. The MAPPIT Project Business Model is being made available as a commercial product.
- The University 'Job Shop' helps students find part-time with local employers. Some 3,857 students are currently registered. Since opening in 1997, it has helped students find 3,822 jobs with 688 employers. Most, if not all, of the part-time jobs are with local companies and organisations.
- We encourage our students to engage in a wide variety of activities which contribute to their course-assessment and offer real benefits to the local community. An innovative student mentoring/tutoring scheme sees 100 students per year working with children in local schools supporting literacy and numeracy initiatives.
- Students come from all over the UK and over 60 countries worldwide to study at Huddersfield. This offers clear economic, social and cultural benefits to the town. Many students from outside the region stay on after their studies to live and work in West Yorkshire.
- The University delivers an EU funded (Objective 3) higher level vocational skills training programme targeted at identified regional skill shortages. The programme has continued into 2002/03 and is seen as a model by Yorkshire Forward in addressing the increasing demand for higher level skills, via flexible and responsive education and training provision.
- A University-wide Career Management Module is available to prepare students for employment.
- As a result of the above activity, graduates of the University enter the world of employment with a high degree of 'work readiness' which is demonstrated by higher than national average 'Positive Outcomes' in first destination statistics: The statistics for the 2001 graduate cohort, as verified by HESA, demonstrated that 89.8% of graduate leavers achieve a positive outcome. Many of our first degree students find employment in the region with a substantial number finding employment in our immediate local area. Of those who go on to further study, 69% remained in the region with two thirds continuing their studies at Huddersfield

3 Innovation

- The University has established a dedicated Learning and Teaching Innovation Unit (LTIU) which provides a focal point for the University's on-line learning, training and information service. Target markets include existing students of the University, the global corporate market, and widening participating to excluded groups.
- Support via Commercial Fellowships and the Bright Ideas Fund (HEROBAC and HEIF funded) support a wide range of research activity with the potential for commercial exploitation, including the application of a laser diode for use in non-contact, pollution

monitoring and control and the pre-market testing of software simulating the operation of hospitals in clinical and management activity.

- The appointment of a Professor of Entrepreneurship in 1997 supported for 5 years by a £225,000 business endowment.

4 Community Involvement

- The University has long been associated with the cultural activities of Huddersfield. Examples include weekly musical recitals, regular concerts by students and the critically acclaimed annual Huddersfield Contemporary Music Festival, which began in 1978 with a budget of £3,000 and today has an income of over £1 million. The international standing of the Festival is well known and is now recognised as one of Europe's premier cultural events. What is less well known is the extent of the Festival's local involvement. From the outset, the former artistic director Professor Richard Steinitz OBE of the University's Music Department was keen to make the event as accessible and participative as possible. Since 1992 the Festival's outreach programme has involved 31 local projects and over 3,000 local people.
- The University is a major supporter of the University of the First Age with week long programmes of technology, science, numeracy and citizenship to year 7 pupils during the summer vacation. 500 pupils from 12 Huddersfield schools participated in the project in 2001/02.
- The School of Human and Health Sciences works extensively with the NSPCC, the National Children's Society and the Brian Jackson Centre in Huddersfield on child development/protection issues. A director has been appointed to the National Children's Centre, which is jointly funded by the University, the Local Authority, the local Health Authority and the NSPCC.

5 University Contribution to Partnerships

The University's track record of networking and collaborative working with partners is evidenced by our extensive involvement in major projects/initiatives and our contribution to the partnership/networking infrastructure at the local, sub-regional, regional and national level.

In order to achieve our strategic aims and mission, the University has a deliberate policy of playing a leading role in major projects/initiatives, which support the economic and social development of the region. We have been responsible for initiating such projects/initiatives, and, for supporting those developed by others. In all such examples the University has attempted to play as significant a role as possible, often taken on lead contractor status, providing headquarter facilities and employing or seconding staff.

At the local level, the University is a founding partner of:

- Kirklees Partnership and Calderdale Economic Forum

Groups responsible for considering the economic development of Calderdale and Kirklees, providing strategic planning in support of EU and Yorkshire Forward funded projects. The Partnerships report to the Local Strategic Partnerships and are made up of HE, FE, LA, voluntary and community groups.

- Kirklees Strategic Partnership and Calderdale Forward

These are multi-agency partnerships aimed at addressing major issues of economic, social and health importance to the district. Responsible for Neighbourhood Renewal strategy.

- Huddersfield 2000 +

A 100 strong business led grouping aiming to bring about a transformation in the town's economic prosperity by developing a knowledge-based economy. The group is hosted and serviced by the University.

- Huddersfield Pride

Huddersfield's main regeneration company and administrator of SRB funds.

- Huddersfield Town Team

A group formed to develop proposals in support of the Renaissance Town project funded by Yorkshire Forward. In addition to contributing to the process, the University has provided a base for the Town Team to meet and develop models of the town.

- Huddersfield Manufacturing Initiative

The group's role is to address the problems following the rapid decline in manufacturing within the town. Its members include prominent local employers and all organisations supplying manufacturing training. The University has played a leading role in this group, which has resulted in the development of an innovative Foundation Degree in Manufacturing.

At the sub-regional level the University is a founder member of:

- West Yorkshire Partnership

A partnership of the sub-region's Local Authorities, Universities and organisations with responsibility for education/training (WYLSC) and business support (BLWY). The prime purpose of the partnership is to provide strategic guidance, develop a sub-regional action plan and implement projects in support of the sub-region's economic strategy funded via Yorkshire Forward's Single pot.

- Foundation for Success Partnership

A partnership of West Yorkshire Universities and Further Education Colleges for the development and delivery of foundation degrees within the sub-region. The University has developed singly, and jointly with others, a number of innovative foundation degrees. The foundation degrees are jointly delivered by various institutions within the partnership.

- West Yorkshire Enterprise Agency/ Business Link for West Yorkshire

The University is a sub-contractor of the WYEA and BLWY providing the location for the Kirklees Business Link concession on the University campus and delivering an innovative High Growth and Super High Growth development programme to start-up companies in Calderdale, Kirklees and Wakefield.

- West Yorkshire Universities

This group has been formed to enable the sub-region's universities to collaborate in the delivery of joint projects/initiatives aimed at increasing the technology/knowledge transfer from academia to industry. A notable success of the group is the delivery of a Yorkshire Forward funded Graduate Start-up programme, which is being jointly delivered by all four Universities. The group reports within their respective organisations and via the Yorkshire Universities Association (YUA).

At a regional level the University is a founder member of:

- Yorkshire Universities Association

The Association provides a forum for the 10 Universities and 2 Higher Education Colleges to work together to extend their contribution to the region. The Association has been in existence since 1993 and regularly brings staff from different institutions together to develop policy, promote partnership and work together on projects.

6 Technology Transfer

Through technology-transfer, the development of spin-off Enterprises and collaborative research projects, the University contributes to the economic development of the region. The University provides an extensive range of contract research and consultancy services. We carry out work for large organisations as well as small companies. In the past three years we have assisted approximately 500 local companies with projects associated with e-commerce, human resource management, manufacturing processes, CAD CAM and rapid prototyping.

The University has good experience of encouraging companies particularly SME's to access the region's knowledge base. The University's Business Gateway is a single point of contact for businesses to connect with the skills, expertise and resources of the university. Most universities have a section with similar responsibilities and the networking between these offices, fostered by Yorkshire Universities Association is invaluable.

