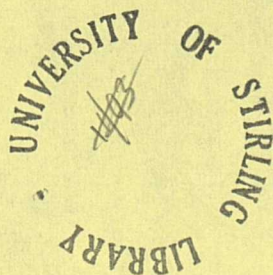


APPENDIX A



A P P E N D I X A

List of Contents

- 1 The "Kingman letter": Letter, dated 14 May 1985, from Sir John Kingman, Chairman of the Science and Engineering Research Council, to Vice-Chancellors and Principals of UK universities, offering them the opportunity to assume the rights and responsibilities with regard to the exploitation of Research Council-funded discoveries which were previously enjoyed by the British Technology Group.
- 2 The "Keith Joseph statement": Press notice (ref. 112/85) issued by the Department of Education and Science, 14 May 1985, incorporating the text of a written answer given by Sir Keith Joseph, Secretary of State for Education and Science, in the House of Commons on 14 May 1985.
- 3 Press release issued by the Committee of Vice-Chancellors and Principals, 14 May 1985, concerning the exploitation of inventions by universities and their staff.
- 4 Initial format for the annual report to be submitted by universities authorised by the Exploitation Scrutiny Group concerning the exploitation of Research Council-funded inventions.



Sir John Kingman FRS

Chairman

Polaris House
North Star Avenue
Swindon
SN2 1ET

Telephone 0793 26222
Telex 449466

11 May 1985

THE EXPLOITATION OF RESEARCH COUNCIL FUNDED INVENTIONS

1. The Secretary of State for Education and Science announced today the main features of the arrangements that will hereafter govern the exploitation of Research Council funded inventions; a copy of his statement is enclosed. In consultation with the Department of Education and Science, the CVCP and the UGC, and with the agreement of the Heads of the other Research Councils, I am writing on behalf of all of the Councils to ask if your university wishes to assume the rights and responsibilities relating to the exploitation of inventions arising from work funded by the Councils; and, if so, to let me know what arrangements your university has made or proposes to make for exercising those rights and discharging the related responsibilities.

2. Universities' proposals will be looked at by a group of Councils' officers, with representatives from DES, DTI, HM Treasury, the UGC and the CVCP. This group will not be making their assessment against any preconceived model. Rather, they would expect to learn from what universities may propose, in the hope and expectation that the criteria for satisfactory arrangements will be developed and refined during the group's work. Obviously the Councils, and Departments, will wish to see certain matters addressed, and certain responsibilities explicitly allocated. Following the guidance from the Secretary of State, these include the following:

- (i) identification of discoveries and know-how that may be exploitable;
- (ii) assessment of potential for exploitation;
- (iii) protection of intellectual property; relationship to publication;
- (iv) securing exploitation; sources of finance (including development work), marketing, negotiation etc;
- (v) respective roles of the researcher and the university; safeguards, and reversal, of rights; incentives for the researcher;

- (vi) royalty sharing; a balance would be needed between incentive and reward for the researcher, and due return (to the university) on the public monies involved;
- (vii) providing, or buying, expertise;
- (viii) annual reporting;
- (ix) consultation with DTI on involving overseas companies;
- (x) consequences for terms and conditions of employment, including the waiver of rights of ownership under the Patents Act 1977;
- (xi) accountability; making the guidance and arrangements known to staff and students, and more widely; monitoring the working and effectiveness of the university's arrangements.

3. If a university does not wish to assume rights and responsibilities for exploitation these will remain with the Council funding the work. Each Council will consider how these might then be handled when they know which universities, if any, are so deciding. Councils would then consider and agree whether to make a general arrangement with a particular body in the public or the private sector for a particular university, or to proceed ad hoc; and would inform the university in question, as a condition of grant.

4. Broadly speaking the new arrangements are intended to apply wherever the BTG (NRDC) right of first refusal has applied in the past. That is, they will apply to work done under research grants and contracts, normal postgraduate training awards, normal research fellowships, and (for the present) SERC Teaching Company Schemes. Existing special arrangements that Councils have developed over the years will continue unchanged for the present; a list of these is enclosed (Annex A). Councils will be considering what changes, if any, in these schemes may be appropriate in due course; and will consult and give notice as necessary.

5. The Government intends, through the new arrangements, to promote competition among exploiting agencies as well as the founding and growth of new businesses. Universities will wish to consider carefully what routes they will wish to follow, what existing agencies they might use, and what new ones might be established. They may wish to collaborate in these matters. These considerations point to there being a reasonable period for universities to decide how they wish to respond to this invitation. I hope you will be able to let my successor know by the beginning of October your university's preference, in principle; and (if you are seeking transfer) give some outline of your arrangements if not a full account.

6. During the transitional period, where a researcher makes a potentially exploitable discovery, the university should informally consult the Council funding the work. People to contact are named in Annex B.

7. If the university has it in mind to involve an overseas company in exploitation they should consult Mr D W Hellings, Department of Industry, Ashdown House, 123 Victoria Street, London SW1E 6RB; (01)212 0503.

8. I am writing similarly to your fellow Vice-Chancellors and Principals and am sending a copy to the CVCP.

JOHN KINGMAN

THE EXPLOITATION OF RESEARCH COUNCIL FUNDED INVENTIONS

Councils' special schemes whose terms are not affected by the new arrangements announced on 14 May 1985

AFRC	Co-operative Research Grants
AFRC	Co-operative Studentship Awards in food science (CSA)
MRC	Co-operative Awards Scheme
MRC	Research and Development Contracts
MRC	Special Project Grants
NERC	Special Topic Awards
NERC	Contracts
NERC	CASE studentships
SERC	Co-operative Grants Scheme (including Alvey-collaborative grants and Protein Engineering grants awarded by the Biotechnology Directorate)
SERC	Co-funding arrangements with British Gas, British Shipbuilders, the Central Electricity Generating Board, the National Coal Board and Rolls Royce
SERC	CASE and Industrial Studentships
SERC	Royal Society-SERC Industrial Fellowships

THE EXPLOITATION OF RESEARCH COUNCIL FUNDED INVENTIONS

RESEARCH COUNCIL CONTACTS DURING THE TRANSITIONAL PERIOD

AFRC E L Shah Esq
 Head of Council and Grants Branch
 Agricultural and Food Research Council
 160 Great Portland Street
 London W1N 6DT
 (01) 580 6655 ex. 238

ESRC J Edwards Esq
 Finance Officer
 Economic and Social Research Council
 1 Temple Avenue
 London EC4Y 0ED
 (01) 353 5252 ex. 257

MRC F W Matthews Esq and R W Bush Esq
 Medical Research Council
 20 Park Crescent
 London W1N 4AL
 (01) 636 5422 ex. 223 and ex. 313

NERC Dr K Harrap
 Natural Environment Research Council
 Polaris House
 North Star Avenue
 Swindon
 SN2 1EU
 (0793) 40101 ex. 421

SERC R G Tidmarsh Esq
 Finance Division
 Science and Engineering Research Council
 Polaris House
 North Star Avenue
 Swindon SN2 1ET
 (0793) 26222 ex. 2179



DEPARTMENT OF EDUCATION and SCIENCE

Elizabeth House, York Road, London SE1 7PH

PRESS NOTICE 112/85

TELEPHONE: 01-934-9880/9

14 MAY 1985

NEW OPPORTUNITIES FOR EXPLOITING RESEARCH

New arrangements which would give individual researchers as well as their universities new incentives and much wider scope for exploiting their research were announced by Education Secretary Sir Keith Joseph in the House of Commons today.

They follow the announcement of the ending of the National Research Development Corporation's right of first refusal for inventions arising from the work of the five state Research Councils, whether in universities or in the councils' own institutes.

In a Written reply to a Question from Patrick Thompson, MP for Norwich North, who asked what steps were being taken to increase the exploitation of inventions arising from work funded by the research councils, Sir Keith made the attached statement.

NOTES TO EDITORS

1. The research councils are: the Agricultural and Food Research Council, the Economic and Social Research Council, the Medical Research Council, the Natural Environment Research Council and the Science and Engineering Research Council.

2. The present system giving the NRDC a monopoly was instituted in 1950 when the research councils voluntarily agreed to observe the provisions of Treasury Circular 5/1950 by which they were to offer the NRDC first refusal on any inventions they might make in the course of the research which they funded. The Prime Minister announced that the monopoly would end, at a science seminar at Lancaster House in 1983.

3. A copy of Sir John Kingman's letter to universities asking if they wish to assume the rights and responsibilities relating to the exploitation of inventions arising from work funded by the research councils is attached.

ENDING OUT OF OFFICE HOURS TEL. 01 934 9880

WRITTEN ANSWER GIVEN BY SIR KEITH JOSEPH, SECRETARY OF STATE FOR EDUCATION
AND SCIENCE IN THE HOUSE OF COMMONS ON 14 MAY 1985

THE EXPLOITATION OF RESEARCH COUNCIL FUNDED INVENTIONS

1. The Government wants to encourage the fullest possible industrial and commercial application of UK scientific and technological discoveries for the maximum benefit of the UK economy. In 1985-86 we shall spend, through the Grants-in-Aid to the five Research Councils, some £560M on civil scientific research; and, in recognition of the long term importance of research for the country, the Government's expenditure plans for the years 1985-86 to 1987-88 make additional provision, compared with earlier plans, of some £18M in all over the three years for the enhancement of equipment in carefully selected university centres of high quality research and some £27M for the Science Budget to assist the Research Councils in restructuring and redeployment and to fund more research grants of highest quality.

2. Following my right hon Friend the Prime Minister's announcement of the ending of the right of first refusal held by the British Technology Group for the exploitation of Government-funded research, with the aim of enlarging opportunities for exploitation especially for scientists who want to exploit their own work, the Department has had extensive discussions with the Councils and others concerned. I am now able to announce the main features of the new arrangements.

3. The Government's overall aims in the new arrangements are to increase the exploitation of research funded by the Councils, for the maximum benefit of the UK economy; to strengthen and improve exploitation; through freer competition between exploiting agencies in the public and private sectors and in other ways; therefore, to place responsibility and initiative for exploitation as fully as possible on researchers, their institutions and the Councils, consistent with their legal responsibilities; and to increase the incentive for researchers and their establishments by enabling them and the work that they do to benefit from increased exploitation. We want researchers to be alert to the possibilities for exploitation of their work; to see and share in the benefits of exploitation both for their own establishments and more widely in the national interest; to have access to arrangements for exploitation as simple and effective as practicable.

and, where it is appropriate and they wish to do so, to have the opportunity to pursue exploitation themselves.

4. This statement mainly concerns universities. I envisage that the same principles should apply for local authority institutions of higher education, and appropriate parallel arrangements be developed in due course.

5. For the research they support in universities the Councils - who between them are currently funding some 6,900 university research projects of total value of £360M - would, I understand, wish the rights and responsibilities for exploitation to rest with the institution in receipt of grant, where the university wishes to hold them, and where the Councils are satisfied that adequate arrangements and procedures exist for identifying and pursuing potentially exploitable results. On behalf of all of the Councils and with their agreement, the Chairman of the Science and Engineering Research Council will shortly be writing to Vice-Chancellors to propose this transfer and to invite them to state their university's wishes.

6. It will be open to universities to propose what arrangements best suit their circumstances. In considering these I hope that universities will seek to give the fullest opportunity and scope for researchers themselves, where they wish to do so, to assume responsibility for exploiting their own findings and ideas, with commensurate share in the benefits. I envisage that the opportunity to exploit would thus in the first place rest with the researcher, on the understanding that he or she would take active steps to exploit the ideas, in ways consistent with the Government's policy aims and within the framework of the university's agreed arrangements. These arrangements will need to have regard to the university's terms and conditions of service; and, because public funds are involved, the university should share in royalties and provision should be made for periodic reporting. I hope that universities will encourage researchers to exploit discoveries themselves and will provide guidance and help for those who wish to do so. Where a researcher nevertheless chooses not to take on the rights and responsibilities for the exploitation of his or her discoveries, these would revert to the university.

7. Whether the discovery is exploited by the university or by the researcher it would be open to them to retain the rights themselves, to set up a limited company for the purpose, or to negotiate terms for transfer of the rights

and responsibilities for exploitation to intermediaries such as private sector organisations or to the British Technology Group. Or they may choose to enter into direct agreements with industrial and commercial companies for the exploitation of individual discoveries, seeking such professional or other services as they need; or conclude agreements with the private sector intermediaries to undertake this on their behalf.

8. The Government does not wish to prescribe the means of exploitation; but it will want to be satisfied that there are considered arrangements governing exploitation by the university or by individual researchers, to safeguard the public interest in the monies involved while maximising the possibility that good inventions will be identified, assessed, protected and exploited.

9. Universities will be invited to submit an account of their proposed arrangements for the exploitation of inventions to the Science and Engineering Research Council which will arrange for them to be considered in consultation with the other Councils, the Committee of Vice-Chancellors and Principals, the University Grants Committee and with the Department of Education and Science, the Department of Trade and Industry, and HM Treasury. When arrangements are agreed and in place Councils would thereafter regard the university as fully responsible; and would wish to receive a brief annual report from each institution on the working of the arrangements in respect of their grants and contracts, including information on income earned. Any proposed major changes in the agreed arrangements will be subject to the same process of consideration and approval. I shall also be asking the Councils, in conjunction with other interested bodies, generally to review the overall arrangements when sufficient experience has been gained of their operation, perhaps after three years.

10. It would be for the university or the researcher to negotiate exploitation terms. Universities will be able to retain their share of royalties and receipts in full without loss of general or specific grants. I hope that they will see fit to use them to strengthen and improve their research capability, its further exploitation, and related infrastructure. Where a university chooses to establish such necessary infrastructure, the Government would regard related expenditure as a proper use of an institution's resources, in recognition of the role of universities and other institutions of higher education in collaborating with industry and promoting exploitation.

11. I am asking each Council to amend its conditions of grant to accommodate

the new arrangements; and am inviting them to consider the scope for developing their own policies for exploitation of inventions originating in their own Units and Institutes on similar lines, so as to provide the maximum involvement of researchers and their establishments where appropriate, having regard to Councils' financial and legal responsibilities and to the efficient use of a Council's experience and expertise. The present delegated authority controls governing Councils' involvement in commercial enterprises will be phased out as soon as each Council is ready to take on its responsibilities fully. They will be able to retain earnings from exploitation of their in-house inventions without loss of Grant-in-Aid. When sufficient experience has been gained the Department will wish to review the workings of the new arrangements with the Councils.

12. The intention of these changes is to benefit the UK; and it is important that the exploitation of our scientific and technological discoveries should whenever possible be done by UK companies. This aim will be borne in mind when considering proposals from universities for the new arrangements. There may be circumstances where a foreign company or a subsidiary of such a company is the best choice, whether as an intermediary or for the negotiated transfer of rights. Where a university or researcher is considering using such a company or subsidiary for all of their discoveries, or all discoveries in a particular discipline or field, the university's arrangements should provide for the Department of Trade and Industry to be consulted at an early stage. The Department of Trade and Industry will also be ready to advise in particular cases and I hope that universities and researchers will consult them freely. The annual reports which universities make on the working of their arrangements should record any agreement for exploitation made with an overseas company or a subsidiary.

13. There is a nice balance to be struck between the free flow of information on which the health of science so critically depends and the need to protect new inventions if they are to be fully exploited to the benefit of the UK. A balance is also required between the freedom and motivation of the researcher to pursue exploitation, the efficient use of negotiating and other commercial skills to secure the best terms, and the legal responsibilities of Councils, universities and their employees. In seeking to give individual researchers greater scope and opportunity to exploit their inventions there is a possibility that in particular instances exploitation will be less than optimal. But the Government believes that it is right to induc

this risk to secure the gains that will come from giving researchers and their institutions more responsibility and more incentive. It is confident that the scientific community, through consultation between the Councils and the universities, will be able to work out satisfactory arrangements that will meet the Government's aims.

14. The new arrangements will take effect from today and will apply to all discoveries made hereafter whether funded by Councils' current or future grants and contracts. There will necessarily be a transitional period, which I hope will last no more than six months, while universities are considering their arrangements and agreeing them with the Councils as described above. The Research Councils have agreed that, during this time, a university with a proposal for exploitation should in the first instance consult the Council responsible for the grant; Councils will be informing their grant holders accordingly.

COMMITTEE OF VICE-CHANCELLORS AND PRINCIPALS

press information

14 May 1985

Exploitation of inventions by universities and their staff

Mr Maurice Shock, Chairman of the CVCP said today:

"We warmly welcome the new freedom for universities and their research workers to make arrangements for the exploitation of inventions and discoveries made in the course of research funded by the Research Councils.

"The fact that universities and their research workers will now be able to pursue exploitation themselves in what they judge to be the most effective ways will give greater impetus to developing closer links with industry and to technology transfer in the UK."

Notes for Editors

1. The Secretary of State for Education and Science announced in a Parliamentary Written Answer on 14 May the main features of new arrangements for the exploitation of inventions funded by the Research Councils.
2. The Prime Minister announced in September 1983 at a seminar on Science, Technology and Industry at Lancaster House that the right of first refusal held by the National Research Development Corporation, now part of the British Technology Group, for the exploitation of Government funded research was to be ended.
3. Universities are being asked by the Research Councils to indicate whether they wish to assume the rights and responsibilities for the exploitation of inventions arising from work funded by the Councils and if so how they would exercise these rights, including incentives to encourage academic staff to exploit their own inventions and provision for sharing of royalties between universities and the individual researchers.
4. The CVCP will be considering what guidance universities might need, including any revision of the advice in a CVCP report on 'Patents and the Commercial Exploitation of Research Results' published in 1978.

29 tavistock square london WC1H 9EZ

tel 01-387 9231

REPORT ON EXPLOITATION OF RESEARCH COUNCIL FUNDED INVENTIONS

1. Requirement:

A report should be sent to each Research Council. The report may apply to that research council alone or be a consolidated report covering all five research councils if the Institution so prefers.

2. Classification:

The report may be classified "Commercial in Confidence."

3. Content:

3.1 The report should relate to the exploitation of intellectual property arising from research council funding in the period under report.

3.2 Patents, Copyright, Registered Designs.
Summarise the title of the patent etc and the inventor, record any agent used and in which countries patents etc (or applications) have been registered or lodged. Please give the research council grant reference numbers in each case.

3.3 Sales of intellectual property.
Record all licences issued, giving details of type of licence and countries to which it applies. Where the licensee or assignee is an academic or inventor company please indicate this. If the patent etc itself has been assigned to a company please supply equivalent details. Please give the research council grant reference numbers in each case.

3.3 Statement of Income and Expenditure.
Income should include payments for licences and assignments, royalties and profits from in-house manufactures and sales of software. Other forms of income such as endowed posts, equities, equipment etc should also be reported.

Expenditure should include patenting costs, fees and agents charges; income distributed to departments and inventors and details of other costs incurred to which the Institution wishes attention to be drawn.

3.4 Additional comments.
Details would be welcomed of any particular cases that should be seen as highlights, any special problems or difficulties or other aspects not covered above to which the Institution wishes attention to be drawn.

4. Format

The attached format is offered for use should the Institution wish to do so.

COMMERCIAL IN CONFIDENCE

FORMAT FOR REPORT ON EXPLOITATION OF RESEARCH COUNCIL FUNDED INVENTIONS

Year-ending 30 September 198

Research Council:AFRC/ESRC/MRC/NERC/SERC*

Institution:

Contact for Enquiries: Name:
Address:

Position Held:
Telephone:

I Patents, Copyright, Registered Designs etc

<u>Nature of Invention</u>	<u>Agent Used</u>	<u>Registered No & Country</u>	<u>Inventor</u>	<u>Whether Licensed</u>	<u>RC Grant Reference</u>
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II Sales of Intellectual Property or Licences etc Issued

<u>Item Sold/Licensed</u>	<u>Purchaser/Licensee (state if Inventor or Academic Company) & Country(ies)</u>	<u>Inventor</u>	<u>Type of Licence</u>	<u>RC Grant Reference</u>
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III Income and Expenditure

Income: Licences	£	Expenditure Patenting Costs -	£
Royalties			Fees Agents
In-house (eg manufactures, sale of software		Distribution of Income to Departments	Inventors
Other (please detail)		Other (please detail)	
(eg endowed posts, equities, equipment)			

IV Additional Comments

* Delete inapplicable titles

APPENDIX B

A P P E N D I X B

List of Contents

- 1 **Prototype letter soliciting the co-operation of the universities selected for investigation and the co-operation of individual informants within each selected university**
- 2 **Questionnaire A - administered to policy-makers or their representative(s)**
- 3 **Questionnaire B - administered to policy-implementers or their representative(s)**
- 4 **Questionnaire C - administered to selected deans and/or heads of department within each participating university**
- 5 **Questionnaire D - administered to selected academic entrepreneurs within/from each participating university**

__ July 1989

Dear _____,

Further to our recent telephone conversation, I am writing to give you an idea of the background, the objectives and the proposed methodology for the SERC-funded study, in which it is hoped _____ University will participate.

Coinciding with the removal in May 1985 of the British Technology Group's "first right of refusal" on exploitation of discoveries arising in the course of Research Council-funded projects, Sir John Kingman wrote on behalf of the Research Councils to the Vice-Chancellors and Principals of Britain's universities. Universities were offered the opportunity to take over responsibility for exploiting such discoveries, to encourage researchers themselves to assume responsibility for the exploitation process in turn, if they wished to - and to benefit together with the researcher from any income this might generate. Although the Research Councils listed a number of areas which they wished to see satisfactorily addressed before concluding initial agreements with universities taking up this opportunity, they stressed that they had no "best practice" model in mind. It was recognised that universities might employ quite different strategies and tactics, influenced, for example, by their particular situation, by their previous experience in exploiting intellectual property arising out of research which was not funded by the Research Councils.

In advocating this change of tactics, the British Government is following closely in the footsteps of the US Federal Government, which made a similar offer some years earlier to universities in receipt of federal funding. The experience of American universities suggests that the Government's objectives may not be entirely simple or straightforward to achieve.

By studying eight or nine British universities in some depth, it is hoped that this project will be able to distil the accumulated experience of universities with differing traditions, located in different parts of the country, each addressing the issues and logistics relating to the exploitation of research discoveries in its own way.

It is anticipated that an in-depth study will entail face-to-face interviews with:

- 1 the person(s) in the university administration best able to provide information on the rationale and minutiae of university policy relating to the Research Councils' offer;
- 2 the person(s) in the university best able to provide information on the rationale and minutiae of implementing that policy;
- 3 the director of any university companies or organisations devoted to commercialising the university's intellectual property, if different to (2) above
- 4 the Dean of the Faculties of _____ and the Heads of several Departments within those Faculties, plus the directors of any scientific/technological Centres/Units/Institutes
- 5 academic entrepreneurs, if any

Each interview will employ a semi-structured questionnaire. Rather than adhering rigidly to questions which may not be relevant to [your University's] situation, the aim is to learn as much as possible from each interviewee's experience. It is anticipated that each interview will take around two hours - or slightly longer if the interviewee is particularly eloquent! It is hoped to conduct these interviews in October or November, though this is a moveable feast.

If you have any questions, please do not hesitate to contact me. Meanwhile, I look forward to receiving confirmation that [the University] will be able to participate in this study.

Yours sincerely,

Kerron A. Harvey (Ms)
Researcher

QUESTIONNAIRE A

Respondent Group: Policy-Makers

- Q1 Name
- Q2 Title
- Q3 Department/Division/Company
- Q4 University
- Q5 Salient points of career history since graduation

SECTION ONE: Setting the Scene

I'd like to establish how the University dealt with the exploitation of research discoveries before the Research Councils' 1985 offer to assume rights and responsibilities previously enjoyed by the BTG.

- Q1 Was it the university's policy to actively seek out potential IP arising out of research (however funded) before 1985?

- 1 yes
2 no

- Q2 *If 1 ...*
When did this date from?

If 2 ... GO TO Q17

- Q3 What motivated the formulation of this policy? *eg:*

- 1 *long-standing part of university's mission*
2 *obligations to sponsors*
3 *mid-1970s pressure from the GAO via the UGC and CVCP*
4 *response to recommendations of the Rothschild Report*
5 *complying with the terms of the 1977 Patent Act*
6 *desire to transfer technology*
7 *desire to increase the university's revenues following swingeing UGC cuts*
8 *1983 announcement that significant earnings would no longer be offset against the Exchequer grant*
9 *1983 announcement that infrastructure costs for collaboration with industry represented proper use of the university's general income*
10 *politically advisable*
11 *other (specify)*
12 *combination of these (specify)*

Q4 Was this particular policy formulation decided purely internally or was it informed at all by other universities' policies, either within or outside the UK? *eg.*

- 1 *purely internally*
- 2 *with reference to other universities in the UK*
- 3 *with reference to universities outside the UK*
- 4 *with reference to other UK individuals/organisations (eg. UDIL, IACHEI) (specify)*
- 5 *combination of these (specify)*

Q5 Within the university, who was party to the discussions leading to the formulation of this policy? *eg.*:

- 1 *Administration (who exactly?)*
- 2 *ILO*
- 3 *AUT*
- 4 *Senate*
- 5 *Council*
- 6 *Boards of Faculty/Studies*
- 7 *legal counsel*
- 8 *other*
- 9 *combination of these (specify)*

Q6 Who was responsible for formulating the final policy?

Q7 How much account was taken of the feelings of individual members of the academic staff or groups of them, or the AUT?

Q8 Could you describe the main tenets of this policy for me?

Q9 Was this policy communicated to staff?

If so ... To which members of staff and by what means?

Q10 Did any individual members or groups of staff or the AUT express a particular view about the policy as it was eventually formulated?

Q11 What view(s)?

Q12 How did they express these views?

Q13 How strictly was the policy adhered to by the university?

- 1 *very strictly*
- 2 *not very strictly*

Q14 *If I ...*
Who ensured this?

- Q15 *If 2 ...*
Why not? What prevented it?
- Q16 Would you say that recently more effort has been made to adhere to the policy?
- Q17 If the university had NO active policy, how did it respond if academics volunteered information on exploitable IP which was not Research Council-funded and therefore not obligated initially to the BTG, nor obligated to industrial sponsors?

Did the university have any policy at all regarding this?

- 1 yes
- 2 no - dealt with it on an *ad hoc*, case-by-case approach

If 2, GO TO Q20

- Q18 *If 1 ...*
What did the policy advocate? *eg:*
- 1 *approach BTG/BTG clone to evaluate, protect and exploit*
 - 2 *approach sponsor to evaluate, protect and exploit*
 - 3 *approach tried and tested industrial contacts to evaluate, protect and exploit*
 - 4 *university arranges evaluation, protection and identification of licensees*
 - 5 *university arranges evaluation, protection and exploits via setting up university company, where possible, with/without involvement of researcher*
 - 6 *university arranges evaluation, protection and exploits via joint venture with third party, where possible, with/without involvement of researcher*
 - 7 *university arranges evaluation, protection and exploits via joint venture with researcher, where possible*
 - 8 *university arranges evaluation, protection and allows/encourages researcher to identify licensee/s*
 - 9 *university arranges evaluation, protection and allows/encourages researcher to exploit via spinning-off a company*
 - 10 *university assigns rights to researcher who evaluates, protects and exploits via spinning-off a company/joint venture with third party*
- Q19 What was the rationale underlying the university's approach to IP voluntarily flagged by members of staff?
- Q20 Whose influence would you say led to the adoption of this approach?

Q21 Would you say that the university has had strong feelings about one exploitation route versus another, either then or now?

- 1 yes
- 2 not really
- 3 no

Q22 *If 1 ...*
Which exploitation routes?

Q23 On what grounds? *eg:*

- 1 *moral*
- 2 *practical (access to skills/resources etc)*
- 3 *financial*
- 4 *legal*
- 5 *less/more effective tech transfer*
- 6 *less/more disruptive to university*
- 7 *other (specify)*
- 8 *combination of these (specify)*

Q24 During this period, did the university establish any structure(s) for dealing with IP?

- 1 no
- 2 yes

Q25 *If 1 ...*
In that case, who was given responsibility for dealing with IP?

- 1 an existing functionary (*who?*)
- 2 an outsider (*who?*)
- 3 other (*specify*)

Q26 *If 2 ...*
What kind of structure(s)?

Q27 When was this structure set up originally?

Q28 What kind of status did this structure have? *eg:*

- 1 *departmental or quasi-departmental (ie. academic) status*
- 2 *company or quasi-company status*
- 3 *administrative status*
- 4 *other (specify)*

Q29 Was the choice of this particular structure decided purely internally or was it informed at all by reference to other universities' experience, either within or outside the UK? *eg.*

- 1 *purely internally*
- 2 *with reference to other universities in the UK*
- 3 *with reference to universities outside the UK*
- 4 *with reference to other UK individuals/umbrella organisations (eg. UDIL, IACHEI) (specify)*
- 5 *combination of these (specify)*

Q30 Within the university, who was party to the discussions leading to the choice of these particular mechanisms? *eg.*:

- 1 *Administration (who exactly?)*
- 2 *ILO*
- 3 *AUT*
- 4 *Senate*
- 5 *Council*
- 6 *Boards of Faculty*
- 7 *legal counsel*
- 8 *other (specify)*

Q31 Why was this particular structure chosen?

Q32 Was this a "dedicated" structure, or was dealing with IP only part of its remit?

Q33 Where the exploitation of IP was concerned, was this structure intended to be self-financing?

- 1 *yes*
- 2 *yes, eventually*
- 3 *partially*
- 4 *no*

Q34 *If 1 or 2 ...*

In practice, did this work according to plan?

- 1 *yes*
- 2 *more or less*
- 3 *no why not?*

Q35 *If 3 or 4 ...*

In that case, how was the exploitation of IP intended to be financed?

Q36 Was the intention to **facilitate** the exploitation of intellectual property, or to **direct** or **take charge** of it?

- 1 *facilitate*
- 2 *direct/take charge*
- 3 *other (specify)*

- Q37 Why was this approach chosen?
- Q38 How much IP was handled this way? (*eg. numbers of patents, licenses etc*)
- Q39 Does this structure still exist?
- 1 yes
 - 2 yes, but changed
 - 3 no ...(*GO TO Q43*)
- Q40 *If 1 or 2 ...*
Does it still have the same status?
- Q41 Does it still handle the exploitation of IP?
- Q42 Does this include IP arising out of projects funded by the Research Councils?
- Q43 Scientific/technical advances can be "transferred" in a number of ways, *viz.*
- **knowledge** (expressed via graduates, papers, courses)
 - **expertise** (expressed via consultancy, R&D, testing)
 - **inventions** (expressed via patents, licenses/new cos)
- Is it the university's policy to concentrate on all these areas?
- 1 concentrates on all these areas
 - 2 gives less weight to certain areas
 - 3 other (*specify*)
- Q44 *If 2 ...*
Which areas, and why?
- Q45 What about the balance between expertise and inventions?
- 1 concentrates equally on expertise and inventions
 - 2 favours one over the other
 - 3 balance determined by the nature of the discovery
 - 4 other (*specify*)
- Q46 *If 2 ...*
Which, and why?
- Q47 How would you rate the university's experience in exploiting its IP in 1985?

SECTION TWO: The Offer from the Research Councils

I'd like to ask you some questions now about the university's response to Sir John Kingman's letter of May 1985, in which the university was offered the opportunity to assume rights and responsibilities previously enjoyed by the BTG.

Q48 Was the university surprised at the May 1985 offer to transfer the right to exploit IP arising out of Research Council-funded projects to the university, subject to there being satisfactory exploitation arrangements?

Q49 Why/why not?

Q50 Can you tell me a bit about the sequence of events triggered by the arrival of Sir John Kingman's letter?

Q51 Did the university set about formulating a separate, formal policy **specifically** regarding the exploitation of discoveries arising out of Research Council-funded projects?

- 1 yes
- 2 no

Q52 *If 2 ...*
Why not?

NOW GO TO Q68

Q53 *If 1 ... ASK Q53-Q67*
What motivated the formulation of a policy relating to the Research Councils' offer? *eg:*

- 1 *the high proportion of Research Council-funded projects made it worthwhile for the first time to formulate and implement a policy covering identification and exploitation of IP*
- 2 *effective exploitation might increase chances of obtaining Research Council funding in future*
- 3 *desire to transfer technology*
- 4 *desire to increase the university's revenues*
- 5 *politically advisable*
- 6 *other (specify)*
- 7 *combination of these (specify)*

Q54 Were the terms of this specific policy decided purely internally or was it informed at all by other universities' policies, either in or outside the UK? *eg.*

- 1 *purely internally*
- 2 *with reference to other universities in the UK*
- 3 *with reference to universities outside the UK*
- 4 *with reference to other UK individuals/organisations (eg. UDIL, IACHEI) (specify)*
- 5 *combination of these (specify)*

Q55 Within the university, who was party to the discussions leading to the formulation of this policy? *eg:*

- 1 *Administration (who exactly?)*
- 2 *ILO*
- 3 *AUT*
- 4 *Senate*
- 5 *Council*
- 6 *Boards of Faculty*
- 7 *legal counsel*
- 8 *other (specify)*
- 9 *combination of these (specify)*

Q56 Was the formulation of this policy at all controversial?

If so ...

What issues did it raise?

Q57 Is it your impression that members of staff made a distinction between the exploitation of IP arising out of publicly-funded projects and the exploitation of IP from projects funded by industry?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q58 *If 1 ...*

In what way?

Q59 Who was responsible for formulating the final version of the university's policy regarding the exploitation of IP arising from Research Council-funded projects?

Q60 How much account was taken of the views of individual members or groups of the academic staff or the AUT?

Q61 Could you describe the main tenets of this policy for me?

Q62 Was this policy communicated to members of staff?

If so ...

To which members of staff and by what means?

Q63 Have any individual members or groups of staff expressed a particular view about the policy as it was eventually formulated? Has the AUT?

Q64 What view(s)?

Q65 How did they express these view(s)?

Q66 Has the university given any weight to these views?

- 1 yes (*how?*)
- 2 no

Q67 *If 2 ...*
Why not?

(END OF SECTION FOR THOSE WHO ANSWERED "YES" TO Q51 ... GO TO Q78)

Q68 You say that the university did not formulate a separate, formal policy specifically regarding the exploitation of discoveries arising out of Research Council-funded projects.

Why was this?

Q69 Was information concerning the Research Council' offer and the university's response communicated to members of staff, though?

If so ...
To which members of staff and by what means?

Q70 Did the university's response to the Research Councils provoke any controversy?

- 1 yes
- 2 not really
- 3 no

Q71 *If 1 or 2 ...*
What issues did it raise?

Q72 *If appropriate ...*
How did these issues come to light?

Q73 Has the university given any weight to the views expressed?

- 1 yes
- 2 partially
- 3 no

Q74 *If 1 or 2 ...*
In what way(s)?

Q75 *If 3 ...*
Why not?

Q76 Is it your impression that members of staff made a distinction between the exploitation of IP arising out of publicly-funded projects and the exploitation of IP from projects funded by industry?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q77 *If 1 ...*
In what way?

SECTION THREE: Administrative Structures

I'd like to turn now to the way the university has chosen to administer its policy concerning intellectual property arising out of projects funded by the Research Councils - or, indeed, from any other source.

