



THE UNIVERSITY
of MANCHESTER



DELIVERING NEW UNIVERSITY/BUSINESS PARTNERSHIPS

SUBMISSION TO THE LAMBERT REVIEW OF BUSINESS – UNIVERSITY COLLABORATION

April 2003



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INTRODUCTION

The University of Manchester and UMIST are delighted to be able to make a joint submission to the enquiry. Both Universities have long traditions of working with business, commerce and the public sector. The activities have changed over the years but the importance given by the Universities to developing these external relationships has not.

There is significant breadth in the business and commerce related activities of the two Universities. These can be broadly broken down into four inter-related groups of activities or “domains”.

- Ø Commercialisation
- Ø Human resource development
- Ø Externally Facing Centres of Excellence (EFCEs)
- Ø Networking and business development

These four activity domains are not managed in total isolation as all have the potential to inter-relate to each other (see illustration in annex 1). The key point to note is that all these activities are closely integrated with the core University functions of research and teaching. Although the HEFCE currently calls this type of activity “Third Mission” it should not be considered as an activity independent of research and teaching. University/business interaction should flow from, and become an intrinsic part of, the academic mission.

COMMERCIAL

Both Universities engage in business and commerce related activities that are often referred to as “commercial” including;

- Company spin out
- Licensing
- Contract Consultancy
- Company incubation
- Contract research

The track record in this area is impressive comprising 40 spin-off companies, over £100m raised to develop the companies, 30 new licences or sales of intellectual property and 80 new patents acquired. Both institutions have a current portfolio of live research amounting to a combined total of £18.2M from companies as diverse as BNFL, GSK, Rolls Royce to name only a few.

This track record and portfolio have been developed by means of a variety of approaches reflecting the breadth and diversity of the two Universities. It includes:

- activity from the two successful commercialisation companies Manchester Innovation Ltd (MIL) and UMIST Ventures Ltd (UVL) within the University of Manchester and UMIST
- personal networking between staff of the two Universities and colleagues in a cognate industry (research and consultancy links)
- work commissioned by a particular company because of expertise that is present within the institutions (research and training)
- links created by the two Universities reaching out to the commercial sector to generate Knowledge Transfer.

HUMAN RESOURCE DEVELOPMENT

The two Universities have been very active in developing initiatives to transfer knowledge through our students. There are three main components of this activity;

- i) The University of Manchester and UMIST Careers Service employs 70 staff and is the largest in the United Kingdom. The service provides a suite of business focused “services” including;
 - \$ work experience and placements
 - \$ internships
 - \$ student mentoring
 - \$ community based opportunities to enhance skills development through volunteering
 - \$ diversity development programmes
 - \$ career path planning
 - \$ enhanced business visibility on campus
 - help for small businesses
- ii) The Federal School for Business and Management (incorporating Manchester School of Management, Manchester Business School, PREST and the Department of Accounting and Finance) has been built largely on its interactions with the corporate world. Many of the School's connections with business are real, practical, every day links with practising managers who contribute directly to the learning experience of our students. Several members of the School hold sponsored chairs, the sponsoring companies seeing this as one of the best ways to develop a new line of scholarship relevant to their business and to build mutually beneficial relationships.
- iii) The University of Manchester has developed a very extensive portfolio of short Continuing Professional Development (CPD) programmes. During 2000/1 the University enrolled 107,169 CPD students. The largest programme was in the field of professional pharmacy education with over 80,000 students enrolled, many from small high street pharmacies that have all the classic problems of the SME. The short course CPD market is labile being highly dependent on market demand. However, in 2000/01 the University of Manchester was the largest deliverer of short course CPD provision in the country with 13.9% of the national market measured by student enrolments. This is complemented by an approach at UMIST making modules of Masters programmes available to industry (see annex 2).

EXTERNALLY FACING CENTRES OF EXCELLENCE (EFCEs)

Over the last 12 months a series of linked developments have occurred (both internally and externally) that have resulted in a number of “externally facing centres of excellence” (EFCEs)

being proposed and established. These have added to some long established centres. The EFCEs have similar characteristics generated as a response to a rapidly changing external environment. These centres:

- all have a strong interdisciplinary agenda
- all have an external focus and seek to engage business interests, public sector managers etc
- all have established regional as well as national links
- most are potentially “multi-purpose vehicles”, with the ability to promote a range of University interests including widening participation, community involvement etc., as well as being able to draw down collaborative research funding opportunities such as Framework 6
- are often joint University of Manchester/UMIST initiatives

These centres include:

- Cathie Marsh Centre for Census and Survey Research
- Centre for Applied Management Research
- Centre for Mesoscience and Nanotechnology
- Centre for Museology
- Centre on Socio-Cultural Change
- Corrosion and Protection Centre Industrial Services (CAPCIS)
- Chemsolve
- Centre for Law and Business
- Dalton School of Nuclear Science and Technology (proposed)
- Fabric Objective Measurement Centre
- Institute for Political and Economic Governance (IPEG)
- Islamic Studies Centre (proposed)
- Jean Monnet Centre of Excellence
- Jewish Studies Centre
- Manchester Centre for Nonlinear Dynamics
- Manchester Interdisciplinary Bio Centre (MIB)
- Northern Aerospace Exploitation Centre (NATEC)
- National Institute for Biomedical Informatics (IBI)
- University of Manchester Environment Centre (UMEC)
- Wolfson Molecular Imaging Centre

(It should be noted that this list, while extensive, does not include all EFCEs in the two Universities).

The North West Science Council has approved a new science strategy for the region. This strategy has included reference to defined cluster strategies for the Aerospace, Nuclear Energy, Chemical, Environmental and Biomedical sectors. The University of Manchester and UMIST have been highly influential in shaping all of these cluster strategies. The cluster strategies vary, but all reflect many of the factors also influencing the EFCEs. These include:

- the need for access to the science base
- engaging through a centre of excellence
- the skills agenda
- the need for ongoing business/university interaction.

EFCEs are natural reference points for external bodies when approaching the University of Manchester and UMIST. For example, businesses in the Aerospace sector understand that NATEC is of relevance to them. The NATEC business model, in particular, is enabling new interdisciplinary activity to develop which delivers a product in a “business friendly package”. Existing departmental structures can be a barrier to cross institution packaging but EFCEs can

present university activity in a way that “makes sense” to business and external stakeholders. They can also encourage new ways of working and create linkages that can add real value to the University of Manchester and UMIST. By the nature of their holistic approach EFCEs are more readily able to draw down, particularly regional, external funding. The success of NATEC and the recently announced funding from BNFL for the Dalton School of Nuclear Science and Technology illustrate the point (see annex 3 for a case study of the linkage with BNFL).