The University's Business Gateway provides the physical location for the Kirklees concession of Business Links. As such it is the base for the delivery of business services and provides 'hot desks' for BLWY Professional Advisors. Co-locating the university's Innovation Managers with BL Professional Advisors provides an additional synergy to the effective engagement with both industry and education.

The Business Gateway is located in its own building on the University campus opposite the recently completed Kingsgate town centre development. The facility has its own reception and conference facilities and benefits from extended opening hours (evenings and weekends). Day to day project management activities are supported via the Goldmine Client Management System and Virtual Community software enabling e-mail, discussion groups, notice board facilities and regular electronic newsletters

A BLWY High Growth and Super High Growth start-up programme for companies in Kirklees, Calderdale and Wakefield is delivered by Innovation Managers and project staff based at the university's Business Gateway. This high quality programme currently works with 80 of the most promising young companies to have been established in the past two years. This substantial investment is testimony to the university's commitment to engage effectively with business.

The following short list of recent major projects/initiatives provides an overview of the University's capacity to develop networks, work in partnership, successfully manage staff (individually or jointly), and to interact at high levels with both industry and education.

- **Centre for Precision Technologies**

The first phase of the University's ultra-precision technology centre is now complete. Opened by Dr Andrew Wallard, the Deputy Director of the National Physical Laboratory, in July 2001, the Centre for Precision Technologies represents a substantial commitment to the region's manufacturing sector and will perform research of international importance. The University has invested £2 million in the Centre, with additional funding support from industry and Yorkshire Forward the Regional Development Agency.

At the heart of the project are three specialist laboratories set up and equipped with instrumentation provided wholly or in part through significant commercial sponsorship. Ultra-precision engineering is forecast to be a global business worth \$20billion by the year 2020 with medicine being one of the leading beneficiaries. The University's new laboratories will be involved with the development of new technologies for the production of artificial replacement joints for human hips, knees and other applications, where the precise control of surfaces can have a beneficial effect on both wear rates and performance.

One of these laboratories, the Nano-Metrology Laboratory for the study of surface form and 3D texture characteristics, is among the most advanced of its kind in the UK.

Built as a temperature and vibration stabilised 'clean room', the laboratory will focus on the precision measurement of surfaces. The facility is equipped with state of the art instrumentation mounted on vibration isolation blocks using the latest vibration damping technology to ensure that the delicate measuring instrumentation can provide results free from the effects of vibration, temperature or dirt contamination.

A second laboratory will house an ultra precision machining cell to replicate the machining systems in use in major high technology manufacturing companies. A third laboratory will provide a precision dimensional measuring capability which, like all the facilities, will be able to provide a sub-contract service available to industry.

One of the major industrial sponsors of the Centre is the leading metrology company Taylor Hobson, who specialise in the same areas of metrology as the Centre itself. The company has sponsored the Taylor Hobson Chair of Metrology at the University and has supported the Centre generously.

PTC(UK) Ltd, owner of the leading CAD software brand, Pro-Engineer, has also formed an alliance with the Centre. This has resulted in the establishment of a training facility at the University to deliver certified Pro-Engineer training courses on a commercial basis to users of the software throughout the UK.

- **Thornton and Ross Pharmaceutical Research Centre**

The Department of Chemical and Biological Sciences has forged links with local chemical company Thornton and Ross who are sponsoring a new Research Unit to coincide with the introduction of courses in Pharmaceutical Science. Jonathan Thornton, Managing Director of the company best known for Covonia cough mixture and Stardrops household cleaner, opened the Thornton and Ross Pharmaceutical Research Centre in the School of Applied Sciences in May 2001.

The company's Technical Director, Dr David Greig has been appointed Visiting Professor and will work alongside lecturer Dr Simon Gaisford.

- **Microwave research with the CEM Corporation of America**

Huddersfield's microwave research is 'internationally-leading' according to the Government's science research body, the EPSRC (Engineering and Physical Sciences Research Council).

Dr Gareth Parkes and Professor Phil Barnes of the Centre for Applied Catalysis, and Dr Martin Sibley of the School of Engineering, have received a £250,000 research grant to design novel equipment to measure the heating effects of microwave radiation at temperatures up to 1500 degrees centigrade.

"We are working with the world's largest manufacturer of scientific microwave heating equipment, the American corporation CEM, and academics at the University of Central Lancashire," said the Head of the Centre, Professor Phil Barnes. "The project examines what happens to the fundamental (dielectric) properties of materials as the microwave process takes effect."

The Centre for Applied Catalysis has also gained a £180,000 EPSRC grant for research into new approaches to designing and making novel catalytic absorbents for use in industrial processes.

- **Highest ever research grade for Huddersfield engineers**

Huddersfield engineers recorded the highest possible quality rating for an EPSRC (Engineering and Physical Sciences Research Council) project. The Huddersfield team gained an Alpha 5 for scientific and technological merit – a score only 3% of assessed engineering projects ever achieve. The project was also given an 'excellent' grading for the management aspects and use of resources, again the highest score available. The project focused on the research and development of a system to correct all significant space and time-related errors in a production process. The final system was capable of positioning a machine tool cutter to an accuracy of half the width of a human hair within a volume the size of a modest living room.

BAe, Rolls Royce, DS Technologies, Cincinatti Siemens and organisations as far afield as Japan and the USA are collaborating with the Huddersfield team.

Successful installations have taken place at Rolls Royce and BAe. At BAe the Huddersfield team contributed to the Euro-fighter programme after the original tooling system failed to produce the required levels of accuracy using existing techniques.

Team leader Professor Derek Ford commented that the project has established Huddersfield's reputation as the leading university in this area of research both in the UK and Europe. It is also likely that we are the leading exponent worldwide.

- **Spin-off company: TDL Sensors Ltd**

University spin-off company TDL Sensors Ltd recorded its first sale in 2001. Established on the back of innovative research by University scientists the company markets a sophisticated sensor for analysing gas emissions. Using a laser technology the multi-purpose low-cost sensor can monitor gaseous emissions from vehicles and industrial processes and even analyse human breath samples for medical diagnostics.

The company is the only one of its kind in the UK and won a runners-up prize in a National Research Council Business Plan competition.

“From our original concept, we have produced a highly sensitive remote gas analyser, which is not only more robust than anything else on the market, but more adaptable and considerably less expensive,” said Dr Philip Martin who led the research team.

“We use telecommunications technology, particularly tunable diode lasers, hence the name TDL, in addition to fibre optic cables for detecting gases a long way away.”

- **The Yorkshire Bio-Enterprise BEP**

YB-BEP was formed under the DTI Biotechnology Exploitation Platform initiative with the award of £64,000 on a share cost basis over two years to carry out a Scoping Exercise to determine the quantum and quality of bioscience IP originating from within the partners under an offer letter dated 21 June 2000.

Led by Sheffield Hallam University, the partners consisted of five of the Universities in Yorkshire, the Central Science Laboratory (CSL) and with the White Rose Consortium (represented by the University of Leeds Industrial Services (ULIS)) providing specialist innovation management assistance. Two research orientated NHS Trusts were involved also as Associate Members. The YB-BEP project commenced with the appointment of Dr Louise Byass as Business Exploitation Executive (BEE) with effect from 19 March 2001.