Q78 We talked earlier about establishing structures to deal with IP. Is the exploitation of Research Council-funded discoveries administered by a separate structure, or is it handled by the administration?

- 1 separate structure
- 2 administration responsibility ...(*GO TO Q87*)
- 3 other ... (*GO TO Q89*)

Q79 *If 1 ...*
What kind of structure?

- 1 remit of existing structure(s) extended to include this
- 2 existing structure(s) modified to take on this remit too
- 3 new structure(s) devised and implemented
- 4 combination of these (*specify*)

Q80 *If 1, 2 or 4 ...*
Which of the existing structures was this?

(END OF SECTION FOR THOSE USING ONE OR MORE EXISTING STRUCTURES ... GO TO Q103)

Q81 *If 3 or 4 ...*
What kind of structure was selected?

Q82 What kind of status does this have? *eg:*

- 1 *departmental or quasi-departmental (ie. academic) status*
- 2 *company or quasi-company status*
- 3 *administrative status*
- 4 *other (specify)*

Q83 Was the choice of this particular structure decided purely internally or was it informed at all by reference to other universities' experience, either within or outside the UK?

- 1 purely internally
- 2 with reference to other universities in the UK
- 3 with reference to universities outside the UK
- 4 with reference to other UK individuals/organisations (*eg. UDIL, IACHEI*) (*specify*)
- 5 combination of these (*specify*)

Q84 Within the university, who was party to the discussions leading to the choice of these particular mechanisms? *eg:*

- 1 *Administration (who exactly?)*
- 2 *ILO*
- 3 *AUT*
- 4 *Senate*
- 5 *Council*
- 6 *Boards of Faculty*
- 7 *legal counsel*
- 8 *other (specify)*

Q85 Why was this particular structure chosen?

Q86 Is this a "dedicated" structure or is dealing with IP only part of its remit?

- 1 dedicated
- 2 part
- 3 other (*specify*)

(NOW GO TO Q92)

Q87 *If 2 ...*

Why did the university decide that someone in the administration should administer the exploitation of IP?

Q88 Do you think this approach has any particular advantages or disadvantages?

(NOW GO TO Q92)

Q89 If the university has not set up a separate structure to administer the exploitation of IP and it isn't dealt with by the administration, how is it handled, then?

Q90 Why was this approach chosen?

Q91 Who influenced the choice of this approach?

Q92 Is it the university's policy to **facilitate** the exploitation of IP or to **direct** or **take charge** of it?

- Q93 What is the rationale for this?
- Q94 Is it obligatory for academics' discoveries to be exploited via the system/structure(s) you have described, or is it voluntary?
- Q95 What is the rationale for this?
- Q96 Do you think the cost to the university of identifying, evaluating and exploiting IP can ever be realistically assessed - including administrative costs?
- 1 yes
2 no
- Q97 *If 1 ...*
How?
- Q98 *If 2 ...*
Why not?
- Q99 *If 2 ...*
Does this concern you?
- Q100 In so far as you can assess the cost, is the exploitation of IP seen as a self-financing activity?
- 1 yes
2 yes, eventually (*over what timescale?*)
3 only partially
4 no
- Q101 *If 1 or 2 ...*
In practice, is this working according to plan?
- 1 yes
2 more or less
3 no ... (*why not?*)
- Q102 *If 3 or 4 ...*
In that case, how is the exploitation of IP intended to be financed?

SECTION FOUR: Identifying Intellectual Property

I'd like to ask a few questions about the University's policy on identifying intellectual property ... but first ...

Q103 Do you think the particular spread of disciplines in the university has an influence on the amount of exploitable IP which might be identified?

- 1 yes
- 2 don't know
- 3 no

Q104 *If 1 ...*
Which disciplines do you think are likely to generate more exploitable IP - and which less?

Q105 *If 1 ...*
Within those disciplines, do you think the research bias in this university is liable to generate more or less exploitable IP than some other universities?

- 1 yes
- 2 don't know
- 3 no

Q106 *If 1 ...*
Why is that?

Q107 Is it the university's policy regarding identification of IP to be more proactive or reactive? Why?

- 1 proactive
- 2 reactive

Q108 *If 1 ...*
Is it policy for someone to scrutinise the outcome of university research projects for potentially exploitable IP?

- 1 yes
- 2 no

Q109 *If 2 ...*
Do you think the university would ever consider this?

Q110 Why/why not?

Q111 *If 1 ...*
Who subjects the outcome of research projects to this kind of scrutiny?

Q112 *If 1 ...*

At what stage? *eg:*

- 1 *at the proposal stage*
- 2 *at the interim report stage*
- 3 *at the final report stage*
- 4 *other (specify)*

Q113 *If not already covered ...*

Do you think the university would ever consider asking academics to submit drafts of papers for scrutiny before submission to journals - not to quality-control them but with a view to identifying IP which might have been missed?

- 1 yes
- 2 no

Q114 Why/why not?

Q115 Is it the university's policy to concentrate solely on exploiting its own IP or does it actively look for additional IP to exploit?

- 1 concentrates solely on its own intellectual property
- 2 occasionally exploits on behalf of another university
- 3 actively looks for additional intellectual property
- 4 other (*specify*)

Q116 *If 1 ...*

Why is this?

Q117 *If 2 ...*

Under what circumstances?

Q118 *If 3 ...*

Where from? *eg:*

- 1 *from other UK universities/university organisations*
- 2 *from other UK academics*
- 3 *from other UK researchers*
- 4 *from other UK organisations*
- 5 *from universities overseas (where?)*
- 6 *from academics overseas (where?)*
- 7 *from other researchers overseas (where?)*
- 8 *other (specify)*

Q119 What is the rationale for this? *eg:*

- 1 *special competence in given areas*
- 2 *collaborative approach to exploiting university IP*
- 3 *market opportunity*
- 4 *service function*
- 5 *profit maximisation*
- 6 *other (specify)*

SECTION FIVE: Incentives

I'd like to ask a few questions about the incentives the university has put in place to encourage members of the academic staff to notify it if they think they have potentially exploitable IP.

Q120 Is it the university's policy to provide positive incentives for academic staff to identify potentially exploitable research discoveries?

- 1 yes
- 2 no

Q121 *If 2 ...*
Why not?

(NOW GO TO Q134)

Q122 *If 1 ...*
What are these positive incentives? *eg:*

- 1 *shared income*
- 2 *included among the criteria for promotion*
- 3 *active involvement in exploitation process, if desired*
- 4 *university takes over exploitation process, if desired*
- 5 *additional consultancy opportunities*
- 6 *temporarily reduced workload*
- 7 *other (specify)*

Q123 *If 1 ...*
What percentage of revenue does the academic get from IP which is successfully exploited?

Q124 Gross or net?

Q125 How was this percentage arrived at?

Q126 *If 2 ...*
Is this made explicit in the promotions criteria?
What exactly does it say?

Q127 Does the university have any thoughts on further positive incentives to academics to flag potentially exploitable research discoveries?

- 1 yes
- 2 working on it
- 3 no

Q128 *If 1 or 2 ...*

Can you expand on this a bit?

Q129 Has this been a tried and tested incentive somewhere else?

- 1 yes
- 2 don't know
- 3 no

Q130 *If 2 or 3 ...*

What makes you think this will act as an incentive?

Q131 *If not already covered ...*

Does the university employ positive incentives which are directed specifically at deans or heads of department?

- 1 yes
- 2 no
- 3 other (*specify*)

Q132 *If 1 ...*

What incentives are these?

Q133 *If 2 ...*

Why not?

Q134 Does the university employ what we might call "negative" incentives to encourage members of the academic staff to "flag" potentially exploitable IP?

- 1 yes
- 2 no

Q135 *If 2 ...*

In other words, the university employs no incentives at all?
What is the rationale behind this?

Q136 *If 1 ...*

What incentives are these?

Q137 *If not already covered ...*

Are there any "negative" incentives directed specifically at deans or heads of department?

- 1 yes
- 2 no

Q138 *If 1 ...*

What "negative" incentives are these?

Q139 Do you think the university would ever consider applying sanctions against academics who failed to "flag" potentially exploitable research discoveries?

- 1 yes
- 2 maybe ... it would depend on the reason
- 3 no
- 4 other (*specify*)

Q140 *If 1 or 2 ...*

What kind of sanctions?

SECTION SIX: Patenting

The next section of the Questionnaire focusses on patenting. I'd like to start by asking you some questions about the university's views of the patent system.

Q141 In the UK the 1977 Patent Act rules on the ownership of employee inventions. In Britain, academics appear to be treated by the law in the same way as any other employees. In many other industrial nations, the law specifically excludes academics. Which do you think is the more appropriate?

- 1 treating academics as other employees
- 2 excluding academics

Q142 Why?

Q143 According to legal counsel obtained by the OECD, the CVCP and the AUT, the 1977 Patent Act does not make it absolutely clear whether the principle of the employer having rights to employees' inventions should be applied to university workers.

What is the university's view of this?

Q144 If it was challenged, would the university defend its presumed ownership?

Q145 Why/why not?

Q146 Patents may disclose details of experiments, but reproduction of experiments other than for verification counts as infringement. They cannot legally be reproduced even for background research with no commercial purpose.

Do you think that this could have an affect on the advance of science?

- 1 yes
- 2 a minimal effect
- 3 no

Q147 *If 1 ...*

What affect do you think it could have?

Q148 Do you think that delaying publication in order to file a patent application can have an affect on the advance of science?

- 1 yes
- 2 no

Q149 *If 1 ...*

What kind of affect do you think it could have?

Q150 Do you regard open publication as preferable?

Q151 In the US, Japan and some Commonwealth countries academics do not have to delay publication in order to file a patent application. Their patent laws incorporates a grace period ranging from 6-24 months.

Do you think European patent law should re-introduce a grace period?

Q152 Did you know that there is a growing movement to do just that?

Q153 Do you think that the viewpoint of British universities should be represented in this debate?

- 1 yes
- 2 no

Q154 *If 1 ...*

Would you be interested in pursuing this?

Q155 *If 2 ...*

Why not?

Could I move on now to the university's policy on patents?

Q156 What is the university's policy on patenting versus publishing?

Q157 How long has this been the university's policy?

- Q158 *If appropriate ...*
How long a gap is the university prepared to accept between patenting and publishing?
- Q159 Was this policy decided purely internally or was it informed at all by other universities' policies, or by reference to other individuals/organisations? *eg.*
- 1 *purely internally*
 - 2 *with reference to other universities in the UK*
 - 3 *with reference to other UK individuals/organisations (eg. UDIL, IACHEI) (specify)*
 - 4 *combination of these (specify)*
- Q160 Within the university, who was party to the discussions leading to the formulation of this policy? *eg.:*
- 1 *Administration (who exactly?)*
 - 2 *ILO*
 - 3 *AUT*
 - 4 *Senate*
 - 5 *Council*
 - 6 *Boards of Faculty*
 - 7 *legal counsel*
 - 8 *other (specify)*
 - 9 *combination of these (specify)*
- Q161 In the US the question of patenting has led to intense legal and moral debates within universities. Has there been any such debate here?
- 1 *yes*
 - 2 *no*
- Q162 *If 1 ...*
What were the issues?
- Q163 *If 1 ...*
Who was involved in the debate?
- Q164 Are patents treated as equivalent to publications for promotional purposes in this university?
- 1 *yes*
 - 2 *it has never been discussed*
 - 3 *they are not equivalent, but they carry some weight*
 - 4 *no*
- Q165 *If 3 or 4 ...*
Why not?
- Q166 *If 1, 3 or 4 ...*
Who determined this policy?

Q167 Are patents usually vested **jointly** in the university and the academic(s) concerned?

- 1 yes
- 2 no
- 3 other (*specify*)

Q168 *If 1 ...*

This is not a requirement of the 1977 Patent Act ... Why has the university opted for joint title?

Q169 Today, a patent application often requires a disclosure which is well over 100 pages long - and in extreme cases, over 1000 pages long. This is liable to be very time-consuming.

Are members of staff expected to devote extra time to this, or is it policy to temporarily reduce their normal workload?

- 1 find extra time
- 2 temporarily reduce workload
- 3 depends on the specific situation

Q170 *If 3 ...*

Is this at the discretion of the head of department?

- 1 yes
- 2 no

Q171 *If 2 or 3 ...*

Were heads of department involved in formulating this policy?

- 1 yes
- 2 no

Q172 *If 2 ...*

Could this cause problems if, for instance, the head of department were not in sympathy with patenting as an activity to be undertaken by their staff, or not in sympathy with the specific project?

- 1 it could cause problems, but hasn't yet
- 2 it already has caused problems
- 3 not likely to be a problem

Q173 *If 2 ...*

Can you give an example?

Q174 Patentable IP can be protected either by patenting it, or by treating it as secret know-how.

What is the university's policy regarding secret know-how?

SECTION SEVEN: Exploitation Routes

I'd like to ask a few questions about the university's policy regarding the routes by which research discoveries are exploited ...

Q175 When IP is identified, does the university have a preference for pursuing certain exploitation routes, irrespective of the technology involved?

- 1 yes
- 2 no ...(**NOW GO TO Q180**)

Q176 *If 1 ...*

Which particular routes? *eg:*

- 1 *approach BTG/BTG clone as before to evaluate, protect and exploit*
- 2 *approach tried and tested industrial contacts to evaluate, protect and exploit*
- 3 *make first approach to known/likely industries to evaluate, protect and exploit*
- 4 *university arranges evaluation, protection and identification of licensees*
- 5 *university arranges evaluation, protection and exploits via setting up university company, where possible (with researcher as consultant/officer of company)*
- 6 *university arranges evaluation, protection and exploits via joint venture with third party, where possible (with researcher as consultant/officer of company)*
- 7 *university arranges evaluation, protection and exploits via joint venture with researcher, where possible*
- 8 *university arranges evaluation, protection and allows/encourages researcher to identify licensee/s*
- 9 *university arranges evaluation, protection and allows/encourages researcher to exploit via spinning-off a company*
- 10 *university assigns rights to researcher who arranges evaluation, protection and exploits via spinning-off a company/joint venture with third party/ies*
- 11 *or does it deal with it entirely on an ad hoc, case-by-case approach*

Q177 Why is this?

Q178 Does this policy apply to all research discoveries, irrespective of how they were funded - or does the university treat publicly-funded research discoveries differently?

- 1 applies to all research discoveries
- 2 publicly-funded research discoveries treated differently
- 3 other (*specify*)

Q179 *If 2 ...*

Why is this?

Q180 Does the university have a particularly strong view about not pursuing any particular exploitation routes?

- 1 yes
- 2 no

Q181 *If 1 ...*
Which, and why?

Q182 *If 1 ...*
Does this apply to all research discoveries, however they were funded?

Q183 Does the university have a policy regarding the type of license it issues? *eg:*

- 1 *only issues non-exclusive licenses*
- 2 *prefers non-exclusive*
- 3 *does not have a strong feeling either way*
- 4 *lets the technology dictate the type of license*
- 5 *lets the licensee dictate the type of license*
- 6 *lets the academic(s) concerned dictate the type of license*
- 7 *only issues exclusive/sole licences*
- 8 *other (specify)*

Q184 Why is this?

Q185 The Finance Acts of 1978, 1980 and 1983 introduced a new range of tax reliefs for investors financing new ventures, most notably the Business Expansion Scheme.

Has this affected the university's attitude towards spin-off company formation, either by the university or by the academic - or by the university and academics in a joint venture?

- 1 yes
- 2 no

Q186 *If 1 ...*
In what way?

Q187 *If 2 ...*
Why not?

Q188 The government has urged universities to encourage academics to become actively involved in the exploitation process.

How does the university interpret this?

Q189 If there were a conflict between the exploitation route favoured by the academic(s) concerned and the route favoured by the university, how would this be resolved?

SECTION EIGHT: Consultancy

I'd like to ask a few questions about the University's policy on consultancy.

Q190 Are academics allowed to do personal consultancy?

- 1 yes
- 2 depends on the department
- 3 no

Q191 *If 3 ...*
Why not?

Q192 *If 1 or 2 ...*
How many hours/wk or days/year consultancy are academics allowed to do?

Q193 How is this interpreted? *eg:*

- 1 *in absolute terms*
- 2 *in 9-5 terms (ie. excluding week-ends and evenings)*

Q194 How closely is this monitored?

Q195 Are there limits on personal earnings from consultancy?

- 1 yes
- 2 no

Q196 *If 1 ...*
What are the limits (*net/gross*)?

Q197 Are academics doing consultancy allowed/encouraged to use the university's name?

- 1 encouraged
- 2 allowed
- 3 allowed under certain circumstances
- 4 not allowed
- 5 other (*specify*)

Q198 *If 1, 2 or 3 ...*
Do you feel that the university gains anything from this?

If so ... What?

Q199 *If 1, 2 or 3 ...*

Does this ever cause problems for the university?

- 1 yes (*what kind of problems?*)
- 2 no
- 3 other (*specify*)

Q200 *If 4 ...*

Why not?

Q201 Does the university take a % of academics' earnings from personal consultancy?

- 1 yes (*what percentage?*)
- 2 in certain circumstances (*specify*)
- 3 no

Q202 What is the rationale for this?

Q203 Does the university concern itself about the **types** of consultancy work undertaken by faculty?

- 1 yes
- 2 no

Q204 *If 1 ...*

What is the basis of this concern?

Q205 Do you think that extensive consultation has an affect on people's life as academics?

- 1 yes
- 2 in certain circumstances (*specify*)
- 3 don't know
- 4 no

Q206 *If 1 or 2 ...*

What affect? *eg: impinge negatively or positively on their:*

- 1 *teaching commitments*
- 2 *research commitments*
- 3 *administrative commitments*
- 4 *committee work*
- 5 *supervision of graduate students*
- 6 *publication rate*
- 7 *public service activities as university representatives*
- 8 *relevance to the needs of the economy*
- 9 *other (specify)*

Q207 The 1985 Green Paper on higher education recommended that universities should take account of an academic's contribution to industry when considering promotion.

Does consultancy count as a criterion for promotion?

- 1 yes (*since when?*)
- 2 in certain circumstances (*specify*)
- 3 it has never been discussed
- 4 it is not seen as relevant
- 5 it could impede promotion prospects

Q208 Why/Why not?

Q209 Extensive consultancy has been associated with a higher incidence of entrepreneurship among academics.

Do you regard this potential "side effect" of consultancy as positive or negative, from the perspective of the university?

- 1 positive
- 2 positive and negative
- 3 negative
- 4 no opinion

Q210 *If 1, 2 or 3 ...*
Why?

SECTION NINE: Academic Entrepreneurship

I'd like to ask you some questions about academic entrepreneurship now.

Q211 Has the university formulated an explicit policy relating to academic entrepreneurship?

- 1 no
- 2 there is an unwritten policy
- 3 yes
- 4 other (*specify*)

Q212 *If 1 ...*
Is there a reason for this?

Q213 *If 1 ...*
Does this mean that academic entrepreneurship is not proscribed in this university?

- 1 yes
- 2 not officially (**NOW GO TO Q240**)
- 3 no (*please expand!*)
- 4 other (*specify*)

Q214 *If 2 or 3 ...*

When was this policy formulated?

Q215 Does this policy allow academic to become entrepreneurs?

- 1 yes
- 2 yes, if certain conditions are fulfilled
- 3 no (*NOW GO TO Q232*)

Q216 *If 1 or 2 ...*

Was this policy decided purely internally or was it informed at all by other universities' policies, or by reference to other individuals/organisations?

- 1 purely internally
- 2 with reference to other universities in the UK
- 3 with reference to other UK individuals/organisations (*eg. UDIL, IACHEI*) (*specify*)
- 4 combination of these (*specify*)

Q217 Within the university, who was party to the discussions leading to the formulation of this policy? *eg:*

- 1 *Administration (who exactly?)*
- 2 *ILO*
- 3 *AUT*
- 4 *Senate*
- 5 *Council*
- 6 *Boards of Faculty*
- 7 *legal counsel*
- 8 *other (specify)*
- 9 *combination of these (specify)*

Q218 Was academic entrepreneurship considered to be a controversial activity?

- 1 yes
- 2 by a few people
- 3 no

Q219 *If 1 or 2 ...*

What issues did it raise?

Q220 Who was responsible for formulating the final policy?

Q221 Was any account taken of the views of individuals or groups of the academic staff or the AUT?

- 1 yes
- 2 in part
- 3 no

Q222 *If 1 or 2 ...*

What effect did this have?

Q223 *If 3 ...*

Why was no account taken of their views?

Q224 Could you describe the main tenets of this policy for me?

Q225 Was this policy communicated to members of the academic staff?

1 yes

2 no

Q226 *If 1 ...*

To which staff - and by what means?

Q227 Have any individuals or groups of staff or the AUT expressed a particular view about the policy as it was eventually formulated?

1 yes

2 no

Q228 *If 1 ...*

What view(s) did they express?

Q229 How did they express these view(s)?

Q230 Has the university given any weight to these views?

1 yes

2 no

Q231 *If 2 ...*

Why not?

(NOW GO TO Q250)

***IF THE UNIVERSITY HAS LEGISLATED AGAINST ACADEMIC
ENTREPRENEURSHIP:***

Q232 Could you explain the university's reasons for legislating against academic entrepreneurship?

Q233 Does the university feel any differently about academics who want to start up "hard" as opposed to "soft" companies? *(explain the difference, if necessary)*

1 no

2 depends on business idea

3 yes

4 other *(specify)*

Q234 Why?

Q235 If an academic wanted to form a spin-off company to exploit IP over which the university claimed no rights, would the university take the same attitude?

- 1 yes
- 2 no
- 3 other (*specify*)

Q236 Why/why not?

Q237 If the university discovered that an academic had nonetheless founded a spin-off company, would they apply sanctions against him/her?

- 1 yes
- 2 depends on circumstances
- 3 don't know
- 4 no
- 5 other (*specify*)

Q238 *If 1 or 2 ...*
What kind of sanctions?

Q239 *If 4 ...*
Why not?

(NOW GO TO THE END OF THE QUESTIONNAIRE)

IF THE UNIVERSITY IS AGAINST ACADEMIC ENTREPRENEURSHIP BUT HAS FAILED TO LEGISLATE:

Q240 Could you explain why the university is against academic entrepreneurship?

Q241 Could you tell me why the university has not formally legislated against it, however?

Q242 Does the university feel any differently about academics who want to start up "hard" as opposed to "soft" companies? (*Explain the difference, if necessary*)

- 1 no
- 2 depends on business idea
- 3 yes
- 4 other (*specify*)

Q243 Why?

Q244 If an academic wanted to form a spin-off company which exploits IP over which the university claims no rights, would the university take the same attitude?

- 1 yes
- 2 no
- 3 other (*specify*)

Q245 Why?

Q246 Does this mean that all requests to start a company to exploit IP would be refused?

- 1 yes
- 2 probably
- 3 no

If 2 or 3 ... NOW GO TO Q250

Q247 *If 1 ...*

If the university discovered that an academic had nonetheless founded a spin-off company, would they apply sanctions against him/her?

- 1 yes
- 2 depends on circumstances
- 3 don't know
- 4 no
- 5 other (*specify*)

Q248 *If 1 or 2 ...*

What kind of sanctions?

Q249 *If 4 ...*

Why not?

(NOW GO TO THE END OF THE QUESTIONNAIRE)

IF ACADEMIC ENTREPRENEURSHIP IS NOT PROSCRIBED:

Q250 It has been said that an idea with commercial potential is less important to the success of a start-up company than the ability to commit time and energy to it.

Is it the university's policy to assist academics involved in the exploitation of their research discoveries through flexible or reduced workloads?

- 1 no
- 2 depends on circumstances
- 3 yes

Q251 *If 1 ...*
Why not?

(NOW GO TO Q260)

Q252 *If 2 ...*
What circumstances?

(NOW GO TO Q260)

Q253 *If 3 ...*
Which areas of their workload may be reduced? *eg:*

- 1 *reduced teaching load*
- 2 *additional research staff to complete research projects*
- 3 *reduced administrative load*
- 4 *reduced committee work*
- 5 *temporary p/t employment*
- 6 *leave of absence (for upto how long?)*
- 7 *grant of a sabbatical*
- 8 *other (specify)*
- 9 *combination of these (specify)*

Q254 Who makes the decision about reducing faculty's workload?

Q255 Would-be academic entrepreneurs may need swift answers to their requests for a reduced workload. Within what kind of time-scale does the university aim to give its response?

Q256 If it has taken longer than anticipated to establish a spin-off company to the point where the academic can reduce his input, being forced to return at the end of an agreed leave of absence can be critical to the success of the company.

Is it the university's policy to be flexible about extending previously agreed leave of absence?

- 1 yes
- 2 depends on specific circumstances
- 3 no

Q257 *If 1 ...*
How flexible?

Q58 *If 2 ...*
What circumstances?

Q259 *If 3 ...*
Why not?

Q260 Does the university feel it has a responsibility to ensure that academics have at their disposal the resources and skills needed to set up a successful business, or does it take a *laissez-faire* attitude?

- 1 university feels it has a responsibility
- 2 *laissez-faire* attitude
- 3 other (specify)

Q261 Why?

Q262 Is it the university's policy to help would-be academic entrepreneurs by providing resources, if they request them?

- 1 no
- 2 yes

Q263 *If 1 ...*
Why not?

(NOW GO TO Q273)

Q264 *If 2 ...*
What kind of resources?

- 1 equipment
- 2 instrumentation
- 3 accommodation
- 4 support staff (technical)
- 5 professional advice
- 6 secretarial support
- 7 communications
- 8 £££
- 9 other (*specify*)

Q265 Are these offered automatically, or are they available on request?

- 1 automatically
- 2 on request
- 3 only available if project judged to be viable
- 4 only available if outside investors have shown interest
- 5 resource provision depends on overall demand
- 6 other (*specify*)

Q266 *If 2 ...*
How is this publicised within the university?

Q267 *If 3 ...*
In that case, who evaluates the project's viability?

Q268 *If 3 or 4 ...*

The BTG has been accused of being overly risk-averse. Is there a danger that the university will also employ highly risk-averse criteria in making its judgements?

Q269 *If 5 ...*

In whose "gift" are these different resources? *eg:*

- 1 *committees of Court/Senate (specify which)*
- 2 *administration (specify who)*
- 3 *ILO*
- 4 *Vice-Chancellor/Principal*
- 5 *Dean/Head of Dept*
- 6 *other (specify)*
- 7 *combination of these (specify)*

Q270 If different resources are the gift of different groups, is it possible for conflicting resource decisions to be made?

For example, a request for equipment could be granted yet a dependent request for accommodation or support staff could be turned down?

- 1 yes
- 2 possible, but efforts are made to co-ordinate decisions
- 3 no

Q271 Academic entrepreneurs may need swift answers to their requests for resources. Within what kind of time-scale does the university aim to give its response?

Q272 Would extra-ordinary meetings be called to deal with issues like this?

- 1 yes
- 2 possibly
- 3 no

Q273 Would the university like to be able to provide/provide more resources to would-be academic entrepreneurs?

- 1 yes
- 2 no

Q274 *If 1 ...*

What, for example?

What prevents the university from providing it now?

Q275 Are academics founding spin-off companies prohibited/allowed/encouraged to use the university's name?

- 1 prohibited
- 2 allowed
- 3 encouraged
- 4 other (*specify*)

Q276 Why/why not?

Q277 Does the university have rules about academics holding what Americans call "line positions" in private companies exploiting their research discoveries?

- 1 yes
- 2 no
- 3 it has never been discussed
- 4 other (*specify*)

Q278 *If 1 ...*
What do the rules say?

Q279 *If 2 ...*
Why not?

Q280 Does the university have a policy *vis-a-vis* academics holding equity in private companies exploiting their research discoveries?

- 1 yes
- 2 no
- 3 it has never been discussed
- 4 other (*specify*)

Q281 *If 1 ...*
What do the rules say?

Q282 *If 2 ...*
Why not?

Q283 Does the university have rules about university officers or non-academic staff holding what Americans call "line positions" in private companies exploiting academic research discoveries?

- 1 yes
- 2 no
- 3 it has never been discussed
- 4 other (*specify*)

Q284 *If 1 ...*
What do the rules say?

Q285 *If 2 ...*
Why not?

Q286 Does the university have a policy *vis-a-vis* holding equity in academic spin-off companies?

- 1 yes
- 2 no
- 3 it has never been discussed
- 4 other (*specify*)

Q287 *If 1 ...*

What is its policy? *eg:*

- 1 *against equity participation in any circumstances*
- 2 *against equity participation unless circumstances are exceptional*
- 3 *expects to be given equity (what percentage?)*
- 4 *will sometimes accept equity if offered*
- 5 *sometimes buys equity in spin-off companies (at start-up/later?)*
- 6 *other (specify)*

Q288 Why?

Q289 Is it university policy to use academic spin-off companies as a useful source of industrial placements for students?

- 1 yes
- 2 no
- 3 other (*specify*)

Q290 *If 1 ...*

Has this been a positive experience, from both the perspective of the students and the perspective of the academic entrepreneur?

Q291 *If 2 ...*

Has the university considered this as an option?

- 1 yes
- 2 no

Q292 *If 1 ...*

Why has it chosen not to pursue this option?

Q293 *If 2 ...*

Would the university regard this as a possibility in the future?

- 1 yes
- 2 maybe
- 3 it would be upto individual course organisers
- 4 no

Q294 Has it been the university's policy to run short courses to foster entrepreneurship - whether for academics or students?

- 1 yes
- 2 no, but such courses are planned
- 3 no
- 4 other (*specify*)

Q295 *If 1 or 2 ...*
Who put on these courses?

Q296 Is entrepreneurial activity a criterion for promotion, or could it impede promotion prospects, or is it irrelevant?

- 1 criterion for promotion
- 2 irrelevant
- 3 could impede promotion prospects
- 4 has never been discussed
- 5 other (*specify*)

Q297 Why is that?

That is the end of the Questionnaire. Is there anything I did not ask you about which you would like to add?

QUESTIONNAIRE B

Respondent Group: Policy-Implementers

- Q1 Name
- Q2 Title
- Q3 Department/Division/Company
- Q4 University
- Q5 Salient points of career history since graduation

SECTION ONE: The Offer from the Research Councils

- Q6 Since the Research Councils' offer to the university to exploit for itself any IP arising out of Research Council-funded projects in 1985, in theory the university has had a new source of intellectual property at its disposal.

Has this, in fact, led to an increase in the amount of intellectual property which you have had to evaluate?

- 1 yes, significantly
- 2 yes, slightly
- 3 not noticeably
- 4 definitely not
- 5 other (*specify*)

- Q7 *If 3 or 4 ...*
Why do you think this is?

NOW GO TO Q13

- Q8 *If 1 or 2 ...*
Has it led to an increase in the number of patent applications which the university files?

- 1 yes, significantly
- 2 yes, slightly
- 3 not noticeably
- 4 definitely not
- 5 other (*specify*)

- Q9 *If 3 or 4 ...*
Why do you think this is?

NOW GO TO Q13

Q10 *If 1 or 2 ...*

Has it led to an increase in the number of discoveries which are actually exploited in any way?

- 1 yes, significantly
- 2 yes, slightly
- 3 not noticeably
- 4 definitely not
- 5 other (*specify*)

Q11 *If 3 or 4 ...*

Why do you think this is?

NOW GO TO Q13

Q12 *If 1 or 2 ...*

Can you give me some facts and figures?

Q13 Do you think the potential is there, or do you think the amount of intellectual property arising out of publicly-funded projects has been exaggerated?

- 1 potential is there
- 2 hard to tell
- 3 potential has been exaggerated
- 4 other (*specify*)

Q14 *If 1 ...*

What do you think it will take to realise this potential?

SECTION TWO: Identifying Intellectual Property

I'd like to ask a few questions about how the university identifies potential intellectual property ...

Q15 Are staff reminded from time to time of the university's wish that they should flag potentially exploitable research discoveries?

- 1 yes, a regular reminder
- 2 yes, an irregular reminder
- 3 no

Q16 *If 1 or 2 ...*

What kind of reminder?

- Q17 How do new staff members learn about the university's policy? *eg:*
- 1 *incidentally, from scanning their terms and conditions of employment*
 - 2 *it is specifically drawn to their attention (by whom?)*
 - 3 *other (specify)*
- Q18 Do you rely principally on academics coming forward with potentially exploitable research discoveries?
- 1 yes
 - 2 equally with other methods
 - 3 no
- Q19 *If 1 ...*
Does this lead to a patchy response, depending on the character of individual faculties/depts?
- Q20 Do you explain the workings of the patent system to all the relevant staff?
- 1 yes
 - 2 no
- Q21 *If 1 ...*
Is this done on a one-off basis or is it repeated?
- Q22 *If 1 ...*
Who actually does this?
- Q23 *If 1 ...*
What form does this explanation take?
- Q24 *If 1 ...*
Do you think this is effective?
- Q25 Do you organise regular intellectual property trawls through faculties/depts?
- 1 yes
 - 2 irregular trawls
 - 3 no
- Q27 *If 1 ...*
Who actually does this?
- 1 ILO
 - 2 BTG
 - 3 BTG clone/s
 - 4 other (*specify*)

Q28 Are there noticeable faculty-wide/dept-wide differences in response to trawls? I'm thinking more about attitudes than the number of ideas put forward.

- 1 yes, faculty/dept-wide differences
- 2 yes, individual differences
- 3 no noticeable differences

Q29 *If 1 or 2 ...*
What do you put this down to?

EITHER Q30-Q34

Q30 It isn't policy in this university to scrutinise university research projects for potentially exploitable intellectual property.

Do you think if this was done it would lead to more exploitable discoveries?

- 1 yes
- 2 no

Q31 *If 1 ...*
Would you like to see this introduced?

- 1 no
- 2 yes

Q32 *If not ...*
Why not?

Q33 *If 2 ...*
At what stage would you like to see it done? *eg:*

- 1 *at the proposal stage*
- 2 *at the interim report stage*
- 3 *at the final report stage*
- 4 *other (specify)*

Q34 Who should do it?

OR Q35-36

Q35 It is policy in this university, I am told, to scrutinise university research projects for potentially exploitable intellectual property.

Who actually does this?

Q36 *If appropriate ...*
Is there an efficient system to ensure that your office gets the results of this scrutiny?

Q37 How do you think members of staff feel about having their research projects scrutinised for potentially exploitable intellectual property?

EITHER Q38

Q38 It isn't policy in this university to ask academics to submit drafts of papers for scrutiny before submission to journals.

Do you think that doing so would lead to the identification of more exploitable discoveries?

OR Q39

Q39 It is policy in this university, I'm told, to ask academics to submit drafts of papers for scrutiny before submission to journals.

Do you think this increases the proportion of potentially exploitable discoveries identified?

Q40 How do you think academics feel about this?

Q41 Do you use any other techniques to try to identify potentially exploitable research discoveries?

- 1 yes
- 2 no

Q42 *If 1 ...*
Can you tell me a bit about them?

SECTION THREE: Incentives

I'd like to ask a few questions now about incentives ...

EITHER Q43-Q47

Q43 It is the university's policy, I am told, to provide positive incentives to encourage faculty to flag research discoveries which might have a commercial application.