NETWORKING AND BUSINESS DEVELOPMENT

The University of Manchester and UMIST have been able to develop expertise and a major presence in networking at regional and national level with businesses in general, and their leaders in particular, through a range of initiatives and developments. A small sample is:

- MBS activities including ‘Vital Topic’ lectures
- Contacts through professional bodies eg the Law Society, Royal Society of Chemistry, Royal Institute of Town and Country Planning, Institute of Physics etc
- PREST/CRIC/CROMTEC activities such as the Technology Managers Forum in London
- Information for Business and Directorate of Regional Affairs activities such as the Christie Forum for regional environmental stakeholders
- Manchester Innovation Ltd involvement in national networks eg the BioIndustry Association (BIA) and the local network BioNow
- NATEC engagement with the North West Aerospace Alliance, Commonwealth Games Business Club, Farnborough Air Show and European and International Knowledge Transfer groups.

There have been a number of recent developments – largely funded through HEROBC/HEIF including:

- creation of an Information for Business Portal and central business contact point
- creation of team of central liaison managers building capability within the two Universities
- creation of Student WorkPlace supporting businesses seeking student placements
- creation of the MBS ‘Virtual Incubator’
- creation of Knowledge North West (of which the two Universities are partners)
- involvement in numerous regional sector groups

Business development and networking is a short-term cost to the Universities. It does, however,

- raise awareness of external opportunities to an internal audience
- profile the Universities to potential funders and partners
- shape and change internal culture
- shape and change external strategies (for example ensuring that knowledge transfer, centres of excellence and innovation are at the head of the North West Regional strategy)
- facilitate new internal networks, alliances and thus enhance information flow
- package existing institutional products in a way that is externally friendly
- translate academic language to external stakeholders and quango jargon to academics

Business development and networking helped achieve medium-term benefits which include:

- ERDF and NWDA support secured for regional regeneration projects
- formation of the Genetic Innovation Network (GIN) and NATEC
- facilitation of the Institute for Biomedical Informatics, the Institute for Political and Economic Governance and the Dalton School of Nuclear Science and Technology
- facilitated coherent marketing material (hard copy and electronic)

- secured involvement in shaping key regional initiatives, eg proposed NW Aerospace Innovation Centre
- placed the two Universities at the heart of the Knowledge Capital: Manchester proposal
- ensured that the two Universities are a central player in the Regional Science Strategy

The four domains are independent but are mutually reinforcing. Business and commerce may develop a relationship in one of the domains and over time engage in one or more of the other areas. The two Universities' success in developing good business and commercial alliances has been made possible because of the diversity and relevance of the interactions.

CREATING A NEW UNIVERSITY IN MANCHESTER

The University of Manchester and UMIST have agreed that they will join together to form a new university in Manchester during the autumn of 2004. This process is unique within the UK for a number of reasons. First, the two Universities are entering into the process from a position of strength. Each has a strong research track record, which in turn underpins their very successful and relevant teaching and outreach programmes. Second, the proximity of the two Universities has led to each institution, where they have departments in common, developing their own distinctive style and specialisations that make them complementary. Third, whilst the University of Manchester is overall 3 times larger than UMIST, in terms of 'common departments' the performance of the two Universities is quite similar. Finally, the two Universities are co-located, which will facilitate the process of bringing together cognate activities.

A high percentage of the Councils of both Universities is comprised of lay members with considerable industrial and commercial experience, involving the management of large, complex organisations. Rodger Pannone, the current Chair of the Council of the University of Manchester, is a partner in Pannone Partners, one of the largest regionally based law firms in the UK. Tom Hinchliffe, the current Chair of the Council of UMIST, is a former MD of ICL. Both Universities benefit from this involvement of business and commerce in their governance arrangements. This experience will be built upon in the formation of the new university.

In order to facilitate the creation of the new university, a Company Limited by Guarantee (CLG) has been formed to constitute the legal governing body of the new university until the new university comes into being in autumn 2004 when a new, fully constituted governing body takes over responsibility. The Board of the CLG derives its powers from the two existing University Councils and is making a range of decisions during the transition phase leading to the new university. The opportunity has been taken to examine governance and management issues from first principles, recognising the need for a distinction between the two and the desirability of a smaller "Board" if it is to carry out its strategic and monitoring roles properly.

The consultation process on the initial drafts of the Charter and Statutes for the new university has reached the halfway point. With the approval of the Board of the CLG and the two Councils, a supplementary consultation document has been issued concerning key issues of designation, size and consultation of the principal authorities of the new university, and the designation of its principal officers. In line with many overseas universities, the process of appointing the head of the new university is likely to refer to that head as *President* rather than *Vice-Chancellor*, although it will also be made clear that the precise name of the role is still subject to discussion.

The new university's senior management will wish to devote appropriate time and resources to the development of its relationships with the outside world and it is envisaged that the new head will play the leading role. However, the new university, not least because of its size, complexity and ambitions, will also require strong and innovative leadership and management internally.

The new head will also be expected to lead on this but, given the external dimension to the role already referred to, will also have to assemble a senior management team with centrally and locally based responsibilities capable of delivering these requirements. The precise configuration will be determined by the new head when in post but it is conceivable that the model could be unusual in the UK and so, in due course, worthy of the attention of others.

Thus Governance is one of the key processes essential to the development of the new university. The involvement of business and commerce is intrinsic within this process and will contribute to its success.

Knowledge Generation, Exploitation and Transfer

UMIST and the University of Manchester both have a considerable reputation and a track record of successes in the related areas of knowledge generation, knowledge exploitation and knowledge transfer. The creation of a new university, following the dissolution of UMIST and the University of Manchester, provides a unique opportunity to build on their complementarity and to generate genuine world-class excellence achievement in these areas.

Several of the prerequisites for successful knowledge exploitation, in addition to a more extensive, higher quality research base, are already in place at UMIST and the University of Manchester. These include the Manchester Science and Enterprise Centre (MSEC), the Manchester Technology Fund (MTF) Manchester Science Park Ltd (MSPL), Manchester Innovation Ltd (MIL) and UMIST Ventures Ltd (UVL) (details in annex 4).

The formation of a new university provides the opportunity to develop new and improved arrangements for successful knowledge exploitation. These include co-ordination and integration of research support and services, venturing and incubation facilities and ownership of intellectual property. It is the intention that the new university will maintain the traditions of the University of Manchester and UMIST in working closely with business and commerce. The new university will be one of the leading institutions across a wide range of collaborative activities with business including creating spin-outs, filing patents and winning research contracts. It will also maintain a leading position in terms of CPD delivery and knowledge transfer through students.

One of the challenges for the new university, given the breadth and depth of its knowledge base, will be to ensure that knowledge can be effectively transferred. Again, an imaginative new structure will be put in place to achieve the required level of co-ordination and integration. A Project Management Team has been created to plan the mission and structure of the new university. Particular attention is being given to how to enhance the new university's engagement with business and commerce.

RESPONSE TO THE QUESTIONS FOR CONSULTATION

Question 1: Business-University Collaboration

The preceding sections have summarised some of the ways in which the University of Manchester and UMIST both excel in developing collaborations with business in a wide variety of areas. Examples could be cited for all the types of collaboration described in question 1. However, the breadth of interaction with business and commerce is demonstrated by a brief selection for example, the formation of i) high tech spin outs, ii) sponsored chairs, iii) a Faraday partnership, iv) joint research schemes with organisations via Industrial CASE and the Manchester Engineering Doctorate and v) three interdisciplinary centres coming from the Arts, Social Sciences and Medicine (see annex 5).