The Scoping Exercise has revealed the extent of bioscience activities within the partners together with a number of substantial innovations judged capable of being exploited

The University's involvement with YB-BEP has been positive and has demonstrated the wealth of bioscience IP within the University. Greater knowledge of Intellectual Property rights has enhanced awareness of the mechanisms for handling innovations and the possibilities of synergistic interactions with other YB-BEP members and other DTI funded projects are being realised. One spin-out company, Bioscrubb Ltd., focusing in on the biological remediation of waste, has been established as a result of the YB-BEP. A further spin-out company is planned to exploit applications using microbial produced quantum semiconductor crystallites.

- **Extended Lifelong Learning Environment (ELLEN)**

A demonstrator project testing the methodologies of a regional learning network, comprising the regions' universities, FE Colleges, Training Organisations etc. to utilise Internet based delivery of basic learning skills, ICT skills and sector specific training in priority industries, including the engineering, environment, media, and retail sectors via the Yorkshire and Humberside Universities' Association's Metropolitan Area Computer Network (YHMAN).

This highly successful project developed generic e-learning solutions to skill shortages across a number of key clusters in the region, and provided both infrastructure and networks, which continue to be used today to address these issues. Approximately 20 FTE staff were employed on the project operating from various locations throughout the region. The University acted as lead contractor and provided headquarters for the project.

The ELLEN project operated between 1998/99 to 1999/2000 working with approx. 50 partners from HE, FE, commercial and voluntary sectors throughout Yorkshire and the Humber with a total budget of £9.27m from the European Union Adapt 3 programme. As a

high profile Adapt 3 project, ELLEN project staff interacted with senior staff in the education supply side as well as end users in industry.

- **The West Yorkshire Manufacturing Excellence Club (WYMEC)**

The Excellence Club supports the Advanced Engineering and Metals Cluster (AE&M Cluster) by providing seminars/workshops and best practice programmes alongside technical and commercial support and workforce development. The project was originally funded during 2001/02 by a mixture of European Regional Development Fund (ERDF) and funds from the four previously separate Business Links in West Yorkshire. During this period the project worked with over 250 companies in the sub-region.

The current WYMEC is funded by Yorkshire Forward (£346K between 2002/03 to 2004/05). Much of the work of the Excellence Club is at owner/director level providing greater leverage to impact upon the AE&M Cluster. A virtual network of West Yorkshire companies involved with the AE&M Cluster has been developed using leading edge communications software providing email, discussion group, notice board facilities and regular electronic newsletters. It is anticipated that several hundred companies will participate in the WYMEC.

- **The Higher Level Skills for Industry project (HLSI)**

This project has developed innovative XML technologies to support the establishment and use of an on-line repository of learning objects between all phases of education and training within the Yorkshire and Humber region. With an initial focus on the manufacturing sector, the project has developed to encompass all the key clusters important to the region enabling education and training practitioners easy access to high quality multi-media learning objects for re-use within bespoke e-learning materials.

The current HLSI project is funded by Yorkshire Forward (£2.1m between 2002/03 and 2004/05). It aims to work with up to 100 partner organisations in the region in all phases of education and training, (from Key Stage 4 to Masters level) and, to network extensively with national, European and international organisations developing similar technologies and learning solutions.

The project was previously funded by Yorkshire Forward (£500k approx Skills Development Fund 2000/01 to 2001/02). In its earlier phase it worked in partnership with 12 organisations (HE, FE, GTAs, private sector) in West Yorkshire. Throughout its existence, the project has been located at the University of Huddersfield serviced by a combination of staff seconded from partner organisations and staff appointed by the University. Project staff contribute regularly at senior levels to policy decisions regarding e-learning e.g. Cabinet Office, e-University, JISC.

- **The SME Technology Support Network**

The Technology Support Network has been in existence at the University for more than five years and is supported by the ERDF. The Network assists SMEs and 'High GVA' Start-up's to develop innovative products, processes and services to enable them to increase sales, create new jobs and achieve sustainable competitive advantage. The Network provides support to 72 companies to adapt to the demands of new product and process innovation and to 6 new high GVA enterprises. Typical support is in the form of 5 days assistance from an academic working on a particular project. The Network has grown to include other universities (e.g. Bradford), the former separate Business Links of West Yorkshire, the current Business Link for West Yorkshire, the Wakefield and District Manufacturing Alliance, the former Calderdale and Kirklees Manufacturing Excellence Club, the current West Yorkshire

Manufacturing Excellence Club, the Regional Centre for Manufacturing Excellence in addition to other organisations and individuals. The Network extends to other professional contacts outside the region and is considered to include all companies assisted during this time (over 500 in total). The Network is also a member of the nationally recognised SME support network TANet and is the key university partner and member of the operational executive of the recently formed Wakefield and District Manufacturing Alliance. A team of 5 FTE staff and a pool of technical experts regularly make interventions to local SMEs at owner or director level.

- **Regional Centre for Manufacturing Excellence/Manufacturing Advisory Service**

The RCME and MAS facilitates technology transfer from the region's research centres to industry. The MAS is a national service providing practical advice and hands-on help to UK manufacturers to improve their productivity and profits.

The University is a lead partner in the RCME/MAS, has seconded staff to its headquarters in Leeds, and provides much of the hands-on practical assistance to companies.

These relationships provide us with a sound knowledge of the key clusters and the requirements of industry, and allow us to be active contributors both in terms of delivery but also in the provision of strategic advice.

- **ICT Training for SMEs**

The project is providing free short course training in IT applications to 95 SMEs based in the Yorkshire and Humber region. The project is exceeding all targets to the end of December 2002 and is expected to hit its cumulative targets by the end of June 2003, when funding ceases. Funding is via the European Social Fund (ESF) (£83,704).

- **Huddersfield Business Generator (UoH/1C/OB2)**

The aim of the Huddersfield Business Generator is to create an environment and opportunity for graduates (and others) to set up business in the creative industries sector. The environment consists of managed and subsidised partitioned workspaces with office style facilities and back-up support, including free business training.

The HBG is located in the new Kirklees Media Centre, and continues to provide significant success in the creation of new businesses. A full time manager is supported by 2 business mentors.

The ERDF project target output is to financially support 40 businesses by means of discounted rental on HBG office space, resulting in 30 start-ups surviving beyond 18 months and creating 60 new jobs.

At the end of December 2002, 35 eligible businesses were receiving business support, a result of which has been the creation of 45 new jobs. 22 have survived beyond 18 months.

See Case Study in Appendix 1

- **E=mc²**

The project, supported by ERDF (£199,896) provides assistance to SMEs based in the West Yorkshire Objective 2 area who wish to improve their international trade activities. Assistance given to SMEs is based on the University's expertise in areas

such as market research, product redesign, website development and translation of literature, to name but a few. The project will assist 45 SMEs, of which 5 will be new to the export market.

- **Kirklees & Calderdale Mentoring Initiative**

The project, supported by ESF (£53,115) will work with 30 local employers (mentors) and 50 mentees from ethnic minority communities to enable an increasing number of people from such communities to both secure and sustain employment.

- **Shell Technology Enterprise Programme (STEP)**

STEP placements of 8 weeks duration in the summer vacation are provided for second year undergraduates. During 2001/02 a total of 9 placements were completed (from a target of 12) from the university. The student report presentations event was held in September 2002 with the winner, Ms Verity Ellin, going forward to represent the agency in the regional final in Doncaster. Plans are in place to significantly increase the number of placements for 2003.