Do you know what they are?

If not, inform respondent that:

The university (*fill in extra incentives where appropriate*):

- 1 shares resulting income (%)
- 2 includes this among criteria for promotion
- 3

Do you think incentives like these work?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q44 *If 3 ...*

Why? Do you think this differs from one faculty/dept to the next, or is a very individual thing?

Q45 *If 4 ...*

Why do you think they don't work?

Q46 Do you think other incentives might be more effective?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q47 *If 1 ...*

Like what?

AND/OR Q48-Q51

Q48 The university employs what we might call "negative" incentives to encourage academics to flag research discoveries which might have a commercial application.

Those "negative" incentives are (*fill in as appropriate*):

Do you think "negative" incentives like these work?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q49 *If 3 ...*

Why? Do you think this differs from one faculty/dept to the next, or is a very individual thing?

Q49 *If 4 ...*

Why do you think they don't work?

Q50 Do you think other incentives might be more effective?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q51 *If 1 ...*
Like what?

OR Q52-Q54

Q52 The university employs no incentives to encourage academics to flag research discoveries which might have a commercial application.

Do you think that is right?

- 1 yes
- 2 no opinion
- 3 no
- 4 other (*specify*)

Q53 *If 1 or 3 ...*
Why?

Q54 *If 1 or 3 ...*
Do you think people would be more inclined to look out for possible commercial applications of their research if there were incentives of some kind?

EITHER Q55-Q57

Q55 The university employs incentives which are directed specifically at deans and heads of dept. It:

- 1
- 2
- 3

Do you think incentives like these work?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q56 *If 3 ...*
Why? Do you think this differs from one faculty/dept to the next, or is a very individual thing?

Q57 *If 4 ...*
Why do you think they don't work?

OR Q58-Q60

Q58 The university employs no incentives to encourage deans and heads of department to look out for possible commercial applications of research conducted in their faculty/ department.

Do you think that is right?

- 1 yes
- 2 no opinion
- 3 no
- 4 other (*specify*)

Q59 *If 1 or 3 ...*
Why?

Q60 *If 1 or 2 ...*
Do you think deans/heads of department would be more inclined to look out for possible commercial applications if there were incentives of some kind?

SECTION FOUR: Protecting Intellectual Property

I'd like to ask a few questions about the practical aspects of protecting intellectual property, with particular reference to patenting ...

Q61 Do you think, in general, that patenting intellectual property (where appropriate) increases its chance of being exploited commercially?

Q62 What criteria are employed in deciding whether or not to proceed with a patent application?

Who determines these criteria?

Q63 Would you say this is a pragmatic, short-term approach or a more speculative, long-term approach?

- 1 pragmatic, short-term approach
- 2 speculative, long-term approach
- 3 impossible to generalise
- 4 other (*specify*)

Q64 Why is this?

Q65 Who makes the final decision whether or not to proceed with a patent registration and a patent application?

Q66 How swiftly is this decision generally made?

IF APPROPRIATE

Q67 What happens if the researcher disagrees with the decision?

Q68 Which patenting route is generally used?

- 1 European Patent Convention (*European patent*)
- 2 Patent Co-operation Treaty
- 3 individual national patent applications
- 4 impossible to generalise
- 5 other (*specify*)

Q69 Why is this?

Q70 How is the decision made regarding the countries in which the intellectual property will be protected?

Who makes this decision?

Q71 What criteria are employed in deciding whether to proceed with a full application?

Who determines these criteria?

Q72 What criteria are employed in deciding whether to pay renewal fees?

Who determines these criteria?

Q73 Are there objective constraints you haven't mentioned which prevent the university - or its staff - from patenting all the intellectual property it would like to, in an ideal world?

- 1 yes
- 2 impossible to generalise
- 3 no

Q74 *If 1 or 2 ...*
Can you expand on that a bit?

Q75 Are you concerned about the effect of litigation on the university?

Q76 Why/why not?

Q77 Has the university been involved in patent litigation at all?

- 1 yes
- 2 no

Q78 *If 1 ...*
Can you tell me a bit about it?

- Q79 *If 2 ...*
Is that because none of your patents have been infringed or challenged?
- 1 yes
 - 2 no
 - 3 other (*specify*)
- Q80 Do you feel there are subjective constraints which prevent the university from patenting all the intellectual property it would like to?
- 1 yes
 - 2 impossible to generalise
 - 3 no
- Q81 *If 1 or 2 ...*
Can you expand on that a bit?
- Q82 If the university decides not to file a patent application, does it waive its rights in favour of the researcher?
- 1 no
 - 2 yes
 - 3 other (*specify*)
- Q83 *If 1 ...*
Why not?
- Q84 *If 2 ...*
Is this done automatically, or only if the researcher requests it?
- Q85 What proportion of discoveries would you say has resulted in the university waiving its rights?
- Q86 How long must a researcher generally wait before the university's rights are formally waived?
- Q87 *If appropriate ...*
Do you think this is fast enough for the researcher to do all the preparatory work, if he wants to file a patent application nonetheless?
- Q89 In your experience, do researchers sometimes ignore the university's negative evaluation and file an application themselves?
- 1 yes
 - 2 don't know
 - 3 no
 - 4 other (*specify*)
- Q90 *If 1 ...*
How many can you think of?

- Q91 *If 1 ...*
How do you feel about academics who choose to do that?
- Q92 If the university waives its rights, does that mean it gives up all its interest in the intellectual property?
- 1 yes
 - 2 no
 - 3 other (*specify*)
- Q93 *If 2 ...*
What interest does it retain?
- Q94 If the university waives its rights in favour of the academic, does this mean that academics have to rely on their own resources in exploiting it, or does the university still assist them in any way?
- 1 still assists in usual ways
 - 2 assists in some ways (*specify*)
 - 3 rely on own resources
 - 4 impossible to generalise
 - 5 other (*specify*)
- Q95 *If 1 or 2 ...*
In what ways?
- Q96 Why does the university do this?
- Q97 Do you think academics sometimes patent their research findings clandestinely, without informing the university?
- 1 yes
 - 2 don't know
 - 3 no
- Q98 *If 1 ...*
Do you think this has happened at this university?
- Q99 *If 1 ...*
If the university were to discover an academic had filed a patent application clandestinely or without waiting for a waiver, what do you think the university's response would be?

SECTION FIVE: Evaluating Intellectual Property

I would like you to tell me a bit about how you set about evaluating potential intellectual property, once it has been identified.

SECTION SIX: Exploitation Routes

EITHER Q100-Q103

Q100 It is the university's policy, I am told, that certain "routes" are preferable to others when it comes to exploiting publicly-funded research discoveries, irrespective of the technology involved. (*Detail the routes*)

Does this present you with any difficulties?

- 1 yes
- 2 no

Q101 *If 1 ...*
What difficulties?

Q102 *If 1 ...*
Would you like to see this policy changed?

- 1 yes
- 2 no

Q103 *If 2 ...*
Why not?

OR Q104-Q105

Q104 It is not the university's policy to favour certain "routes" over others when it comes to exploiting publicly-funded research discoveries, irrespective of the technology involved.

In practice, do you find that certain routes are preferable?

- 1 yes
- 2 depends entirely on the technology
- 3 no

Q105 *If 1 ...*
Which routes, and why?

Q106 Can you give me an idea of the proportion of discoveries which is exploited via licensing, the proportion via company formation *etc*?

- 1 licensing _____ per cent
- 2 campus company _____ per cent
- 3 academic spin-off company _____ per cent
- 4 joint venture: university/academic _____ per cent
- 5 joint venture: university/industry _____ per cent
- 6 joint venture: university/public sector _____ per cent
- 7 other (*specify*) _____ per cent

Q107 The government has urged universities to encourage the researcher to become actively involved in the exploitation process.

In practice, how big a proportion of researchers from this university wants to be actively involved in one way or another?

Q108 Does this vary from one faculty/dept to another?

- 1 yes
- 2 no

Q109 *If 1 ...*

What do you attribute this variation to?

Q110 Would you say that the proportion of researchers wanting to be actively involved in the exploitation process has increased since 1985?

- 1 yes
- 2 don't know
- 3 no

Q111 Where researchers have tried to become actively involved in the exploitation process, would you say that they tend to prefer any particular exploitation routes?

- 1 yes
- 2 impossible to generalise
- 3 no

Q112 *If 1 ...*

Which routes?

Q113 *If 1 ...*

What do you think is the reason for this?

Q114 From your perspective, is the active involvement of the researcher in the exploitation process generally a good or a bad thing?

Q115 Why?

Q116 Have there been cases where the researcher's active involvement has had particularly positive or particularly negative consequences?

- 1 yes, positive
- 2 yes, negative
- 3 no

Q117 *If 1 or 2 ...*

Can you give me some examples, without naming names, if you would rather not?

SECTION SEVEN: Marketing

Q118 *If appropriate ...*

The university has a particular policy regarding the type of licenses it issues ...

Do you think this affects the number of license deals negotiated?

- 1 yes
- 2 no

Q119 *If 1 ...*

In what way?

Q120 How does the university go about finding licencees for its patents? *eg:*

- 1 *patent office publications only*
- 2 *section in broadly-focussed university publication*
- 3 *dedicated university publication*
- 4 *information sent to trade press*
- 5 *information sent to media*

- 6 *own database*
- 7 *BEST database*
- 8 *Innovation*
- 9 *other database(s) (specify which)*

- 10 *participation in trade fairs*
- 11 *participation in exhibitions*

- 12 *use of private sector brokers*
- 13 *use of public sector brokers*

- 14 *use of BTG/BTG clone*

- 15 *alumnae network*

- 16 *academic inventor*

- 17 *use of large companies with whom contact already exists*
- 18 *use of small companies with whom contact already exists*
- 19 *approach made to member universities in an industrial "club" formed by the university*

- 20 *cold selling*

- 21 *other (specify)*

- 22 *no active marketing undertaken*

Q122 Are any of these marketing strategies "closed" to you for any reason?

- 1 yes
- 2 no
- 3 other (*specify*)

Q123 *If 1 ...*

In the search for licencees, do you generally pursue certain marketing strategies in preference to others, or is it dealt with very much on an *ad hoc* basis?

- 1 certain marketing strategies preferred
- 2 *ad hoc* basis
- 3 other (*specify*)

Q124 *If 1 ...*

Which, and why?

Q125 *If 2 ...*

In that case, what kind of factors are likely to influence the choice of marketing strategy?

Q126 *If not covered by Q122 etc ...*

Does experience suggest that certain marketing strategies are more likely to yield licensees than others?

- 1 yes (*which?*)
- 2 no opinion
- 3 no

Q127 Who generally makes an approach to a potential licensee on behalf of the university? *eg:*

- 1 *someone in the admin (who?)*
- 2 *ILO/clon*
- 3 *researcher*
- 4 *broker*
- 5 *other (specify)*
- 6 *combination of these (specify)*
- 7 *cannot generalise*

Q128 Who is generally involved in negotiating a licensing deal? *eg:*

- 1 *someone in the admin (who?)*
- 2 *ILO/clon*
- 3 *researcher*
- 4 *broker*
- 5 *other (specify)*
- 6 *combination of these (specify)*
- 7 *cannot generalise*

Q129 Would you say that the university is skilled at negotiating license deals?

- 1 yes
- 2 sometimes
- 3 hard to judge
- 4 no

Q130 *If 4 ...*

What do you think the university should do about it?

SECTION EIGHT: Commercial Arms to Exploit Intellectual Property

I'd like to ask a few questions now about the extent to which the university has a "commercial arm", and what form that takes ...

Q131 The university has a number of Centres/Institutes/Units/Groups. How many of these act as the commercial arm of a department/school/faculty?

Q132 Which are they?

Q133 Do the different titles (centre/institute/unit/group) indicate significant differences in how they operate, or is that quite arbitrary?

- 1 arbitrary
- 2 some differences
- 3 impossible to generalise
- 4 other (*specify*)

Q134 *If 2 ...*

What are the differences?

Q135 *If not covered by Q131-Q132 ...*

What kind of status does each of these "commercial arms" have? *eg.*

- 1 *academic*
- 2 *quasi-academic*
- 3 *administrative unit*
- 4 *foundation/trust*
- 5 *company*
- 6 *other (specify)*

Q136 What status do their professional staff have? *eg.*

- 1 *academic*
- 2 *administrative*
- 3 *company*
- 4 *other (specify)*

Q137 Does any of them deal with inventions as well as expertise?

If so, which?

Q138 Are they intended to be profit-making or non-profit-making?

Q139 Who was involved in the decision to set them up on this basis? *eg.*

- 1 V/C
- 2 administration (who?)
- 3 ILO
- 4 Dean/Head of Dept/School
- 5 relevant academic staff

Q140 Are there any "commercial arms" which are university-wide - but which are not companies?

- 1 yes
- 2 no
- 3 other (specify)

Q141 *If 1 ...*

What status does it/do they have? *eg.*

- 1 academic
- 2 quasi-academic
- 3 administrative unit
- 4 foundation/trust
- 5 company
- 6 other (specify)

Q142 What status does its/do their professional staff have? *eg.*

- 1 academic
- 2 administrative
- 3 company
- 4 other (specify)

Q143 Does it/do they deal with inventions as well as expertise?

Q144 Who was involved in the decision to set it/them up on this basis? *eg.*

- 1 V/C
- 2 administration (who?)
- 3 ILO
- 4 Dean/Head of Dept/School
- 5 relevant academic staff

Q145 What was the rationale for setting them up on this university-wide but non-company basis?

Q146 *If the university has any university companies ...*
Can you tell me a bit about your campus company/ies ...

Is it/are they wholly-owned or jointly owned?

- 1 wholly-owned
- 2 jointly owned
- 3 both (*if more than one*)
- 4 other (*specify*)

Q147 *If 1 ...*
Do you think the company can continue to be wholly-owned by the university?

If not ...
Why not?

Q148 *If 2 ...*
Was that from choice or necessity?

- 1 choice
- 2 necessity
- 3 both
- 4 other (*specify*)

Q149 *If 2 ...*
Jointly owned with which organisations/individuals?

Q150 *If appropriate ...*
The university has not set up any joint commercial ventures with members of the academic staff, then

- 1 no
- 2 yes
- 3 other (*specify*)

Q151 *If 1 ...*
Why not?

Q152 *If 2 ...*
Could you tell me a bit about them?

How did they come into being?

Q153 What would you say were the principal advantages of setting up joint ventures with staff members?

Q154 What would you say were the principal difficulties of setting up joint ventures with staff?

Q155 If an academic wanted to set up an independent spin-off company to exploit his research discoveries - and the university was equally keen to set up a company, how do you think you would resolve this?

Q156 *If not already covered ...*

Can you tell me a bit about how the university company/ies was/were financed initially?

Q157 What about subsequent financing?

SECTION NINE: Academic Entrepreneurship

I'd like to ask a few questions about academics as entrepreneurs

If the university has legislated against academic entrepreneurship ... IF NOT, GO TO Q165

Q158 For its own reasons, the university has legislated against academic entrepreneurship. Do you think that this affects the amount of intellectual property which ends up being exploited commercially?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q159 *If 1 ...*

In what way?

Q160 *If 1 ...*

Why do you think that is?

Q161 *If 3 ...*

Could you say a bit more about that?

Q162 *If 4 ...*

Do you say that because some academics ignore the ban and secretly set up companies anyway?

- 1 yes
- 2 don't know
- 3 no

Q163 *If 1 ...*

Do you become involved in any way with academics who do that?

If so, how?

Q164 *If 3 ...*

Why do you think the ban on academic entrepreneurship has no affect on the amount of intellectual property which ends up being exploited, then?

If the university is against academic entrepreneurship but has failed to legislate against it ... IF NOT, GO TO Q166

Q165 The university has not legislated against academic entrepreneurship, but I have been told that it is not in favour of it.

As far as you know, has this succeeded in inhibiting academics from forming spin-off companies to exploit their research discoveries?

- 1 yes
- 2 don't know
- 3 no ...(*NOW GO TO Q166*)

If academic entrepreneurship is not proscribed ...

Q166 Can you give me a rough idea, to the best of your knowledge, how many academics in this university have seriously considered starting up their own company to exploit their research discoveries - or a joint venture with a third party?

- 1 approx. _____
- 2 no idea

Q167 Over what kind of period is this?

Q168 *If appropriate ...*

Who do you think could give me information on the period before this?

Q169 Do you think that the majority of them comes to your office for help, or do quite a few try to go it alone?

- 1 majority come for help
- 2 quite a few try to go it alone
- 3 no way of knowing
- 4 other (*specify*)

Q170 Have you noticed whether academics who consider setting up their own company have anything in common with each other? *eg:*

- 1 *primarily from "applied" disciplines*
- 2 *primarily from one/few faculties/depts/schools*
- 3 *age*
- 4 *status*
- 5 *gender*
- 6 *extensive consultancy experience/contacts*
- 7 *industrial/business work experience*
- 8 *drive/charisma/personality/flair etc*
- 9 *workaholics*
- 10 *other (specify)*
- 11 *combination of these (specify)*

or is it

- 12 *impossible to generalise?*

Q171 In your experience, what proportion of academics who seriously consider founding a company actually start to take the necessary steps?

- 1 *high proportion*
- 2 *50:50*
- 3 *low proportion*
- 4 *don't know*
- 5 *other (specify)*

Q172 *If 1, 2 or 3 ...*

What do you think generally deters the rest? *eg:*

- 1 *lack of time to develop discovery*
- 2 *lack of £££ to develop discovery*
- 3 *lack of space to develop discovery*
- 4 *weak patent position*
- 5 *insufficient market share*
- 6 *uncertain/limited market*
- 7 *lack of time to devote to business*
- 8 *lack of business experience/experienced partners*
- 9 *lack of adequate business plan*
- 10 *lack of capital/inability to raise capital*
- 11 *lack of premises*
- 12 *soft vs. hard company dilemma*
- 13 *problems with partners*

- 14 *problems with the university (specify)*

- 15 *other (specify)*
- 16 *combination of these (specify)*

or is it

- 17 *impossible to generalise?*

Q174 *If appropriate ...*

It is the university's policy to assist would-be academic entrepreneurs through flexible/reduced workloads.

Can you tell me a bit about how that operates in practice?

Q175 *If appropriate ...*

It is the university's policy to assist would-be academic entrepreneurs by allowing, where demand permits, the use of:

- 1 equipment
- 2 instrumentation
- 3 accommodation
- 4 support staff (technical)
- 5 professional advice
- 6 secretarial support
- 7 communications
- 8 £££
- 9 _____
- 10 _____

Can you tell me a bit about how this support is given in practice?

Q176 *If appropriate ...*

In what form does the university contribute £££? *eg:*

- 1 *loan from university funds*
- 2 *guarantees bank loan*
- 3 *seedcorn grant (how does the university finance it?)*
- 4 *development grant (how does the university finance it?)*
- 5 *venture capital*
- 6 *solicits £££ from other funds through recommendation*
- 7 *other (specify)*

Q177 What is the rationale for contributing £££ in this/these form(s)?

Q178 Does the university's assistance - whether in £££ or in kind - mean that academics' overheads are liable to be lower than they would otherwise be?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no
- 5 other (*specify*)

Q179 *If 1 ...*

Could this lay the university open to the charge of creating unfair competitive advantage?

Q180 Could it also delay the process whereby the company stands on its own two feet?

Q181 *If appropriate ... (IF NOT, GO TO Q28):*
Policy allows the university to buy equity in academic spin-off companies ... Does this actually happen in practice?

- 1 yes ... (*how often?*)
- 2 no

Q182 *If 1 ...*
What kind of sums are involved?

Q183 *If 1 ...*
Has the university benefitted yet from equity holdings in academic spin-off companies?

If so ... To what extent?

Q184 It has been said that for technology transfer to take place, several different "actors" are needed: a creative scientist or engineer, an entrepreneur, a project manager and a sponsor.

Academics wanting to spin-off companies must either combine the first 3 roles in the one person, or involve other people who can play these roles.

Do you think that academics generally understand this?

- 1 no
- 2 yes
- 3 impossible to generalise
- 4 other (*specify*)

Q185 Have you encountered any who are able to combine all 3 roles, or, say, 2 of them?

- 1 yes
- 2 no
- 3 other (*specify*)

Q186 *If 2 ...*
If they are not generally able to combine roles, do they accept the need to involve people who can complement their own role?

Q187 *If appropriate ... IF NOT, GO TO Q189*
Policy allows university officers or non-academic staff to hold "line positions" in academic spin-off companies ... Does this actually happen in practice?

- 1 yes ... (*how often?*)
- 2 no

- Q189 *If 1 ...*
Is this generally at the suggestion of the academic or the university?
- 1 university (*who exactly?*)
 - 2 academic
 - 3 impossible to generalise
 - 4 other (*specify*)
- Q190 As far as you can tell, what proportion of academics from this university who go through the motions of starting a business end up with a viable company?
- Q191 If an academic wants to start a business to exploit his/her research discoveries, does he/she need to negotiate a license from the university?
- Q192 Do academics founding spin-off companies get preferential license terms?
- 1 researcher automatically gets preferential terms
 - 2 researcher may sometimes be granted preferential terms
 - 3 researcher treated same way as any licensee
- Q193 *If 1 or 2 ...*
In what ways can academics gain preferential terms? *eg:*
- 1 *exclusive license*
 - 2 *sole license*
 - 3 *royalty-free license*
 - 4 *lower royalty-bearing license*
 - 5 *lower up-front payment*
 - 6 *no up-front payment*
 - 7 *other (specify)*
- Q194 *If appropriate ...*
Do academics at this university who found spin-off companies tend to maintain their academic status or leave and become full-time entrepreneurs?
- Q195 Has this created problems for the university, as far as you know?
- Q196 Has this created problems for their business, as far as you know?
- Q197 Does the university keep a list of academics with spin-off companies?
- 1 yes
 - 2 no
 - 3 don't know
 - 4 other (*specify*)

Q200 *If 1 ...*

What is the main purpose of the list?

- 1 keeping track of IP owned by the university/royalties due
- 2 publicity purposes
- 3 role model/networking purposes
- 4 other (*specify*)

Q201 *If 1, 2 or 4 ...*

There is evidence to show that in universities where there are role models, a higher number of spin-off companies is formed by academics. Some universities in the US and Europe keep a kind of catalogue which would-be academic entrepreneurs can refer to and network among.

Do you think this could be helpful in this university?

- 1 yes
- 2 no ... *why not?*
- 3 no opinion
- 4 other (*specify*)

Q202 If you don't have a formal "catalogue" or database, do you nonetheless refer would-be entrepreneurs to colleagues who have gone down that path before them?

- 1 yes
- 2 no
- 3 other (*specify*)

Q203 *If 1 ...*

What effect do you think that has had in practice?

Q204 *If 2 ...*

Why not?

Q205 Does your office maintain contacts with other parts of the university which might be able to help would-be academic entrepreneurs? *eg:*

- 1 *accountancy faculty/dept*
- 2 *law faculty/dept*
- 3 *business studies school/dept*
- 4 *marketing school/dept*
- 5 *other (specify)*

Q206 Does your office maintain contacts with outside agencies to which it can refer would-be academic entrepreneurs for help? *eg:*

- 1 *local economic development depts*
- 2 *enterprise trusts*
- 3 *banks*
- 4 *venture capitalists*
- 5 *accountants*
- 6 *lawyers*
- 7 *science/innovation/business parks*
- 8 *national agencies (SDA-type)*
- 9 *other (specify)*

Q207 Finally, what is the industrial make-up of the _____ area? Are there many small, new-technology oriented firms in the vicinity, or are they mostly large, mature industries?

- 1 *mostly large, mature industries*
- 2 *a few small, new-technology oriented firms (sectors?)*
- 3 *a good proportion of new-technology oriented firms (sectors?)*

That is the end of the Questionnaire. Is there anything I did not ask you about which you would like to add?

QUESTIONNAIRE C

Respondent Group: Deans and/or Heads of Department

Preliminary Questions

- Q1 Name
- Q2 Title
- Q3 Department
- Q4 University
- Q5 Salient points of career history since graduation

SECTION ONE: The Offer from the Research Councils

I'd like to ask you to cast your mind back to 1985 ...

- Q1** In May 1985 Sir John Kingman wrote to the university on behalf of the Research Councils offering it the opportunity to exploit for itself any discoveries arising out of Research Council-funded projects.

When - and how - did you learn that the offer had been made?

- Q2** How did you feel about the idea, personally?

- Q3** Do you think the Research Councils' offer was widely known about in the university at the time?

- 1 yes
- 2 impossible to generalise
- 3 don't know ... (*Go to Q5*)
- 4 no ... (*Go to Q5*)

- Q4** What do you think most people felt about the offer?

- Q5** How do you think the university should have responded to the Research Councils' offer? Why?

- Q6** Do you think members of staff feel differently about the exploitation of IP arising out of publicly-funded projects as opposed to projects funded by industry?

- 1 yes ... in what way?
- 2 don't know
- 3 no

- Q7** Who do you think should have been involved in the decision to accept the Research Councils' offer? Why?

- Q8** In fact, only _____ were involved.

How do you feel about that?

- Q9** What do you think was the university's motivation in taking over responsibility from the BTG?

SECTION TWO: Identifying Intellectual Property

**I'd like to ask you a few questions about the University's policy on identifying IP ...
but first ...**

- Q10** Do you think the particular spread of disciplines in the university has an influence on the amount of exploitable IP which might be identified?
- 1 yes
 - 2 don't know
 - 3 no
- Q11** *If 1 ...*
Which disciplines do you think are likely to generate more exploitable IP - and which less?
- Q12** Do you think the research bias in your own faculty/dept is liable to generate more or less exploitable IP than similar faculties/depts in other universities?
- 1 yes
 - 2 no
 - 3 don't know
 - 4 other (*specify*)
- Q13** *If 1 or 2 ...*
Why/why not?
- Q14** How aware do you think staff in your faculty/department are about the university's wish to identify IP?
- Q15** Do you think they generally take a positive or a negative view of being asked to "flag" IP?
- Q16** Do you think that they have a good understanding of why we have a patent system and how it works?
- 1 yes
 - 2 impossible to generalise
 - 3 don't know
 - 4 no
 - 5 other (*specify*)
- Q17** *If 2 or 4 ...*
Do you think something should be done to improve people's understanding?
- 1 yes (*what?*)
 - 2 no (*why not?*)
 - 3 other (*specify*)

Q18 Do you think the centre/IL office should take a proactive or a reactive approach to identifying IP?

- 1 proactive
- 2 reactive
- 3 other (*specify*)

Q19 *If 1 ...*
What do you mean by proactive?

Q20 Do you think it is being proactive at the moment?

- 1 yes
- 2 a bit
- 3 no
- 4 don't know
- 5 other (*specify*)

Q21 *If 2, 3 or 4 ...*
How could it be more proactive?

Q22 It is/isn't university policy for research projects to be scrutinised for potential IP.

Do you think they should be scrutinised?

- 1 yes
- 2 no
- 3 no opinion
- 4 other (*specify*)

Q23 *If 1 ...*
Who by, and when? *eg*:

- 1 at the proposal stage
- 2 at the interim report stage
- 3 at the final report stage
- 4 other (*specify*)

Q24 *If 2 ...*
Why not?

Q25 It is/isn't university policy to ask academics to submit drafts of papers for scrutiny before submission to journals in the interest of identifying IP.

Do you think they should be scrutinised?

- 1 yes (*who by?*)
- 2 no
- 3 no opinion

Q26 Why/why not?

SECTION THREE: Incentives

I'd like to ask a few questions about incentives ...

Q27 It is the university's policy to provide positive incentives to encourage members of staff to flag research discoveries which might have a commercial application ...
Can you tell me what they are?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrent answer (*give correct answer*)
- 4 don't know (*give full details*)

The university:

- (a) shares revenue (inventor _____ %, dept _____ %, centre _____ %)
- (b) treats patents, licenses *etc* as a criterion for promotion
- (c) facilitates involvement in the exploitation process, if desired, by encouraging flexibility of academic commitments
- (d) facilitates involvement in the exploitation process, if desired, by providing certain resources
- (e) takes charge of the exploitation process, if desired
- (f) other (*specify*)

Q28 Do you think these incentives work, either at the level of individual staff member or the HoD/Dean?

- 1 yes
- 2 don't know
- 3 impossible to generalise
- 4 no

Q29 *If 3 ...*
Why?

Q30 *If 4 ...*
Why do you think they don't work?

Q31 Has this department/faculty ever received much money from IP which it generated?

- 1 yes (*how much?*)
- 2 no (*how much?*)
- 3 don't know

Q32 As far as you know, have any individual members of staff in this department/faculty ever shared in the revenue from IP which they generated?

Q33 Do you think members of this faculty/dept are/would be generally happy keep the revenue from royalties, or do/would they prefer the money to be used for other purposes?

- 1 generally happy to keep it personally
- 2 prefer it is used for other purposes
- 3 impossible to generalise
- 4 don't know

Q34 *If 2 ...*
What other purposes?

Q35 This university does/does not employ negative incentives to encourage members of staff to "flag" IP.

Do you think negative incentives are/would be effective?

Q36 Why/why not?

Q37 Can you think of other incentives which might be more effective?

- 1 yes (*what?*)
- 2 don't know
- 3 impossible to generalise
- 4 no

SECTION FOUR: Protecting IP

I'd like to get your views on what should be done with IP once it has been identified ... but first ...

Q38 The 1977 Patent Act rules on the ownership of employee inventions. In Britain, academics appear to be treated by the law in the same way as any other employees. Intellectual property belongs to the employer. In many other industrial nations, the law specifically excludes academics. Which do you think is the more appropriate?

Q39 Why?

Q40 Do you agree with the concept of "protecting" IP where academic research discoveries are concerned?

Q41 Why/why not?

Q42 Would you make any distinction between research was funded out of the public purse and research funded by industry?

- 1 yes
- 2 no opinion
- 3 in certain circumstances
- 4 no

Q43 *If 1 or 3 ...*
What kind of distinction? Why?

Q44 As employers, universities are under no obligation to file a patent application. They can protect their IP by treating it as secret know-how.

What do you feel about treating academic research discoveries as secret know-how?

Q45 Why/why not?

Q46 If we have to "protect" intellectual property, which is preferable where academic patentable research discoveries are concerned: patenting or secret know-how?

- 1 patenting
- 2 secret know-how
- 3 equally valid
- 4 no opinion
- 5 other (*specify*)

Q47 *If 1, 2 or 3 ...*
Why?

Q48 Patents may disclose details of experiments, but reproduction of experiments other than for verification counts as infringement. They cannot legally be reproduced even for background research with no commercial purpose.

Do you think that this can have an affect on the advance of science?

- 1 yes
- 2 a minimal effect
- 3 don't know
- 4 no

Q49 *If 1 ...*
What affect do you think it can have?

Q50 What is the maximum delay which this university allows in the interests of filing a patent application?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

The university:

- (a) allows upto _____ months/years
- (b) has no formal limit

Q51 Do you think that delaying publication in order to file a patent application can have an affect on the advance of science?

- 1 yes
- 2 no

Q52 *If 1 ...*
What kind of affect?

Q53 In this university, who has the final right of decision about whether IP will be protected prior to being/instead of being published?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

The final right of decision is given to:

- (a) the academic
- (b) the ILO
- (c) the centre
- (d) the V/C
- (e) _____

Q54 Do you agree with that?

Why/why not?

Q55 Do you think that delaying publication can have an affect on an academic's career?

If so, what affect?

Q56 In the US, Japan and some Commonwealth countries academics do not have to delay publication in order to file a patent application. Their patent law incorporates a grace period ranging from 6-24 months.

Do you think European patent law should re-introduce a grace period?

- Q57 Do you think academics might be more positive about patenting research discoveries if a grace period were introduced?
- Q58 Why/Why not?
- Q59 Do you think the pursuit of patents can have an affect on academics' interests and priorities?
- 1 yes
 - 2 don't know
 - 3 no
- Q60 *If 1 ...*
What affect?
- Q61 In the US the question of patenting has led to intense moral debates within universities. Has there been a debate in your department/faculty or in the university as a whole?
- 1 yes
 - 2 don't know
 - 3 no
- Q62 *If 1 ...*
What were the issues?
- Q63 *If 1 ...*
Who was involved in the debate?
- Q64 Today, a patent application can require a disclosure which is well over 100 pages long - and in extreme cases, over 1000 pages long. This is liable to be very time-consuming, because ...
- either:** the university does not (routinely) provide the services of a patent agent
- or:** the university expects the academic to write the first draft, rather than a patent agent
- or:** even though the university provides the services of a patent agent, some members of staff may prefer to do as much as they can themselves
- Are members of staff expected to devote extra time to this, or is it policy to temporarily reduce their normal workload?
- 1 find extra time
 - 2 temporarily reduce workload
 - 3 depends on the specific situation

- Q65 *If 1 ...*
How do you think members of staff feel about the idea that they should take on this kind of additional workload?
- Q66 *If 2 ...*
Does this present a problem to you as dean/head of dept?
- Q67 Why/why not?
- Q68 *If 2 ...*
How do you think other members of the faculty/dept feel about to take on additional work while someone writes a patent specification?

SECTION FIVE: Consultancy

I'd like to ask a few questions about consultancy ...

Q69 By custom/regulation, the university allows:

- (a) _____ hours/week
- (b) _____ days/week
- (c) _____ days/month
- (d) _____ days/year

for personal consultancy ...

Do you agree with that limit?

- 1 yes
- 2 no opinion
- 3 no
- 4 other (*specify*)

Q70 *If 1 or 3 ...*
Why/why not?

Q71 Do you collate information on the number of people in this faculty/dept who are doing consultancy work?

Q72 What proportion of people in this faculty/dept do consultancy work?

Q73 Do these people tend to do a lot of consultancy?

- 1 yes
- 2 medium amount
- 3 no
- 4 impossible to generalise
- 5 don't know

- Q74** *If 1 ...*
Are there people who are probably doing more than they are supposed to?
- 1 yes
 - 2 don't know
 - 3 no
- Q75** *If 1 ...*
Can you expand on that a bit?
- Q76** Do you think that extensive consultation has an affect on people's life as academics?
- 1 yes
 - 2 in certain circumstances (*specify*)
 - 3 don't know
 - 4 no
- Q77** *If 1 or 2 ...*
What affect? *eg: impinge negatively or positively on their:*
- 1 *teaching commitments*
 - 2 *research commitments*
 - 3 *administrative commitments*
 - 4 *committee work*
 - 5 *supervision of graduate students*
 - 6 *publication rate*
 - 7 *public service activities as university representatives*
 - 8 *relevance to the needs of the economy*
 - 9 *other (specify)*
- Q78** Extensive consultancy has been associated with higher levels of entrepreneurship among academics. Do you regard this potential "side effect" of consultancy as positive or negative?
- 1 positive
 - 2 positive and negative
 - 3 negative
 - 4 no opinion
- Q79** *If 1, 2 or 3 ...*
Why?

Q80 Does this university impose limits on earnings from personal consultancy?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

- (a) the limits are _____
- (b) there are no limits

Q81 Do you agree with that?

- 1 yes
- 2 no opinion
- 3 no

Q82 *If 1 or 3 ...*
Why/why not?