These case studies demonstrate how knowledge transfer can be achieved through a range of actions from the commercial process of setting up a company, through applied research and consultancy relevant to a company's specific needs, to professional development via both formal award bearing courses and short updating programmes flexibly delivered. It also demonstrates that such collaborations can extend across all sectors from technology based SMEs to public/charitable organisations.

One of the key elements in successful business-university collaborations is generating a win-win partnership. This cannot be the case if the university is seen as simply a supplier of goods and services to a company, and the company is seen only as a source of funding and there is no understanding of the deeper needs on both sides. Universities have worked extremely hard to begin demystifying their internal processes and make themselves more transparent to industry and commerce. One of the challenges facing industry and commerce is to demystify their own processes and generate "intelligent-demand". This is also a process that other organisations such as RDAs are addressing.

Question 2: Barriers to Developing Partnerships

The University of Manchester and UMIST have strong relationships with the North West Development Agency. This has been well demonstrated by the NWDA's commitment to contribute £30 to £35m towards the development of a new university in Manchester. This commitment is based on a case demonstrating that the new university will make a significant contribution to regional economic regeneration (see annex 6). The Manchester City Council, and all the Local Authorities in Greater Manchester, has also recognised that higher education can be a major driver for economic regeneration. Hence the involvement of the two Universities in the development of the Knowledge Capital: Manchester initiative (see annex 6).

Barriers to partnership can arise for a variety of reasons. For example, links with Sector Skills Councils have not been developed but this is partly due to the fact that the Sector Skills Councils themselves are only just developing their missions and the trailblazer SSCs have tended to concentrate on lower level skill developments.

Recent discussions with experts on business-university collaboration in the context of the new university have thrown up issues on both sides where closer collaboration and an understanding of mission diversity might improve such interactions. For example, it can be difficult to gain support from industry even for applied research. Many companies, both large and small, now operate in an environment of global competition and serious financial pressures. It can be difficult for them to accept that high quality research cannot be priced on a cost basis without an appropriate contribution to the indirect costs of the university. This is also a problem common to many government departments. Public funding specifically allocated to the universities for pure research and teaching cannot be used to cross-subsidise research carried out on behalf of industry but there is a perception that HE, having already been paid for through taxes, exists for the public good. Problems can also occur where doctoral students are funded by corporate sponsorship following a company driven agenda. If the internal champion within the company moves on and his/her successor has no interest in the research, the whole programme may fail.

There is also a common assumption that all universities are similar organisations. This is not the case. The University of Manchester and UMIST could be equated to large corporate organisations with a diverse range of product lines. British Telecom and Orange are not expected to offer exactly the same services nor to manage the services they offer in the same way. As research-intensive universities, the University of Manchester and UMIST make a large contribution to business development, this being linked to the generation and application of new knowledge. However their mode of so doing will differ, even when compared with other

research intensive institutions and may be radically different from those institutions which are less research intensive.

It is not uncommon for experienced colleagues from industry and business to be appointed to the Universities as fellows or visiting professors. However, it remains relatively uncommon for academics to move between the university and business – and back again. Such secondments have limited support from the Research Councils and do not rank highly in the current methodology for assessment of research. The Manchester Business School in particular would welcome sponsorship from the ESRC for Business Secondment Fellowships, sufficiently well funded to generate an associated level of prestige.

Another problem is finding the right person to contact within a company. Universities have been exhorted to make themselves more transparent to industry but the converse is also needed. Excellent links may be built with an R&D Director but he/she may not be the budget holder. This can leave a university working with a variety of contacts within a company. Thus the development of partnership requires resource, and industry is reluctant to include this in their funding.

Barriers also exist which need to be addressed by the universities themselves. At the University of Manchester and UMIST, HEFCE funding under the HEROBC and HEIF initiatives have allowed for sectoral audits to take place identifying what the two Universities have to offer. These often require the building of interdisciplinary portfolios, hence the success of the EFCs. However, more work needs to be done to develop these “business offers”. There are also inequalities in the standing of the different activities within the Universities. The perception of the worth of working with business and industry has improved but needs to be strengthened even further.

Question 3: Improving the Quality of Graduates and Postgraduates

The University of Manchester and UMIST Careers Service has strong links with many firms having over 12,000 companies on its database and dealing with up to 100,000 vacancies every year. The Careers Service works with graduate recruiters on a daily basis through meetings on campus and by visiting companies. They have found employers reporting that they are pleased with the quality of the graduates being produced by the Universities. This is despite the fact that employer expectations are increasing and a growing need for “work-ready” graduates. However, the Careers Service also receives feedback that technical and scientific skills are not enough and that this category of students also needs to have highly developed interpersonal skills.

The University of Manchester and UMIST are fortunate in that they have not suffered generally from the current problem of falling applications into science and technology courses, partly due to the strong efforts made in recruitment. However, this is a general trend in the UK and the Universities feel that this is something that needs to be addressed at pre-university levels. The Careers Service has evidence that a lack of graduates in technical disciplines can be common across Europe. Recent discussions with oil companies have revealed that Chemical Engineering is in deficit at the European level. This is despite good career opportunities and attractive salaries.

The University of Manchester and UMIST Careers Service assists employers in attracting the best talent by a variety of routes. Some of these include:

- running 2 day courses for companies on recruitment
- encouraging companies to attend recruitment fairs (over 600 firms attended the last Careers run fair)

- encouraging companies to be involved in careers education; over 200 firms have been involved with 1,500 students via career management skills courses managed by the Careers Service
- helping companies who appoint brand managers and ambassadors who can network with students and at higher levels within the Universities
- special initiatives like the Business Access Service and StudentWorkplace.

The University of Manchester and UMIST play a leading role in developing graduates and postgraduates. At the University of Manchester a programme of Research and Career Management Training has been developed. This has been assessed as a model of good practice in the Metcalfe review (see annex 7). The joint University of Manchester and UMIST Careers Service has also developed other models of good practice, assisting graduates to develop their career potential. One example of this is the Manchester Gold scheme (see annex 7).

The University of Manchester and UMIST have also developed a number of programmes that develop skills specifically for business and industry. Good examples, which also illustrate the variety of sectors served, are the Integrated Graduate Development Scheme in Maintenance originally jointly developed by both Universities, the piloting of new EPSRC Collaborative Training Accounts at UMIST and the Manchester Method for MBA students (see annex 7).

Identifying employer needs for specific scientific or technical skills is done through a variety of means. Firms may work directly with academic departments or through bodies such as the Association of Graduate Recruiters. Professional bodies also set standards for professional membership and bodies such as the Institute for Biochemistry include both university staff and employers as members. Other bodies such as the Council for Industry and Higher Education and the Careers Service Unit research skills requirements. The Universities are also taking a more proactive stance with their alumni, a very important group of employees with whom the Universities have maintained contact, to identify future needs for CPD.