Teaching Company Scheme (TCS) Current Programmes

- The University has run 50 successful programmes under the Teaching Company Scheme, collaborative industrial or commercial projects of great benefit to the participating organisations. The Department of Trade and Industry regards these as the most effective way of transferring knowledge from Higher Education to industry. A recent Teaching Company Scheme with CIBA Specialty Chemicals (Bradford) gained the prestigious DTI Engineering Excellence Prize and resulted in the company funding the University to continue the work started on the project.

1. School of Computing & Engineering (Dept of Computing)& Chemlink Specialities Ltd

Project Description - To create e-commerce capabilities to tap into global distribution markets; provide increased customer relationship functionality in IT systems and provide in-house technical expertise to cope with increased requirement

2. School of Computing & Engineering (Dept of Multimedia & Information Systems) & TFE Business Group Ltd

Project Description - To integrate E-commerce capability into the company. To develop a 'Virtual Business Community' (VBC) facilitating the delivery of a wide range of online pay-per-view services to the company's customers.

3. School of Computing & Engineering (Dept of Multimedia & Information Systems) & Majestic

Project Description - To establish an emerging technology unit to investigate and initiate delivery of wireless e-commerce applications, entry into new and emerging e-commerce markets, and to investigate a package solution.

4. Huddersfield University Business School (Dept of Marketing) & Shaw Timber Ltd

Project Description - To identify and develop new products and markets in areas appropriate to the company, and to create the structures and organisation within the business to implement this.

5. School of Computing & Engineering (Dept of Multimedia & Information Systems) & NTP Group Ltd

Project Description - To integrate E-commerce capability into the company. To develop an Internet Portal facilitating the delivery of online pay-per-view training services to customers.

6. School of Computing & Engineering (Dept of Engineering & Technology) & Dathan Tool & Gauge Ltd

Project Description - To devise and introduce an accurate system for costing the company's products, and to develop and implement a system which will enhance the company's Production Control and Stock Control capabilities.

7. Huddersfield University Business School (Dept of Economics & Business Studies) & Motorworks

Project Description - To develop and implement an IT strategy to deliver modern computer based applications covering all of Motorworks' major business functions.

Past programmes

The most recently approved programme (Motorworks) is the 50th that the university has been involved with since 1988.

The following schools & departments have participated in the TCS programme:

- School of Engineering
- Department of Mechanical & Production Engineering
- School of Computing & Maths
- School of Accountancy Law & Management
- Business School
- Department of Chemical & Biological Sciences
- Department of Electronics & Communications
- Department of Marketing
- School of Applied Sciences

The majority of companies (over 80%) have been in the Yorkshire region but partnerships have been in Abingdon, Derby, Droitwich & others.

Programmes have covered a wide range of subjects including:

- Development of a fully digital audio control console for a manufacturer of audio mixing decks
- Introduction of CAD into a manufacturer of industrial motors
- Increase strategic awareness and develop marketing & business priorities for a gasket manufacturer
- Implementation of an enhanced business information systems into a manufacturer of business forms
- Updating of software for control of chemical processes for a software house
- Design & construction of a pilot production plant for a chemical company
- Setting up a marketing function for a specialist lubricants manufacturer
- New product development for an Ice Cream company
- Development of a corporate web site with e-commerce facilities for a provider of IT solutions

- Identify and develop new products and markets for a timber company

Note: as of the 1st October 2002 TCD became TTI Ltd (Technology Transfer & Innovation)

See Case Studies in Appendix 1

- **West Yorkshire Business Link Contract**

This contract requires the university to provide a physical location for the Kirklees concession of Business Link for West Yorkshire and, to deliver business support to 58 'start-up' and 20 'super high growth' companies. The project has focused on maximising business start-ups from within the staff and student body.

- **'Open Sesme'**

The University is developing a growth strategy based on substantially increasing the student head count by 2010, this project will help achieve such growth by targeting those in employment with e-learning provision thereby providing an alternative to the conventional campus based delivery of courses.

This project, funded via Yorkshire Forward and the University will create a suite of learning programmes for SMEs delivered on-line, e.g.

- Developing an IT Strategy, Modelling Business Systems, Choosing Software Solutions.
- Electronic Business: building electronic shops and managing supply chains electronically.
- Managing an electronic business and managing business information systems.
- Marketing, market research and electronic marketing.
- Accounting and software accounting packages.
- Creating, applying and terminating contracts.
- Environmental Auditing and Greener ways of working.

- **Innovation Portal**

The project, supported by ESF (£114,812) will develop two discrete packages for 100 SMEs in the creative industries sector; an Innovation Portal and a Business Innovation and Creativity Skills Audit Toolkit.

- **ICT on the Move**

The project, supported by ESF (£98,100) will provide a mobile training facility to 40 SMEs (targeting a total of 100 employees) across England, focusing on micro and small SMEs that need to develop Communications and Information Technology strategies and in-house capabilities to progress in the increasing e-Economy and global environment.

- **Lifelong Learning in ICT for SME Employees**

The project, supported by ESF (£142,762) will seek to repackage existing materials from under- and postgraduate courses in a form that allows block delivery to 30 SME employees.

- **Multimedia Production for Refugees and Asylum-Seekers**

The project, supported by ESF (£132,194) will promote innovative online vocational training at University certificate level in multimedia production for 53 unemployed refugees and asylum-seekers, all of whom have limited opportunity to participate in HE activities.

- **Graduate Start-Up Programme**

All four West Yorkshire Universities participate in this initiative.

The project's key aims are:

- To convert the maximum number of University students into successful entrepreneurs, operating in the Yorkshire and Humber region.
- To improve the business skills of student/graduate entrepreneurs and promote the adoption of innovation and technology within new and young business ventures.

These aims will be achieved by a development programme focused on business awareness through to business planning and development into business start up. Individual activities will include:

Tracking programme – Survey of student intentions and registration to the programme

Enterprise learning – Development and delivery of generic enterprise and entrepreneurship modules within the curriculum of each institution

Business planning and appraisal – Business plan development, competition, appraisal and mentoring

Start up support – Financial and business development support

Start up space – Range of subsidised generator space to quality managed workspace

Alumni involvement – Tracking graduates and encourage back to act as role models.

The University will create 82 jobs, 55 businesses, 475 learning opportunities and 12 workspaces as a result of this Yorkshire Forward funded initiative (£2.686m globally; £695,000 for the University of Huddersfield).

- **Digital Design Centre of Excellence**

This collaborative programme aims to support SMEs and employed individuals, operating within the digital cluster – particularly those in the creative, design, media and product areas – through the acquisition of high level ICT skills. Training opportunities include MSc courses and specific vendor certified courses in support of the Digital Creative Cluster.

The University of Huddersfield will lead on the delivery of this project via the creation of a Digital Design Centre of Excellence (DDCE) supplemented by a Northern Centre of Excellence of Digital Imaging and Design (NCEDID) from Dewsbury College.

The programme will assist 205 SMEs provide bursaries and fees for 90 MSc students, train 250 individuals in certified Vendor Training programmes, 200 individuals at level 2/3, create 25 new jobs and 33 student placements. The programme is funded by Yorkshire Forward (£2.590m)

- **Inventors of Java Sponsor Engineering E-commerce Degree**

Sun Microsystems Inc. sponsor the School of Engineering's new E-Commerce and Multi-media degree. The new four-year sandwich degree is the first of its kind currently available

through UCAS and the only E-Commerce course to be sponsored by a major player in the Internet industry.