Q83 Do you know whether the university takes a percentage of people's earnings from personal consultancy? What percentage?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

The university:

- (a) takes _____ %
- (b) does not take a percentage

Q84 Do you agree with that?

- 1 yes
- 2 no opinion
- 3 no

Q85 *If 1 or 3 ...*
Why/why not?

Q86 The 1985 Green Paper on higher education recommended that universities should take account of an academic's contribution to industry when considering promotion.

Does consultancy count as a criterion for promotion?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

Consultancy:

- (a) is a scoreable criterion
- (b) counts informally
- (c) does not count

Q87 Do you agree with that?

Q88 Why/why not?

SECTION SIX: Commercial Arms

I'd like to ask a few questions now about the university's "commercial arms" ...

EITHER Q89-Q96 ...

Q89 The university has a number of Centres/Institutes/Units/ Group acting as the commercial arm of a department/school/ faculty ...

Your own faculty/dept has _____

Can you tell me a bit about how that came about?

Q90 Is it a notional organisation or does it have a separate staff or even separate accommodation?

Q91 What status do the staff in this Centre/Institute/Unit/Group have? Why?

- 1 academic (*tenure*)
- 2 academic (*short-term contract*)
- 3 administrative
- 4 company
- 5 other (*specify*)

Q92 *If 2, 3 or 4 ...*

Does that create any difficulties?

eg. status, career potential, ethos, standard, management ...

Q93 Did the creation of this Centre/Institute/Unit/Group cause controversy at the time, or at any time since?

- 1 yes
- 2 impossible to generalise
- 3 no
- 4 other (*specify*)

Q94 *If 1 ...*

What kind of controversy? Who was concerned?

Q95 Does this Centre/Institute/Unit/Group have a "down side"?

Q96 Are you concerned at all about its affect on research priorities in the faculty/department? (*NOW GO TO Q100*)

... OR Q97-Q99

Q97 The university has a number of Centres/Institutes/Units/ Groups acting as the commercial arm of a department/school/ faculty ...

Your own faculty/dept does not have anything like this ...

Can you tell me whether you think it is likely to in the foreseeable future?

- 1 yes
- 2 don't know
- 3 no

Q98 *If 1 ...*
Can you tell me a bit about it?

Q99 *If 3 ...*
Is there a particular reason for this?

Q100 The university has no/one/several university company/ies (as opposed to academic spin-off companies) exploiting the university's IP ...

Do you think a university company is a good idea?

Q101 Why/why not?

Q102-Q105, IF APPROPRIATE ...

Q102 The employees of the university's company/ies have academic/ administrative/company status ...

Do you think this can cause problems for members of the academic staff who are involved?

- 1 yes
- 2 no opinion
- 3 no
- 4 other (*specify*)

Q103 *If 1 ...*
What kind of problems?

Q104 Do you think the company has affected or could affect the university's research priorities?

- 1 yes
- 2 too soon to tell
- 3 no
- 4 other (*specify*)

Q105 *If 1 or 3 ...*
In what way?

SECTION SEVEN: Academic Entrepreneurship

I'd like to ask you some questions about academics who try to exploit their research discoveries via independent spin-off companies or joint ventures with the university ...

IF NOT EXCLUDED BY POLICY:

Q106 Policy allows this university to participate in joint commercial ventures with members of staff ...

Do you think this is a good idea?

Q107 Why/why not?

Q108 Are you speaking hypothetically or do you have some actual examples in mind?

Q109 In principle, university policy allows/does not allow academics to try to exploit their research discoveries via independent spin-off companies ...

Do you agree with this policy?

Q110 Why/why not?

Q111 Do you feel the same way about "hard" as opposed to "soft", R&D companies, or do you make a distinction?

Q112 Why/why not?

Q113 What do you think members of your faculty/dept feel about academics exploiting their research discoveries via independent spin-off companies or joint ventures?

Q114 The university is/is not keen for would-be academic entrepreneurs trying to exploit their research discoveries to be assisted by being flexible with their workloads...

What do you feel about that? Does it/would it present a problem to you as dean/head of dept?

Q115 In what way/why not?

Q116 In which ways is it/would it be easiest to reduce someone's workload in your faculty/dept? *eg:*

- 1 *reduced teaching load*
- 2 *reduced input to research projects*
- 3 *reduced administrative load*
- 4 *reduced committee work*
- 5 *temporary p/t employment*
- 6 *leave of absence (for upto how long?)*
- 7 *grant of a sabbatical*
- 8 *other (specify)*
- 9 *combination of these (specify)*

or is it

- 10 *impossible to generalise*

Q117 How quickly can/could these flexible or reduced workloads be implemented, in practice?

Q118 How would you describe the staffing levels in your faculty/dept? *eg:*

- 1 over-staffed
- 2 adequately staffed
- 3 under-staffed

Staff/student ratio: :

Q119 University policy allows/does not allow would-be academic entrepreneurs trying to exploit their research discoveries to work part-time on part/full pay

What do you feel about that? Does it/would it present a problem to you as dean/head of dept?

- 1 yes
- 2 it hasn't yet, but it could
- 3 no
- 4 don't know

Q120 *If 1 or 2 ...*

In what way?

Q121 University policy allows/does not allow would-be academic entrepreneurs trying to exploit their research discoveries to take temporary leave of absence with/without pay ...

What do you feel about that? Does it/would it present a problem to you as dean/head of dept?

- 1 yes
- 2 it hasn't yet, but it could
- 3 no
- 4 don't know

Q122 *If 1 or 2 ...*
In what way?

Q123 If it has taken longer than anticipated to take a spin-off company to the point where the academic can reduce his input, being forced to return prematurely at the end of an agreed leave of absence can be critical to the success of the company.

It is/is not the university's policy to be flexible about extending previously agreed leave of absence. What do you feel about that?

Q124 It is/is not the university's policy to let would-be academic entrepreneurs have access to university resources.

Do you know which resources, and on what basis?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

The university's policy is to give access to:

- (a) equipment
- (b) instrumentation
- (c) accommodation
- (d) support staff (technical)
- (e) professional advice
- (f) secretarial support
- (g) communications

In return it expects:

- (a) nothing at all
- (b) nothing initially
- (c) cut-rate charges initially
- (d) cut-rate charges eventually
- (e) cut-rate charges/equity stake
- (f) full-market rate immediately
- (g) full-market rate eventually
- (h) full-market rate/equity stake

Q125 Do you agree with this policy? Why/why not?

Q126 Does/would the provision of any of these resources be a problem in your faculty/department? Which and why?

EITHER Q127-Q128 ...

Q127 It is the university's policy to try to support would-be academic entrepreneurs financially. What kind of financial support can they get?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

The university sometimes helps by:

- (a) equipment grant
- (b) development grant/funding
- (c) start-up funding (grant/loan/equity)
- (d) second-phase funding

In return the university gets _____

Q128 Do you agree with this policy?

... OR Q129-Q130

Q129 It is not the university's policy to try to support would-be academic entrepreneurs financially. Do you agree with this policy?

Q130 Why/why not?

Q131 How does the university treat the income which academics make personally from spin-off companies?

- 1 correct answer
- 2 partially correct answer (*give full details*)
- 3 incorrect answer (*give correct answer*)
- 4 don't know (*give full details*)

The university:

- (a) has no policy
- (b) treats it like consultancy and therefore takes nothing
- (c) treats it like consultancy and therefore takes _____ %
- (d) takes _____ % via a special provision

Q132 What do you think about that?

Q133 Have any members of your faculty/dept become involved with spin-off companies?

Roughly how many? Who?

Q134 Do you think academic spin-off companies are/could be be a useful source of industrial placements for students?

Q135 Do you think that entrepreneurial activities have any impact on an academic's promotion prospects in this university/faculty/ department?

Q136 In what way?

That is the end of the Questionnaire. Is there anything I did not ask you about which you would like to add?

QUESTIONNAIRE D

Respondent Group: Academic Entrepreneurs

- Q1 Name
- Q2 Academic department
- Q3 Faculty/School
- Q4 University
- Q5 Current status/last academic status
- Q6 Salient points of career history since graduation
- Q7 It may be difficult to locate yourself on a spectrum, because it may be a dynamic, not a static situation, but if we imagine a spectrum with blue-sky research at one end and highly applied research at the other, where would you locate your research interests on that spectrum?
- Q8 Tell me a bit about your idea for business start-up (*note whether this involved "hard" or "soft" IP or a combination of the two*)
- Q9 How did you get this business idea?
- Q10 Did you intend this initially to be a "soft", R&D-based business or a "hard", "widget-producing" business or a combination of the two? (*Explain the difference, if necessary*)
- Q11 What kind of business was it projected to become in the long-term?
- Q12 Which year did you start the business? (*Distinguish between informal and formal start dates if necessary*)
- Q13 May I ask how old you were then?
- Q14 Could you tell me a bit about your family background? Is there a history of people starting or running small businesses in your family, or being self-employed?
- Q15 Have you yourself had any prior business experience? (*Reflect back on the salient points of their career history to date and check whether any of this was relevant to business start-up*)

Q16 Prior to starting your first business, did you know any other academics who had started up a company, either at your university or any other?

(Note whether answer fits category 1, 2 or 3)

- 1 yes, at my university
- 2 yes, at another/other universities
- 3 no

Q17 *If answer fitted category 1 or 2 ...*

Who? Did you go and talk to them? Was it helpful?

Q18 Prior to starting your (first) business, did you know what the University's policy was on academics starting up spin-off companies? *(Probe for extent of knowledge)*

Q19 Did you talk to any representative(s) of the University about starting up a business?

(Note whether answer fits category 1 or 2)

- 1 yes
- 2 no

Q20 *If answer fitted category 1 ...*

Who?

Q21 What were your objectives in talking to this/these representative(s) of the university?

Q22 What kind of response did you expect from talking to this/these representative(s) of the university?

Q23 What kind of response did you actually get?

Q24 Did the University play any role in helping you to set up the company?

(Note whether answer fits category 1 or 2)

- 1 yes
- 2 no

Q25 If answer fitted category 1 ...

What kind of role? eg. help with:

- 1 equipment
- 2 instrumentation
- 3 accommodation (existing or extra?)
- 4 support staff (technical)
- 5 professional advice (in-house)
- 6 professional advice (referral to external sources)
- 7 support staff (secretarial)
- 8 communications (phones, telex, fax, postage etc)
- 9 £££
- 10 patent (who wrote it?)
- 11 permission to exploit the IP
- 12 miscellaneous (xerox, stationery etc)
- 13 infra-structure (company registration, tax, VAT, admin, publicity etc)

If answer fitted category 2, check whether the respondent nonetheless was assisted in any of these ways.

Q26 If any of items 1-13 were provided ...

Did you have to pay for any of this?

(Note whether answer fits category 1, 2 or 3)

- 1 yes (which?)
- 2 some of it (which?)
- 3 no

Q27 If answer fitted categories 1 or 2 ...

Was this at the full commercial rate or at a preferential rate?

Q28 If item 9, Q25 was provided by university ...

In what form did the University contribute £££? eg:

- 1 loan from university funds
- 2 guaranteed bank loan
- 3 seedcorn grant
- 4 development grant
- 5 introduction to venture capitalists
- 6 solicits £££ from other funds through recommendation
- 7 it bought equity (how much, what %?)
- 8 other (specify)

Q29 Did you actually want the University to play a role in helping you to set up the company?

Q30 Why/why not?

Q31 Were you satisfied with the role the University played in helping you to set up the company?

(Note whether answer fits category 1, 2 or 3)

- 1 yes
- 2 yes and no
- 3 no

Q32 *If answer fitted categories 2 or 3 ...*

In what way were you dissatisfied?
What would you have preferred to see happen?

Q33 *If respondent answered yes to item 11, Q25 ...*

Did you have to negotiate a license for use of the IP?

If so, was it in any way preferential because you were a member of the academic staff?

If so, note whether it was eg:

- 1 *exclusive license*
- 2 *sole license*
- 3 *royalty-free license*
- 4 *low percentage royalty-bearing license*
- 5 *low up-front payment*
- 6 *no up-front payment*
- 7 *other (specify)*

Q34 *If appropriate ...*

Did you get any help in negotiating the license deal?

(Note whether answer fits category 1 or 2)

- 1 yes
- 2 no

Q35 *If answer fitted category 1 ...*

Who from? Were you satisfied with their help?

Q36 *If answer fitted category 2 ...*

How did you find negotiating the terms of the license?

Q37 What else, if anything, were you obligated to return to the University in the way of £££?

Q38 Did you try to set up the company alone or with partner(s)?

(Note whether answer fits categories 1, 2, 3 or 4 and note how many partners)

- 1 alone
- 2 with academic partner(s)
- 3 with non-academic partner(s)
- 4 with both academic and non-academic partner(s)

Q39 *If answer fitted categories 2, 3 or 4 ...*

How did you find your partner(s)?

Q40 What was your role in the company (*note title, status*)

If appropriate ...

What was the role of your partner(s)?

Q41 How much time did you devote to setting up the company?
(*try to get an average figure per week/month/for the year*)

Over how long a period until it was up and running on a reasonably stable basis?

Q42 Did you ever ask any favours *vis-a-vis* your normal academic commitments?

(Note whether answer fits category 1 or 2)

- 1 yes
- 2 no

Q43 *If answer fitted category 1 ...*

What? *eg:*

- 1 *reduced teaching load*
- 2 *additional research staff to complete research project*
- 3 *reduced administrative load*
- 4 *reduced committee work*
- 5 *temporary part-time employment (with/without pay?)*
- 6 *leave of absence (for how long?)*
- 7 *sabbatical*
- 8 *other (specify)*

Q44 Was your request granted?

Q45 How did your colleagues react to your business activities?

Q46 What about your Head of Dept/Dean?

Q47 *If appropriate ...*

How did you feel about that?

Q48 Being as honest as you can, looking back, would you say that your efforts to start up a business ever impinged negatively on your normal academic commitments?

If so, note how - eg:

- 1 *teaching commitments*
- 2 *research commitments*
- 3 *administrative commitments*
- 4 *committee work*
- 5 *supervision of graduate students*
- 6 *publication rate*
- 7 *refereeing colleagues' articles*
- 8 *public service activities as university representative*

Q49 Did anyone ever suggest that your company was impinging negatively on your work? *(If so, note who and in what manner)*

Q50 Looking back, would you say that your efforts to start up a business ever impinged positively on your normal academic commitments?

(Note whether answer fits category 1 or 2)

- 1 yes
- 2 no

Q51 *If answer fitted category 1 ...*

Which? *eg:*

- 1 *teaching commitments*
- 2 *research commitments*
- 3 *administrative commitments*
- 4 *committee work*
- 5 *supervision of graduate students*
- 6 *publication rate*
- 7 *refereeing colleagues' articles*
- 8 *public service activities as university representative*
- 9 *other (specify)*

In what way?

Q52 Did you ever worry that setting up a business would not be regarded positively when it came to promotion?

Q53 Did you check out what the University promotion criteria were, in relation activities like business start-up?

Q54 At the beginning did you ever contemplate leaving the University and running the business as a full-time activity or perhaps going part-time?

Q55 Did leaving the University occur to you later on?

(Note whether answer fits category 1, 2 or 3)

- 1 no, never
- 2 yes, but I rejected it
- 3 yes, and I acted upon it

Q56 *If answer fitted categories 2 or 3 ...*

When was that?

Why/why not?

Q57 Was this a difficult choice?

Q58 Did anyone else in the University ever suggest that you should leave and run the business on a full-time basis?

(Note whether answer fits category 1, 2 or 3)

- 1 yes
- 2 yes, sort of
- 3 no

Q59 *If answer fitted categories 1 or 2 ...*

Who?

Q60 *Either ...*

Do you think your company suffers/suffered as a result of you trying to juggle two roles at once?

(Note whether answer fits category 1 or 2)

- 1 yes
- 2 no

Q61 *If answer fits category 1 ...*

In what way?

Q62 *Or ...*

How did going full-time/part-time affect your business after you were no longer trying to juggle roles at once?

Q63 Do you regret your decision?

Why/why not?

Q64 Looking back, what would you say was the hardest aspect of trying to start up a business as an academic?

Q65 *If appropriate ...*

Have you been deterred by your experience, or would you consider starting another business, learning from your experience?

Q66 What advice would you give to an academic who told you he/she wanted to set up a business

Q67 Would your advice apply whichever university that academic came from, or is it specific to your experience in your own university?

Q68 Would your advice depend on whether or not the academic wanted to set up a "soft" or a "hard" company?

That is the end of the Questionnaire. Is there anything I did not ask you about which you would like to add?

APPENDIX C

A P P E N D I X C

List of Contents

- 1 Transcript of one interview, resulting from the administration of Questionnaire C
(Respondent Group: Head of Department and/or Dean)
- 2 Transcript of one interview, resulting from the administration of Questionnaire D
(Respondent Group: Academic Entrepreneurs)

Respondent Group: Head of Department and/or Dean

Respondent No: 4

Date of Interview: 26/11/90

I I would like you to cast your mind back to 1985. [Q1] In May 1985 Sir John Kingman wrote to the University on behalf of the Research Councils, offering it the opportunity to exploit for itself any discoveries arising out of Research Council-funded projects. When - and how - did you learn that this offer had been made?

R Well, I remember it being announced in the press, the decision, first. And then I'm sure I received a letter from the V/C, or Registrar about it. I can't remember exactly, but I'm sure I did.

I [Q2] And how did you feel about the idea, personally?

R Well, it could only be a good idea because it obviously gave us more freedom.

I In what way?

R Well, to exploit discoveries or inventions. We were no longer, in the case of SERC-supported work, of course, in the situation where we were obliged to work with the BTG, as it is nowadays.

I Had that been a problem? Does that play a part in why you thought it was a good idea?

R Well, I wonder what you mean by it being a problem? At that time, and probably still today, you could find academic staff who were pleased with the services provided by the BTG and its predecessor and you could also find academic staff who complained about it, depending on their individual experience.

I And is that the case here, too?

R Oh, I would say that was the case in 1985 and the case now. I myself just in my own area of research in the early 1980s, I had had excellent help from the forerunner of the BTG, in exploiting a research project I was engaged on. So, it depends really whether ... I mean, you are asking me these questions as HoD ... In a way, I am answering them as an individual, which isn't the answer you want.

I It is hard sometimes to disentangle ...

R You can't separate them, yes. But the point is that however good or bad the BTG were, the fact that they were now going to have to compete, I mean, it can only be a good thing. So, I mean, how that would actually ... it created the opportunity, I suppose. So there you are, it is just a generalised feeling ... I mean, at that time, our Department here was still very small. I can't think how many students and staff we had then, but I suppose we probably had about 100 students and a few teaching staff. I can't remember. And I don't think at that time we had had any major problem with the BTG. We had, in fact, had one very satisfactory exploitation.

I *So, really, you were pleased because it opened up competition.*

R *Well, yes, to not to have to go to the BTG if there is some other avenue.*

I *[Q3] Do you think that the Research Councils' offer was widely known about in the University at the time?*

R *Oh, I think so, yes.*

I *[Q4] What do you think most people felt about the offer?*

R *Well, they would have thought it was a good thing. It was just removing some restriction on us.*

I *[Q5] So, from what you have said, would I be right in thinking you thought the University should have responded as it did and accepted the offer?*

R *Yes. Yes, there was no reason not to, was there?*

I *[Q7] Who do you think should ...*

R *In fact, just a minute, I think that over many years representatives of universities have not been pleased. I myself haven't personally engaged in any national campaign ...*

I *When you say "representatives", do you mean at the academic level (Yes) or the administrative level?*

R *No. Well, I don't know what the administrators do. At the academic level. Occasionally one would have ... this is going back to the 1970s and early 1980s ... but one would occasionally have meetings with engineering professors' conference, for example, or some organisation like that, where people would say - you know, why is it that we've got to do this? Can't we persuade the Government to ...*

I *Do you think the change was in keeping with the feeling of the majority of those people, then?*

R *Oh, yes. I'm sure it was. Yes, I'm sure it was.*

I *[Q7] Who do you think should have been involved in the University in the decision to say - yes, we accept or no, we don't accept the offer?*

R *Well, I don't know. I suppose HoDs might have been asked if they had any reason not to support acceptance. I'm not sure whether that happened.*

I *[Q8] In fact, members of the [X] committee ... do you remember that? (Yes) At that time it was two lay members, a Professor from [a social sciences] Department and the Finance Officer. (Yes, that's right) And I gather that people ... I gather that you and the HoD of [another science] Department were asked to comment.*

R *Yes, we probably were. We were intermittently members of that committee. It was long time ago. Yes.*

I Were you happy with that decision-making process?

R Yes, of course. Of course.

I [Q9] What do you think was the University's motivation in taking over responsibility from the BTG?

R I thought you would begin to ask me questions about what the University thinks about this! The University doesn't have a mind of its own, because the University is you and me and [the Finance Officer] and the academics. So, when you say - what was the University's [motivation], I can't really answer that sort of question. All I can ... I can only answer for myself or for other people that I work with, which is what I have done in the last few minutes.

I I'd like to ask you a few questions now about the University's policy on identifying IP ... but first ... [Q10] Do you think the particular spread of disciplines in a university - and I'm restricting the question here to science and technology disciplines - do you think that has an influence on the amount of exploitable IP which might be identified?

R That's a very generalised question. I suppose, yes. I'm wondering what is behind the question. I mean, what is the assumption behind the question.

I There isn't any assumption.

R No assumption at all?

I No assumption. What is behind the question is the fact that ... some evaluation of how universities are, in fact, handling this [will be made]. Now, obviously, we are not talking about a level playing field here. Universities are all different, by virtue of subject areas they have, even within science and technology. They are different by virtue of personalities etc. One of the questions which seems not to have been resolved yet, as far as anyone can tell, is whether there is a relationship between subject areas, disciplines, and the amount of IP [which they generate]. I wondered whether you had any thoughts on that.

R Well, I think it depends on the character of the individual departments. It's people it comes down to. [Q11] But presumably, an engineering department would be very likely to practice efforts towards discoveries or inventions that would have industrial significance, perhaps in the long run or the short run, just because that's what engineering is. Engineering is the solution of problems by the application of science. Whether it is a department which calls itself a science department, say a chemistry or physics department, they may be inhabited mainly by academics who share our wish to solve the problems of the world. Or, they may be inhabited by academics who wish to study how the universe ticks. So, I don't see how you can say that because a university has or has not got a department of physics or chemistry, they are therefore defective in some sort of way. But an engineering department ... you would expect them mainly to address human and industrial problems.

I It was put to me, when I was researching the history of what has happened in this University so far vis-a-vis IP, that the arrival of you, yourself, setting up this Department - and the transformation of [a neighbouring] Department, marked a watershed (Yes) in the University's relationships (Yes) with the real world (Yes), in the way that you have just described it. Do you attribute that to your own personality more than to your subject, your discipline?

R Oh, I attribute it to the discipline. I came here to set up an engineering department. I made that plain when I was offered the post and that's what I did. And so, the Department has always had different objectives from the existing Departments. It is an out and out engineering Department. [Q89] I should also point out, although you are going to study this in more detail later, but I should point out that I set up the [department's commercial arm] as soon as I could. We'll come to that. And your point that you touched on earlier about this University being unusual in having a centre in a Department and not being ?? with it, I mean, the reason for this is that the setting up of the centre in the Department preceded by many years the events that you are studying.

*I What is interesting is that there hasn't been a "putsch" from the [administration]
...*

R Quite the reverse!

I ... In many universities they might see it as a "ripe plum" and say - that is ours for the plucking.

R Quite the reverse. I mean, you yourself said to me, very generously, a moment ago that you had been told that the setting up of this Department had had this effect in the University. And I'm glad to hear that, because that is what I came here to do.

I So, the answer to my question is: it is a mixture of personality and disciplines, then?

R Yes. Well, I suppose you have to take notice of the objectives of the founding person, yes. In that sense it is personal. But I think I did what any engineer would have done.

I Okay, let's think about your Department here. [Q12] Do you think that the research bias in this Department is liable to generate more or less exploitable IP than other Departments of the same name in other universities?

R ... [Q13] Well, I can't see why it should generate more or less. I think our overall objectives would be similar to any [such] Department. I mean, without going over the same ground again, the central objective of engineering is not the same as the central objective of science, and is to, if possible, generate ideas or results that are useful to industry.

I So you would regard it as fairly typical within that general objective, would you?

R Yes. Yes. It is typical in the overall terms that you are talking about. When you actually get down to the nuts and bolts, different departments, of course, have got different ... study different subjects and some of those subjects become important in the sense that you are studying and some don't, for reasons that may be unpredictable.

I So, you would maintain then, would you, that this Department does not stand out one way or the other?

R Well, I don't see how we could possibly say that. Because, as I say, I mean, there are 30-40 [similar] departments.

I [Q14] How aware do you think staff in this Department are about the University's wish to identify IP?

R Well, again, I don't think I can answer that. Because if the University had a mind, it could have a wish. And if it had a wish, somehow or other, it would filter down to the workers.

I Well, it has a policy statement now.

R Yes. But ... but the staff are really aware, if we are trying to approach it from their situation ... they are aware of the way the Department itself runs. You know, a new member of staff comes. If you are thinking of academic staff, we have got 24 now. We started with none ... one. And we have doubled in the last three or four years. So, a new member of staff coming soon finds out how the Department operates. That it has got a [departmental commercial arm], that this is one of the means by which research is exploited, including of course commercial aspects. And so I like to think that academic staff, after they have been here a few weeks, will understand the Department's attitude and wishes, if you like. But I don't suppose they have any idea what the wish of the University is. Because ... because the University isn't a community of the same size as the Department. The University, I think, is seen by many staff as being ... we've really got two things apart from our own Department. It has got other, similar Departments studying other disciplines and it has got the central administration which keeps us going. You know, the buildings, that kind of thing.

I Do you mean, then, that people don't perceive central policy initiatives and such things?

R No. No. A University, surely, is not such a homogeneous organisation as is implied by your last question and one or two of your previous ones. It isn't like a corporation, where people know what the corporation is.

I Well, surely that depends on whether universities - and some do view themselves as a corporation - that depends on how well they are communicating their objectives, doesn't it? And that is really what the question is about.

R Well, yes. I think this University has reasonably good communications. It is hard to judge because, of course, the HoD is a key person. He may be doing a bad job when people think he is doing a good job. But I don't think that this University views itself as a corporation.

I Well, according to the policy statement, basically the onus is put on individual members of staff (That's right). If they think they have something that may be exploitable, they should put their hand up and say so. [Q15] Do you think that staff in this Department take a positive or a negative view of being asked to flag IP?

R Oh, well, they would normally take a positive view. It depends what you mean by ... putting their hand up. I know that is a metaphor.

I They are asked to tell their HoD and [the ILO].

R Yes. Yes. Well, some take it ... many of the things are dealt with without the attention of the HoD or [the ILO]. The member of staff may have got an idea how to do something or other and [the director of the centre] exploits it.

I Do you mean that they will go direct to him?

R Absolutely.

I Okay. That is going to raise some interesting issues.

R Well, we'll come to those later on.

I I'm not sure how relevant this is to your subject area. I know that the electronics industry doesn't rely on patents to the same degree that, say, the pharmaceutical industry does (No, probably not). The question is: [Q16] Do you think that staff here have a good understanding of why we have a patent system and roughly how it works?

R The best answer I think I could give to that is that some would and some might not. I'm not sure, really. It isn't something that I've quizzed them on.

I Obviously, it's your gut-feeling I am looking for here. I am not expecting you to quantify it.

R Yes. Well, I should think so ... Yes, I should think so ... Yes, I think so. But frequently ... well, go on, I'll see how the questions develop.

I Well, the next question is: [Q18] Do you think that [the IL] office should take a proactive or a reactive approach to identifying IP?

R Well, I can't answer that. I mean, at the moment I can't think how they could take a proactive role. So, it is hard for me to approach that ... How could they take a proactive role? They are sitting in their office and we are sitting in ours and the people are working in the labs and ...

I Well, presumably [IL office staff] could come and talk to people about their work, couldn't they?

R Yes. I think the presence of [the centre] within the Department has a far larger affect on this line of questioning than [the ILO].

I Do you mean that if he is going to go and talk to anybody, he should go and talk to directly to [the director of the centre]?

R No. Well, what I am saying is that the presence of the centre creates awareness of the opportunity of exploiting results and also makes it easier to exploit their knowledge.

I Is it part of [the director's] remit to actually look for this kind of thing? Is he supposed to hunt it out or is he supposed to deal with it if it comes up?

R Hmm. That is interesting. There are two aspects to his work, really, as I'll explain. One is reacting to problems that are put in front of us by industrial firms who need problems solved and in that case, of course, [the director], knowing the expertise within the Department - and that is a crucial part of his job - goes to see the people concerned to see if they've got an idea or, if they slept on it, would they have an idea how this problem could be solved? And that is ... from the beginning that has been quite a large part of the work. On the other hand, sometimes staff, from their knowledge of whatever part of the discipline or the industry their work relates to, they may think that they could exploit their knowledge and then they would see [him] and make sure that he realises that there is this expertise - and then again, he would, through our contacts with industry, begin to look for a way of using it. I mean, one thing which ... I don't know if you are going to ask about this, but one very important way in which the expertise is disseminated to industry is by running short, intensive courses. I don't know if you are going to ask about that, but that broadly speaking is the same story. The people in industry sometimes say - we need a course on so and so, and very often we think - well, we've got expertise in certain subjects. We'll put on certain courses. So, it comes from both sides.

I So, in a sense, when I am asking whether [the IL] office should be proactive or reactive, are you saying that ...

R ... Well, I can't quite ... I don't know what you mean. I mean, I don't think that however much they ... I don't see how they can have much effect inside our Department because the centre is so much bigger than they are and they are looking after the whole University. And they have only been going for a very small number of years. The [departmental commercial arm] ... it is the old story, it is older, bigger, better established and therefore within our own Department, it obviously is the thing that everyone is aware of.

I There are various mechanisms by which an [IL] office could be proactive, and I don't really want to go into those at the moment. [Q22] But over and above that, what some universities do, particularly those in the States, is that they have what I call "fail-safe" mechanisms in case people don't put their hand up if they have got something exploitable and in case, [irrespective of] whatever mechanisms they are using, something escapes their notice. One of those fail-safe mechanisms is to get somebody to scrutinise research reports at the interim or final report stage, to see whether something has been missed. Do you think that is a good idea?

R Well, we have to consider two cases. The research project may be sponsored research paid for ?? established with an industrial firm, in which case that body expects to exploit that research and that expectation will exist from the beginning, depending on the terms of the contract. On the other hand, if it is an SERC grant, which is what you are concerned with, which of course is only part of research funding ... we get very large projects from other [sources], then the SERC of course expects most research to be published. But ... sometimes it may be wise not to do that or to delay publication. [Q54] But whether that should be done is normally decided by the academics directly involved. That's by the group leader, or if it is something very important, by the HoD or with external advice. I can't see that ... [Q23] if you are suggesting or if you are asking if there is some gap in our management here, that we don't give a second thought to this, then that is ...

I ... No! The rationale underlying the question is that a lot of fairly large research-oriented American universities have started to have a central office, staffed by people in the relevant disciplines, who do this. They comb through reports and things to see. Now, nobody knows what the cost benefit analysis is, but we do know that they have discovered some overlooked "winners". It is basically to ask whether that kind of thing ...

R ... So, in other words, they would look at the manuscripts of a paper that was proposed for publication before it was submitted for publication ...

K Well, that is interesting! I had restricted my question initially to research reports, but my very next question was to extend it to papers.

R Well, what is a research report? I mean, to me that word means a report to a body sponsoring research (That's right). Well, in that case, we have already agreed that the way in which the work is going to be exploited is generally agreed at the beginning.

K Well, except for Research Council-funded projects. On all SERC proposal forms there is a box which the applicant is supposed to tick ...

R ... Oh, but that is not sponsorship! Sponsorship is ..

I ... Let's restrict the question to Research Council-funded research, okay?

R Ah, yes. Yes.

I There is a little box on the proposal form which asks whether this is liable to have commercial potential and I don't know what people in this Department do, but most people seem to ignore it or put a cross by it.

R Yes, but the report ... reports, to me, are not published. They are just reports to the committee. They are not published in journals.

I You have actually flagged, in a way, my very next question, which is to widen this a bit and say - you don't generally stop there. That is usually the first stage, whereupon you think - where else can you disseminate it? So, the next question is - and again this is a fail-safe mechanism which some universities employ. [Q25] It is not University policy here to ask academics to submit drafts of papers for scrutiny before submitting them to journals, in the interests of identifying IP.

Do you think that could be a useful exercise? Again, I am not presuming at the moment who should do this.

R If we were to do it, [Q23] it would have to be in the Department, I am sure, because it comes back to one of my throwaway statements at the beginning. That the central administration in the University of the kind we are speaking about here ... they don't have enough knowledge of every discipline, let alone every sub-branch of every discipline. [Q26] Now, at the moment, we don't have within the Department any rule that says - thou shalt not submit a paper for publication without it being read by two senior staff. But, there is, I am sure, a strong informal attitude here that if a research group thinks that something that they are doing, paid for by the SERC, not by BT or something, if they think that that should have its publication delayed, then they would, certainly. Particularly if they had seen that themselves, because they would know the importance of their ... of an idea. Nobody knows more than the person concerned who has seen the problem and has got a solution to it. And if it was a significant matter they would, as I say, speak to the HoD. Very often, I think, one would decide which industry or even perhaps which firm, if it was a very big corporation, might be able to exploit it and one would open negotiations with them before publishing it.

I You raise a very interesting point there. You said - there isn't any rule that says you have to ask permission before you publish in the case of SERC projects. Does that mean that if you have a Research Assistant working on the project that they can decide off their own bat to publish something without reference necessarily to, say, the principal investigator or the research group leader?

R No. No, they can't do that. Not a Research Assistant can't do that, because he or she is employed to assist the academic ... you know, in a junior role.

I And yet for their career to progress there is a strong pressure on them to publish, isn't there, and to get out of that trap and into a Lectureship?

R Oh, yes. Well, I am not sure the trap is so significant in our subject area. That is another thing to talk about because there are plenty of posts in our subject. Well, on this point, I mean, the normal practice is for the Research Assistant and his supervisor both to contribute or to have contributed to the work in question and to be joint authors of the paper. It would be ... I would say it was unusual for Research Assistants to publish a paper by himself or herself ... No, no. I don't think there is any problem about Research Assistants, how shall we say, accidentally publishing things that ... where the publication ... I don't think so.

I I've actually got some more questions later about publication, so perhaps we could come back to that?

R Go on, then.

I I'd like to ask a few questions now about incentives. [Q27] It is the University's policy to provide a number of positive incentives to encourage members of staff to flag research discoveries which might have commercial application. Can you tell me what they are?

R Well, the ones that were ... if what you are talking about is what I think you are talking about, I should know because I proposed them in the first place, when I came here and found there weren't any. In the case of BTG things, what happens is that ... when I originally created it ... the first £1,000 or so of the royalties went to the member of staff and the next several £000 were divided between the member of staff and the Department and then the really big sums were divided between the individual Department and the University. I proposed that.

I Did you? When would that have been, roughly?