Question 4: Financial Considerations

There are a number of financial constraints that hinder the development of relationships between business and universities. One of the problems relating to university spin outs is the rules for SMART grants. Unless a university owns 24%, or less, of its own spin-off company then it is ineligible for such an award. In the early days of a university spin-off, the university shareholding is likely to be higher but this is precisely when the spin-off requires government support of this type. Furthermore, if a spin-off is successful in attracting a SMART award it cannot then take advantage of the R&D tax credit scheme. Another scheme that is difficult for university companies to use is the Enterprise Investment Scheme (EIS). The scheme is very technical and the time horizons are too tight for a company that is seeking finance to commercialise university technology - a process that can take (and require finance for) a number of years. EIS only really permits a one year planning horizon.

The tax implications surrounding the setting up of spin out companies are complex and careful planning is needed to ensure that any liabilities are minimised for all concerned. Tax implications arise for all parties involved in the creation of a spin out company as follows:

- Income tax implications for the university academics who had been involved in developing the IPR or know-how which is to be exploited,
- Tax and VAT issues for the university arising from the disposal of that IPR and know-how,
- And finally tax implications for the spin out company itself.

These issues can be different depending on the particular circumstances of each spin out company. The provision of clear guidance, which sets out standard approaches for universities to adopt in this area would enable them to better manage the taxation issues for all parties concerned and would not allow tax issues to distract from the main purpose, this being the formation of the spin out company.

The introduction of R&D tax credits has given universities competitive advantage over other large companies in that it costs large companies who sub contract with universities for R&D less. There are also reductions in the costs for Companies in respect of student sponsorship and donations made for R&D. The tax relief will also reduce the costs for SME's who contract R&D to universities. As yet it is too early to say whether the introduction of R&D tax credits has led or will lead to increased R&D for the new university. This may also in part be due to the uncertainty surrounding the definition of qualifying R&D, and concerns that expenditure may not be eligible and claims rejected. In the initial stages the scheme was limited to quite small companies who can find it difficult to identify any budget for research. Now that the scheme has been expanded to include larger companies the use of the scheme seen by universities may increase.

IMPROVING THE RELATIONSHIP BETWEEN BUSINESS AND THE UNIVERSITY

The relationship between the two Universities and business and commerce is healthy and has been getting "smarter". The creation of the new university will ensure that some of the current internal management "blockages" will be resolved. The new university provides an opportunity to restructure, re-brand and re-focus. It will make a substantive difference to performance – indeed funding for creating the new university from some bodies, in particular the NWDA, is dependent on enhanced delivery (see explanation in annex 6).

More, however, can be done to ensure that the relationship between universities and business, commerce and the public sector continues to improve. The responsibility for this will rest not only with the new university itself but also business, government and the regional agencies. It is the view of the two Universities that the following activities would be a useful starting point for the enquiry to consider;

FOR GOVERNMENT

- § To recognise the importance of not for profit/public sector engagement as well as business engagement. (The University of Manchester and UMIST have strong relationships with the NHS, Government Agencies, local authorities etc in all four domains).
- § To provide long term funding to continue to build capability within universities and to accelerate the change in internal culture.
- § To fund contract research for the government on a commercial (i.e. full cost) basis.
- § To recognise the breadth of expertise and involvement in universities such as Manchester and UMIST and not restrict activity in any of the four domains in order to compensate other HEIs for reduced RAE research funding, or funding for teaching and learning.

FOR BUSINESS

- § To recognise the diversity of universities across the country and the different expertise of those institutions.
- § To recognise that university engagement with business has a cost. Business interaction is not a free good.

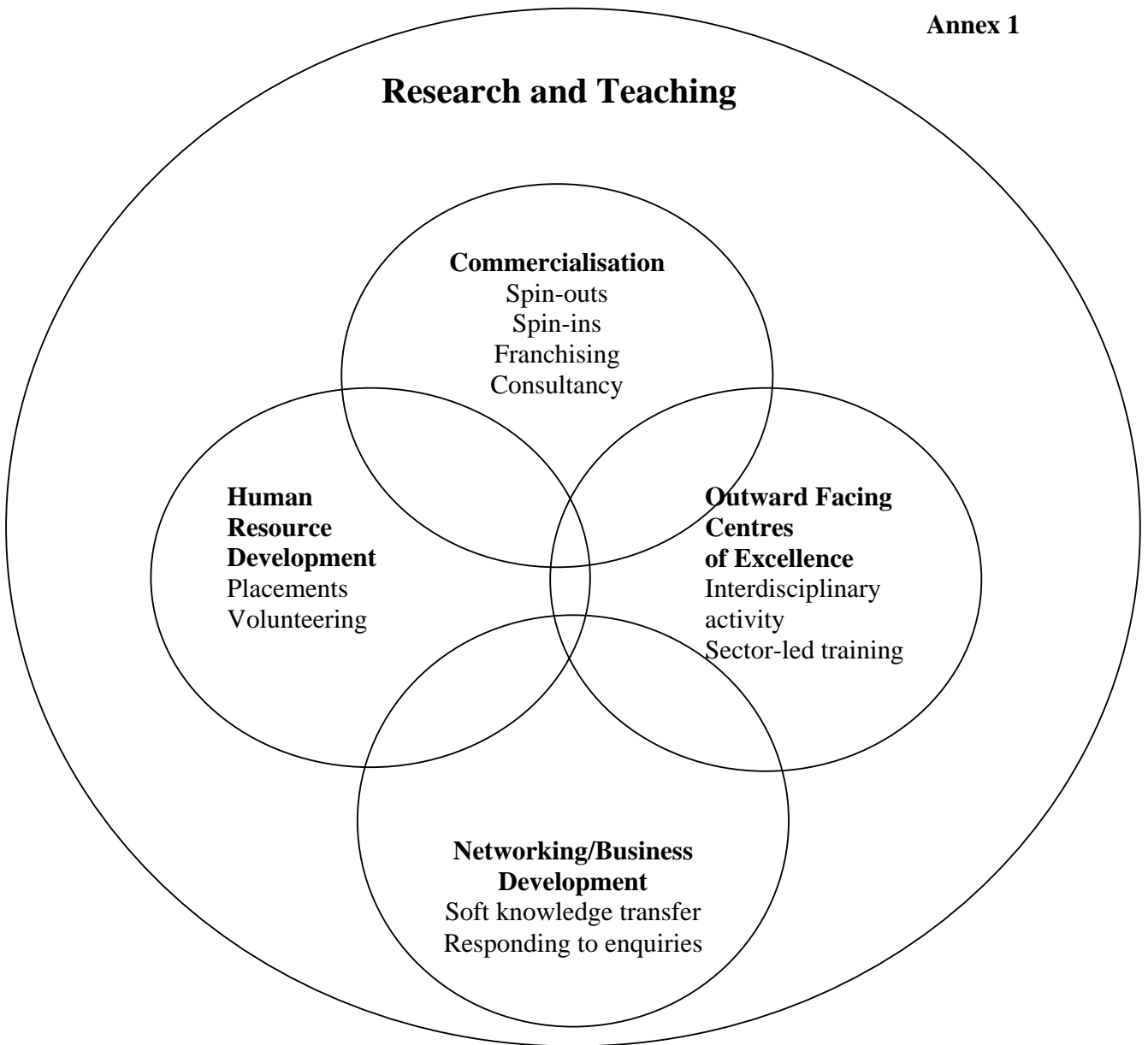
- \$ To recognise that universities are complex organisations with multiple products: a comparison should be made with large corporates.
- \$ To realise that universities can assist many different market sectors; it is not all big science.