Sun Microsystems is a leading provider of hardware, software and services for the Internet. They have annual revenues of \$15.7 billion and can be found in more than 170 countries.

Under the sponsorship deal, called the Huddersfield Golden Place Scheme, the company will financially support a number of students each year through to the conclusion of the course as well as providing priority work-experience places.

The University has received over £350,000 of industrial sponsorship from Sun Microsystems, Commerce NTI and Esteem Systems PLC to support the new degree.

Sun's Sales Director Leslie Stretch said: "The objective of the scheme is to increase the talent in the field of E-commerce. The software industry needs skilled graduates who have a firm grasp of both the technical and marketing sides of this new Digital Age. I was particularly impressed with the course's innovative balance between the provisions of these key skills, and it includes a year working in the field."

"We are keen to conform our continuing commitment to UK Higher Education, through the introduction of the Golden Place Scheme, and see the Huddersfield E-Commerce and Multimedia degree prosper and become established to the benefit of both organisations," he added.

ClearCommerce joined Sun Microsystems as a second sponsor to the University's innovative E-commerce degree. The company provided £300,000 of payment processing software free of charge, along with the necessary support and training to allow students to experience and build solutions using the full sequence of steps involved in an e-commerce transaction.

- **Driver Assessment Training**

Work by academic staff and graduates from the Transport and Logistics Research Unit aims to improve the standard of driving on UK roads.

The Unit focused on driver assessment as one part of a wider programme focusing on work related transport and fleet safety. Working closely with local company 4Di (owned by a Huddersfield graduate) a CD-ROM was developed to undertake assessment of drivers – so that training could be more targeted at need and be focused on a wider range of issues (knowledge, attitude, behaviour and hazard perception) than just skill.

After successful trials the CD-ROM and internet based software is now used by a range of organisations. It can be used for 'pre-screening' potential drivers for recruitment or company car allocation as well as assessing existing driving staff.

The system has tremendous potential for commercial organisations and may well filter down from business use to the wider driving population.

- **MSc in Creating Imaging with ATTIK**

EXTRA funding has been announced for a ground-breaking degree course. Huddersfield-based company Attik Design has joined forces with the university to set up the world's first accredited master's degree in creative imaging.

Now regional development agency Yorkshire Forward has agreed to fund bursaries for all 15 students on the course.

The Attik Master's Degree Programme is the brainchild of Attik co-founder James Sommerville. The aim is to give students a thorough academic grounding in creative imaging - equipping them with skills for the marketing and advertising industry.

Students will work on "live" high-profile design projects while studying for a post-graduate qualification.

Mr Sommerville said: "It is often only the richest students who can afford to indulge in postgraduate study.

"Unfortunately, many students emerge from degree courses with huge debts, but without the commercial experience that will get them on the ladder toward their chosen career.

"This course will now give the best students the chance to get that experience without having to get further into debt."

Last year, Mr Sommerville went on a three-month lecture tour of UK universities promoting the course.

There has also been keen interest from potential students in Chile, Denmark, Russia and the USA.

Mr Sommerville said: "We expect competition for the places to be tough and the quality to be exceptional."

Mr Sommerville formed Attik with business partner Simon Needham in 1986.

Attik started in the attic at the home of Mr Sommerville's grandmother with a £1,000 grant from the Prince's Trust.

Today, it has headquarters at Fitzwilliam Street, Huddersfield and offices in New York, San Francisco and Sydney.

Yorkshire Forward spokesman Jim Farmery said: "Attracting the best talent from around the world is crucial in enabling the creative industries in Yorkshire to prosper.

"We are delighted to be able to support the project."

Tim Moscovitch, head of design at the university, said: "We are delighted with the commitment and support from Yorkshire Forward for this exciting new venture in promoting the digital industries in this region.

"It reflects the same approach that we take in providing an innovative and forward-looking vocational education for all of our students.

"The future wealth and prosperity of the UK depends on the strengths of a knowledge-based economy

APPENDIX 1

CASE STUDIES

- **Teaching Company Scheme (TCS) Programmes**
 - Lubricants for the Glass and Textile Industries
 - Development of New Products and Markets
 - Product Costing and Shop Floor Data Collection
 - E-Business Software
 - Shop Floor Improvement

- **Huddersfield Business Generator**
 - Hotfoot Recruitment Ltd
 - PNG Marketing Ltd

TCS Case Studies from the University of Huddersfield

Lubricants for the Glass and Textile Industries: Batoyl Ltd, Huddersfield

The challenge in this TCS Programme with the Department of Marketing at the University of Huddersfield was to introduce marketing skills to Batoyl Ltd and to establish a new marketing function and a new corporate identity. Batoyl is a medium sized company manufacturing lubricants for the glass and textile industries. Stephen Harris, the graduate who was recruited to be the TCS Associate on the TCS Programme between the University and Batoyl, had a BA in Economics and an MSc in Marketing. His work involved gaining an understanding of the UK glass and textile industries and introducing strategic marketing to a company that had previously been very much sales led. The result was that new lubricants were successfully marketed to both sectors.

As a result of this TCS Programme, sales growth in the company's Glass Division have rocketed. Batoyl can see the long-term benefits of this TCS Programme and it led Stephen Harris being appointed to the post of Sales and Marketing Executive in the Glass Division.

Development of New Products and Markets: Shaw Timber Ltd, Huddersfield

Shaw Timber Ltd is a family owned business that manufactures timber and chipboard components for a variety of uses including furniture, shelving & signage. Mark Beeby was the graduate who was recruited to be the TCS Associate on the TCS Programme between Shaw Timber and the University.

His work involved a project to devise & implement a plan for growing the business through identifying and developing new products and markets in areas appropriate to the company, and to create the structures and organisation within the business to implement them. This required Mark to carry out an analysis of the company and its business environment and then generate new ideas for products that the company could manufacture. This involved carrying out research into new market opportunities and then developing a marketing strategy for launching the new products.

Amongst the challenges that Mark faces are how to develop the new skills which will be required in the company and how to bring about the change in the company that will also be needed to make the new approach a success.

Product Costing & Shop Floor Data Collection: Dathan Tool & Gauge Ltd, Huddersfield

When Martin Carder graduated from the University of Huddersfield with a BEng(Hons) in Computer Aided Engineering he was looking to utilise his new academic knowledge in a practical way and he found this via a TCS programme with Dathan Tool & Gauge Ltd.

Dathan are a small family business that specialise in the design and manufacture of gear cutting tools for a wide range of customers and they had already identified two areas that were key to improving their business. These were to devise and implement new systems for the costing of their products and also the control of the stock of products. Martin set about his work by carrying out an analysis of the companies existing systems, investigating costing models and compiling a process planning database.

As a result of Martin's initial work the company are now installing a shop floor data collection system utilising bar code technology. As a result of the work that he is carrying out in this TCS programme Martin has been able to register for an M.Phil.

E-Business Software: PumaSoft Ltd

PumaSoft Ltd provides software and consultancy services for companies in the manufacturing and distribution sectors. The company's MadiSun software, used for enterprise resource planning (ERP), has been developed over a period of 14 years.