R Oh, well, it would have been in the early 1980s.

I And there was nothing before that?

R There was nothing here, no.

I Had the situation never arisen before, then?

R Well, there was nothing when I came here.

I That is interesting. And did the University adopt what you proposed?

R Yes, it was adopted. And in the last couple of years, the sums of £ have been increased because of inflation.

I Okay. That's one incentive, a financial incentive. What about others?

R Well, the main incentive here is that through the [departmental commercial arm] we pay the academic staff as consultants to work on the exploitation of their ideas. And I mean, that is a much more important incentive.

I That is a very local one, as opposed to a University-wide one, of course. What I have been told is that the University ... What some people see as other incentives is that the University facilitates people getting involved in the exploitation process by providing access to resources, by treating any consultancy income involved as personal income and not taxing it. Equally, if somebody wants to do blue-sky research, by [letting them] offload their discovery, as far as possible ...

R ... Now, just a minute, before you go on. When you say the University does this, the University ... somebody may write something on a piece of paper. But if anything is done, then it is done within Departments. And if this is the right moment to make this point: the policy here in this Department is that, of course staff are free to pursue private consultancy not using the Department's facilities. Of course they are, as long as it doesn't interfere with their duties. But most of the consultancy that is done, and that is in the broadest sense of having a good idea and exploiting it ... most of the consultancy is done through the [departmental commercial arm]. And my policy was that if a problem from industry comes to an individual member of staff through me or through [the director] - because people know about the Department, then if he is going to ... if the man is going to work on this, he is obliged to do it through the [departmental commercial arm].

I Is this part of the Department's rules?

R That is my rule.

I I have a series of questions about consultancy later. Perhaps we could pursue that there?

R Right.

I Can we come back to incentives for now? One of the things that is interesting is that this University does not explicitly state in its promotions criteria anything at all to do with patents or exploitation of any kind. That does not ...

R .. Well, what promotions criteria are we talking about? If you are talking about ... If you are talking about the very brief criteria stated in ??, it just says teaching and research or something like that. But if you look at the documents that are sent out once a year inviting people to apply for promotion, it gives a whole list of things. You know, it is very helpful. It gives a whole list of things that they might like to ... you know, a checklist that they might like to use in preparing their application to be a Senior Lecturer. And if you look at that list ...

I Ah, I haven't seen that list.

R Well, you should go and ask the Registrar. It comes round in November but I am not HoD now. And it has all the things that I can easily think of. You know, like being external examiner. But it does mention consultancies.

I What about patents?

R Well, it mentions that, as well. It has a separate section specifically about research and it does mention publications, patents ... Yes, it does. It is mentioned.

I I'm glad you mentioned that because the only document I have seen so far is ...

R ... You've only got the very brief one?

I I've only got the very brief one.

R Ah, no, no. Ask the Registrar for the full one. And this, of course, is the other extreme from being confidential, because it is sent to every Lecturer every year in November.

I Okay. [Q28] Do you think ... you say you were responsible for getting the financial incentive put in place. Do you think that kind of incentive, or, indeed, any of those kinds of incentives, work, either at the level of the individual staff member or the HoD?

R Oh, yes. Well, the scheme that I proposed was that upto so many £000, the Department could have upto a third of it and for laying out something, the University could have upto a third of it. Now, well ... There's two different things, really. If you are asking about incentives, you are asking really about motivation of individuals and motivation of Departments. Now, bearing in mind that it is easier for individuals to have motivation than it is for organisations, I am sure that it is an incentive for the individual. As far as the Department is concerned, the £ that you are thinking of, our share of the exploitation [£], that is the wealth of the [departmental commercial arm] and the [departmental commercial arm] is part of the Department.

I So, are you saying that, yes, it is an effective incentive?

R Yes. Yes. Oh, yes, of course it is. I mean, the problem is, of course, to maintain a balance for individual academic staff between teaching and research and consultancy in the broad sense that we've just been talking [about] - and also short courses, which we may talk about. Because the University, of course, has got to teach its students, it has got to do research that is published, partly because ... well, perhaps we'll come onto this later, our part in the national scene and so on. But it is also, as it is an engineering Department, it has got to solve industrial problems if it has got know-how. But the difficulty is that there is only a certain number of hours in the year and if you motivate staff very strongly to do one of these things, then the others will suffer.

I You say that the wealth of the Department is the [departmental commercial arm]
...

R ... Well, no, the wealth of its exploitation of ...

I Okay. Can you mentally compartmentalise what you might have got from "hard" IP, ie. "widgets" ... separate that out from running courses and things like that. [Q31] Has the Department ever received much £ from IP which it has generated?

R Well, I find it hard to answer that straight off because I am not sure what you mean. You refer again to "widgets" ...

K ... I am talking about the forms of IP which would be protected by copyright, patents, registered designs or secret ...

R ... Yes, but that is ... that is ... sometimes that is only the practical manifestation of the intellectual idea. The idea could have been written on a piece of paper or given to somebody or ...

I Of course. Let's just deal with the practical manifestations.

R Okay. Well, I mean, our income from making things just through the [departmental commercial arm] is a very large amount of £.

I I'd like you to single out ...

R ... I mean making things that involve our specialties and our knowledge, solving problems that involve our special knowledge, yes?

K That sounds, in part at least, more like a service activity.

R Well, no it isn't. No ... Well, it is a whole spectrum. I wonder whether this is the point where I should mention an example, just so that we can sort out something specific. We are one of the leading universities in a field called electro-magnetic compatibility, which is about preventing electronic systems interfering with each other. The air is full of electro-magnetic ... (tape ends here) ... ten years. And we now have a large research group. We have large SERC grants, large contracts from industry, hundreds of thousands of pounds per contract in some cases. And it is now a very important problem for industry because, owing to the EC directive on this subject, by January 1992, putting it very crudely, it will no longer be possible to sell electronic equipment anywhere in Europe that generates more than a certain amount of interference or which is affected by interference. So, all the manufacturers of electronic equipment in Europe, including the UK, of course, are having to find out how to prevent this. Now, how do they do that? Well, they come to places like our Department to find out how to do it. We have run many short courses on this, three-day intensive courses, mainly on industrial premises all round the UK, as well as here. But also, what happens is that the latest results of our research, sometimes financed by the SERC, the latest results that one of our chaps has discovered about the best way to design an electronic circuit so that it won't radiate waves, the best way to design a piece of equipment so that electronic waves can't get into it, the latest results of this research - with computer modelling, I expect, is immediately available and is applied to the problems of industry. They come here and they say - now, we've made this piece of equipment and our people say - ah, yes, but you don't realise that we have discovered so and so, and if you design it in this way, it will be okay.

I Right, okay ... That is a very interesting example. My immediate question is: could you protect that IP in any way, so that when you give you that advice, you are getting more than a consultancy income from it? Could you protect it by patent, by copyright?

R Well, I think perhaps not in the sense that you are thinking of, because it is ... in a way it is basic, applied physics. It is understanding that if you have an electronic current in a thing of a certain shape, that you get a radio wave of a certain character. You say "only consultancy", but from this activity, in consultancy we must earn certainly over £100,000 a year at the moment. And in the short courses I referred to in this subject, we earn ... I'm not sure of the exact figure, but approaching £100,000 a year. So, we are talking very large amounts of £.

I So, are you saying that it is a technique of wiring?

R Yes, but new discoveries are made by ... about how radio waves are generated ... by very sophisticated computer modelling of the physics equations.

I So, it is not something where you are going to say - we have designed this widget, this widget will solve all your problems, plug it in here, end of story. Let us sell you the widget?

R *No, it is not. It is knowledge. It is having the skill and the knowledge.*

I *So, there isn't even a piece of software which could, say, teach companies how to do it for themselves?*

R *We are developing software which we will sell through the centre, which will enable designers of circuits to predict before he makes this thing, before he actually makes it in hard form, whether it will generate too much interference. That is one of our objectives at the moment. That is how the research is now going in that direction, because, of course, the software is very powerful now.*

I *So, then you will have a product that you can sell?*

R *Oh, yes, we could sell that software.*

I *But you are not, at the moment?*

R *Well, one of our research contracts ... I use that word because it is a 3-year research contract, it is not a ... The [departmental commercial arm] really handles projects that are fairly short in time-scale. We have a 3-year research contract ... I think we are just in the third year now, paid for by a consortium of industrial firms, of which the objective is to produce software that will enable designers to design things that will meet the 1992 requirements, instead of just making it, testing it and finding it no good. So, we are doing that. Now, when you say "sell it", well, we ... the firm that paid us a large amount of £, it is paying the salaries of people working on it, in this case, it has actually paid part of the cost of this building, because when we designed this building three years ago, we knew we had got this contract coming. When the contract is finished, we shall still have the building.*

I *So, in that particular case you are not going to own the IP, then. Is that right?*

R *Well, I think it might be shared. I can't remember the precise terms of the contract.*

I *Okay. Let's move on from what the Department has received. I see what you mean. It is a bit difficult to compartmentalise. To come back to the incentives that you proposed. [Q32] As far as you know, have any individual members of staff in this Department ever shared in the revenue from IP which would be subject to that agreement which you proposed?*

R *Well, I'm sure the answer is - yes. But it is hard to break it down into examples because any SERC grants that we have had since 1985, and we have certainly had some in electro-magnetic compatibility and we still have some now, the result of that has given our staff a knowledge that is being applied and is being exploited through the [departmental commercial arm]. And as I said a few minutes ago, when you asked about ... effectively you were asking about the wealth, the £ that comes to the Department, it comes through the centre and so the answer must be - yes, because we have had SERC grants since 1985 and they have generated knowledge and we are selling it through the centre.*

I Right. So, individuals have personally gained, have they? Part of the point of your proposals was that people should personally gain from exploitation of their IP.

R Ah, yes. Well, they have, because the academic staff ... that's not the Research Assistants ... the academic staff in that research group are paid as consultants by the [departmental commercial arm].

I I want to try to distinguish consultancy activities and payments to people directly benefitting from those financial rewards which you proposed. The reason, presumably, that you set up a royalty distribution formula was because you anticipated that there were going to be royalties to distribute. That is the kind of income I am asking about.

R Well, royalties on patents, directly? (Yes) Well, I mean, I proposed it because when I came here, I was amazed to find that it didn't exist.

I Fine. Now, has it been activated, that formula, in the case of members of staff in this Department?

R Not specifically from the formula. I don't think so, because the normal way in which the research is exploited is, as I say, through the centre, and frequently the academic staff are paid as consultants in the process of the exploitation. And that is how they benefit.

I If you were to have a situation where something was ... instead of being handled by ... well, I suppose it could still be handled by the centre. But let's imagine a situation where the University says - okay. We own this IP. Whether you are going to find the people to licence it to, or we are going to, it is licenced to [company P], and there will be a royalty stream coming from that. In that situation, the £ will be divided between the centre, the Department and the individuals who generated the IP. [Q33] Do you think people in this Department would be generally happy to personally keep the revenue from royalties or do you think they would rather it was used for other purposes?

R I guess they'd prefer to keep it.

I But that hasn't happened to any significant extent to date, then?

R Well, no, because, as I say, the normal procedure is that the exploitation is done through the centre. For example, there may be joint patents taken out, as an example, although that is not terribly common. And the staff ... and so the patent is held by the [departmental commercial arm] and the firm and the member of staff gets paid as a consultant, instead of being paid as a royalty. I think that is a fair statement.

I I'd like to get your views on what should be done with IP once it has been identified, but first ... [Q38] The 1977 Patent Act rules on the ownership of employee inventions. In Britain, academics appear to be treated by the law in the same way as any other employees ... Intellectual property belongs to the employer. In many other industrial nations, the law specifically excludes academics. Which do you think is the more appropriate?

R Well, I think it should belong to the institution but the institution should have a well-balanced way of sharing any [proceeds], which is, of course, the formula that you referred to several times.

I [Q39] Indeed, but why do you think it should belong to the institution?

R Well, because the ... I'm assuming that we are talking about a piece of work that a member of staff has done in the Department using his Research Assistants, using the equipment, talking to other people. If he has done it in the garage at home ...

I The law still applies.

R If it is in the same discipline.

I If it is in the same discipline.

R Yes. Well, we don't ??, so I don't really consider that ...

I Ah, there has been a celebrated case, actually, in this University, where two people from different disciplines had an allotment ... You must know this story, surely? I don't know who they were, but they discovered that they could actually generate something from cross-disciplinary collaboration, and assumed that because it was done over their respective cabbage patches, not using University facilities, that it belonged to them. It doesn't, of course, under the law.

R Not if it is in their discipline.

I So, why do you agree with that? That is really what I am asking. Why do you think that is right?

R So, if we take ... I'm sorry, I'm not clear what the contrast is you are trying to draw. The work done in the garage at home and the work done here, they are equivalent.

I They are equivalent.

R Yes, or we are assuming they are equivalent.

I Now, under German law or Scandinavian law, if you are an academic, whether you do it in your garage at home, over your cabbage patch, swimming in the Mediterranean, in your jacuzzi, or at your desk at work or your lab, it belongs to you. Now, I am asking you why you think it is right that it should belong to the institution, as it does in this country?

R (long pause) Well, as I've already indicated, what I believe in and what is actually done is neither one extreme nor the other. The benefit is shared between the institution and the member of staff. You could say that that was the choice when I came to this University. You know, the question was: if there was a patent, would all of the royalties go to the University or would it go to the person. And I proposed there should be a scheme whereby the individual got some. So, the reality is that the benefit is shared. And I would be opposed to the benefit going wholly to either one party or the other.

I I am trying to divorce how you share the benefits, and I take your point on that, from one step before that. You said that you think it is right that it should belong to the University.

R Provided it has a method of rewarding the individual.

I But I still come back to asking why you think it should belong to the institution?

R Well, because the institution has created the environment and it is not just equipment. It is people and the intellectual environment within which the individual was able to make that connection. But also ... I mean, the other point, of course, is that an awful lot of work is done in institutions that for one reason or another cannot be exploited or doesn't make a great amount of £ or whatever, and the one that is successful in financial terms should help support the ten that aren't.

I [Q40] If we are going to commercially exploit IP of one sort or another, we often need to protect it in some way, rather than put it into the public domain. Do you agree with the concept of "protecting" IP where academic research discoveries are concerned?

R Yes, when possible.

I [Q41] Why?

R Well, because then the institution and the individual can benefit not only in a financial sense but also they can pursue their work to further stages and so on. It isn't always possible, of course, because of the people who pay for the research.

I Indeed, and my next question is: [Q42] Do you make any distinction between research funded out of the public purse and research funded by industry?

R [Q43] Well, we don't make the distinction. Industry does.

I Ah. Well, in American universities there has been a big debate about whether people should make private gain out of something which has been funded by the public purse. Is that not a factor for you?

R Well, that is a different question.

I It is what underlies my original question.

R Oh. That's what underlies the question. Okay. I think I have made it clear that I believe that we should attempt to exploit our ideas because that is our contribution, as engineers, to the country. That is what we are here for ...

I ... Ah, I am asking the question on a wider basis than your discipline.

R The financial benefit, if there is any, should come both to the institution, the department and to the individual. Right. Now then, so ... obviously therefore I do believe that people should share in the benefit. It is a useful incentive, of course, and ... of course, yes, it is a useful incentive. In the case of work supported by industry, there are different problems. Yes.

I [Q44] As employers, universities are under no obligation to file a patent application. They can protect their IP by treating it as secret know-how. What do you feel about treating academic research discoveries as secret know-how?

R Well, I don't have any strong feelings about it. We do that, sometimes, particularly with industrially-sponsored research. Sometimes they don't actually want to take out patents. They just want to ... especially in electronics.

I Okay, let's think about those which have been funded by the Research Councils or charities. Would you agree with that in those cases, too?

R [Q45] Well, I can assure you here this afternoon that, in some cases, it is sensible to delay publication. But if, by marketing secret know-how, if you are assuming by that that you mean delaying publication indefinitely, then we wouldn't. We wouldn't normally ...

I Well, one of my questions is: [Q50] what is the maximum delay which the University will allow in the interests of filing a patent application, marketing something as secret know-how or whatever?

R Well, I don't think there is a rigid limit, but it is in the area of a year or so.

I You are right. There isn't a formal limit. In fact, I've been told that there is a feeling that six months ought to be the limit.

R Yes, well, there isn't a University ... I mean, again, not only does the University not have a rigid rule, but the Department doesn't have a rigid rule, either.

I But a year is what you would aspire to, is it?

R Well, if ... delaying publication of something by a year, I mean I wouldn't think that that was a sort of serious breach of our duty to publish our knowledge.

I [Q46] If we have to protect IP, which do you think is preferable where academic inventions are concerned: patenting or secret know-how?

R Well, you say - if there is a choice - as though we could just sit in here and adjudicate and decide. Normally the industrial firm that it is interested in exploiting research has a strong view on this and it has its way of doing it. It has its own competitive situation in its own industry ...

I I was thinking more about protecting discoveries which are not committed to industrial partners, like those [coming out of] Research Councils or charities or the EC. Let's think of situations where you have a choice.

R Well, if there are no other strings attached that I can think of at the moment, then the patent is better because [Q47] when you know exactly what it is that is protected and, of course, it is published so that other potential users can come and knock on your door.

I Right. Now, [Q48] Patents may disclose details of experiments, but reproduction of experiments other than for verification counts as infringement ... they cannot legally be reproduced even for background research with no commercial purpose. Do you think this can have an affect on the advance of science? As you say, [a patent] is a publication, but it is telling you how you can't do it.

R Well, you can do it under licence.

I Yes, that is true.

R Well, what do you mean by the advance of science? If you mean another university ... then they would often, I suppose ... I can't think of any examples ... Presumably they would be given a licence at a nominal charge. I suppose. I don't know. I haven't actually done this. On the other hand, if by the advance of science you mean the advance of BT or some firm, then of course, the whole thing would be on a formal basis.

I I was thinking about the discipline itself, not the firms who apply that discipline. Let's use cold fusion as an example. Let's imagine it had worked and Utah had patented the technique. That would mean that nobody else could do it without getting a licence.

R Yes, yes. Yes. My mind went off in other directions there. I used to work with Martin Fleischman, so you have touched on ...

I ... Did you?

R Well, I don't know. I can see how it prevents the advance of science, but perhaps I'm not thinking about it clearly enough.

I Possibly it doesn't.

R Normally, if we are going to patent something or if we are going to delay publication, normally we have a particular application in mind. We very often have a particular firm or industry in mind and you know, we would open negotiations with them at an early stage and of course, there are many privileged disclosures to ... how shall I describe it? ... to reputable firms and organisations. And so, you know, by the time the patent is formally granted, very often the application is already rolling.

I [Q53] In this University, who has the right of final decision about whether IP will be protected prior to/instead of being published?

R Well, I think the answer would be the ... ultimately the answer would be the individual member of staff. But his research group and HoD would certainly be involved in the decision. If you are inviting me to say that as HoD I had the power to tell a member of staff that he had to do one thing or the other, I think I would just draw back from that. Because certainly I never felt that I needed that power or used that power.

I That is absolutely the University's policy. [Q54] Do you agree with that?

R *That ultimately, it is the individual member of staff? Yes, but he has ... to say that he has got to listen to us is to put it mildly. I mean, he can't ... he can't ... because he has used the Department's resources. So, it would cause a considerable row if a member of staff took a decision about big projects without consulting or something.*

I *But if, at the end of the day, that person felt ... said - I think this is going to affect my career, if we delay on this by two or three years or whatever ...*

R *... Delay patenting or delay publishing?*

I *Delay publishing for whatever reason.*

R *Well ... [Q51] if you want to look at it from that angle, that's another reason why we wouldn't normally delay publication by more than, say, a year. [Q52] Because the member of staff wants his work to be known in the research community. Balanced against that is the fact that he is likely to have a royalty or some other ... or perhaps more generally credit for the invention and he would like to be able to keep ahead of his competitors by working on its [development]. So, surely, our scheme in relation to delaying publication is just as much in the interests of the academic as it is in the interests of the Department. It is a sensible balance of the situation.*

I *[Q56] In North America and Japan, academics do not have to delay publication in order to file a patent application. Their patent law incorporates a grace period ranging from 6-24 months. Do you think European patent law should introduce a grace period?*

R *Well, I don't have any strong feelings about it. But perhaps I haven't had experience of some very important invention where this six months to a year was critical.*

I *[Q57] Do you think that academics might be more positive about patenting research discoveries if a grace period were introduced?*

R *Well, some might, but ... but it depends how ... whether they have had an opportunity to consider all the aspects we've been talking about in the last few minutes. I don't know. I mean, I don't think myself that it is an important issue that we should be campaigning on, but ...*

I *[Q64] We come now to the logistics of patenting. Today, a patent application can sometimes require a disclosure which is well over 100 pages long - and in extreme cases, over 1000 pages long. That is liable to be very time-consuming, especially since the University does not have a patent budget and therefore you cannot count on having a patent agent to do it for you. What happens in this Department ...*

R *Well, the [departmental commercial arm], of course, pays for a patent agent if we want one.*

I *Yes? So, how do you manage that, then? What does the member of staff contribute and what does the patent agent contribute to the actual specification?*

R *Well, it is the same as in any other patenting of scientific or engineering thing. The inventor has to, of course, try and convey his idea in such a way that the patent agent can produce the ...*

I Ah. But there are various ways of doing that. One is that you can get the patent agent in at the beginning. They have a dialogue. The academic produces a couple of pages of A4 and some diagrams. The patent agent does the rest. At the other extreme, the academic has to try and do the whole lot - or, there may be a middle path. What happens here?

R Well, it is usually ... the patent agent asks, of course, for the two pages of scription. Then he usually drafts something which, you know, the academic then puzzles over. Now, whether ... And this is the way the BTG operates and always has, and they, of course, have very fine patent agents.

I I ask the question because universities operate in very different ways where this is concerned.

R Well, again, I mean, I don't see how we can make choices between ... as though these things were in rigid boxes.

I It is a financial issue, often.

R It depends upon the project. It depends upon whether the member of staff ... how much he wants to do himself, how much he wants [the director of the [departmental commercial arm] to do for him, and so on.

I But in many cases it may also be a resource issue. It costs much more ... the more the patent agent does, the more it costs.

R Yes, yes. Well, [the director of the centre] will tell you tomorrow that our normal ... if there is anything that is normal in this world ... our normal procedure is to take out patents jointly with the firm. The firm's patent agents ... very often the patent agent is paid by the firm. We retain a right to some fraction of the income or whatever. There are many permutations. We don't very often, you know, go straight out and patent something that requires a long document entirely off our own bat, without knowing that there is a firm that could exploit it.

I Not even an initial registration?

R Not very often. No, not very often. Because we are engineers. We want to solve problems that exist and that means that we know someone who has got a problem.

I I have a few questions now about consultancy. [Q69] Now, by custom or regulation - I'm not sure which - this University does not have a formal limit on how many days per week, per year or whatever ...

R ... No formal limit.

I Do you agree with that - and I'm talking here about personal, as opposed to in-house consultancy?

R Yes. [Q70] I mean, I think if we had a limit, it would only create hassle. The important thing is that the member of staff should feel quite free and encouraged to keep his HoD informed about his consultancy.

I They are supposed to notify HoDs, aren't they?

R Yes. Right. Now then, if you start trying to put up regulations, then it may discourage some people from being open and frank with their HoD and that can't be good for anyone, because it can only, as they say, affect our teaching.

I [Q72] What proportion of people in this Department do consultancy work, would you say?

R Including through the [departmental commercial arm].

I No, just count your UFC staff.

R Ah, but the UFC staff do consultancy through the centre.

I No, I'm talking ... Did you say to me earlier that they are only allowed to do it through the centre?

R If the problem has come to them through me, then yes.

I And if it hasn't?

R If it has come directly to them because they happen to be very well-known, then they can do it on what you would call a private basis.

I Well, let's distinguish between those two situations.

R Right. You want to know what exactly?

I What proportion of people are actually doing consultancy work?

R Well, a considerable number do it through the centre. A much smaller number privately. But, of course, I can't ... it would be hard for me to quantify the latter. You are asking me to guess what fraction of the Lecturers ...?

I A gut feeling will do.

R Okay. What fraction do consultancy, say, within a period of a year? Right. That is an interesting question. Out of 24 academic staff, well, I should think that private consultancy is, as I said, as far as I know, it is a quite a small number. So, I would think maybe 4 or 5. Consultancy through the [departmental commercial arm] is a much larger number. We have consultancy of the kind that I'm sure you are thinking of, but we also pay the staff as consultants in running short, specialised courses.

I Take that out of the picture.

R Well, I suppose in a given year, let's say a half of them.

I Right. [Q73] Now, do any of them do a lot of consultancy?

R What do you mean by a lot?

I It is very difficult, that, isn't it, when you haven't got a limit to base it on. But the kind of norm in most universities is a day a week, maximum. So, are there any that are approaching that amount?

R Well, I would put it in ... I mean, actually I ought to go and check on this. In any case, I'd put it in £ terms. I wouldn't put it in any other terms. But I'd have to go and, you know, look in our records. In fact, [the director of the centre] might carry [that information]. Let me think about it. I should think about ... excluding courses? I should think probably about 5 staff through the [departmental commercial arm] earn, shall we say, £1,000 or a few £000, £2,000-3,000, perhaps. And another 5 or so would earn a few hundred.

I What is your daily rate?

R Well, it is roundabout £250 a day.

I Okay. That lets me work it out.

R Okay, so there aren't many that do more than ten days a year. That's about right.

I So the answer is, then, that they are not doing a lot.

R No. Not by your standard of one day a week, anyway. Oh, no. No. [Q76, Q77] That's ever such ... I mean, if you do one day a week, it would have a very severe effect on teaching and research.

I [Q80] Do you know whether this University imposes limits on earnings from personal consultancy? By either route?

R No. No. No, it doesn't. No.

I You are right. It doesn't. [Q81] Now, do you agree with that?

R Well, I think I agree with it for the reason we touched on earlier. [Q82] That if you try to impose some particular limit, I think it would just make staff reticent about their activities. We wouldn't know where we are.

I [Q83] Do you know whether the University takes a percentage of people's earnings from personal consultancy?

R Well, certainly not a percentage, if you mean a fixed percentage. What ... Most private consultancy, which is what I call if it is not through the centre, still uses the Department's facilities ...

I ... And presumably they have to pay for those?

R And they pay ... Before they start on it, they come and see me, when I was HoD, and say - look, we are going to do this. We are going to be paid £2,000. And I would say - right, well, the Department has got to have £500 or whatever. I mean, that is not a fixed percentage. It is ...

I But that is meant to be an overhead, as opposed to a tax on earnings, isn't it?

R Well, no. It is paying for use of the equipment.

I [Q84] Do you agree with the University not "taxing" the individual's personal income, the fee?

R The University itself not "taxing" it? (Yes) I don't see how it could, because it is paid for by an outside body.

I It happens in some universities.

R But how? But the body is ... Oh, I see. Well, I suppose ... No, I don't see ...

I In some universities you have to give up 25 per cent.

R When you "tax", do you mean tax to go to the Government?

I No. "Tax" to go to the University centrally. Some universities say that if you are not using that time to do university work, then you should be "taxed" on it.

R Again, that is not a practical proposition, [Q85] because I ... a member of staff and his HoD, who at the moment share in the £, they wouldn't tell the University. It is quite simple, really (laughs). I mean, all these little restrictions don't seem to be helpful to me, really. I mean, the premises in which we do this sort of work, which is mainly in this building, I mean, the University is paid, of course, for the building and the heating and all the rest of it. And also, we make a contribution, as [the director] will explain, of a percentage of the salary to the ... it helps to pay for the salary of somebody in the finance office. So, the whole activity generates wealth, for the Department, for the University. And that is the big activity, the consultancy work that the Department organises. To start "taxing" private consultancy, I think it would be very difficult. It would create, I am sure, secrecy and annoyance. And it would be only dealing with a relatively minor activity, you know, compared with the consultancy the Department does.

I [Q86] The 1985 Green Paper on higher education recommended that universities should take account of an academic's contribution to industry when considering applications for promotion. Does consultancy count as a criterion for promotion here?

R Well, it does in this Department ...

I Okay, but you have to compete for Senior Lectureships on a university-wide basis, don't you?

R That's right. [Q87, Q88] But the submission made by the HoD of an engineering department, if it is to a committee that may not know that engineering is about solving industrial problems, then the Department, me or anybody else in engineering in any other university would say ... would, you know, point out that engineering research is highly valued if it actually solves industrial problems and that this man, whoever he is, or this woman, has actually done a piece of work that is very important in industry as well as, if you like, in basic research terms, and therefore this is one of our top people in reputation in our Department and therefore he or she should be promoted.

I Now, we are coming back again to the amount of consultancy a person does. [Q76] Do you think that extensive consultancy has an affect on people's lives as academics?

R Consultancy?

I Yes.

R Yes, yes. It must do, if it is extensive.

I [Q77] What kind of affect?

R Well, it broadens their activity. It means that they are solving short-term problems as well as doing long-term research. And if they are engineers, it keeps them in touch with the problems of industry which also helps them to ... in their teaching, because, after all, most of our students are going into industry.

I Okay. You've cited a positive affect. Is there a negative affect or not?

R Oh, yes. The negative side is it either affects one's teaching or one's research or one's family life. And none of these, considering staff turnover, none of those, of course, should be reduced ... interfered with.

I [Q78] Extensive consultancy has been associated with higher levels of entrepreneurship among academics. Do you regard this potential "side effect" of consultancy as positive or negative?

R Well, I wonder what you mean by entrepreneurship?

I I think I said before we started the interview that I have come to have a wider view of it than just company start-up. It could be an individual's company. It could be a university company. It could be through the centre, with an individual becoming more involved than usual, and not leaving it all to [the director] to arrange.

R *That's right, yes. So, he might then think of either setting up or participating in a company?*

I *Yes.*

R *Well, if you present it in that sort of logical way that you just have, one would think that the answer ought to be yes, but on the other hand, I can't point to an example in our Department of an academic who has got involved as you have just said, through the centre or something and then set up a company or taken some very conspicuous action. So, I suppose, you know, as a sort of academic question the answer is probably yes, but I can't say that it happens here.*

I *I was really asking an in-principle question. Do you think it is a positive side effect in principle?*

R *[Q79] Yes, because it means that the academic isn't just concentrating on his basic research. He is actually more in touch with industrial problems and if he is more in touch, he is more likely, perhaps, to become excited about some possibility and realise it can be exploited and want to do it himself and not just to leave it to [the director of the centre]. I can see the logic of that. [Q133] It is just that it hasn't actually happened in our Department.*

I *Okay. I'd like to ask a few questions now about what I call the University's "commercial arms". The University has a number of centres/institutes/units etc acting as the commercial arm of their Department. Your own Department has the [departmental commercial arm]. [Q90] Now, it is not a notional organisation, is it? It has its own separate existence, its own separate staff, doesn't it? It is not a notional gathering of people who have tenure. It is a separate ...*

R *Well, it has its own full-time staff. But it also calls upon technicians and Lecturers and equipment in the Department to assist in projects.*

I *But it has its own physical existence.*

R *Yes. That's right. Yes. It has its own management structure, its own space, it has its own full-time staff.*

I *Right. [Q91] Now, what kind of contracts are the full-time staff on?*

R *Well, they are on temporary contracts.*

I *Are they academic-related or are they ...?*

R *Well, the engineers are academic-related, under what is called the other-related staff. The technicians are on the normal university technician scale and the secretaries are on the normal secretary scale.*

I *[Q89] Now, this centre ... was it your idea?*

R *Oh, gosh. Before ... when I was at [my former university], we ran a similar thing. I wasn't the director of it.*

I Was it your idea in the context of this University?

R Oh, yes. Yes. As far as I was concerned when I came here, it ... if we were going to have a good, well-balanced ... Department, then such a centre would be part of it.

I [Q93] Did the creation of the centre create ... how long after you arrived did it get created?

R Well, I applied to the Wolfson Foundation for a pump-priming grant. I sent off the letter on the day that the first Lecturer arrived.

I So, when was that?

R 1979.

I Now, did the creation of the centre ... okay, it is a bit hard to ask about your own Department, since you hardly had one, but within the wider context of the University, did the creation of the centre cause any controversy, either at the time or since?

R I don't think I know what you mean. I mean, when you say "in the University", you mean outside this Department?

I Yes. In other Departments or the centre.

R Well, I think probably that the honest answer to that is that I don't know, because, you know, if people are talking about you when you are not present, how do you know that you are talking about you (laughs).

I Well, we have here a collegiate university. You are unusually exposed to people from the arts Departments, let's say. Now, have you never had even jocular comments made to you [by] other colleagues about what you think you are doing here?

R No. No. I don't think so. No. I don't recall it. No. I don't recall that.

I It was the first such "animal" in this University, wasn't it?

R Oh, I think so. Yes.

I I ask because I know that [a commercially-oriented institute in another Department] has caused considerable controversy.

R Oh, yes. Because [they] followed in our footsteps.

I And yet it has caused immense controversy.

R Yes. But the reason for that, you see, is because they tried to graft something like that onto an academic Department that has been going for many years. I set [this centre] up as quickly as I could so that it would be integrated with the Department and it would grow and still be integrated.

I Do you think that is the key to doing it without controversy?

R Absolutely! That is the key to our success. Going back into the 1970s, there were quite a number of engineering departments around the country who set up or tried to set up this sort of organisation by developing it, you know, as a nodule on some existing department. And it is hard when you do that for it to be well-integrated, I think. Yes. Well, I was very deliberate in setting it up at the very beginning. And it wasn't easy, because of course we had a very severe recession in 1981, as you will remember. So, yes, that is certainly true. Now, the [neighbouring] Department ... they are trying to, as you said a moment ago, to some extent follow in our footsteps without really following in our footsteps. They are doing something different. They are trying to broaden the Department into an organisation that is actually applying its knowledge to real industrial problems and I guess they probably did have difficulties in setting it up. Perhaps I should also have said that [our director] had been running a similar centre at [another] university for some several years. And so, I mean, we knew how to set about it.

I [Q95] You have described many of the positive aspects of the centre. Does it have a "down" side?

R ... (tape ends here) ... we indicated in positive terms, it creates the opportunity for academic staff and also research students and many people to get involved in industrial applications and to be paid something extra for doing it. Now, in any organisation, that must create some conflict over this question of how the individual uses his time. And if an individual neglects his teaching or research, then of course that is a down side. It is not good for the Department, it is not good for the member of staff.

I And does that happen sometimes? Do you experience that problem?

R Well, it is a continual ... it is something you've got to be on the look-out for all the time.

I And have you had to [tell people that they are getting the balance wrong]?

R Oh, yes. Oh, yes. It has to be under firm control. This is why, when I was HoD, of course, I was director of the centre as well, because when I am in the senior position responsible for the career development of Lecturers, I have to make sure their activities as individuals are reasonably well balanced and not to allow, let alone encourage someone, to do something which will have an adverse affect on his career. And that makes the role of HoD more difficult. Of course it does, yes.

I [Q96] What about the research priorities of people in the Department? Do you think the centre has the potential to influence them in a more applied direction than perhaps they would go if it weren't there?