FOR REGIONAL AGENCIES

- \$ To recognise the need for Foresight/disruptive technologies, a key area where universities can act as knowledge leaders in economic regeneration.
- \$ To play to the strengths of the universities in their regions building them into partnerships.
- \$ To recognise the role-played by universities in attracting inward investment.

FOR UNIVERSITIES THEMSELVES

- \$ To clarify what they offer to business and commerce.
- \$ To continue to strengthen an internal culture that recognises the value of business and commercial engagement.
- \$ To encourage new initiatives and learn lessons from existing ones.
- \$ To re-enforce involvement of business and commerce in the institutional governance arrangements.



Continuing Professional Development (CPD) at UMIST

UMIST has continued to reshape and remodel a number of its postgraduate programmes to make them more flexible and industrially linked. Some of this has been in line with the Engineering & Physical Sciences Research Council's financial support for new Masters Training Packages and increasingly it has been to encourage students to come from industry and take modules or full programmes over a number of years as CPD. The CPD modules are generally available in one of three ways:

- (i) One week intensive teaching blocks
- (ii) One to three day intensive teaching blocks coupled with workbooks
- (iii) Through electronic distance learning technologies

Programmes that are currently available in one or more of these formats include:

Advanced Silicon Processing & Manufacturing Technologies
Corporate Communications
Corrosion Control Engineering
Electrical Power Engineering
Environmental Management and Technology
Instrumentation and Analytical Science
Investigative Ophthalmology & Vision Sciences
Lightweight Materials
Manufacturing Systems Engineering & Management
Paper Science
Pharmaceutical Engineering
Polymer Materials Science & Engineering
Process Integration
Sustainable Electrical, Control & Lighting Building Services Engineering
Technology in Business
Technology Management and Textile Technology

UMIST has also produced modules and programmes specifically for industry and commerce with examples of these being the Project Management training programme for Rolls Royce, AMEC, TRW and partners, Commercial Management for British Telecom and Human Resource Leadership for the NHS. UMIST is also the academic partner of the Institute of Financial Services for modules and degree programmes in the Financial Services sector.

Continuing Professional Development at the University of Manchester

As already indicated the University of Manchester has a major portfolio of CPD delivered via short courses. These service industry, commerce and the public sector. The University is a major source of updating for professionals across the spectrum including doctors, nurses, lawyers, solicitors, engineers, teachers as well as managers in all spheres and new professionals such as computer scientists and environmental consultants.

As is the case with UMIST, employees also return to the University of Manchester to update their learning and skills, maintaining their Continuing Professional Development via longer postgraduate courses. Examples of these are given in annexes 5 and 7.

Developing the Relationship with BNFL

BNFL and the University of Manchester jointly fund the BNFL Centre for Radiochemistry Research, founded in 1999. It now funds 4 academic staff, 4 BNFL Research Fellows and nearly 40 other researchers including 15 research students and 6 postdoctoral posts. BNFL has invested in excess of £2 million to ensure that radiochemistry flourishes and has a platform for future growth. This supports new transuranium laboratories and dedicated state-of-the-art equipment opened in 2001, which have significantly aided the study of radiochemistry. Although the Centre's research is funded principally by BNFL, the EPSRC, the NERC and the EU also make contributions. It should be noted that recent PhD graduates and postdoctoral researchers have moved on to research in the USA and Australia.

Before the establishment of the Centre, the Department of Chemistry at the University of Manchester already had strong interests in the geochemistry of radioactive elements. It was developing projects in more conventional areas such as co-ordination chemistry, spectroscopy and electrochemistry. The Centre has retained an interest in all these areas and is now developing a research programme in radiopharmaceutical chemistry.

A major laboratory refurbishment has just been completed and the Centre is currently commissioning a range of dedicated instruments for use with radioactive samples. The new laboratories will extend the range of elements the Centre can work with and, if more sophisticated laboratory facilities are required, these are available at BNFL's Springfields and Sellafield sites. The Centre makes extensive use of the synchrotron radiation facilities at Daresbury and Grenoble. Work with radioactive materials is technically difficult and potentially hazardous, so care is taken to provide thorough specialist training available in the University, at BNFL or from specialist outside organisations.

The relationship with BNFL has recently received a significant boost with the signing of a contract for a research alliance between BNFL, the University of Manchester and UMIST. The BNFL University Research Alliance is a joint venture between the following departments/centres at both universities:

Centre for Corrosion and Protection, Instrumentation and Analytical Science, Department of Mechanical Engineering, Manchester Materials Science Centre, Department of Mathematics, Department of Engineering, Departments of Civil Engineering

Its vision is " to be renowned as a world class centre for training and research in nuclear materials science and engineering". The value of the award over a five-year period from BNFL is £2.698M. This alliance will build on the work begun at the University of Manchester Centre for Nuclear Science and Technology (supported by the Higher Education Innovation Fund), creating a major regional resource. The research alliance is an example of a productive relationship forged between two leading research Universities in the North West (soon to join forces) and a major business partner with significant activity in the region. This form of partnership offers a long-term relationship in training and research, the opportunity to exploit to mutual advantage a particular innovation, assistance with product or technical development and consultancy services in specialised areas.

Existing Prerequisites for Knowledge Exploitation

Manchester Science Enterprise Centre (MSEC)

MSEC was originally a partnership between UMIST and the University of Manchester, in collaboration with Manchester Metropolitan University and Salford University. This partnership has subsequently been expanded, firstly to include the University of Liverpool and the establishment of the Liverpool Entrepreneurs' Academy and secondly to include MANCAT and the establishment of a New Technology Institute on the new East Manchester Business Park. MSEC, which has received a total of over £6M DTI/OST and HEFCE funding, is already one of the leading UK Science Enterprise Centres and has established excellent links with the Cambridge/MIT initiative. The basic role of MSEC will continue to be to inculcate a spirit of enterprise and entrepreneurship among the academic staff and students in the new university, predominantly but not exclusively in physical and life sciences, engineering and technology, and management and business. MSEC's direct influence on business-university relations arises from its postgraduate programmes, all of which involve taking a science based business idea to the market. The ideas originate from the student themselves, industry and academics, all of whom use the projects to test the technical and commercial validity of the schemes. The end point of each degree programme, in addition to a science thesis or dissertation, is a business plan showing the way forward towards market realisation.