When planning the next phase in the development of MadiSun, PumaSoft recognised that the software needed to be upgraded for Internet compatibility. The company approached the University for assistance and graduate Anthony Hellowell joined PumaSoft on a TCS programme. With a Masters degree in *Designing World-Wide Interactive Systems*, Anthony's brief was to work with the existing development team, to evolve MadiSun from an 'e-business' perspective.

The first phase of the project, a new Web-enabled ordering module was completed in December 2000, ahead of schedule, to fulfil a customer order. The project then took a more ambitious step forward to deliver a greater level of web functionality for the next phase.

PumaSoft's joint managing director Tim Elliott commented "*The future of the MadiSun product lies in its continuing development and the utilisation of new technologies, to both keep the software in the 'best of breed' category and enhance PumaSoft's already excellent reputation in the market place and the liaison with the University has provided support to embrace the current new technologies*"

Anthony summed up his experience by saying, "*As a TCS Associate I have received the benefits of the substantial TCS training budget and academic mentoring from university staff. There has been a great investment in my personal development and I feel confident that the TCS has provided me with an excellent start to my career.*"

Shop Floor Improvement: Strutherm Ltd

Strutherm are a small company involved in the design, manufacture and distribution of structural insulated building and cladding systems to the construction industry. Prior to the TCS programme an intensive programme of product and market development had taken place which had provided the potential for a significant growth of the business. This growth required a move from relatively 'low tech' manufacturing processes and informal management systems to more productive and structured processes and systems.

Strutherm recognised that they did not have the expertise necessary to implement the required changes and so approached the University. As a consequence Michael Dickinson joined the company as a TCS Associate.

Following the programme, Strutherm now has the manufacturing capacity and flexibility to satisfy increased sales as well as improved levels of quality, manufacturing efficiency and customer service. The factory is now well equipped and laid out and production of panels is managed effectively.

Michael benefited enormously from the programme and from the extensive training that he received over the two years. The broad based nature of the work and associated professional development has significantly enhanced his knowledge and skill with respect to mechanical engineering, manufacturing systems, project management and CAD. He also registered for an M.Phil. by research and achieved Associate Membership of the IEE and at the end of the programme took up full time employment with the company.

This programme was 'highly rated' by the TCS awards panel in 2000

Huddersfield Business Generator

The Huddersfield Business Generator (HBG), the University's business start-up centre, was set up as an initiative to create new business in the Huddersfield area in the creative industries sector. It assists graduates to develop and grow new start-up companies by providing subsidised workspace, office equipment, business training and mentor support. It also provides business advice and support for new start-ups who already have their own office premises, through a Virtual Membership scheme.

Stage II of the Generator was opened in January 2002 by Dianne Thompson, Chief Executive Officer of Camelot, which sees the Generator entering its third year of operation.

Originally, designed to support six to eight businesses per year, the Generator has far exceeded even the most optimistic expectations by assisting over 50 new businesses in the past 24 months; experiencing an 80% success rate with 41 businesses still in existence at the close of 2002. In June 2001, the Generator joined a new trend in business incubation by opening Virtual Membership for new start-ups who do not have a physical work space in the Generator, but still require free support, advice and training.

Companies nurtured by the HBG are involved in areas as diverse as event management, interior design, web design, furniture design, IT, photography and film and media production. Start-ups generally stay in the subsidised office/studio space for a year before moving on to new premises to make room for fresh businesses.

Notable successes have been Cable Innovations who won a DTI Smart Award to fund a new type of interference-free cable that could save the audio, video and data market millions of pounds; Elite Internet Media who grew unto three different companies: Pyesoft Solutions an IT recruitment business now with 22 staff; and Genex Direct Ltd who have negotiated a global distribution deal for their products.

Hotfoot IT Recruitment Ltd

Sally Craig graduated from Huddersfield in 1996 with a degree in English Studies. Six months ago, she went from preparing for a new job, having that position taken away, to getting her own business up and running, all within the space of a week! Becoming MD of her own successful company has taken Sally by surprise. It is certainly something she never contemplated before circumstances changed. Now she is one of the many HBG success stories.

Sally runs her own recruitment firm called Hotfoot IT Recruitment Ltd and only six months after setting up the company has been successful enough to employ a second consultant and an administrative assistant. This rapid expansion means she is now based in the Incubator within the HBG, a place to consolidate the business before leaving the generator to find her own office premises.

After leaving University Sally had no idea what she wanted to do and got into recruitment by chance. She progressed to specialise in IT Recruitment, had a number of successful jobs and was even headhunted. She decided to leave her last position to join a friend who had set up his own IT recruitment firm called Hotfoot Resourcing. Due to start in February 2002, Sally received a call the day before to say that the business had been closed and there was no job for her to go to. This was a huge shock, but nothing could prepare her for what happened the next day – Sally was offered the Hotfoot business to run herself. She was given the company name, contact database and website. She suddenly had her own business but with little idea of how to run it. Within a week however, the business was up and running and relaunched as Hotfoot IT Recruitment Ltd. Sally attributes the speed of the company's rise to the HBG.

With little idea of how to establish a Limited company, sort out bookkeeping or any such back office work, she received help from Peter Tootall of Tootall Crichton, a consultant employed by the

University to mentor new businesses. With this help Sally soon began contacting the old clients and contacts from her previous work to make herself known. This was the easy part – the business side was most daunting and she believes that without the HBG her company wouldn't have hit its targets and be in the position it is today.

There have been difficulties, especially in the first few months. Coping with being both MD and consultant, learning the business side as well as her day-to-day customer contact role, meant she had to work all hours and weekends to keep afloat. Although it can be worrying to think that her livelihood rests on the success of the business, overall she really enjoys it and remains enthusiastically hands-on. Plus, since taking on a second consultant she has another person to bounce ideas off.

Hotfoot set themselves apart in the market by providing a recruitment service based on honesty, consultancy and real technical understanding. They test candidates technically, screen and vet them and will pull any they don't think are suited for a particular job. They also prefer to get exclusive business contracts so that they are the only consultants supplying candidates. It is this commitment to quality and service that has led to Hotfoot's rapid success. Most of their business is repeat and they have never lost a client yet. New clients include Freeserve, Orange and Farnells in Leeds and Attik in Huddersfield.

Sally intends to build the business slowly – consolidate and then bring people in when they can afford it. Hopefully within the next six months she can expand to employ another consultant. As Sally's achievements show, establishing your own business is a sharp learning curve. You have to be prepared to put plenty of hours in whilst remaining enthusiastic. Clients don't just come to you, so you've got to network, go out and meet potential customers. Get as much advice as you can and don't be put off by setbacks. Use your energy in a positive manner, cope and move on. If you stick with it the sky's the limit.

PNG Marketing Ltd

Nadio Granata, 2002 MSc Marketing graduate, joined the HBG as a virtual member whilst completing his final year dissertation. He has swiftly built up several clients for his company PNG Marketing Ltd and is constantly looking at new challenges.

He already has an established catering business (Nadios Pizzas and Pasta) and in previous years has hitch-hiked across Australia and Indonesia, cycled to Sudan and back and he is currently writing a play he hopes will feature at the Laurence Batley Theatre, Huddersfield. However it was the challenge of the part-time MSc Marketing degree that gave him the necessary tools to start his own marketing consultancy business. Nadio believes his personal qualities of hard work and determination, plus his business experience helped to get him accepted onto the course.