R Probably. Although we are an engineering department and as I have said several times this afternoon, we are trying to solve problems. And therefore staff appointed to this Department would have an engineering outlook and would want to ... most of them, anyway, would want to apply their knowledge. One thing I should just touch on before I forget, which is that the activities of the [departmental commercial arm], particularly in electro-magnetic compatibility, being a well-known centre of expertise and running short courses on industrial premises and all the rest of it, this has led to our being offered large research contracts ... and I mean, you know, three-year research contracts. And therefore it actually helps the growth of research as well as on the student side, which you haven't

asked about, producing excellent problems for undergraduate projects.

I Ah, I have a question about that later.

R Yes. So, there are things that we haven't touched on till now that ... It is not just a one-way process of giving our expertise in exchange for £. It all connects up with short courses and basic research.

I [Q100] The University has had - although I don't think it has at the moment - a couple of wholly-owned University companies exploiting the University's IP. Do you think that kind of university company is a good idea?

R Well, you are asking me whether a company wholly-owned by the University is a good idea?

I Whether it is a good way for it to exploit its IP, really.

R Well, I'm not sure, because I've never set up or run one of those.

I As HoD, sitting on the professorial board, this is presumably the kind of thing which you may have had to discuss in the past, isn't it?

R Yes. But it is something you can't discuss terribly well in the abstract. If you have an activity which, you know, could be turned into a product for which there is a market, whether it is worthwhile setting it up quite separately from the teaching and research in order to get it properly managed and exploited, fine. At the moment we don't have that in our Department. If we set up ...

I My question wasn't really concerned specifically with your Department but with a way of exploiting IP which any Department might choose.

R Well, it depends upon the situation. I mean, you'd have to go and ask someone in every Department - sit down and listen to me ... Do you think that ... can you think of some activity in your Department that would fit those criteria. I can't answer for other Departments.

I I wasn't thinking so much about whether it was appropriate for every single Department, but about the fact that this University has had a couple of companies which did this ... and I know that it was discussed at that level. What view did you take in that discussion?

R Well, it is discussed occasionally at Council. I mean, I can't give an expert opinion, nor could I have done at the time, because I know nothing of the discipline, or very little of the discipline. I've got no real ... I'm not opposed in any way to companies spinning off from Departments, but nor am I saying that no first rate Department should be without one. It depends on the situation.

I Right, so ... you are not against the idea in principle?

R No. I'm not. Of course not. Of course not.

I [Q101] Why "of course not"?

R Well, because many of them, I am sure, in other universities and we have touched on your knowledge of other countries, have done a lot of good. They have created challenging work for people. They have created wealth and they have created wealth, of course, for the universities. So, no, of course I am not against it.

I [Q104] Do you think a company like that, and I am not being specific about any of the ones this University has had - let's talk more at the level of principle - could affect a University's research priorities? Or certainly those of the Department out of which it came?

R Well, it might do. But it is a funny question to ask, really, in view of my situation with the [departmental commercial arm]. Because the [departmental commercial arm] is integrated with the Department in order to benefit the teaching, the research and all the rest of it, it must have a much bigger affect on the research and teaching than some company that has been spun off from it. Okay? So, I mean, the impact of that on a Department, good or bad, would be smaller than what we are actually doing. And what we are actually doing has many good affects, as I've already indicated. People come to us to solve problems and then they give us big research contracts. Many good affects which we would lose if we set up a separate company. Equally, of course, the centre would be weaker if it wasn't able to use the resources of the whole Department. Then there are some disadvantages we touched a moment ago, connected with career development. Okay. But I am aware of the great advantages of the centre, and of the difficulties. And it does affect research, because people ... as I say, they get offered £ to do interesting research they wouldn't otherwise, and also they know that if they solve problems, they will be exploited. What the affect of a spun-off company would be, I don't know, except that it would be far less.

I [Q106] Policy allows this University to participate in joint commercial ventures with members of staff, exploiting their IP. Do you think this is a good idea?

R I'm not sure what you mean.

I It means that you would set up a joint venture. That is to say, both you and the University would have share capital in this company, and possibly a third party or two, too.

R While I am still an academic? That's what you mean?

I Yes. Well, you may leave, but you may stay.

R Well, if you leave, you are not an academic.

I Indeed, no. But both situations can happen.

R So, if I understand you, you are asking whether I would be opposed or concerned about ... about individual staff being part-time academics. Is that what you are suggesting?

I They could be full-time or part-time academics.

R ... Well, then, it is different but not wholly different from my position as director of the centre. I am a full-time academic, but I spend a little bit of time on top of my full-time as director of that. Yes. That's ... I mean, that's necessary if the activity is closely related to the Department, but I would have thought you must have one of the senior academic staff of the Department having some kind of role. But it may be non-executive. It may be very part-time. It depends on the situation. So, I can't say that ...

I Policy here allows for every situation. You could be managing director, if you wanted to be.

R Yes, yes.

I As, in fact, [DH] was in [company A].

R Yes, but he wasn't full-time.

I He wasn't after a while, but he was still ... there is a ?? between having line management and not having line management and he managed to do both.

R Yes, but he wasn't full-time.

I He was for a quite a while. He only later went onto a two-thirds contract.

R Hmm. Well, I ... Let's put it this way. As far as we are concerned here at the moment, we don't have anyone who is a full-time academic in the normal sense, but as part of that job, does line management in the centre. Because I've ... well, let's put it another way. I'm not against it in principle, but the best ... I think my model is better, where you have a first-rate full-time manager and you have a director who has a gentle hold on the reins and who is, at the same time, able to be involved in ...

I Ah. Now, some universities will dictate that you must do it that way, that you may not be managing director. [This University] doesn't do that.

R No. No. But I don't see how I could ... It depends whether we are ... I'm not exactly sure what we are talking about now. You cannot ... if you are doing a full-time job, you cannot do another full-time job as well.

I Some people seem to have managed something akin to that. They just work every hour that God gives them.

R Yes, but we do that in our normal full-time jobs. Some of us.

I Some people don't, though, do they? Some people play golf instead.

R Well, not in our Department. So, I'm not for ... if you were ... I mean, for example, you cannot ... It is no good discussing the [well-known broadcasters] of this world. You know, people who are in the University and outside.

I He has a part-time contract, too.

R Yes, yes. Of course he does. [Q108] But I have no knowledge from my own Department of the advantages or disadvantages of that situation. As far as I'm concerned, and I think my colleagues would go along with this, we've got a good model here in the centre, whereby one of the two Professors - and incidentally, I am still the director, although I've stopped being HoD ... one of the Professors is on a very-much part-time basis, very much non-executive. He is the director and helps hold the whole lot together.

I [Q109] In principle, University policy here allows academics to try to exploit their research discoveries via completely independent spin-off companies in which the University has no stake. Do you agree with that policy?

R Well, not if the ideas were developed [by them] as employed academic staff.

I The return to the University would be the same as it would from any third party exploiting the IPR. It would get royalties or whatever, whereas in a joint venture, the University has a share of the equity, too ...

R ... Oh, yes, well, that is okay.

I ... therefore they will get a share of the dividends, a share of the company's value if it is sold on.

R Yes, yes. Yes.

I Now, policy also allows you to set up company, completely, wholly-owned by you. You could negotiate a licence to exploit the IP and the University would hopefully get a royalty stream just as it would from ICI or whoever. Do you agree with that, too?

R Yes. Yes. That is alright. As long as the negotiations are on a fair and equitable basis. As I say, again it depends whether it is being done just down the road, or what the situation is. But I certainly think that the University, and indeed the Department, should have a fair share of income from all the things you've talked about this afternoon.

I [Q113] What do you think about ... you say you don't have any examples of academics in this Department who have got their own company exploiting their research discoveries. If somebody did try to do that, what do you think people in the Department would feel about it?

R I think in a way that is the most hypothetical question you have asked.

I Yes, indeed. It has to be purely speculative. But it is possible that members of the Department have had thoughts on this after seeing colleagues in other Departments do it.

R You are asking me what would other people think if something happens that hasn't happened. Well, I think I'd better say I don't know. It really is hypothetical.

I Okay. Now, we've touched a bit on some of these questions already. You were talking about the time aspect of getting involved in spin-off companies. [Q114] The University doesn't have a central policy about would-be academic entrepreneurs and being flexible with their existing workloads. Some universities say - yes, we think this is a good idea; we will somehow negotiate that this person is given the time to pursue it. Maybe get

his admin load taken off him for a year, or whatever. As I say there is no central policy here on tinkering with people's existing workloads in, say, the start-up phase, when people are just getting going.

R Well, it isn't a central matter. It would be within the Department. Could we manage with this chap doing less teaching?

I Not could you manage, but what would you feel about it, speaking from the perspective of the HoD?

R [Q115] Well, we would have to have a substitute. And so, if it is proposed, if some great scheme is proposed ...

I ... Ah, now. Hang on. At this point I am not talking about a major tinkering with his workload. Someone might say - I am really trying to get this thing off the ground. I really need to concentrate on it for a year. It is my turn to do X or Y. Could we delay this for a year, or something like that. How would you react to that?

R [Q116] Do you have in mind that this individual is asking for full-time release from teaching, or that he is asking for 10 per cent or some small amount?

I Just a bit of flexibility with his existing workload.

R In order to exploit or accelerate his research within the normal sort of way, or are you now talking about setting up a company?

I I am talking about setting up a company, about being entrepreneurial about taking his research discoveries from the scribble on the back of the envelope stage to a product or process which can be exploited.

R I mean, we would certainly consider such a request, but if it was going to affect his administration or teaching significantly, then one possibility is he would have to make it up another year, which I think you already have in mind. But I mean, if it is a really significant affect and he is going to really have his hands full with this new development, therefore in reality it would affect his work quite a lot, then I would have thought there are really only two options. I mean, one is that basically the Department has got to get something back, which means that the Department would, for example, have to have a share in the enterprise. Not necessarily in the legal sense, but the Department could have ... I mean, it hasn't happened, you see, so we are in a hypothetical area again, but I ... but provided the Department got some benefit, either in reputation or in £, that would then enable us to appoint part-time teachers to replace this man ...

I I think at the level I am asking about now, it wouldn't be that extreme. It might be just be giving people less onerous courses for a while, less lab work, less admin, for a specified, short period. That kind of thing.

R Well, if it is exploitable research, I must say, my first reaction is that he should do it and do less research, because it is his research and the exploitation of it to us is a bit of a seamless garment. We are engineers. You know, you work away on research for years and nothing useful comes from it and then suddenly useful comes. You spend a whole year on the exploitation and you are still doing your teaching and research. Now, what ... the

point you are putting to me is that - what if there is this extra complication, if he is proposing to set up a company? Well, I don't know. It is hypothetical. It hasn't happened. But if ... he cannot have his teaching and research significantly reduced without either paying it back the following year or £ being generated somehow or other by this activity that enables us to take on part-time teaching staff.

I [Q119, Q121] So, does that mean you might prefer a more formal arrangement, whereby they went onto a part-time contract, or took leave of absence without pay, or something like that?

R Yes. Yes. Part-time might be appropriate. Because it sounds as though it might be a £-making exercise.

I But you can't guarantee, in this University, [that you will be able to use the residue of their salary] to replace that person, can you? The way that the University operates, under the resource allocation model, first of all to get leave of absence you, the HoD, have to renounce your claim to replace that person and secondly, because of the credit/deficit aspects of the resource allocation model, you can't guarantee that you are going to get that person replaced, can you?

R Well, we just ?? the ?? model. I mean, if you want to get details of it!

I So, that would hold no fear for you, then, would it?

R No, no. I thought we were thinking along the lines that he was setting up commercial activity which will probably, for example, give him some income even in the first year, because he is on a part-time contract ...

I In many situations that could be unlikely.

R Okay. Well, then if it is going to produce some income (Eventually) ... eventually, then obviously I'm saying some of that would have to come back to the Department. I see, so you are suggesting that in the short-run, while this is all going on, that the Department is losing a tenth of a man or some fraction of a man, and there is no £ coming from it to pay for a part-time replacement?

I Well, there might be. But you can't guarantee that under the resource allocation model [employed by this University].

R Oh, yes. Yes. I wouldn't ... Oh, no. I wouldn't expect the University to replace him. No, the Department would have to do it somehow.

I So, really what I am asking is - are you sympathetic not only at a principled level to this kind of activity, but also in practice?

R Well, yes. I am ... of course we are sympathetic to exploitation but what we are not sympathetic to is creating some situation where the rest of the staff - and you did ask me before what the staff would think ... where the rest of the staff would see one man receiving his full salary and doing less than his full job in the Department for a reason that was not ... you know, which in the long-run might make £ and [bring] credit to the Department. So, it is not only a question of what is happening, but of what is seen to be

happening.

I You have to tread carefully?

R You have to tread carefully.

I [Q118] How would you describe the staffing levels in your Department? You have a choice of over-staffed, adequately staffed or under-staffed.

R Oh, gosh. I've no idea.

I How do you compare to other such Departments?

R In other universities?

I Yes.

R Oh, we are about the same. The average student:staff ratio in [such] Departments is twelve point something or other and we are twelve point something or other. Yes, we're about the same.

I [Q123] Let's consider the situation where the academic has taken complete leave of absence for a year, say, to get this company going ... If it has taken longer than anticipated to take a spin-off company to the point where the academic can reduce his input ... It is this University's policy is (No policy, no policy) ... to be as flexible as possible about extending previously agreed leave of absence. What would you, as HoD, feel about extending a previously agreed leave of absence?

R This is a leave of absence with their ??

I Yes.

R Right, well. The ... Are we also assuming that the salary saved by this absence is as the disposal of the Department?

I You can't assume that in this University.

R Ah, well, you see, in that case ... But you still assume that we have agreed to it?

I Let's say it has been agreed to. This is a fait accompli.

R Been agreed to by us?

I Been agreed to by the leave of absence committee.

R By the who?

I You have a committee which deals with requests for leave of absence.

R Oh. Yes, well, I don't think they would let anyone go on unpaid leave of absence if the Department said they couldn't manage without them.

I No, no. You would have to sanction it. That is right.

R Well, the answer to the question depends very much ... You are saying that he would want to extend it to two years or whatever it is. The answer depends very much on whether we are actually getting £ to replace him or not, doesn't it? Again, it is not purely a matter of exactly how much £ is coming in and what it is being spent on, is it part-time people or a temporary Lecturer. It is also comes back to this point we've touched on two or three times now. That the rest of the staff need to see that this is some equitable arrangement. You know, only a few of them would actually be doing more work if this chap is away.

I So, is the answer to the question that you would have to make an ad hoc decision?

R The answer to the question ... yes. I mean, if we are not getting any £ to replace him, we would be reluctant to extend it, wouldn't we? I mean, they must be coupled decisions.

I Then, the next question is - would you go a stage beyond that? Would you say - sorry, I'm not getting you replaced. Or would you go with this person to the Finance Office or whoever you have to deal with and say - look, this is the situation. Can we talk? Can we deal? How motivated would you be to do something about it?

R Yes, yes. I mean, we would ... well, we would try to persuade the planning committee to give us the £ to replace him.

I So, you would take a proactive role in this situation, would you?

R Yes, yes.

I Okay. [Q124] Now it is policy at this University to let would-be academic entrepreneurs have access to University resources, where demand permits. Do you know what kind of resources and on what basis?

R?

I If I suggest various different kinds of resources ...

R ... No. I don't believe I do. All I know is what we do in our Department. But we don't have entrepreneurs in the sense I think you are now talking about, people who are actually running their own companies.

I Getting them up and running, yes.

R Well, it doesn't exist. There is no procedure because it doesn't exist.

I I am told that when it comes to equipment, instrumentation and accommodation, the Finance Office has a policy. It dictates what you pay for it. What you pay is negotiable. It could be paid at a marginal rate or that you offer some quid pro quo to be redeemed at some future date ...

R But all that, if it happened in our Department, would be negotiated by the HoD with the Finance Officer and with the individual.

I So, you would be involved in the decision?

R Oh, not half!

I Okay. Now ...

R [Q125] Just a minute! The Finance Officer cannot negotiate directly with an academic over his use of [Departmental] facilities.

I It is tricky, isn't it? If you say that you see that research and exploitation are a "seamless garment", this person will want to use ...

R ... In an engineering Department, yes.

I ... will want to use ... I don't know what equipment you use here, but will want to use widget A ...

R But I mean exploitation by the Department. By the man in his full-time job, not as an entrepreneur, setting up his own company. I mean, that has to be separated. But no, I don't want to give the impression that I wouldn't ... want to be helpful and try to organise it. Of course. I am just pointing out that the HoD would do it, not the Finance Officer, because he is responsible for the facilities and the staff.

I Of course, the HoD would have to agree to the facilities being used. But I have been told that the cost of equipment, instrumentation and accommodation would be decided centrally, but that the HoD would decide on support staff ... that's technical and secretarial, whether [would-be academic entrepreneurs] had access to their services.

R Well, all I can say is, any equipment that the Finance Officer has got in his office, he can rent out! But he can't rent out our equipment!

I Now, the difficult one here is the question of communications. I gather that you have now got real telephone budgets, not notional ones. Is that right?

R Yes. Yes. That's right. We pay for our telephone calls, yes.

I How would you handle ... Let's say that you have agreed to a situation where an academic is using his office space to get his company started, his corner of the lab, and maybe he is paying some kind of rental for an extra corner somewhere. He wants to use the telephone lines and not use public telephones.

R Well, he would pay for his calls. Of course he would. I mean, we do that in the [departmental commercial arm].

I Right, who is actually going to sit there and go through the telephone log, working out which ones are business?

R Well, that is what we have got a computer for. There is a computer that does that in [the administration building]. It works out ... we have a separate account and ...

I But only the academic concerned can tell you whether than telephone call to that number was on academic or commercial business, can't they?

R Oh, well. I mean, if there is any difficulty over that, it would have to be a separate phone, I would have thought.

I So, you might request that, then?

R If necessary, oh yes. We have separate phones in the [departmental commercial arm]. Of course we do.

I So a person could have two phones on their desk, one for business, one for academic work?

R Well, if necessary. If necessary. But you talked about him using his office, his corner of the lab ...

I Just in the pre-start-up phase, before anything is physically embodied. The preparation stage. Or even after the start, maybe. Some universities are happy about that.

R Well, if they pay for it, surely. They would have to pay for that space.

I The usual rule is that you don't pay for space you are already occupying. You only pay for additional space. So, if you are already occupying your office, the rule is that you don't have to pay.

R Well, of course, we pay for all our space because we are an expanding Department. We pay for all these buildings. So, I think our situation ... I mean, that is my situation.

I So, you wouldn't be happy about that, then?

R No. We only get more space by paying for it to built. We have just paid for a Portakabin.

I But if somebody is sitting, occupying a desk anyway ... If they then spend an hour or two a day thinking about how to exploit something - and you have described research and exploitation as a seamless garment from the perspective of your discipline ...

R Ah, but exploiting it by setting up their own firm, that is different from exploiting research with the Department getting full credit for it both in academic reputation and in £.

I So, if somebody is sitting at their desk and they are thinking about exploiting it via their own company, or even a joint venture with the University, you would want to charge them some rent on their existing office or lab space, would you?

R No, because it wouldn't be a practical proposition, as you know very well, if all you are doing is thinking about it. But if it becomes an active firm and there is ... you know, the secretaries are running around with bits of paper for it and visitors are coming and all the activity you see in the [departmental commercial arm], then, of course, the space would have to be paid for. Because ...

I On what basis?

R ... because we'd have to ... Well, at the moment we operate on ... I can't remember how much it is. So much a square meter, to take the [departmental commercial arm], for example, for the building, the heating, the cleaning, the portering and all the rest of it.

I So, would you want them to be charged on an overhead basis or would you charge them a marginal rent or a full, market rent?

R It is the rent that the district ... What we have already done in the [departmental commercial arm] is the rent that the district valuer recommended.

I So, you would charge them on that same basis, would you?

R Yes. Yes, that's right. Plus all the identifiable costs.

I [Q127] Now, it is also the University's policy to support would-be academic entrepreneurs financially, where possible. Do you know what kind of financial support it gives?

R No, I don't, because I have never asked for it. I mean, we've never asked for it, so I don't know.

I Right. First of all, there is the innovation fund at the level of getting things started in a small way ...

R ... But that is not for starting a commercial ...

I It can be used that way and it has been, as seedcorn £. The University will also provide, if it is able and thinks it is a good idea, share capital (Yes). They may put in first-round funding or even second-round funding. [Q128] Do you agree with that policy?

R Yes. Provided that the people are acting on behalf of the University are well-qualified to handle it. You must bear in mind that University administrators as much as University teachers are not trained in commercial or legal company affairs.

I Although your new Finance Officer comes from industry, doesn't he?

R Well, yes, but not the sort of industry you are talking about. He came from a small part of a very large firm, which is not the same as the large part of a small firm. So, well, yes, I'm not directly involved, but I am quite happy at the moment about the way that Council ... I mean, I have been a member of Council until this summer ... the way that Council deals with spin-off companies you have mentioned this evening and the science park which, of course, we are moving into. Because, of course, we are making

good use of the lay members of Council we do have. There is some experience and we are, of course, using proper, professional consultants. But all I am suggesting is that if a member of the academic staff is spinning out some company and the University is going to put a lot of £ into it, then I would hope that the same care and attention was paid to it. Because it could be the blind leading the blind.

I Okay. N4[Q111] Now, do you know how the University treats the income which academics make personally from their spin-off companies? From, say, director's fees, dividends or whatever?

R Do I know how the University treats it? (Yes) Well, the University doesn't handle it.

I You are right. That is not the case in some universities, though. [Q132] Do you agree with that policy?

R Well, I think it has got some practical sense as I indicated earlier. Because it is not a very good idea to resolve that something should be done if it is not practical or easy to do. I mean, if people are doing ... as I said earlier this afternoon, if they are doing consultancy or whatever that is nothing to do with their normal work, if you start trying to administer that and organise that and "tax" that and so on, it is going to be a difficult exercise.

I [Q134] We touched on this earlier: do you think that academic spin-off companies could be a useful source of industrial placements for students? I don't know if you use them in your degree programmes?

R Oh, yes. Most of our students are sponsored by industry. Out of 250 students, I suppose at least 150 are sponsored. We've got hundreds sponsored by one firm. But ...

I But do you require all students to do stints in industry as an integral part of their degree course?

R Yes, oh yes. Well, for quite a while. Yes, it is an engineering course. They have to have industrial training.

I So, could you see academic spin-off companies as a useful of source of getting that kind of experience?

R Possibly. Possibly. But every time you use the word spin-off, I think of something rather small, with just a few people, and something rather small couldn't offer such opportunities to an undergraduate as a big firm. They haven't got the facilities, they haven't got the range of work.

I Some of them have grown considerably.

R Yes, well, when they have grown, they are no longer a spin-off, are they?

I Spin-off refers simply to how they came into being. It doesn't say anything more about them.

R Oh. Well, all I can say is that in order to qualify to be a chartered engineer, which is what our students aim for, they have to have a degree that is accredited by the Engineering Council and they have to have industrial training as accredited by the Engineering Council. I think it might be hard for a company with only half a dozen employees to provide training that would be accredited by the Engineering Council. It might be hard to get them to find the time to even think about getting accredited. And so therefore I would not normally recommend a student to go and work there hoping that that was going to be recognised by the Engineering Council. Our students go to firms like BT and such like.

I [Q135] Okay, my very last question. We touched earlier on whether consultancy is a criterion in the promotion stakes. Do you think that entrepreneurial activities have any impact on an academic's promotion prospects in this University?

R Well, I don't know because I haven't been on the promotions committee or made a recommendation as HoD in which this was an issue. So, I don't know.

I Do you think it should be?

R I thought you were going to ask that! I think probably yes, within an engineering environment, because after all we are, as I say, trying to conceive and invent things that are going to be successful in industry. And therefore that should stand to the credit of the person who ... I think it should do, yes. But it all depends whether we are talking again of something on which somebody is spending 10 per cent of his time and the main argument for promoting them is teaching and research and that is a side issue. Yes, it should be taken into account. But if he is spending a large part of his time on it, then it becomes a special case and you know, I think ultimately you have to ask yourself, or you have to ask the man or woman concerned, where is your career heading? Do you want to climb the academic ladder or do you want to climb the industrial ladder? And you will find that most of these people, if they are very successful, they usually end up doing one or the other, most of the time. And if you are very successful in industry, probably it doesn't matter exactly what grade you are in the academic hierarchy.

I Your answer was very specific to engineering. Now, let's take a wider view than that. What about in the Physics Department, for argument's sake?

R Well, I don't know, because I don't really know how physics departments, if you like, in ranking their staff or giving them ... I don't know how they would count it. I suspect they would give less value to it than an engineering department, because as I've already indicated, it is really an extension of consultancy, which is an integral part of our Department. But, I mean, you'll have to ask them.

I Oh, I shall!

R That's right. You have to ask them. I'm glad I can't answer all your questions or else I should be here all night.

I You are quite safe. That was the last one. Thank you very much.

END OF INTERVIEW

KEY TO QUESTIONS IN THE TEXT

<u>Question Number(s)</u>	<u>Page Reference(s)</u>
Q1	p1
Q2	p1
Q3	p2
Q4	p2
Q5	p2
Q6	—
Q7	p2
Q8	p3
Q9	p3
Q10	p3
Q11	p4
Q12	p5
Q13	p5
Q14	p5
Q15	p6
Q16	p7
Q17	n/a
Q18	p7
Q19	n/a
Q20	n/a
Q21	n/a
Q22	p8
Q23	p9, p10
Q24	n/a
Q25	p10
Q26	p10
Q27	p11
Q28	p13
Q29	n/a
Q30	n/a
Q31	p14
Q32	p16-17
Q33	p17
Q34	n/a
Q35	—
Q36	—
Q37	—
Q38	p18
Q39	p18
Q40	p19
Q41	p19
Q42	p19
Q43	p20
Q44	p20
Q45	p20
Q46	p21

Q47	p21
Q48	p21
Q49	n/a
Q50	p20
Q51	p23
Q52	p23
Q53	p21
Q54	p22
Q55	p23
Q56	p23
Q57	p23
Q58	not asked
Q59	not asked
Q60	n/a
Q61	---
Q62	---
Q63	---
Q64	p23
Q65	n/a
Q66	n/a
Q67	n/a
Q68	n/a
Q69	p24
Q70	p25
Q71	---
Q72	p25
Q73	p26
Q74	n/a
Q75	n/a
Q76	p26, p28
Q77	p26, p28
Q78	p26, p28
Q79	p29
Q80	p26
Q81	p26
Q82	p26
Q83	p26
Q84	p27
Q85	p27
Q86	p28
Q87	p28
Q88	p28
Q89	p4, p30
Q90	p29
Q91	p29-30
Q92	not asked
Q93	p30
Q94	n/a
Q95	p31
Q96	p31
Q97	---

Q98	---
Q99	---
Q100	p32
Q101	p33
Q102	---
Q103	---
Q104	p34
Q105	n/a
Q106	p34
Q107	not asked
Q108	p36
Q109	p36
Q110	not asked
Q111	not asked
Q112	not asked
Q113	p36
Q114	p37
Q115	p37
Q116	p37
Q117	not asked
Q118	p39
Q119	p38
Q120	not asked
Q121	p38
Q122	not asked
Q123	p40
Q124	p41
Q125	p42
Q126	not asked
Q127	p44
Q128	p44
Q129	---
Q130	---
Q131	p45
Q132	p45
Q133	p29
Q134	p45
Q135	p46
Q136	n/a

Respondent Group: Academic Entrepreneurs

Respondent No: 14

Date of Interview: 28/08/90

I [Q7] It may be difficult to locate yourself on a spectrum, because it may be a dynamic and not a static situation, but if we imagine a spectrum with blue-sky research at one end and highly applied research at the other, where would you locate your research interests on that spectrum?

R Highly applied, full stop!

I What about your PhD?

R Highly applied, full stop! Deliberately. Absolutely highly applied. It had no blue-sky element whatsoever.

I What do you attribute that to? Do you think that is a personal interest, a need to do applied things, or is there something in the discipline itself which encourages that?

R It's a difficult one, that, at least ... a combination of things. Firstly, I think universities ought to do a lot more applied work than they do, because the bridge between industry and universities is still massive, even though some people are trying to narrow it. The idea that only universities can do blue-sky research is totally outdated. In fact, most industries are much better equipped than universities, anyway, to do blue-sky research. So, in drug engineering, for example, we can't touch industry.

I That may be patchy, sectorally.

R Oh, it is patchy sectorally. [But industry] is much better equipped to be able to buffer the losses and the failures as well as the successes. We don't have the kind of resources to be able to put up with loss-making operations any longer.

I What role do you see for universities, then? Or perhaps you don't see a distinctive role for them?

R In [specific disciplines]?

I No, in general.

R I think it is quite clear that regardless of my views on it, this Government certainly perceives the gap between universities and industry being narrowed, because they are removing a significant proportion of the research funding and actually telling us to go and get more of our funding from the private sector.

I If you think that universities should be bridging the gap more, and you think that industry is very often better equipped to do fundamental research for the reasons that you have given, I wonder what niche, if any, you think universities should occupy?

R Well, I think they should certainly occupy a niche. I'm not sure that they have the right any longer to try and set themselves up in the kind of ivory tower image that they used to have, as being the place to do specialist research and please don't tread on our territory, keep out of the way! That's an outdated version. We still obviously have the role of undertaking teaching. We still have the role of undertaking fundamental research as well as applied research and in closer co-operation with industry. One thing about universities, frankly, is that they can often do a lot of good research much cheaper than industry can do it. The overhead basis is much lower, much more cost-effective indeed. So, we benefit very greatly here in the [new departmental commercial arm] from doing work which industry could quite easily do but which can be done more effectively by us, more cost-effectively by us and in some ways, I think, maybe we've got more time to be able to think about one particular project. You can dedicate the staff to it at a much more modest cost, and give them a PhD, which industry can't do. So, you can pay them less and put a value on the PhD, to put it in crude terms, as part of a package which is quite attractive. This last two weeks I've just taken on three people from industry. I don't want to name the companies, but they are very big companies, all of whom are leaving the companies to come back and do a PhD here in the [new departmental commercial arm] and then go back into industry.

I How old are they?

R 25-35.

I Okay. You've explained that you stepped out of the [first departmental commercial arm] and went for a more conventional academic career structure, apparently: What was the reason for that?

R The academic system is basically unequal to operating a consultancy. It has no idea about delivering goods on time, answering questions that the clients set, actually accounting in a moderately efficient way.

I Are you saying that you were disenchanted with how [the first departmental commercial arm] was forced to work?

R Exactly. We were immensely successful and the University couldn't understand it and couldn't cater for it. That is why [the first departmental commercial arm] is now basically outside the University.

I That begs questions about what kind of difficulties, pragmatically, that presented you when you were trying to run it.

R It made life almost impossible, but the most difficult thing is that if you have been asked to do a piece of work by an external organisation, whether it is industry or not, you are often asked to make a decision in hours or minutes as to whether you wish to take on the contract. You are rarely given more than a day or two to get the quotation together. And things are always done in what I now call FAX mentality, a hell of a rush. Universities are absolutely unable to make decisions quickly. There is no mechanism for getting the approval because, of course, as a relatively young Lecturer at that time - even now, actually, the same applies - you have to have permission from a load of faceless administrators who don't know anything about it.

I Can we distinguish some things here? Do you mean that you have to have permission personally to do outside work?

R Oh, yes!

I But, in the context of [the first departmental commercial arm], you weren't ...

R Oh, the same. The same laws. Exactly the same laws.

I Even though you were not on a standard academic contract?

R That's right. But they applied the same rules to us.

I You had to get permission on each occasion to do outside work?

R Oh, yes.

I Was it individual, project by project permission, or could you get global permission for the [first departmental commercial arm]?

R Oh, no, no. I mean, the individual contracts were still managed by the central finance office. They weren't managed by us, locally. We actually did the work, the technical work. But all the finances were still administered entirely by the University. We didn't send any accounts out or do any of our own accounting.

I I hadn't realised that.

R Oh, yes. We didn't have any accounting whatsoever. None. All the accounting was done by the normal accounting system. All the permissions had to be sought from the normal permissions system, because we were paying overheads.

I One of the main criticisms of [the first departmental commercial arm] [which] I pick up as I go around talking to people at [this University] - and I gather it was quite a novel thing ...

R Oh, yes. It was at that time. Not now.

I ... The criticisms are that no proper accounting was done.

R It was a mess! Yes.

I The implication is that that was the fault of [the Professor whose idea it was].

R No! No! The reason the accounting was lousy is that the University ... [the Professor] never did any accounting like that.

I Because he wasn't required to?

R Because he wasn't required to. He made the mistake of thinking it was going to be a small operation which could be easily absorbed within the Department. That was true for about six months, fifteen years ago. And it grew rapidly from a £2,500 a year operation - I remember my first salary was £2,142 ... it grew from that into something that now turns over £1.5m-£2.0m a year. That's quite big for a university consultancy. And what happened was it rapidly outgrew the University ... the Department's capability of looking after it. So, all the finances were immediately transferred to University level. In fact, they were always there, anyway.

I Was it so novel that they would not consider the idea of putting in an administrator?

R Oh, they wouldn't do anything like that. It was run ... it was only agreed to in setting up in the first place on the grounds that it would be self-contained, cost-wise. And self-contained cost-wise then meant a budget of £2,500 a year, which was produced ... £1,500 a year from [the local] County Council and £1,000 from ?? Well, we didn't have the £ for an administrator, you see.

I I understood that after the first year or so, you were generating £ left, right and centre ...

R Oh, well, no, I mean, this is the fallacy of it. This is [the Professor] talking. If he'd actually been working in the [first departmental commercial arm] ... it wasn't that easy. We were under-funded at the start, so the first 18 months of £ that came in actually corrected the under-funding. We didn't have enough £ to start in the first place, so, generating large sums of £ was merely correcting a deficit that existed from the start.

I Presumably, that deficit was gradually covered?

R Gradually it then started to generate large quantities of £ and that was work more than £, actually, because at that time, perhaps, we were costing things rather less than we should have been. And the first thing I needed immediately was a secretary. I was doing my own typing ... my wife was doing the typing. It was crazy.

I Did you get a secretary?

R I did get a secretary, yes, and then very soon afterwards I had an assistant and two technicians and then four technicians and then eight or nine.

I As the £ came in, you expanded?

R As the £ came in, that's right.

I And yet you never had an administrator?