Manchester Technology Fund Ltd (MTF)

MTF is a company set up by the University of Manchester and UMIST to manage the £4.5M award that the two universities received from the DTI/OST Challenge Fund in 1999. With matching funding of £1.5M from the two Universities, MTF originally had £6M available (and still has over £5M available) to provide Stage 1/Stage 2 funding for University of Manchester and UMIST spin-out companies. In addition to MTF, a number of other sources of early stage funding for new high growth/high technology companies are available, including the NWDA NW Equity Fund (£35M), the NWDA Rising Stars Growth Fund (£9.5M) (both primarily Stage 2/Stage 3 funding) and a proposed new NWDA fund of £19M primarily for Stage 1 funding. In summary, there is sufficient early stage funding available to support an increased flow of spin-out companies from the new university. However, it has been recognised that there remains a gap for very early stage evaluation, recently termed "Proof of Concept" funding.

Manchester Science Park Ltd (MSPL)

UMIST and the University of Manchester were among the founder investors when the Manchester Science Park Ltd was established over 15 years ago and are still actively involved with the company. After rather slow growth in its early years, the MSPL has now become one of the most successful science parks in the UK, with 70 tenant companies. In 2001/02 it had fixed assets of £15M and a turnover of £2.24M. The Board of MSPL are currently discussing further expansion plans and it is therefore clear that the MSPL will be able to

accommodate an increased flow of post-incubation university spin-out companies and, in turn, will benefit greatly from this increased flow.

Manchester Innovation Ltd (MIL)

Manchester Innovation is the gateway to all of the products of research of the University of Manchester. The University is a pool of research excellence and discloses around 80 new inventions per year. Manchester Innovation's staff comprises a full-time, commercially experienced business development team working alongside staff with skills and expertise in marketing research & marketing services, IP management, and financial & legal advice. Manchester Innovation is located in The Manchester Incubator Building, which is strategically positioned at the centre of the University of Manchester's research cluster and is directly connected to the School of Biological Sciences and Medical School. The Manchester Incubator Building is opposite the Manchester Royal Infirmary and adjacent to the new Wellcome Trust Millennium Clinical Research Facility. This location provides the opportunity to network with the academic research staff as well as the highly trained scientists and clinicians within these institutes.

UMIST Ventures Ltd (UVL)

UVL is a dynamic and innovative management company, with an excellent track record in collaborative research and technology transfer. With over a decade's experience of cultivating relationships between industrial partners and UMIST's academic community, UVL has specialist expertise in marketing, negotiating & managing UMIST's extensive research portfolio, and commercialising opportunities emanating from research-led activity at UMIST.

Their integrated approach to commercialisation of intellectual property enables them to identify and evaluate research output with commercial potential at an early stage and establish the most effective routes to market for those opportunities. Their core strengths are

- facilitating R&D partnerships
- creating viable spin-off companies and active management of those companies from conception through to a suitable exit point
- furthering innovative developments through the licence and sale of inventions and software

UVL is located on the main UMIST campus, in the Fairbairn Building.

Examples of Business-University Collaboration

i) Both UMIST and the University of Manchester have a strong record in generating **spin out companies**. Two of the most recent examples from UMIST are Knowledge Support Systems plc (a company creating decision making software support systems) and Photo Therapeutics Ltd (a company creating skin cancer instrument light-therapy) in association with the Paterson Institute. Combined, these companies have raised some £65M and created some 400 jobs. Despite the stock-market downturn, the former is still listed on the main London Stock Market and the latter is trading successfully and has ambitions for a significant strategic alliance or listing when conditions are appropriate.

ii) The University of Manchester and UMIST hold a number of **sponsored chairs**. An interesting example at the Manchester Business School was with Post Office Counters Ltd (POCL). The chair with POCL was instituted in 1992 with funding for 5 years and renewed twice, resulting in a total period of sponsorship of 8 years. Two major collaborative research projects were established with doctoral students working on a joint agenda combining academic research and issues relevant to POCL. A key point was that results were not seen immediately but, over the longer term, the research impacted on the corporate strategy of the Post Office. Additional work outside the sponsorship included the development of a management development programme, internships and further links into other centres at MBS. The work also raised the profile of the Retail Sector as one that could be a focus for research of benefit to both universities and companies. Thus, as well as gaining significant PR value from the donation, POCL also gained a much deeper insight into how research in a university could assist them in building their business.

iii) The University of Manchester and UMIST are members of a number of **Faraday Partnerships**. One example where UMIST is a major partner is TechniTex. This leading partnership in the UK brings together the academic strengths of UMIST (Department of Textiles), the University of Leeds (School of Textiles and Design) and Heriot-Watt University (School of Textiles). BTTG, in the role of the Research and Technology Organisation (RTO), is Europe's largest independent textile technology organisation. TechniTex's core objectives are to work in close collaboration with the technical textiles industry to provide a:

- Co-ordinated programme of industry driven research and training in technical textiles
- Pro-active interface between industry and academic to share knowledge and awareness
- Focus for academic excellence, industrial innovation and best practice in technical textiles.

An example of the research undertaken is weaving aircraft. The technical weaving group at UMIST has recently commenced a 3-year collaborative project with Carr Reinforcements Ltd. Carr Reinforcements are custom weavers, and have considerable expertise in weaving carbon fibres, Kevlar, dyneema and glass fabrics for composites. This research programme will be based on UMIST's achievements in creating novel woven 3D structures using the

conventional general purpose looms, and will continue to develop the group's expertise of CAD/CAM technology.

iv) **Industrial CASE** schemes are run by the Research Councils to enhance both academic excellence and industrial relevance of postgraduate research training in the UK. Like conventional CASE awards, three-year studentships fund top-quality graduates to undertake a programme of research (leading to a PhD) on a subject selected and supervised jointly by academic and industrial partners. The distinguishing feature of Industrial CASE awards is that they are made to the company, rather than the academic partner. This gives the company the freedom to choose not only a research topic relevant to its own priorities but also the academic partner. There is a proviso that the company must have research or production facilities in the UK and will offer a strong research-training environment. EPSRC has appointed agents to identify suitable SMEs to receive a quota of Industrial CASE awards and to assist the companies in making contact with appropriate university departments.

The key element of Industrial CASE awards is the significant involvement, commitment and direction of the company in the research project. Specifically, the company is required to provide:

- a nominated supervisor for the project;
- a student placement in excess of three months;
- student training in a range of wider research and business-related skills;
- an enhanced student stipend above the minimum;
- a cash and in-kind contribution to the academic department to support the project (this is currently set at £1,400);
- the student's travel and out of pocket expenses while working at the company.

The Research Council agrees to meet the tuition fees of eligible students, and in some cases a sum in respect of annual support to the student and, where appropriate, to pay the student a maintenance grant.

As well as the general benefits to the company which come from the opportunity to discuss research needs and capabilities with university scientists working in allied disciplines, there are several specific advantages of Industrial CASE. These are:

- the freedom to choose academic partners, and opportunities to explore new research collaboration;
- closer control of the company's portfolio of university-based research;
- greater facility for planning collaborative partnerships;
- direct experience of potential company recruits;
- opportunity to support and influence basic research relevant to company objectives.