Juggling a catering business with course attendance two nights a week was particularly difficult. He used to go back to work after the lectures had finished! The hard work has paid off – he gained his MSc in Marketing, is now a full member of the Chartered Institute of Marketing and is one step away from becoming a Chartered Marketeer. As if all that work wasn't enough, Nadio set up PNG Marketing whilst completing his dissertation and went straight into producing four strategic marketing plans for new clients!

With PNG Marketing he primarily writes strategic plans for companies and tries to take a holistic view providing a full advice service on areas such as PR, Internet, Business, Design and Advertising. He also works as an associate with Susan Kenyon Marketing Consultants which he enjoys as he can bounce ideas off another person. Under this association he has written a number of communication strategies for blue chip companies.

Virtual membership of the HBG has not only provided Nadio with solid business advice, it has also put him in touch with a number of clients. Although his office is based at home, he can use the HBG

facilities and resources and shares decision making with objective third parties. Often the Business Advisors recommend new start-up clients to him and he is currently working with a number of HBG residents.

His next project is to set up FirstMarketing.co.uk under the parent company PNG Marketing. It will be 'a bundle of strategic marketing support targeted at Small to Medium Enterprises (SME's) who haven't had external marketing support in the past.' Nadio gets a buzz out of seeing them progress and succeed with the help of plans he has set up and worked through with them.

In the next five years he wants to make a significant difference to SME's and help establish strategic marketing as a more valued component of the local business ethos. With small businesses it is often an uphill struggle due to lack of resources, but he is determined to make FirstMarketing.co.uk succeed. It is not surprising that his advice to people looking to start their own business is to have a lot of patience and determination, be prepared to make decisions and take advantage of all resources available. These qualities have helped Nadio to conquer all his challenges to date.

APPENDIX 2

Applied Contract Research at the University of Huddersfield 2001/02

Sponsor	Project
The British Academy	The role of indigenous knowledge systems in sustainable Wetlands Management
Royal Society of Chemistry	Development and application of advanced microwave thermal analysis
DERA	Activation of carbon fibres by rate controlled methods
ICI	Characterisation of acid-base catalysts and catalyst support
Finnish defence Force	Ageing studies on the MG-SR-Nitrate Tracer system
Defence Procurement Agency of Switzerland	Thermal studies on the Titanium - Manganese Dioxide and Zirconium - Manganese Dioxide Systems
Defence Procurement Agency - Switzerland	Swiss 7
Qinetiq (MOD)	Ageing Studies on Red Phosphorus.
Qinetiq (M.O.D.)	Support to TTCP KTA 4-27 on Red Phosphorus.
Finnish Government.	Ageing Studies on the Magnesium-Strontium Nitrate Tracer System (Part 2)
Operation Wallacea	Influence of topography and soil characteristics on the physical and botanical structure of primary rainforests in SE Sulawesi.
Isle of Man Government	Mechanisms of drug resistance in cancer cells
Oxford Brooks University	Evaluation of Audio-Visual Library
TCD + Yorkshire Dales Ice cream	Teaching Company Scheme
English Nature	Location of special interest features in SSL's outside Castleton/ compilation of surveys and assessments
English Nature	River Lathkill Hydrological Research
Countryside Council for Wales	Hydrological assessment of the impact of a proposed quarry dewatering operation at Cwm Cadlan Grassland
AHRB	Niah cave project, Sarawak
EU Government	Advanced Laser Sensor Systems for Leading Edge Manufacturing and Monitoring.
DTLR	CoVIR Phase II
AVECIA	Physical Organic Studies of Nucleotide Synthesis
Ciba Speciality Chemicals	Scale up of biotransformations
Qinetiq	The effect of microwave radiation on Pyrotechnic ingredients
United Productions	Mitochondrial DNA variation in Malaysia and America
RDP Holland B.V.	Sustainable Wetland Management in East and Southern Africa: Developing Guidance for Best Practice.
Pumasoft Ltd & TCD	Teaching Company Scheme
TCD & Chemlink	Teaching Company Scheme with TCD & Chemlink
TCD & Majestic	Teaching Company Scheme with Majestic
DTI	EUREKA Initiative – Intelligent Knowledge Fusion
European Commission	Forensic Identification
AHRB	Basil Spence – The family collection of drawings, papers, photographs and art
RETEX II European Regional Development Fund	Wool scouring incineration project
TCD and Dathan Tool & Gauge Ltd.	To increase the efficiency and productivity of Dathan Tool and Gauge Ltd

Avesta Sheffield UK Foundation	Quantitive characterisation of the surface topogaphy of surface finishes on stainless steel flat products
DST Germany/British Aerospace	Investigation into time and spatial errors for a 5 axis CNC machine tool (STRUCTURES PROJECT)
Intelligent Information Systems, Yamazaki, PGM TVK, Heidenhain, Bridgeport, Jones and shipman, Holroyd,, Micro Metalsmiths, Kistler, FLIR, OSAI, Hunting Brae AWEA	Generic design applied to high performance machine tools (STRUCTURES PROJECT)
Renishaw PLC	Novel Metrology-Based Control Algorithms for Precision Manufacturing (CAPM)
European Commission	CRAFT - invasive surgery
TCD/Airbath International	Teaching company scheme with Airbath International (UK)
DTI	Experimental investigation of wear and bedding-in processes in hard soft worn gears
EPSRC & Rotography Ltd	3D Panoramic Image Capture and Virtual Environment Construction
TCD and NTP Group Ltd	Teaching Company Scheme Programme No 3664
TCD + NTP Ltd	Teaching company scheme with NTP Ltd
TCD & The Business Group Ltd	To Integrate E-Commerce Capability
Motorcycle Industry Association	A study of motorcyclist perceptions, attitudes and behaviour toward road safety
TCD + Peter Miles Engineering	Teaching company Scheme
Leonardo Da Vinci	Supply chain management in the music industry across the internet
TCD / Peter Miles Engineering	Teaching Company Scheme with Peter Miles Engineering
Calderdale & Kirklees Health Authority	Projects arising out of delphi study currently being completed
Huddersfield NHS Trust	Identifying fire-setting and sex-offending behaviour in people with a learning disability
Candlelighters	An exploration of children's understanding of infertility and the ethical implications relevant to gamete storage
Wakefield MDC	Evaluation of Wakefield development of shared database.
Morgan Harris Burrows	Extension of Contract for the Evaluation of Increased Forensic Activity in GMP and Lancashire.
Department of Trade, Local Government Regions (DTLR)	New Deal for Communities Evaluation Scoping Study for the Crime Domain
Youth offending team	Health impact on victims of crime
Home Office (Via University of Liverpool)	Extension to the evaluation of Home Office burglary projects in North of England
Liverpool University, Home Office	Evaluation of 21 Burglary Strategic Development Projects in the North East, North West and Merseyside regions
West Yorkshire Police	Evaluation of Police Outreach Workers
Burnley Borough Council	Evaluation of CCTV initiative - (Burnley, Pendle & Rossendale)
Home Office	Secured by Design - Main Report
DTLR via Uni. of Liverpool	Malicious Arson (Contract No- SD01-0032/0083/001)
Home Office	Analysis of the CDRP strategies
National Children's Centre	Nationwide Children's Research Centre
Nuffield Foundation	A study to improve practice and policy in respect of International and Internet commercial sexual exploitation of