R *No, we never had an administrator.*

I *Did you want one?*

R *Yes, but it was pointless, because you can't ... in universities you can't administrate at the local level. It is only very recently that the idea of cost centres has come into universities. They never existed before. Going back 15 years, the whole thing was dealt with centrally by people you never even saw and certainly hadn't got any idea what you were trying to do over here. They had a 9-5 mentality and ...*

I *So, you had to hand what financial information you had to the centre and they made sense of it?*

R *That's right. They tried to make sense of it and send out the bills. They sent out the bills and credited the account and the one advantage ... they were responsible for debt collection. That was the only advantage that I could think of.*

I *What about tax, then?*

R *They dealt with all that.*

I *Was tax paid at that time?*

R *VAT?*

I *Income tax. You were operating as a commercial outfit, presumably.*

R *We were ... well, hang on. Income tax or do you mean capital gains tax?*

I *Either.*

R *We now in the [new departmental commercial arm] have one account which is a VAT-able account, so when we are providing a service, we charge VAT. If we charge research, we don't.*

I *What about [the first departmental commercial arm]?*

R *[It] never had ... as far as I know, it never charged VAT on anything. But I have no idea ...*

I *It may have been trading illegally, then?*

R *Yes, it could have been. I don't know. That's upto the administrators. We are paying them 40 per cent on overheads to deal with things like that. If they added to VAT to the bills, we would never have seen it, because I never saw the bills. You'd need to go and see a fellow called [B], if he is still around. He may have retired by now. He was the administrator who looked after most of the work [associated with the first departmental commercial arm] in the early days. He actually tried quite hard to get it right. But there was no mechanism for dealing with something which wasn't the standard SERC situation.*

I As I understand it, you were quite unique at that time, weren't you?

R Oh, absolutely, yes. Well, we were not unique. We were the fifth [departmental commercial arm] in this University. The first four had failed. We were unique in the sense that we succeeded.

I What were the other four? Can you remember?

R One was in [A]. One was in [B]. I can't remember the others. But they had failed for whatever reasons.

I Were they providing a commercial service?

R I have no idea. Except that they were likened to [us]. [The first departmental commercial arm] was offering a combination of research and commercial services. It was never one thing or the other.

I It was a hybrid, then?

R Yes, it was. It was never really set up specifically with an industrial channel. It did mostly local government work in the first couple of years. It is only in the later years and now with this [new departmental commercial arm] - which is a separate issue - that industrial funding, private sector funding has come.

I So, if I have to summarise why you left, it was basically because you couldn't ...

R Well, it is a commercial thing. I mean, firstly I didn't have tenure. All the people around me did and I was working five times harder than they were. I thought - this is absurd. It is much easier to go and get tenure and go to sleep for the next 25 years. It is not quite in my nature, but nevertheless ... It was very galling to see that. I was working 80 hours a week. They were - at a push - doing 20. I nearly went ...

I This is in 1979, yes?

R This is 1979.

I Do you think it is different now?

R Oh, well, I don't know. I'm not so sure about that, actually.

I So, you got tenure?

R Oh, yes. But, I mean, I've given it up now. It didn't really bother me as a right. I mean, you only really become concerned about tenure if you are not doing your job properly. That's when you feel threatened. However, it is very galling not to have tenure when everybody else around you is on a different contract. And the [first departmental commercial arm] existed in its early days quite a lot by contracting different members of the academic staff to work for it as a sub-consultancy, because obviously as a youngster, you know, I was struggling to keep my head above water running [it]. Technically I hadn't had the experience to do quite a lot of the work.

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I So, what was the attraction of starting a new [commercial arm] after all that?

R Oh, well, this is something completely different, really.

I [Q9] Right, tell me about the new [commercial arm].

R Well, [the objective of] this isn't advisory. [The objective of] this is [to do research].

I You are doing commercial research, aren't you?

R Commercial research entirely. I don't want, you know, to go anywhere near the Research Councils.

I What was the interest, then? You [left] the [first departmental commercial arm] and went for tenure ...

R I'll tell you why we set up this [new departmental commercial arm]. It sounds quite strange, but the main reason is because quite a few of the technicians we'd had on research grants - [Q38, Q39] we is myself and Dr. [X], who is my colleague who runs this with me ... quite a few of the technicians we'd had had been on contracts for three or four years and were coming upto the period where, if we renewed the contract, they would be eligible for redundancy payments at some time in the future. And the University is getting very nervous about this and didn't really want us to renew their contracts and was trying to persuade us that it really wasn't a good idea. So, in the end, we set up [the new departmental commercial arm] so that we could issue rolling contracts to these technicians indefinitely. And the [new departmental commercial arm], by having an entity, by being something, inherited the liability for the very modest redundancy payments you are talking about. You know, it's about £300.

I Do you mean, then, that you started the [new departmental commercial arm] chiefly because you didn't want to lose them as a resource?

R I didn't want to lose them as a resource at all and we've trained them. They trained themselves. We've got three top-class technicians, far better than most of the academic staff around the place.

I If you hadn't done that, do you think the University would have let them go?

R Yes.

I Definitely?

R Yes. No doubt. They would have had to, because the University doesn't have any £. It's not bankrupt, in fact, it is better off than quite a few other universities are, but nevertheless it is under severe financial strain and it was not prepared to take on ... and I don't blame the University for this at all. It was not prepared to take on extra commitments and liabilities which are open-ended, because once they've done it for one or two people, then they've got to do it right the way across the board, and that could amount to 100 technicians. You start to talk about significant amounts of redundancy £ then.

I Would I be right in thinking, though, that it is not enough to say - we want to keep them as a resource, out of the goodness of our heart? You must have something to market, surely? [Q8] What are you marketing?

R Well, in a sense, it's a rather difficult question, really. I have a lot of industrial connections, an awful lot. We set up the [new departmental commercial arm] with the V/C's support and specifically with a loan to underpin what we did in the first two years.

I Whose idea was this?

R Well, [mine], partly. We gave him a proposal for the [new departmental commercial arm] and what it could do and what its scope of activities would be. He liked the look of it, realised that we would need some pump-priming, so he provided some pump-priming funds ...

I Could we backtrack a bit here? One of my questions is: [Q9] how did you get the idea?

R Oh, well, the idea was an actual regeneration of the [first departmental commercial arm] but getting rid of everything that was wrong with that. Like doing our own accounts.

I [Q12] So, when did this start?

R 1 June, 1988.

I [Q13] Can I ask how old you were then?

R 38.

I [Q14] Could you tell me a bit about your family background. What you are doing is very akin to a small business. Is there a history of people starting or running small businesses in your family?

R Small business, no. Large business, yes.

I Tell me a bit more about that.

R My father was until recently the MD of [an engineering company].

I How big is that?

R Two thousand [employees].

I Was he doing that all through your childhood?

R Yes.

I So, is business part of your experience of life?

R Yes. Experience with a very small "e", yes ... I didn't actually learn anything directly from that, but you pick up the sentiment, the way in which business works.

I Do you think it may also dispose you positively towards the idea that you can do things like that?

R [Q15] Yes. I also spent a year in [a commercial environment] before I went to university and a year in off-licences between universities. So ...

I What were you doing in the off-licences?

R Believe it or not, I was a relief manager. I was the anti-disaster mechanism. I was thrown into shops where various things had happened, from attacks on the manager to people running off with the till. I was the relief manager who was sent anywhere at any time.

I So, you have some experience of the cut and thrust of business, have you?

R Yes. And then my PhD, as well, was totally supported by industry, and I knew from the first day that if I didn't deliver the goods, the reports, on time, then it would matter. Whereas the conventional student sits and thinks nobody really cares.

I Did you ... Was that because that was simply available, or why did you decide on a CASE studentship?

R No, I didn't go for a CASE studentship. I was offered a CASE studentship and it appealed to me more than the other things I was offered at the time.

I [Q16] When you came into [the first departmental commercial arm] - and more recently, too, when you set up the [new departmental commercial arm], did you know of any other academics who had started a company?

R No comment!

I I don't need to know names. I just need to know - yes or no.

R Yes.

I [Q17] Have you gone and talked to any of them?

R Yes.

I Was it helpful?

R No. The reason I said - no comment - is that there are quite a number of under the counter business activities in universities which are not set up in the way that this is. This is a university [activity] which will always be a university [activity] and will never go private.

I Do you mean it is quite different to these independent academic spin-off companies?

R Absolutely right. [They are] running their own companies with wives as the second director in their maiden names and all the rest of it. A lot of people are doing that. This is different ... They are small consultancies rather than a strategic research [operation].

I These academics you know of, then ... is that what they are doing, basically? They are not manufacturing widgets, or anything like that?

R No, no, no, no, no.

I Okay. Now, you put in this proposal for your [new departmental commercial arm] to the V/C. [Q19, Q20] Did you go and deal directly with him?

R Yes. He's excellent. I mean, he's a very approachable guy.

I Now, what made you go to him, rather than ...

R I couldn't stand the prospect of dealing with any of the people inbetween (laughs). He's top class.

I Which year was this?

R 1988.

I Was there not some prelude to setting up the [new departmental commercial arm]?

R No, not really. Oh, well there were a lot of research grants that Dr. [X] and myself had, well over £1m worth, which had been running for quite some time. So, we had been running them as individual research grants and we were conscious of the fact that we needed to put the whole thing into a body ...

I ... I was thinking more along these lines. By that time [the IL office] had been set up. Did you go and talk to them?

R Yes. [The ILO] was involved at that early stage. Again, he's excellent. I mean, he knows what he is trying to do and he knows how to get things to work, too. [He] acted as the conduit by which we got to the V/C. But he stood away then, so we did deal directly with the V/C.

I So, he introduced you and left you to it.

R He opened the door. He's good. He knows what he is doing.

I He was the marriage broker, then, as it were.

R Yes.

I [Q21] When you went to the V/C, did you have specific objectives in mind? Did you know exactly what you wanted?

R Oh, yes. We put it to him as a business plan.

I You had actually written a business plan, had you?

R Yes.

I Off your own bat?

R Yes.

I [Q22] What kind of response did you expect to get from him?

R (laughs) God! I don't think I can answer that. It's not that I don't want to. I mean, you travel hopefully. I can't say anything more than that. We didn't need a particular response because, remember, we weren't going in there to start something. We were going in on the back of existing research contracts which were running quite well, but which we needed to reorganise. So, we were going in on the back of need[ing] to restructure, rather than to say - can we have a lot of £, please?

I You weren't creating something out of nothing, as it were?

R No, very much not.

I [Q23] What kind of response did you get?

R Extremely positive. I mean, he ... he's a very enlightened guy, actually. He looked at the document and he said - what do you need, specifically? He realised that [ours] was a growing area, that it offered potential. I said - we need underpinning. We don't need a grant, we don't need a gift, we just need to know that if we get ourselves exposed by making investment decisions early on which we're not fully covered on, that you'll cover us. And so he said he would cover us from resources ... I'm not sure this is for publication in a report, so I'll qualify that for the tape, from something called the [G] Foundation ...

I ... Your £50,000 ... have you actually, physically, got that amount?

R Never used it. Didn't need to. It's still there, underpinning our activities, I think, until June of next year ... I think it is a notional arrangement. If we were looking as though we were going bankrupt, someone would come up with this £50,000 from some pocket. I don't know where it is.

I [Q24] Did the University itself play any role - apart from saying this is a good idea and making the introductions - in actually helping you set up the [new departmental commercial arm]?

R No. No. We've done it despite the University, really. Particularly with the accounting systems and the Finance Office again. Absolutely hopeless.

I Do you want to say a bit more about that?

R Well, I think it is partly ... it is a reflection not of the incompetence of the staff but of the fact that there are too few staff providing the administrative support that we are supposed to get for our overheads. It's a reflection of the fact that the whole system is under stress. They are unable to account efficiently. It is virtually impossible without doing our own accounting here, which is now what we do, to get accurate bills sent out to sponsors. They keep sending the wrong accounts and ...

I So, did you start out again with the University doing it?

R I started ... yes, well, I mean, I didn't have any choice. There is absolutely no choice. You can't do local accounting, even now. The accounting is single direction. We are a cost centre, but we can't send out bills.

I How do you get round it now, then?

R Well, we don't get round it, except that I've established good relations with two or three of the girls in Finance and I say look - forget your accounts. I will send you the proper bill. You put it on headed notepaper and send it out.

I It is a pragmatic way round the problems, then?

R It is pragmatic. Knowing how hopeless it was originally and having to get round it now, we do the accounting here as we spend things. We know precisely what should go out. We don't lose things into other people's accounts etc as they seem to be able to do. Although I think they are under pressure ... They are running 1,000 - 1,500 accounts. We are only running half a dozen. So, the girls over there have got to the point where they know that we can be trusted. If we send them a bill for £5,000 and say - look, please send it to such and such, here are the headings under which it should be paid, they will do that.

I What is the authorisation situation? Are you supposed to get authorisation from someone in [the administration] or what?

R Yes. To send a bill out or ...?

I Yes. Or, indeed, to ...

R To send an order, of course. To accept a contract, yes, [the IL office]. That's not a problem. I don't have a problem accepting contracts here.

I Does the [new departmental commercial arm] have a kind of global permission, in the way that some University [organisations] do?

R Well, we have, actually, I think, in the sense that ... you'll have to confirm this with [the IL office] but [they] have said on a number of occasions - [we're] not bothered about you because you know what you are doing. I take that to mean that [they] will allow us to negotiate an awful long way down the line.

I Apparently, [the IL office] is sufficiently confident about several [organisations] to have given them what they call global permission.

R Well, I think that is probably true of us.

I So, you handle the accounting as if you were doing it yourselves but ...

R ... in the final stage, the final step in the whole operation either in accepting a grant, which is [the IL office] and the final step in sending out £, bills etc is done by the official office. We send out reports directly, of course. There is no vetting of the quality of the work that we do.

I What about vetting of your pricing structure and things like that?

R Well, that is fixed now and it has been made a lot easier. Because it is real-cost accounting. So, we know that we just charge 160 per cent of the salaries. We obviously have to make our own judgements on the running costs, consumables and such like. We know what the overhead position is, so it is actually easier now to get a quote out.

I And is your judgement simply accepted?

R Yes. We still have to have it vetted but I've never had it questioned. It's very difficult for anybody not connected with the project to be able to say whether or not the consumables budget we've allowed is sufficient.

I [Q25] Now, what about things like use of equipment and instrumentation? Have you had to buy your own?

R Yes. We've even had to buy our own fume cupboards and things these days!

I Everything?

R Yes.

I So, you are not using any of the University's?

R Well, I wouldn't say that because in a [departmental commercial arm] like this, you've obviously got all the teaching facilities and research facilities mixed up. They all cross-feed into one another.

I So, how do you deal with that in accounting terms?

R We don't.

I So, are you a resource for the Department, as it is for you, too, sometimes?

R Oh, yes. It was seen as a cash cow.

I Is it [functioning as a cash cow]?

R No, it's not really because there is a lot of jealousy about the [departmental commercial arm] because it has a lot of £ going through it.

I Going through, presumably, is not the same as staying in it!

R *Oh, it doesn't stop in it, no. We're not a profit-making organisation. I'd be quite upset if we were, because that would take us back to the days of the [first departmental commercial arm].*

I *One of the questions I was going to ask you later was: [Q45] What do your colleagues in the Department think of your "business" activities?*

R *Split. They are either very positive or very negative. Very few sit on the fence.*

I *What do you attribute those two different attitudes to?*

R *Well, the management is supportive ...*

I *The management being the HoD?*

R *The HoD, yes, and the outgoing HoD and most of the senior staff ... It is hard to say, really. I don't know ... I've never understood academics. I don't have an awful lot of time for many of them. They don't realise how well off they are. They spend most of their time moaning about some things they can't do, rather than getting off their butts and actually going out and finding a way of doing it.*

I *So, is the jealousy amongst the younger ones, or what?*

R *Younger and middle. Particularly amongst those who are very pure scientists, rather than applied, because they feel that the pendulum has swung too far away from pure towards applied, particularly in the last five years - which I would agree with. They find it difficult now to get resources for their own research and feel, I think, it is not because we are taking it out of their mouth, but the system which happens to have favoured us is [working] against them.*

I *Now, how does that jealousy you perceive manifest itself?*

R *Obstructiveness, back-chat, attempts to influence what goes on, attempts to divert resources, attempts to increase the level of overhead that we should pay. You know, pretty diverse.*

I *Now, what about things like that ... In the course of talking to people, I have gained the impression that this is a profit-making organisation and that the £ which comes in stays here, rather than simply going through. Does the fact that there is no real forum for making these things transparent present a problem?*

R *Oh, well, no. We have a forum for doing that. We've produced statements of accounts. We've produced statements of objectives, current research projects underway, staffing, which we put to staff meetings every now and again.*

I *How does that get received?*

R *No comment. We've never actually ever had any positive or negative comment to any document that we have put in. It's normally the usual sort of academic back-chat which would be stopped immediately in industry.*

I Do you mean at the gossip level?

R Yes, yes. Exactly that.

I [Q25] You occupy University accommodation, don't you?

R Oh, yes. Yes.

I ' [Q26] Do you pay for it?

R We don't pay for the fabric. But we pay for the overhead, don't forget, so the overhead on all research grants that we have goes into the coffers which then feeds back and keeps the lights burning.

I [Q27] So, you are not paying a full market rent for the accommodation? It is effectively a marginal rent, isn't it?

R We are paying a marginal rent in the overhead. I don't know how the cost the overhead. I'm not even sure how the poll-tax now operates, so I've absolutely no idea what we pay relative to the building costs to keep it upright. I can tell you in relation to human software and everything else how much it costs, but I have no idea what they do with the overhead. It is never accounted back to us.

I So, in fact, as a [departmental commercial arm], you cannot cost yourselves totally, in the way that [the first departmental arm] now can?

R Quite right. Quite right, we can't.

I That raises interesting questions about whether the University is subsidising businesses and creating unfair competition.

R Could be. Certainly it was the case in [the first departmental commercial arm], in the early days. No question. We were heavily subsidised.

I Were there ever complaints about it from rival organisations?

R Well, we were about the first in Britain, believe it or not. There was one other [such] organisation at the time ... and soon after we started, another one came long which is now very big indeed. But, really, when we started, we were very much pioneering, in several ways. Yes, the answer is, there was jealousy. I remember having letters from other consultancies in the late 1970s which alluded to the fact that they objected to the fact that the competition wasn't fair. And I think it was a fair criticism.

I Did they never make a formal complaint?

R Oh, no. Well, there is no way that you can, you see. You can't sue a University.

I You could write a nasty letter to the V/C and arrange negative publicity, presumably.

R *Oh, we get all those sort of things happening, yes, but nobody ever takes any notice of that.*

I *Do you mean that you actually did get nasty letters to the V/C?*

R *No, not to the V/C. To the Department. [The HoD] had a couple of letters. Yes, yes.*

I *[Q25] Now, what about other resources? Do you have your own secretarial support?*

R *Yes.*

I *And you have your own technicians, I gather?*

R *We've got nine. We've got nine soft contract technicians on soft, renewable £, as opposed to two establishment technicians which are University-funded.*

I *So, has the Department lost the four technicians who were due to be made redundant?*

R *Oh, not at all. No. no. The soft technicians don't count on the balance sheets for the economics of the Department. They are assumed to be self-contained in terms of their total cost. So, they don't appear on the books of the Department anywhere, except in so far as the chief technician is responsible for all the technicians who are here nominally.*

I *So, are you saying that the [new departmental commercial arm] has enabled the Department to keep its technicians?*

R *Oh, no. No, it isn't that way, either. I happen to run the technicians in the Department, as well. I'm the liaison officer, so I am responsible for the staffing.*

I *Okay. Please walk me through what happened once again to the four technicians who motivated you to start the [new departmental commercial arm].*

R *We have nine technicians here in the [new departmental commercial arm]. All of them are soft-funded, external £. We have two established technicians in the [new departmental commercial arm] and they are two of our standard, establishment technicians, who are about 25-strong in the Department as a whole. Now, when a member of the establishment staff leaves, as it stands now, we can replace them, because we are in the black. The Department as a cost centre is in the black, so we can go ahead and replace them. In fact, I'm doing that now. When one of our soft contract technicians goes, they normally go at the end of a contract, so we wouldn't replace them. Or we would replace them only in the sense that we took on a new contract and a new member of staff.*

I *So, the four who motivated you to start the [new departmental commercial arm], who would have left ...*

R *Oh, that four. I'm sorry, I wasn't clear where you were getting this number four from. Right, well, they are still here, because of the [new departmental commercial arm]. They are four of the nine.*

I So, they now work in the [new departmental commercial arm] instead of the Department?

R They never worked in the Department. They were always working for the [new departmental commercial arm] from the start, or, before the [new departmental commercial arm was set up], they were working on research grants that eventually came together to form the [new departmental commercial arm]. They were on these rolling contracts, for which the [new departmental commercial arm] used to overcome the problems.

I Now, what about secretarial support?

R Well, I've given up trying to get any from the Department, because, again, it is so overloaded. So, we've taken on our own secretary, but issued all the members of the [new departmental commercial arm] who do much report-writing with that package there.

I What about things like communications? Have you got your own separate telephone lines etc?

R We've got our own FAX. Telephone lines, no, because only about a third to half my time is actually spent working for the [new departmental commercial arm], of course.

I So, you haven't been asked to put in a separate line for that?

R Oh, no. I would think not, either, because that is what the overheads pay for. If they do that, then there is going to be some discussion.

I [Q28] To come back to the funding. You said that the V/C found you some £ from a soft fund.

R He underpinned our expenditure. He didn't actually give us £50,000 and say - don't spend that. He did it himself and informed us who was underpinning us.

I So, the V/C not only found the [organisation] to underpin you and ...

R I think it always existed. I think we have in the background, like most of the universities do, these sort of "Friends of ...", who will support the University with innovative ideas. The V/C has to make his own judgement as to ... from the number of proposals received ... as to what to support and what not to.

I Is that the only basis upon which you have had financial assistance?

R [Yes].

I Do you find you have to market yourself, or are you so well known that you don't need to?

R I don't think anybody is so well known that ... I've had to do quite a bit of marketing recently, in the sense that we've just set up a major consortium of [local] industries to work on [a specific project]. To try and get the regulatory authorities and the protagonists into one package and agree to a contract, that has proved to be a challenge,

as the Americans say. That was hard work, but it has worked out.

I Do you mean, then, that you are actively touting for business?

R No. We don't tout for business. We've never had to. The ideas have always come in from outside. We've sometimes had to mature the ideas and develop them, before they became a saleable package, but we've never advertised.

I Can you foresee a time when you might need to?

R No, no. Because that's one of the reasons I left the [first departmental commercial arm]. I didn't really want to be fully commercial. So, if we went that way ...

I [Q8] So, you are still doing university-type research in the [new departmental commercial arm], as well as commercial research?

R Oh, yes. Very much so ... I do a lot of research which is not entirely industrially-funded. I have lot of CASE awards, for example, which is quite acceptable and many people around the country who don't have [commercial arms like this] [use them].

I Do you also get Research Council funding in the more conventional sense?

R No. I'm not looking for any Research Council grants. I don't want them. They are so badly organised. SERC are such a mess at the moment. And NERC's policy towards CASE awards is disgusting. If you look at it, you will find that they are entirely devoted towards their own institutes. They won't give any CASE awards to industry. It's astonishing. It's not official policy.

I [Q29] Did you actually want the University to play a role in helping you set up the [new departmental commercial arm]?

R Yes. [Q30] Well, we wanted it to be a University success. I had nothing to prove. I don't want a Chair. If I leave from here, which I probably will do, shortly, it will be to industry. I have nothing to prove to anybody. So, we wanted to make sure that this time, the University actually benefitted from setting up the organisation, rather than what happened with [the first departmental commercial arm], which, of course, it has not really benefitted from, at all. It has sold it off very cheaply, for £40,000 and 30 per cent of the interest in the company. It's phenomenal, really, when you consider that they sold that off at a P-ratio of 400:1. Astonishing incompetence.

I Whose decision was that?

R The Registrar who was sacked.

I [Q31] Were you satisfied with the role the University played in helping you set up the [new departmental commercial arm]?

R Yes. Yes, yes. [Q32] The only thing - and I can't blame the University for this - I object to having to pay for the fabric. We've had terrible trouble with our sponsors, trying to persuade industry to actually put fume cupboards in and build walls and things like that. They don't want to do that. They don't feel that is their role. They don't mind

funding research in universities ...

I You are not portraying yourself, as I understand it, as a completely commercial outfit, are you?

R No.

I Do you think that if you were, they might not quibble quite so much about that kind of thing?

R I don't know. I'm not sure. Maybe that's true. Yes, it could be.

I You are sitting astride the fence between the two systems, really, aren't you?

R Well, we have to, because of [the first departmental commercial arm], because we don't want to be seen to be duplicating that service.

I I gather they resent you setting up the [new departmental commercial arm].

R Oh, a rare old cuffuffle, yes. That's right. Who told you about it?

I [The founder of the first departmental commercial arm].

R Oh, well, he's caused it all, because he couldn't make a decision, you see, in the early days. It grew too quickly. When the [first departmental commercial arm] outgrew its operation, he needed to make some tough management decisions and wouldn't do it. He believed that all problems solved themselves if you just left them alone. And some do, some don't.

I What sort of management decisions was he confronted by?

R He needed to decide whether the [first departmental commercial arm] should have been a commercial enterprise or a research enterprise. Should it have left the Department or not? It half left the Department ...

I When was this?

R 1982/83, when he made a bad decision in terms of an appointment. He didn't upgrade internally, which, as it happens, would have been the right thing to do. He appointed someone from outside. That person was entirely commercial, not interested in anything else at all. Not even universities, really. He immediately saw as his prime target the USM and started to develop the [first departmental commercial arm] from that day. Took it out of the Department, much to everyone's annoyance, because the Department then got nothing for it, no benefit whatsoever ...

I That's an interesting area to pursue. I pursued it a bit with [the Professor who founded the first departmental commercial arm] and I think he got to the point where he really didn't understand what exactly happened to the [first departmental commercial arm] and why ... He felt he spoke to the V/C and got no straight answer. Who was this person who took the [first departmental commercial arm] out of the Department?

R (laughs) [X] took it out of the Department, but he was its MD. If you call [the Professor who founded it] ... you can't call him the Chief Executive because he does something! He was a sort of figurehead. He's the guy who started it, who had the original idea. He had the idea. It was entirely, from that point of view, his baby, but he never did anything for it, really. He didn't intend to. He was a busy man running a Department. [X] took it out of the Department into ...

I But how did he achieve that?

R Well, by growth. There was only a limited amount of space over there. It was a tiny little thing ... I mean, he had to.

I Ah, I thought you meant organisationally, he took it out of the Department.

R Well, he did, bit by bit he took it away. As soon as he got it physically moved, he was then able to say - ah, well, we can't use the administrative base over there because it is now separate. So, we need to set it up in a different way and he gradually decentralised it.

I Do you mean that he did that consciously?

R Oh, yes. Well, I know him very well. He is a personal friend of mine, or was. Not so much these days. It was a deliberate move on his part and very cleverly engineered.

I I was told that there was an agreement that the University would not launch a rival organisation.

R That's right. But then the University decided - well, to hell with this. Why on earth should we spend ...?

I Was there a formal agreement?

R Well, it is a long story. [X] tried to get the University to sign an agreement which said that they wouldn't launch anything competitive. The University realised ... [the ILO] did ... a few days before it was due to be signed in stone, that this agreement was not tenable. And so it was ripped up. It was never signed. That caused a lot of trouble because by this time the University had sold off the 30 per cent of the [first departmental commercial arm] to [company V], under certain understandings.

I Were these verbal understandings?

R Well, at that point, somebody had ripped up the contract and said - we can't sign that. It is in conflict with the University's Charter and with the terms of tenure of most individual members of staff. So, life became very fun and games then. And the University also suddenly realised - God, if we do sign that agreement, we are going to stop anybody in the ... Department doing any outside research of any kind! And then they thought, God, the same could be true of [other Departments]. Oh, big trouble. So, they had to do a lot of back-chat. [The Professor who founded the first departmental commercial arm] wouldn't know this because it was all around the time he was retiring, really, and I think he had lost track of it a bit by then.

They then formed a new agreement to say that they would use their best endeavours not to produce a competitive position. And the way they did that was to emphasise the ... advisory [nature] as opposed to [our] research-~~oriented~~ nature]. And to try and distinguish between research and advisory. Not easy.

I Where do you draw the line?

R Well, the guy who runs [the first departmental commercial arm] and I have certainly not seen eye to eye in the past. We get on much better now because we've realised that it would be better to live in the same ... they are not really part of the University in many ways. Because they are outside the campus and have nothing to do really with us, now. At the same time, they have got to live with the title and market [themselves accordingly].

I Is there no way you can do collaborative work?

R No. No marketing co-operation, no commercial contact, no links. Nor will there be.

I Whose choice was that?

R Joint. Mutual.

I Have you talked about that explicitly?

R Oh, yes. Yes, he actually asked at one point if I'd pack up in the [new departmental commercial arm] and become a member of his Board (laughs). Funny, that! ... The problem is, you've got two organisations within one University where the overlap in the middle of that advisory/research spectrum is significant. There is about a 30 per cent overlap.

I But there is nothing, surely, to stop anyone - other members of the Department, outsiders - doing similar research or consultancy, if they have the skills?

R Theoretically. But you see, you don't need permission if you are going to do consultancy work for the [first departmental commercial arm], you can do it outside. You can do all sorts of under the counter stuff which does go on.

I Who says you don't need permission?

R The University. It is one of those things that for many years has been in there. I don't know why or where that came from. I can guess: [the MD]. It was a manoeuvring measure and the main reason is that the HoD then doesn't know what that member of staff is doing. And nor do you have to tell him. So you are not in breach of contract if you don't tell him.

I What is the objection to the HoD knowing?

R Well, because if you do as much work as some people [for the first departmental commercial arm], you can't be doing your own job properly.

I Do you mean that they are exceeding the University's limit?

R Oh, yes. There isn't a limit as in number of days but ...

I There's supposed to be a limit of a day a week.

R Is there?!

I Yes.

R I don't know where they get from. I've never heard that.

I It is specified in the staff handbook, I believe.

R Is it?! Oh, I've never read that.

I It's not by entitlement or right ...

R A day a week? Fifty days a year?

I By custom and practice.

R You'd better tell me what else is in there! I didn't know anything about that at all.

[short, off-the-record section omitted here]

I Can we move on now to roles, to titles? [Q40] What is your title in the [new departmental commercial arm]?

R I'm its Deputy Director, but it is effectively joint MD because, for reasons historically, at the [first departmental commercial arm], we decided to keep a low profile for me.

I So, who is the Director?

R Dr. [X].

I So, is it effectively a partnership?

R Yes. Exactly. And it is a partnership with three people: the third being ... the chief technician. It is entirely a joint partnership, single vote, no difference between academics and technical staff. Unusual.

I When you say joint partnership, single vote, is it actually set up as a company?

R No, no, no. Internally. That's our code of practice. For instance, this morning we spent £20,000 on a particular piece of equipment. It is quite a lot of £ for us. One of us didn't want to buy a particular model, two of us did. So, we bought it.

I Now, what is the legal status of the [new departmental commercial arm]?

R *Legally? That's interesting. That is something that the Department has investigated recently ... five months ago ... with the central administration. And we are still waiting for a reply. Because, of course, potentially we could bankrupt the Department and say that liability ... Professional liability-wise, I am covered personally, as indeed, the other two are, through things that we have taken out ourselves. However, if we make a professionally incompetent decision which costs £5m, then, of course, they can sue the University. We are told, verbally or they may put it in writing, as I say, that we are covered by the University's normal professional indemnity insurance.*

I *[Q41] How much time ... what is the state of the game now? Is the [new departmental commercial arm] your entire job or only part of it?*

R *Good Lord, no. I have got one of the heaviest teaching loads of the lot. About a third of my time, a third to half I should think, something like that.*

I *Now, is that formally agreed?*

R *Yes. Yes. That's what I need to devote to it ...*

I *How is that organised?*

R *I do it. I run the biggest honours school. I have to do all the timetables etc anyway.*

I *Are you timetabling less for yourself, because of the [new departmental commercial arm]?*

R *No. I work seven days a week. I'm about to have the first holiday I've taken for seven years, so I guess that's reasonable.*

I *What about Dr. [X]?*

R *Considerably less, actually. [short off-the-record section omitted here] But our rate of growth ... We are going to have to do something about that.*

I *Recruit more people?*

R *Well, we need ... Well, I think what we'll probably do is try and take on ... this will amuse you ... an administrative assistant at some point, who will combine the role of some of our secretarial support we get now with some of the financial accounting we going to need for this consortium we set up [and] with some of the management responsibilities.*

I *[Q42] Do you ever find yourself asking favours vis-a-vis your normal academic commitments?*

R *No.*

I *No, because it isn't necessary or no because you wouldn't?*

R *Both.*

I [Q46] You said that your HoD is quite supportive of what you are doing in the [new departmental commercial arm]. Is that right? The current HoD ...

R Well, I was going to qualify that because, of course, we've just had a transfer. Both is the answer. The new one I don't know well enough, but he has certainly been supportive enough so far.

I Where is he from?

R [A plateglass university]. He is still finding his feet. He has a tough job. Big Department, financially stressed. A bit run down.

I Does he regard the [new departmental commercial arm] as a cash cow, as you said earlier?

R Yes, 'fraid so. [Q47] Well, he has only said it once, in a public meeting, where the outgoing HoD was present as well, the chief technician etc. So, we let it go. If he ever sees it as a cash cow, we'll close it.

I As I understand it, the £ does not flow directly into the Department, anyway, does it? It is an indirect source of income, via overhead sharing with the centre, surely?

R Well, they can get £ in all sorts of ways. They can levy an increased percentage overhead. The Department can. Our HoD is the boss.

I Is he allowed to do that?

R There is nothing to stop him. And if he says - I want more £ out of this, otherwise I can't continue to support it. I give it support and you are one of my staff ... I'm not saying he would do that.

I Do you mean he could treat, for instance, the accommodation as an opportunity cost?

R Oh, there's all sorts of things he could do, yes. I mean, he's in a powerful position. I don't think for one moment he ever would, and I'll put that on record, but at the same time, he has the freedom to do that. We don't see ourselves as being a cash generating operation at all.

I What do you see yourselves as?

R Well, what we're doing now. We're publishing very heavily. I've written about fourteen or fifteen papers this year.

I So, do you mean you see it as another way of doing traditional academic research and bridging the gap at the same time?

R Exactly. We're doing some fundamental research ... We are developing new specific new methods. You might call that blue-sky. It is not blue-sky in the sense that it is totally original and looking for something that you don't know what you are looking for ... which is what I [call] blue-sky. It is totally applied and is targetting a particular

development, but the technology doesn't exist. So, you are developing a new technology for an applied application.

I It is, perhaps, strategic research, then?

R Yes. That is precisely how we describe ourselves. Strategic research.

I [Q48] Being as honest as you can, looking back - and it is not very far in this case - would you say that your efforts to start and run the [new departmental commercial arm] have ever impinged negatively on your academic commitments?

R Yes.

I Which commitments in particular?

R Undergraduate time and attention.

I What about postgraduates?

R No. They are not part and parcel of the [new departmental commercial arm] in the sense that quite a lot of the contract work that we do is done through Research Assistants, not postgraduates. They are the same thing, except that they are paid better. So, I don't think it is fair to say that postgraduates have suffered, but I think the undergraduates do from time to time.

I Have there been complaints?

R No, no. Well, not to me. About me, rather. There have certainly been complaints about people who spend too much time out of the University doing consultancy away from here. Not working for us.

I [Q49] Has anyone ever suggested that the [new departmental commercial arm] was impinging negatively on your work?

R No. Not in my case, because of the number of hours that I work. Other people, yes.