The two universities currently have a strong record of interaction with industry in this area and an award portfolio of £1.3M jointly from Industrial CASE studentships.

The **Manchester Engineering Doctorate** was established in 1992 and provides a four year postgraduate programme leading to the award of EngD at UMIST or the University of Manchester. The EPSRC and industrial partners fund the programme. The Manchester

Engineering Doctorate (EngD) programme is managed by the Department of Total Technology at UMIST. The four year EngD differs from the traditional three year PhD in that it focuses on a challenging industrial problem and includes a major commitment to the training and professional development of the postgraduate engineers. This takes the form of an intensive, broadly based training in collaboration with major companies, so that they can hold senior positions in industry at an early stage in their careers.

Each research engineer undertakes an intellectually challenging research investigation with industry, including appropriate time on company premises working with professional engineers and managers. Each project has an academic supervisor and an industrial advisor. The principle objectives of the scheme are that research engineers become competent to analyse industrial problems, take decisions within the limits of the information available and communicate these decisions effectively. The framework for an EngD study includes:

- A challenging industrial problem of high technical merit;
- Assessing the relationship of the work to corporate strategy;
- Studying the influences of the market place and the environment;
- Project management within the defined time scale and budget;
- Economic and financial considerations;
- Leadership and teamwork.

Each research engineer is counselled regarding effective collaboration, a viable research methodology and the needs of the EngD thesis. It is important that the industrial objectives of the research programme are met, and that the EngD thesis should treat the company as a case study within which a general approach can be developed/tested. It is necessary for the research engineer to become fully integrated with the company's research team. The research engineers have responsibility for a budget and the project management activity.

An integral part of the EngD is the Professional Development Programme, which broadens the horizons of research engineers and enables them to review their work in an industrial and business context. At residential weekend courses, research engineers are exposed to team activities via business games and small group projects. Design and project management seminars bridge the engineering disciplines on the programme. Personal skills are developed via courses on effective report writing and making presentations. All research engineers also complete an examined Diploma of Management designed specifically for the EngD. Research engineers, under the guidance of the Professional Development Co-ordinator, are responsible for preparing and recording a programme for their individual Professional Development. In 1999 the Manchester EngD programme gained accreditation for the IMechE Monitored Professional Development Scheme. The University currently has a funding profile of £120K from its EngD programme.

v) Many of the Externally Facing Centres of Excellence (EFCEs) are in science areas. An example of an **interdisciplinary centre** from the Arts base of the University of Manchester is the **Centre for Museology**. The Centre was created in January 2002 (supported in part by HEROBC funds) and is based in the School of Art History and Archaeology. The aim of the Centre is to develop and promote research and teaching in museum theory and practice, and welcomes proposal for joint activities with both academics and museum professionals.

In partnership with the Harris Museum and Art Gallery, Preston and the Manchester Art Gallery, the Centre is offering a Positive Action Traineeship, funded by the Museums Association. The traineeship is a two-year scheme combining professional experience and training in Preston and Manchester with a part-time MA in Art Gallery and Museum Studies. The Centre is currently developing a pilot short course for museum professionals delivered by distributed learning. The theme of the course is the sustainable museum in local and global contexts. This reflects the increased pressure being placed on museums that have to respond to the market forces being faced by all attractions within the tourist industry.

Another example, but from the Social Science base of the University of Manchester, is the **Cathie Marsh Centre for Census and Survey Research**. This Centre is an EU Marie Curie Training Site and a national centre for the support and dissemination of the 1991 and 2001 census data. The Centre carries out research, consultancy and runs both long and short CPD programmes. The staff have carried out research for the Office of National Statistics, the National Assembly for Wales, the Electoral Commission, the US Census Bureau and a number of national charities and Local Authorities. Examples include a study of business competitiveness and the local economy of Oldham, and labour market prospects for Bangladeshi and Pakistani women. Their CPD programmes span a Masters in Social research methods through to short courses in research design and analysis.

An example based within the Faculty of Medicine of the University of Manchester is the **Wolfson Molecular Imaging Centre**. This Centre, the most advanced of its kind in the world, will undertake patient-oriented research on the treatment of cancer. The technique of positron emission tomography (PET) will enable specialist research into the biology of cancer and the way that anti-cancer drugs work. The Centre has been two and a half years in the planning and is being funded by the Wolfson Foundation, Cancer Research UK, the Christie Hospital Trust Charitable Fund, and The University of Manchester. The cyclotron and radiochemistry facilities needed for molecular imaging are being provided via the government's North West Science Initiative and will be jointly funded by the Medical Research Council and the Engineering and Physical Sciences Research Council. The Centre will work with the Paterson Institute for Cancer Research, which is part of the Christie Hospital Trust. The Centre will provide training in research methodology and interpretation for clinicians and radiographers, which will be of benefit to the hospital and the NHS. It will be a national facility that will capitalise on the existing network of collaboration and patient referral in the UK. There will also be the opportunity to collaborate in molecular and functional imaging research in other clinical disciplines, such as neurology and psychiatry. The Director of the Centre is Professor Pat Price.

This development will make Manchester the world centre for research using molecular imaging and is an example of how partnerships between different organisations can push forward the progress of cancer research. Professor Price and her world renowned team of Cancer Research UK scientists are moving from London, ensuring that the new Centre will not only have terrific facilities, but also unrivalled expertise. Using PET imaging will allow us to build up a detailed picture of how cancer develops and the way that drugs tackle it inside the body, speeding up the process of developing more effective treatments. Dr Trevor Hince, Cancer Research UK's Director of Research Management and Planning.

The Case for the North West Development Agency to Support a New University in Manchester

During the Summer of 2002, the University of Manchester and UMIST made a case to the NWDA to justify support for the creation of a world class university from the two existing institutions. The case predicted a considerable rise in:

- direct employment by the new university
- additional students
- additional jobs in the local economy as a result of the multiplier effect arising from the two benefits above
- additional jobs from spin outs
- benefits to high technology companies in key sectors from the increase in academic research
- benefits to the region's image
- the contribution to the built environment of the city.

The case supported a number of priorities in the Regional Strategy, including business clusters, skills and employment creation. It also supported the Science Strategy for the Region and in particular the need for a 5* chemistry research facility. It called for improved knowledge transfer and a more entrepreneurial approach to start-ups. It was anticipated that the new university in Manchester would make an increased contribution to Manchester's cultural life and hence to all the industries linked to culture and creativity. It was recognised by the NWDA that there would be risks to the Region in doing nothing. It was perceived that a decline in research investment in the region would lead to missed opportunities for developing quality, synergy and growth. The case concluded that the moment was right within the two academic communities and the time was right to seize the opportunity.