	children.
Wakefield Health Authority	Drug Court narrative Research and Self Change - Extension to the original project
Wakefield Health Authority	Young people and sexual health
NHS	Domestic violence and the interface between health services
Wakefield Health Authority	Drug Court: Narrative research and self change
Wakefield H.A.	Evaluation of the Accord project in Wakefield
NHS - Leeds Community	Evaluation proposal for support and intervention indicator
National Lottery Charities Board	Developing realistic social inclusion models with the drug using community
Leeds social services department	Realistic evaluation of Leeds therapeutic social work team
West Yorkshire Probation Service	Integration of Minority Ethnic groups in West Yorkshire Probation/Bail Hostels.
The Moray council	Evaluation of Moray councils Child/Youth Care Services
Macmillian Cancer Relief	The Goldstandards Framework for palliative care:Qualitative Evaluation
South West Yorkshire Mental Health Trust	Using self-help for depression via public libraries
Calderdale & Kirklees Health Authority	Psychological skills in primary care
Huntleigh Technology Ltd	Diagnosis of early pressure ulcers
Kirkwood Hospice	Paediatric palliative care provision in Calderdale and Kirklees - Service review and needs assessment
NHS	Public Health Innovation Project
NSPCC	Ongoing Sponsorship.
NSPCC	Ongoing support for NSPCC Reader
National Lottery Charities Board	Leisure risk among 11-14 year olds

2 Barriers to Business-University Collaboration

The University has extensive links with business and industry as the examples quoted in response to the previous question amply demonstrate. However, despite our achievements to date, a number of barriers exist in promoting further business-university collaboration.

- Funding

The funding of such interactions is always problematic and tends to be characterised as being short term, and heavily regulated with strong administrative/reporting requirements. The wide variety of funding agencies/organisations and funding streams causes confusion for both the supply and demand side of business-university collaboration.

The true financial costs of business-university collaboration are difficult to identify and thereby recover. There is an assumption that universities should not make any profit from such interactions.

Until the establishment of permanent third leg funding from HEFCE for business-university collaboration, it has been difficult to establish a suitable infrastructure to support such interaction. It is hoped that such funding will continue to be made available to the sector and distributed on a benchmarked performance basis rather than through competitive bidding.

- Demand

Many businesses find it difficult to accurately articulate demand for services from universities. This position is more pronounced when dealing with small to medium-sized enterprises (SMEs). Often, those who act as proxy for business, find it equally difficult to articulate demand. As a consequence, universities invest considerable time and effort into generating appropriate specifications to describe the services surrounding the business-university interface.

Consideration of the balance between addressing immediate short term requirements and long term future prospects of business dominate the specification of services surrounding the business-university interface.

- Supply

With an unpredictable demand from business for university services, it is difficult to ensure an adequate supply of resources to meet such demand. This is further complicated by the fact that the resource (staff) required for such business focused services is often assigned to activities which can be scheduled well in advance of such requests (e.g teaching and research).

The career and rewards structure for University staff engaged in business-university interaction need to be further developed and strengthened if they are to compete on equal terms with research and teaching.

3 How Business Can Attract Best Graduates?

- **Is the quality of graduate recruits satisfactory?**

The University of Huddersfield First Destinations statistics for the 2001 graduate cohort, as verified by HESA, demonstrated that 89.8% of graduate leavers achieved a Positive Outcome. This survey looked at the destinations of graduates six months after course completion. A Positive Outcome indicates that the leaver entered either employment or further study.

The Huddersfield figure compared favourably with the average figure for the combined Yorkshire Universities. This demonstrated that 86.2% of the 2001 graduates achieved a Positive Outcome.

- **Are there obvious gaps in terms of skills and disciplines?**

Many recruiters would point to the fact that they seek graduates with well developed employability skills i.e. they want people to be able to immediately fit into their organisations and to be able to work in teams etc. etc. Employers say they can help people to develop the specific knowledge/ skills employees will require to undertake tasks within their organisations. Some employers when recruiting graduates can therefore rate possession of employability skills as highly as possession of specialist knowledge. Many Huddersfield courses help students to develop such employability skills. Time spent on work experience/placements helps students to prepare for the graduate labour market.

The University Jobshop also assists students to find part time employment while they are studying. Such employment helps students financially but also enables individuals to acquire useful skills and experiences which will help them when they enter the labour market.

Currently there are 688 employers and 3857 students registered on the Jobshop database.

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

The Governing Council of the University is heavily represented by individuals from business and industry. All Schools in the University have advisory boards with employer representation as a key component. A component of all course validation requires the demonstration of need/demand which is typically evidenced by labour market information and contributions from industry. Many of our courses are accredited by professional bodies (law, architecture, etc.) thereby ensuring the currency of the course content.

Staff at the University engage with employers and employer representatives at many levels, e.g. committees, enquiries, standards bodies etc. ensuring the currency of their subject matter knowledge.

Many of the staff of the University work with industry on the wide variety of initiatives described earlier in this document.

- **How could more attractive career paths for science and technology graduates and post graduates be developed?**

Work on attracting people to science needs to start at pre entry level. There is still work to be done in schools/ colleges to make these subjects more “attractive”. The Applied Sciences approach at Huddersfield helps to link subject areas to potential employment opportunities. Many courses in the Science and Technology fields here include some form of placement. This can help to make the courses more attractive.

Additionally the University of Huddersfield runs a number of Access courses in these subject areas including Women Into Technology and Women into Science. Such courses

promote these subjects to mature students and help to break down any perceived gender barriers which can prevent people considering applications to science/technology courses. The Careers Advisory Service delivers Career Management courses to Contract Researchers and other Post Graduates to help them prepare for the labour market

- **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 dialogue?**

Many large scale companies have very sophisticated marketing plans to target specific institutions to attract “the best talent”. Some employers belong to Targeted Grad, an initiative that markets Finalist Vacancies only to specific HE institutions. Such initiatives can put graduates from new universities at a disadvantage as they do not receive advance publicity of these vacancies.

Some companies still use A level points scores as a method of pre selection. This can put graduates recruited through widening participation initiatives at a disadvantage. Many of Huddersfield’s graduates could have entered HE with low A level points scores or no A levels at all (Access, Vocational courses etc.). They therefore find that some national recruiters will not consider their applications. Research has shown that there is little correlation between A level points score and final degree results. Students with low A level points scores at Huddersfield, could have achieved better results when studying subjects at degree level. Subjects that might be far more relevant to the employment areas they are seeking to work in than their A level subjects. However their applications will not even be considered by some recruiters.

Certain companies do however target specific Huddersfield courses. They recognise that graduates from these courses have developed skills that match their vacancy requirements. This happens for example with Transport and Logistics and some Computing courses.

Students from minority ethnic backgrounds can also face some disadvantage in the labour market. Huddersfield, along with the other West Yorkshire Universities (and now the two South Yorkshire HEI’s), has developed the Impact project to support such students. It offers intensive guidance to students to help them prepare for the graduate labour market. Impact also links employers wishing to promote diversity recruitment initiatives with minority ethnic students.

4 Do current financial considerations help or hinder relationships between business and universities?

This question is addressed earlier within our submission of evidence.

On the matter of R&D tax credits, we have not noticed their impact upon the demand from business for research and skills development.