Knowledge Capital: Manchester

The development of the Knowledge Capital is based on the concept that strong regional cities are critical to national prosperity. The world class universities in Manchester, creating one of the largest concentrations of teaching and research excellence in Europe, are recognised as one of the eight key assets of the Region. The growth in managerial and professional occupations and the continued demand for higher skill levels are seen as strategic opportunities for the area. Under the Better for Business theme, new incubators, an increase in venture capital, and nurturing of industrial clusters and business start-ups all link to existing strategies at the University of Manchester and UMIST. Academic Acceleration is a major theme with global research, social change and wealth generation coming out of the further and higher education sector. Knowledge Capital: Manchester is seen as providing a hub for higher education excellence, knowledge transfer and economic development of wider benefit to the North West and the whole of the north of England. Project Unity, the name given to the coming together of the University of Manchester and UMIST, will be one of the foundation stones of the Knowledge Capital initiative.

Career Preparation and Development

The University of Manchester has developed a programme of **Research and Career Management Training**. This constitutes a suite of modular courses of varying lengths, run on a multi-disciplinary basis throughout the academic session. Courses include project management, presentation skills, working in teams, and interview skills. The RCMT training is based around the Joint Research Councils/AHRB Skills Statement, but is under constant review in response to student feedback and formal student discussion groups. The University of Manchester and UMIST Careers Service delivers 95% of the courses. Other academic or administrative staff with specialist expertise deliver the remainder. The RCMT courses are open to all the University's research students. RCMT is only in its second year but has already surpassed the numbers from 2001/02. The attendance level to date is over 450, with an anticipated end of year figure of around 700. A small number of tailored courses are provided for Masters students in some Faculties and have had c.130 attendances this year.

Manchester Gold is a structured mentoring programme linking current students and staff of the University of Manchester, UMIST and the Manchester Business School with a mentor from their chosen career area. It gives students a realistic insight into the career of their choice through talking to someone doing the job and finding out what it is really like on a day to day basis. It gives employers the opportunity to be exposed to selected students of the highest quality before they graduate and input into their personal development. There is no direct cost to the employer, the contribution being limited to the mentor's time, which is about 12 hours over the academic year.

Manchester Gold is a forward thinking and progressive programme helping to map the employment market for future graduates. Triona Buckley, UMIST, MSc Communication Studies, 2002

Manchester Gold has given me a great insight into my prospective careers and also helped me to develop useful skills such as interview techniques and presentation skills. David Brown, University of Manchester, BSc Physics, 2002

Manchester Gold has given me the opportunity to coach four outstanding students. I have raised my organisation's profile on campus, encouraged the talent of my mentees and forged closer links with my alma mater. I am very pleased to continue my involvement with this initiative. David Buckley, International Treasurer, Goldman Sachs International

I have enjoyed being a mentor for two years, working with bright lively students and advising them about careers in Journalism. I will watch their progress with interest. The scheme provides a structure that benefits both mentor and mentee – and I have learned a lot about my own job. David Ward, Northern Correspondent, The Guardian

The **Integrated Graduate Development Scheme** in Maintenance Engineering and Asset Management was pump primed by the EPSRC. It is modular programme, which can be taken in full or part-time modes and lead either to a Diploma or a Masters degree. It is run in partnership between industry and the University of Manchester. The IGDS provides a

springboard from which companies can develop tomorrow's managers, trained on the latest technology and with the business and professional skills to make the most of that expertise in the marketplace. Throughout the course the companies work closely with the University to ensure the effectiveness of the training. The programme at the University is now self-financing from industrial fees.

The EPSRC sees research, postgraduate education and knowledge transfer as three core aspects of their mission. **Collaborative Training Accounts** bring together all the studentship schemes that link training programmes with the workplace. In the initial pilot phase of the new Scheme, UMIST has been chosen as one of only 10 universities to work closely with the EPSRC during 2003. The purpose of this initial phase is to develop and prove the necessary administrative and financial procedures so that other universities can be brought within the CTA umbrella at a slightly later stage. The new CTA scheme will offer the opportunity to create innovative new forms of collaborative training provision.

One of the most important conduits between the Manchester Business School and business is the MBA students. An important reason for this is the **Manchester Method**. While many MBA programmes are designed on the Harvard model of classes plus cases, the Manchester Model emphasises the role of experiential learning through live projects in the programme. This coherent long-term philosophy to management development is one based on real business problems and real business opportunities. In a typical year there will be at least 50 separate organisations involved in sponsoring MBA projects. Operating since the early 1970s, the School has built up a substantial network of corporate contacts and the expertise on how to design and deliver live projects so that they maximize the benefits to both the company and the students. According to Tudor Rickards, Professor of Creativity,

The difference between doing a number of case studies and taking part in the Manchester Method is rather like the difference between visiting the zoo and going on safari! The Manchester Method is a real expedition, a real adventure, with faculty experts acting as guides.

Directory of Web Addresses

- UMIST business and industry contact point <http://www.umist.ac.uk/businessandindustry/default.htm>
- HEROBC/HEACF funded portals at the University of Manchester: <http://www.business.man.ac.uk/> & <http://www.man.ac.uk/community/> providing central points of contact for businesses and community groups
- The University of Manchester and UMIST exploitation companies, MIL & UVL <http://www.maninv.com/> & <http://www.ventures.umist.ac.uk/>
- The University of Manchester and UMIST Careers Service <http://www.graduatecareersonline.com> and two examples of their services Student WorkPlace <http://www.graduatecareersonline.com/workexperience/> and Manchester Gold <http://www.graduatecareersonline.com/gold/>
- The Federal School for Business and Management <http://www.mfsbm.ac.uk/>
- The Manchester School of Management <http://www.umist.ac.uk/departments/management/>
- The Manchester Business School <http://www.mbs.ac.uk>
- A pre-incubator service at the Manchester Business School offering advice and support for business start ups <http://www.mbs.ac.uk/incubator/index.cfm>
- The Manchester Technology Fund <http://www.mantechfund.com/>
- The Manchester Science and Enterprise Centre <http://www.msec.ac.uk/>
- The Manchester Science Park Ltd <http://www.mspl.co.uk/>
- The TechniTex Faraday Partnership <http://www.technitex.hw.ac.uk/>
- Examples of EFCEs
 - The Northern Aerospace Technology Exploitation Centre <http://www.natec.org.uk/>
 - The Centre for Museology <http://www.art.man.ac.uk/museology/>
 - The Cathie Marsh Centre for Census and Survey Research <http://www.ccsr.ac.uk/>
 - The Wolfson Molecular Imaging Centre <http://www.wmic.man.ac.uk/>
- The Genetic Innovation Network <http://www.geninv.net/>
- Research and Career Management Training <http://www.gssem.man.ac.uk/rcmt/>
- The Christie Forum for regional environmental stakeholders <http://www.business.man.ac.uk/envirotech/Christie.htm>
- The two examples of spin out companies from UMIST
 - Knowledge Support Systems <http://www.kssg.com>
 - Photo Therapeutics Ltd <http://www.photo-therapeutics.co.uk>
- TechniTex non-university partners
 - Carr Reinforcements <http://www.carr-reinforcements.com>
 - British Textile technology Group <http://www.bttg.co.uk/>