I Do I take it that you are therefore not doing other outside work, that this is your outside work?

R Oh, no. I do other outside work as well. I work thirty days a year for [a major multinational chemical company].

I So, you really are doing quite a heavy load. [Q50] Do you think that your activities for the [new departmental commercial arm] have had a positive impact on your academic activities?

R (laughs) Oh, God, that's a bugger. Positive? [Q51] I suppose it has a motivating effect because, without being funny, when you get to 40 and a Readership, which I have been fortunate in getting, with no ambitions whatsoever towards a Chair, it would be difficult to see where the motivation would come from to stay in the University without

having the [new departmental commercial arm].

I Do you mean that the challenges are ...

R ... There's no targets. If you don't have targets for people, it is very difficult, I think, to motivate them.

I [Q52] That leads very nicely into the next question, which is: Did you ever worry that setting up an organisation like this would not be regarded positively when it came to promotion. In a sense, you had already made it, I suppose.

R Well, in a way. I mean, promotion? Did I worry? I don't think I gave that any thought, actually.

I Was the Readership important to you?

R No.

I But you applied for it, presumably?

R No.

I Were you nominated?

R No, I didn't put in for it. I didn't put in for Senior Lectureship, either. The system does that. You don't nominate yourself, as far as I am aware, anyway ... I mean, it is not important to me because I don't see my future as in universities anyway. I suppose, I mean, I went out and had an extra beer that evening. But that was about the level of it. I don't see it as being academic prowess.

I Let's imagine all this happening ten years earlier, before you were promoted. Do you think that would have been a concern, or do you think you would have done it anyway?

R No. I think I have to be honest and say I think it would have been a concern. Because you do need ... if the Senior Lectureship or the Readership matters at all, it is the muscle.

I Muscle in what sense?

R In the sense that you can get things done which you would find far more difficult to get done if you were a Lecturer.

I Done in the University?

R Throughout. In the Department, too.

I What about in negotiating your contracts?

R Externally? Oh, they are not interested in ...

I *Do you mean it means nothing?*

R *No. Nothing whatsoever. They wouldn't even understand what a Readership was, actually. I think the title "Professor" does. That's the only one they really understand, and anyway, frankly, the promotions system in universities is so appalling that I'm glad they really don't take much notice of it. Because it is mainly a long service medal.*

I *[Q53] So, did you never check out what the promotions criteria were in relation to this kind of activity?*

R *Oh, Good Lord, no. No, honestly, no.*

I *[Q54] You talked earlier about possibly leaving to go and work in industry. When you started the [new departmental commercial arm], did you think then about leaving the University and ...*

R *I nearly left before this. Very nearly. That much away from it. It was only because I would have had to work more in South Africa than I was prepared to do that I didn't go.*

I *What will happen to the [new departmental commercial arm] if you leave?*

R *Oh, it will continue. Like all organisations, it is much bigger than the individual. It'll struggle for a month or two ... I mean, we each have a role to play, the three of us, in the [new departmental commercial arm]. But no, I don't believe ... it would struggle for a month or two until it readjusted. All equilibria readjust.*

I *Is there somebody in the Department who could step into your shoes?*

R *No. No.*

I *And if the University cannot recruit externally ...*

R *Oh, we could! The [new departmental commercial arm] could, yes. I mean, in the sense that if I left ...*

I *Has Dr. [X] got tenure?*

R *He's got tenure but he's just a Lecturer. In a sense, I think the [new departmental commercial arm] has impinged heavily on his time.*

I *What about his career?*

R *No, I think his career has been affected by the fact that he has not published.*

I *How much does that have to do with the fact he is involved in the [new departmental commercial arm]?*

R *Little. I mean, there are personal circumstances which I can't really [comment on]. Can we go back to the last question? I gave you half an answer. If I left, it wouldn't just be the [new departmental commercial arm] that I was leaving, of course, it would be a Reader in the Department who was leaving. Now the Reader in the Department could be*

replaced as a junior Lecturer, I presume. Now, I don't think the Department would be likely to replace me in a manner that the post in the [new departmental commercial arm] could be replaced. So, the [new departmental commercial arm] would probably either contract to accommodate the new reduced management input. I think its difficulty would be that it would be losing its main marketing wing. I do most of that. I don't stand on street corners with sandwich boards any longer, but we've been in the game for a while. I do a lot of interviewing for [a government department], for example, appointing external consultants. I sit on two of the EC panels [in this field]. You get known. I don't know whether that is a good thing or a bad thing. But it would be a while before anybody could readjust. But I am under no illusions at all that it would readjust.

I It was put to me that you became profitable within three or four months. Is that right?

R Here? We don't make a profit.

I Okay, you balanced your books.

R We balanced our books, yes, but you see, it is misleading, that, because the [new departmental commercial arm] already had these existing contracts that were already running. They just didn't have the label "[commercial arm]" attached to them at that point. So, they really just came together in one thing and we did a jiggle around with the books.

I It has been put to me that you were so well designed and organised and planned that you were able to break even within three or four months. That is slightly misleading.

R Yes. It depends how you do your cost-accounting, you see, doesn't it? If you are doing it on historic costs without running down your capital, yes, that is probably true. If you ... universities are not qualified, in my opinion, to comment on accounting anyway, because they don't know how to do it. And you can't cost a [commercial arm] which doesn't actually bring in real costs. You yourself referred to the fabric, earlier on. Who painted this? Who paid for this furniture? Did the new commercial arm? Did it hell. The University bought this furniture. The University bought the lighting, it bought the windows. The computers are bought by the [new commercial arm]. The radio, the TV, the monitors and things like that ... that was all bought by the [new departmental commercial arm]. You can't really come along, in my opinion (not you personally) and say - oh, it was profitable in three or four months. What it meant was that on an outgoing cash flow basis, our staff salaries were covered by the incoming £ from contracts. But that was true before the [new departmental commercial arm] started, otherwise we wouldn't have been allowed to form it.

I One wonders how you could ever really make that claim, because where would you start your cost-accounting?

R Yes. I wouldn't know. I'm not qualified. I mean, I follow business very carefully. I get the FT every day. I know a lot about the stock market, but even I wouldn't know how to start doing that because you've got to know what the running costs of a sub-centre of one Department, which is a sub-unit of the University, costs to run. And there is no way that you can actually come up with those answers. There is no need to, so you have no idea at all where your cost-accounting comes.

I So, your idea about leaving the University has nothing to do with taking a [new departmental arm] like this from its present status to that of [the first departmental commercial arm] and doing that full-time?

R Oh, no! Oh, no! (laughs) No, I would never do that. I think that is entirely wrong.

I Why?

R Well, because the parent Department which put [in] all the IP, to coin your own phrase, the effort etc into setting up the [first departmental commercial arm] now does not benefit from it at all. We get nothing. So, your concern about [the IL office] ... they should look at their own nest and get it straight first, in the way that they have handled [that]. They have actually taken it away from its parent organisation ...

I I don't know the ins and outs of that but I have the impression that that was one particular individual's decision and it was nothing to do with the [IL office].

R Well, the net result ... I mean, that's not actually true, but the net result, regardless of the mechanism by which it happened - and it was a decision of three people called [the university management team], which you will have heard of - that's where the decision was finally made ... This is going back to the days when one of the Pro-V/Cs was, metaphorically speaking, very much in bed with [the director of the first departmental commercial arm] at that time. I'd rather leave that at that point, but it was certainly influential on the way things happened. It left the poor old parent Department destitute at a time when it was under severe financial stress, with a recurring loss of about £110,000 or so compound interest loss, which forced it to fuse with [another Department].

The [first departmental commercial arm] had such a strong cash flow that it would have dissolved that deficit instantly. So, you be very careful with the background over the ?? of the Department.

I It was suggested to me fairly forcefully that it was [the former V/C] who was responsible for that decision.

R No. It's not true. It is quite incorrect. This is [the Professor who started the first departmental commercial arm] and he just doesn't really know, frankly.

I So, are you saying that it was not the primary decision of the former V/C?

R I know [him] very well. It wasn't him. It was another Pro-V/C at the time ... It was a cock-up, really. It was a classic example of not knowing what to do with something because it was growing too fast and too successful by a set of rules that no-one understood in the University. So, no-one could deliver a contract on time. Does it really matter? SERC will take a contract six months late, a year late, you know, they're not too bothered really. They are tighter now, of course, but this is going back a while. And ... [as for] getting penalty clauses in your account, oh, we can't do that. That's not part of the rules. That was the kind of mentality.

So, they took it away from the Department, slowly but surely. The Department desperately needed that income and cash flow - and from where it should come, because [the HoD] had the idea. That is [his] IP. He put it into practice. It finished up with this Department getting absolutely nothing from an organisation which is turning over £2m a year. And does create a lot of bitterness. It's not with me. I've probably got more right to be bitter about it than anybody else. I've gone through my phase of that. But the Department now is still very much better.

I Now, let's look at your [new departmental commercial arm]. Is there a possibility that could happen again?

R No. I'd stop it.

I If you are not here, you can't stop it.

R Oh, sure. Sorry, if I go ...

I Is there a possibility that the same thing could happen to the Department again?

R Highly, highly unlikely, because there is always the benefit, I think, of hindsight. It has a new management here now which will make a decision ...

I Do you mean the V/C?

R No. The Department's management. He realises that if he wants it to become a commercial operation, he could probably get two other people to do it and make it into a commercial venture and we would back away from it. It is not what we would want to do. I don't think there's a chance with the current set-up of that same mistake being made again. Because last time, you see, apart from anything else, the Department didn't realise how valuable the [first departmental commercial arm] was - or is.

I Or realised too late?

R That's probably more to the point, actually. You're probably right. Had they realised, I think they would have done something about it earlier.

I Once a precedent has been created ... one wonders whether that couldn't happen again.

R Given the driving force of it happening last time, which was the MD of the [first departmental commercial arm], which is effectively me [this time], in operational terms it is, I'm not likely to do that. If I go, well, I mean, it doesn't bother me then. They can do what they want to with it. It is nothing to do with me. It doesn't affect me.

I You did say, though, that it could be converted into something more commercial by putting different people in charge of it ...

R Well, I think it could, but not while [the first departmental commercial arm] is there, because it would be two things doing the same thing.

I Unless you carved out different areas?

R *I don't think that is possible. You'd have to know the subject area. You can't ... it's not possible to do that, because they've got specialist wings, eight of them. They've got five [locations] now. It is not just [here]. It is all over the country. So, you can't ... No, it wouldn't be feasible.*

I *So, leaving the University has nothing to do with going out and becoming an entrepreneur?*

R *No.*

I *What is the attraction of working in industry?*

R *The realism (laughs).*

I *[Q64] Looking back, at either the [new departmental commercial arm] or [the first departmental commercial arm], what was the hardest part of trying to set up what was really effectively a company under a different guise, as an academic?*

R *I didn't find it difficult.*

I *Do you mean apart from the systemic difficulties which you have already outlined?*

R *[Yes]. I mean, I'm not really an academic, so I don't really think like an academic. What you're implying, and you may be right ... I don't know, is that an academic thinks in a different way to someone in industry.*

I *Not necessarily, but the academic sits in a framework which may impose certain constraints on him ...*

R *Yes, well, I've gone through those constraints in that they are primarily operational ones, administrative, I'd say, rather than ... intellectual.*

I *I wouldn't wish to imply that there were necessarily intellectual constraints.*

R *No. I mean, I didn't find it particularly difficult. I suppose the main problem I had was actually making it work despite the existence of the administration. But that is not so much a problem now. [The ILO] and the V/C have helped immensely. We still have to manoeuvre things where we think that our judgement is more appropriate and better than theirs.*

I *I got the impression, talking to [the IL office], that they felt that everybody was on a learning curve.*

R *I guess that is true. I think when you've finished the end of the learning curve, then you really don't have any challenges left. So, I'd admit that we still haven't got a completely stable operation.*

I *[Q65] You don't seem to have been deterred from starting the [new commercial arm] by your earlier experience.*

R *Oh, I think of [the first departmental commercial arm] as a combination of extremely pleasant as well as extremely annoying [experiences].*

I *I meant from the organisational perspective.*

R *Yes. Well, I think the University has come of age, to a degree. [The ILO] represented a significant improvement on previous structures and individuals that were there. The V/C is a different V/C. God rest the soul of the former fella. He (the current V/C) also has a very different attitude ... showed up brilliantly, in my opinion, when ... and this is digressing, but it is very important to show his character. When they advertised the Chair of [H], a very famous case this, and they did the interviews etc and they just couldn't make up their minds what they were going to do, because they had two extremely strong candidates. They called the V/C and he said very simply - appoint them both! Which is extremely simple but very strong and effective management. He looked at them. He said - they are quite clearly both the kind of calibre of people we want at [this University]. Appoint them both, and we did. Now, that is pushing the boat out to the tune of £40,000 a year plus at a time when the University was stretched. And people didn't do that. He had a bit of vision, which I think is unusual in universities.*

I *[Q66] What advice would you give to an academic who told you he/she wanted to set up a company, knowing about your parallel activities?*

R *I don't think I'm qualified to comment on that, because, whilst I know a fair bit about companies, I think it would be rather presumptuous of me to give somebody like that advice, because I don't represent the private sector myself.*

I *But you need not restrict your advice to business advice, need you?*

R *Are you asking whether I would advise them to do it within the University or to leave?*

I *I'm interested in, for example, what advice you might give concerning how to deal with the University, if you have to deal with it at all.*

R *I don't know that I can answer that. It is not that I don't want to. I think I would probably say ... it would be a very negative ... it would be a get-out, but I would probably say - you've just got to make your own judgement, based upon your experience of having worked here for several years.*

I *You raised there the possibility of suggesting someone should leave altogether. Would that be in your mind as something they should consider?*

R *Well, it obviously has to be, because I probably will leave myself within a foreseeable time frame. Quite clearly, that would colour my judgement, which is part of the reason I am being evasive in answering the question. I think it would produce a biased reply which would not necessarily be fair. I think the University is quite capable now of ... no, its on this learning curve. When it gets to the end of this learning curve, it think it probably will be in a position where it can effectively exploit or develop IP. But only once it has found a mechanism for talking to industry on the kind of terms that industries are prepared to negotiate on. We need them a damned sight more than they need us in the context of research. In the context of teaching, it is probably 50:50, because they can get*

nowhere without the raw material, the training. But in terms of research, they don't need us. They can often do this kind of work in-house themselves. Something is going on next door, there, in the radioactive area [which] they could do easily at [company Z]. But they have chosen to use us for a number of reasons. Partly [because] we are hidden away. We can do the work without exposing it too much to the public eye at this stage, until the patents are registered. There are all sorts of little advantages and I am prepared to go and meet them half way on that. No problem.

I [Q67] So, any advice you gave, would that relate specifically to your experience at [this University] or do you think that anything you said would relate in a wider context?

R Oh, I think there are other universities who deal with this better than us and other places who deal with it much more poorly. There's no doubt that London has got its act together very well in my field. I can't comment on other fields. London is in a very strong position. I think Lancaster has got its act together quite well. Maybe it's best not to mention the ones that haven't, but this is not uncommon now to have these [commercial arms] and things. It's in vogue, very much.

I Ah, I was thinking more of somebody who might want to do a joint venture with his/her university as a separate company, or even their own, independent spin-off company.

R Yes. I've no experience of joint ventures directly with an outside organisation, so I can't comment.

I Is there anything that I ought to have asked you about this subject which I haven't asked you and you would like to add?

R (laughs) Standard, catch-all question at the end, huh? Well, I don't think universities really have got themselves organised in a way where they can style their operations like they do in the US, with extension departments, where the interface with the outside world is much more effective. It is going to take our universities a long time before they get to that position, I think.

I What are you basing that on?

R Well, I'm talking about my own area. I can't possibly comment on others. For example, I suspect that what I said is incorrect in certain areas of engineering, in medicine. They are quite clearly areas where that would be the case. But you happen to have chosen a field which is the most rapidly growing in the UK, the most rapidly growing in Europe and probably the world, at the moment. That's why I look so haggard. The only reason that that thing (the phone) has not been going all afternoon is that I diverted it. We're in a very rapid growth here. We don't actually have the graduate raw material to supply industry's needs at the moment. There is a lag phase. It is going to take a lot more resources to be put into the area in order to be able to turn out what people want. Which is also not going to come about. We are in a very plum position here because we used the excuse of setting up the [new departmental commercial arm] to get some £ out of the University to help us start.

I'm afraid I'm certainly negative in the sense that I wish it could be made to work well in the University, but I don't think the system is geared towards making a success of being a semi-commercial enterprise. I'm not even sure it should be. One has to question the whole ethos of what I am doing, really. Should we be doing what we're doing. I'm not saying that we should. I'm saying that we make a success of what we do. Frankly, without being too sentimental, I mean, like most things in life, if you do what you do well, then, you know, at least you should be fairly satisfied with your own performance. But it doesn't mean that other people would agree that universities should even be involved in any way with industry. There is a very big school of thought which thinks there ought to be a tremendous divide and a big, clear steel sheet between what happens outside and the intellectual thought and processes that go on within. [That] does question the whole basis on which universities operate.

I I suppose it comes back to the question I asked you earlier, namely what you think universities are for.

R Yes. It's a hell of a changing world. It is a fantastically changing world. In the ten years [since] I left [the first departmental commercial arm], I would find it hard to believe that at any time in the universities' history has there been such a dramatic change in what is now expected of them. Unfortunately, we still, for example, in our Department, carry about a quarter of the staff who do virtually nothing. They do very little in term time. They do absolutely nothing in the summer. And you've still got this mechanism where you can't make people redundant for non-performance or anything. You've still got no managerial authority at Departmental level. You can't hire or fire.

I You have semi-devolved budgets here, don't you?

R Yes, but you can't hire and fire. There's no power in that whatsoever. You can't do anything in that context. There is absolutely no power at all over the fundamental part of your resource base, which is 72 per cent of the cost of running the Department. You can't control that. So, there is no management, even though they are sent on management courses etc. It's a bit of a sop, really, because they don't have any authority.

I Well, I think we have covered a lot of ground here. I'd like to thank you for the for the time you put into this. It has been a most interesting discussion.

END OF INTERVIEW

KEY TO QUESTIONS IN THE TEXT

<u>Question Number(s)</u>	<u>Page Reference(s)</u>
Q7	p1-2
Q8	p8, p20
Q9	p7
Q10	not explicitly asked; implicit answer = soft
Q11	
Q12	p9
Q13	p9
Q14	p9
Q15	p9
Q16	p10
Q17	p10
Q18	
Q19	p10-11
Q20	p11
Q21	
Q22	p11-12
Q23	p12
Q24	p13
Q25	p14, p15, p18, p19
Q26	p15-17
Q27	p17
Q28	p19
Q29	p20
Q30	p20
Q31	p21
Q32	p21
Q33	n/a
Q34	n/a
Q35	n/a
Q36	n/a
Q37	n/a
Q38	p7
Q39	p7
Q40	p27
Q41	p28-29
Q42	p29
Q43	n/a
Q44	n/a
Q45	p15
Q46	p29-30
Q47	p30
Q48	p31
Q49	p31
Q50	p32
Q51	p32
Q52	p32

<i>Q53</i>	<i>p33</i>
<i>Q54</i>	<i>p34</i>
<i>Q55</i>	<i>n/a</i>
<i>Q56</i>	<i>n/a</i>
<i>Q57</i>	<i>n/a</i>
<i>Q58</i>	<i>not explicitly asked; implicit answer = no</i>
<i>Q59</i>	<i>n/a</i>
<i>Q60</i>	<i>n/a</i>
<i>Q61</i>	<i>n/a</i>
<i>Q62</i>	<i>n/a</i>
<i>Q63</i>	<i>n/a</i>
<i>Q64</i>	<i>p38</i>
<i>Q65</i>	<i>p38-39</i>
<i>Q66</i>	<i>p39</i>
<i>Q67</i>	<i>p40</i>
<i>Q68</i>	<i>not explicitly asked; implicit answer = same as Q67</i>

Other Issues:

<i>University Ethos</i>	<i>p7, p41</i>
<i>Increasing Uni Revenue</i>	
<i>Function of University</i>	
<i>U/I Relationship</i>	
<i>Status</i>	
<i>Motivation</i>	<i>p7</i>
<i>Premises</i>	
<i>Uni as Midwife</i>	
<i>Pragmatics</i>	<i>p13-14, p21</i>
<i>Obstacles to Entr'ship</i>	<i>p2-5</i>
<i>Taxation</i>	<i>p5-6</i>
<i>Capitalisation</i>	
<i>Equity</i>	
<i>Finance</i>	<i>p12, p13, p19</i>
<i>Business Plans</i>	<i>p11</i>
<i>Marketing</i>	<i>p19-20, p34</i>
<i>Employees</i>	
<i>Management</i>	
<i>Research Interests</i>	
<i>IP Ownership</i>	<i>p25-27</i>
<i>Patenting</i>	
<i>Development Work</i>	
<i>Competition with Uni</i>	<i>p22-23</i>
<i>Unfair Competition</i>	<i>p17</i>
<i>University Companies</i>	
<i>Other Dept Commercial Arms</i>	<i>p6-7</i>
<i>Turnover</i>	
<i>Profit</i>	
<i>Growth</i>	
<i>Student Placements</i>	

APPENDIX D

APPX 7

FIGURE 1: POOL OF CANDIDATE UNIVERSITIES BY TYPE

Ancient	Founding Date	Civic	Founding Date	Ex-CAT/Equivalent	Founding Date	Plateglass	Founding Date	Miscellaneous	Founding Date
Aberdeen	1494	Birmingham	1900	Bath	1966	East Anglia	1961	Dundee	1967
Edinburgh	1583	Bristol	1909	Bradford	1966	Essex	1965	Keele	1962
Glasgow	1451	Exeter	1955	Brunel	1966	Kent	1964	Newcastle	1963
St. Andrews	1413	Hull	1954	City	1966	Lancaster	1964		
Durham	1837	Leeds	1904	Loughborough	1966	Stirling	1967		
		Leicester	1957	Surrey	1966	Sussex	1961		
		Liverpool	1903	Strathclyde	1964	York	1963		
		Manchester	1880	Aston	1966				
		Nottingham	1948	Heriot-Watt	1966				
		Reading	1926						
		Sheffield	1905						
		Southampton	1952						

Information derived from:

- (1) UK Universities: A Brief Checklist, published by the Universities Information Unit, CVCP, London, October 1988;
- (2) Silver & Teague (1970) The History of British Universities 1800-1969, Society for Research into Higher Education, London;
- (3) Sanderson, M (1972) The Universities and British Industry 1850-1970, Routledge & Kegan Paul, London

FIGURE 2: GRANT AND STUDENT NUMBER REDUCTIONS ANNOUNCED 1 JULY 1981

Universities#	— Home and EEC Students —			Grant £m		% Overseas	
	1979-80	1983-84/ 1984-85	% change	1980-81 (est)*	1983-84	Approx % change	Students 1979-80
Salford	3940	2750	-30	15.31	8.59	-44	14
Aston	4670	3640	-22	14.39	9.86	-31	17
Bradford	4360	3530	-19	14.45	9.64	-33	13
Stirling	2470	2020	-18	6.99	5.08	-27	8
Keele	2680	2230	-17	8.57	5.64	-34	5
Hull	5070	4200	-17	11.44	9.19	-20	7
Surrey	2880	2470	-14	11.81	8.78	-26	12
Heriot-Watt	2430	2120	-13	8.16	7.09	-13	12
Kent	3430	3180	-7	8.44	6.64	-21	10
St. Andrews	3110	2880	-7	9.24	7.51	-19	9
Lancaster	4210	3920	-7	10.32	8.68	-16	9
Sussex	3890	3710	-5	11.67	9.21	-21	12
City	2130	2020	-5	10.31	8.24	-20	20
Reading	5030	4770	-5	15	12.66	-16	12
Aberdeen	5140	4940	-4	19.75	15.19	-23	7
Essex	2240	2150	-4	6.88	5.47	-20	22
Strathclyde	5790	5540	-4	17.9	14.69	-18	12
London	33510	32220	-4	200	165.03	-17	16
Bristol	6650	6390	-4	23.05	19.43	-16	4
Nottingham	6380	6150	-4	21.39	18.36	-14	7
Newcastle	6880	6600	-4	23.97	20.85	-13	11
Durham	4530	4360	-4	12.93	11.6	-10	4
Oxford	10700	10410	-3	34	29.74	-13	10
Glasgow	9100	8810	-3	33.08	29.56	-11	6
East Anglia	3760	3640	-3	11.25	10.28	-9	8
Leicester	4340	4200	-3	13.12	11.95	-9	4
Loughborough	4670	4550	-3	13.06	11.98	-8	10
Exeter	4690	4600	-2	12.21	9.69	-21	6
Manchester	9930	9710	-2	38.2	31.93	-16	11
Liverpool	7060	6910	-2	31.18	26.13	-16	6
Leeds	9430	9270	-2	33.93	28.72	-15	2
Cambridge	10490	10280	-2	32.27	28.91	-10	8
Warwick	4600	4550	-1	13.17	11.23	-15	6
Brunel	2460	2470	0	11.14	8.99	-19	11
Birmingham	7750	7770	0	30.81	25.69	-17	13
Univ. of Wales	17330	16130	0	57.2	47.67	-17	12
Dundee	2490	2480	0	12.64	10.53	-17	11
Sheffield	6860	6860	0	25.4	21.72	-14	11
Southampton	5690	5660	0	18.91	16.6	-12	9
Edinburgh	8830	8840	0	33.81	30.2	-11	7
York	3100	3090	0	7.48	7.02	-6	5
Bath	3190	3260	2	9.38	8.69	-7	8
UMIST	2790	2980	7	15.94	11.08	-30	27
M.B.S.	120	170	42	1.14	0.87	-24	21
L.B.S.	170	290	70	1.13	1.49	11	26
TOTAL GB	260970	248720	-4.7	971.85	808.07	-17	11

* 1980/81 grant figures are updated to current prices and are only estimates

Universities ranked according to % loss of home students

Source: The Times, 3 July 1981

**FIGURE 3: POOL OF CANDIDATE UNIVERSITIES BY SIZE,
AS DEFINED FOR THE PURPOSES OF THIS STUDY**

Small	Medium-Sized	Large
Aston	Bristol	Birmingham
Bath	Durham	Leeds
Brunel	Exeter	Liverpool
City	Hull	Manchester
East Anglia	Leicester	Newcastle
Essex	Loughborough	Sheffield
Keele	Nottingham	Edinburgh
Kent	Reading	Glasgow
Lancaster	Southampton	Strathclyde
St. Andrews	Aberdeen	
Stirling		
Surrey		
Sussex		
York		
Bradford		
Dundee		
Heriot-Watt		

Information derived from - UGC University Statistics 1984/85, volume 3:
Finance, Universities Statistical Record, September 1986.

FIGURE 4A: NUMBERS OF STUDENT FTEs IN THE NINE PARTICIPATING UNIVERSITIES, 1980/81

University	U/g	P/g Taught	P/g Research	Total
Bristol	6149	461	515	7125
City	2317	333	212	2862
Durham	4048	333	346	4727
Glasgow	9041	571	716	10328
Hull	4868	486	298	5652
Kent	3465	225	321	4011
Liverpool	6783	662	724	8169
Strathclyde	5611	791	509	6911
York	2822	350	235	3407

FIGURE 4B: NUMBERS OF STUDENT FTEs IN THE NINE PARTICIPATING UNIVERSITIES, 1988/89

Universities	U/g	P/g Taught	P/g Research	Total
Bristol	6328	562	623	7513
City	2257	884	226	3367
Durham	4348	412	495	5255
Glasgow	9740	793	958	11491
Hull	4364	549	256	5169
Kent	3821	337	335	4493
Liverpool	6871	725	862	8458
Strathclyde	6368	1104	677	8149
York	3137	595	350	4082

Information taken from - UGC University Statistics 1980/81, volume 3: Finance, Universities Statistical Record, September 1982 and University Statistics 1988/89, volume 3: Finance, Universities Statistical Record, September 1990.

FIGURE 5A: NUMBERS OF STAFF IN THE NINE PARTICIPATING UNIVERSITIES, 1980/81

Universities	Full-Time Academic/ Academic-Related	Part-Time
Bristol	1328	41
City	412	6
Durham	725	5
Glasgow	1716	113
Hull	701	8
Kent	559	14
Liverpool	1368	6
Strathclyde	1055	22
York	499	15

FIGURE 5B: NUMBERS OF STAFF IN THE NINE PARTICIPATING UNIVERSITIES, 1988/89

Universities	Full-Time Academic/ Academic-Related	Part-Time
Bristol	1411	132
City	459	40
Durham	758	30
Glasgow	1740	192
Hull	578	48
Kent	639	31
Liverpool	1489	75
Strathclyde	1185	61
York	593	52

Information taken from - UGC University Statistics 1980/81, volume 3: Finance, Universities Statistical Record, September 1982 and University Statistics 1988/89, volume 3: Finance, Universities Statistical Record, September 1990.

FIGURE 6A: RATINGS ALLOCATED TO THE NINE SELECTED UNIVERSITIES FOR SUBJECT AREAS IN THE NATURAL SCIENCES, ENGINEERING AND TECHNOLOGY FOLLOWING THE FIRST RESEARCH SELECTIVITY EXERCISE, 1986

University	*	+	A	-
Bristol	4	12	6	3
City	0	0	0	10
Durham	1	2	4	1
Glasgow	3	11	9	3
Hull	0	1	7	5
Kent	0	3	0	4
Liverpool	1	8	10	7
Strathclyde	0	5	6	7
York	1	2	3	0

Key: * outstanding
 + above average
 A average
 - below average

Information taken from "The Strengths and Weaknesses", Times Higher Education Supplement, 30 May, 1986.

FIGURE 6B: RATINGS ALLOCATED TO THE NINE SELECTED UNIVERSITIES FOR UNITS OF ASSESSMENT IN THE NATURAL SCIENCES, ENGINEERING AND TECHNOLOGY FOLLOWING THE SECOND RESEARCH SELECTIVITY EXERCISE, 1989

University	Five	Four	Three	Two	One
Bristol	5	4	8	1	0
City	0	0	2	4	3
Durham	0	3	4	0	0
Glasgow	1	7	6	1	3
Hull	0	2	6	6	0
Kent	0	2	3	1	0
Liverpool	3	4	5	4	1
Strathclyde	1	4	9	5	4
York	0	4	2	0	0

Information taken from "Countdown to Excellence", Times Higher Education Supplement, 1 September, 1989.

FIGURE 7A: ASSERTION OF FIRST OWNERSHIP OF INVENTIONS - A COMPARISON OF DATES

University	Date
Bristol	1983 *
City	1977/78 *
Durham	1986/87
Glasgow	1977/78
Hull	1986/87
Kent	1982
Liverpool	1977/78
Strathclyde	1960s/70s
York	1990

Note * approximate date

FIGURE 7B: ASSERTION OF FIRST OWNERSHIP OF COMPUTER SOFTWARE - A COMPARISON OF DATES

University	Date
Bristol	1989
City	1989
Durham	1986/87
Glasgow	1977/78
Hull	1990
Kent	no such assertion
Liverpool	1980s #
Strathclyde	1970s/80s #
York	1990

Note # Liver pool and Strathclyde have never formally asserted first ownership of computer software; however, informally, they treat computer software the same way as inventions

FIGURE 7C: ASSERTION OF FIRST OWNERSHIP OF OTHER TANGIBLE FORMS OF IP - A COMPARISON OF DATES

University	Date
Bristol	1989
City	1989
Durham	1986/87
Glasgow	1977/78
Hull	1990
Kent	no such assertion
Liverpool	1980s #
Strathclyde	1970s/80s #
York	1990

Note # Liverpool and Strathclyde have never formally asserted first ownership of other tangible forms of IP; however, informally, they treat them the same way as inventions

FIGURE 8: SUMMARY OF THE IP RIGHTS OF RESEARCHERS IN THE NINE PARTICIPATING UNIVERSITIES

University	Inventions			Software			Designs			Other		
	Sole	Joint	None	Sole	Joint	None	Sole	Joint	None	Sole	Joint	None
Bristol			✓			✓			✓			✓
City		✓			✓		✓†				✓	
Durham			✓			✓			✓			✓
Glasgow			✓			✓			✓			✓
Hull		✓*				✓			✓			✓
Kent			✓	-	-	-	-	-	-	-	-	-
Liverpool		✓*				✓			✓			✓
Strathclyde			✓			✓			✓			✓
York			✓			✓♦			✓			✓

Key: ✓ researchers enjoy these rights

- no decision made yet

Notes: * according to policy, researchers should enjoy these rights; in practice they do not - they rely on concessions

† unless the design is connected to a patent/patent application which the university is pursuing, in which case researchers have joint ownership

♦ unless the software in question is unlikely to have large-scale application in which case researchers have sole ownership

FIGURE 9: RESEARCHERS' ABILITY TO DETERMINE WHETHER OWNERSHIP OF THEIR IP IS RETAINED (1989/90)

i) Inventions									
	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓			✓*	?	✓*		
Concession				✓		?		✓	✓
No Concession	✓		✓			?			

ii) Software, Designs, Other Tangible IP									
	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓				-			
Concession				✓	✓	-	✓	✓	✓
No Concession	✓		✓			-			

Key:	✓	university gives this concession as a matter of policy
	✓	university might make concession
	-	not appropriate (no assertion of rights over this IP)
	?	no decision made as yet

Notes:	*	according to policy, researchers should enjoy these rights; in practice they do not - they rely on concessions
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FIGURE 10: RESEARCHERS' ABILITY TO DETERMINE HOW THEIR IP IS PROTECTED (1989/90)

i) Inventions

	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓			✓#	?	✓#		
Concession				✓		?		✓	✓
No Concession	✓		✓			?			

ii) Software, Designs, Other Tangible IP

	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓				-			
Concession				✓	✓	-	✓	✓	✓
No Concession	✓		✓			-			

- Key:**
- ✓ university gives this concession as a matter of policy
 - ✓ university might make concession
 - not appropriate (no assertion of rights over this IP)
 - ? no decision made as yet

Notes: # according to policy, researchers should enjoy these rights; in practice they do not - they rely on concessions

FIGURE 11: RESEARCHERS' FREEDOM TO CONTACT POTENTIAL LICENSEES/ASSIGNEES (1989/90)

i) Inventions

	Bristol	Clty	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓			✓*	?	✓*		
Concession	✓		✓	✓		?		✓	
No Concession						?			✓

ii) Software, Designs, Other Tangible IP

	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓				-			
Concession	✓		✓	✓	✓	-	✓	✓	
No Concession						-			✓

Key:

- university gives this concession as a matter of policy
- ✓ university might make concession
- not appropriate (no assertion of rights over this IP)
- ? no decision made as yet

Notes: * according to policy, researchers should enjoy these rights; in practice they do not - they rely on concessions

FIGURE 14: TYPES OF ORGANISATIONS WHICH COULD BE GRANTED USE OF IP - UNIVERSITIES' PREFERENCES

	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
BTG	✓	✓	✓	?	✓	✓	✓	✓	✓
Uni. Institute	✗	✗	✗	✗	✗	✗	✗	?	✓
Existing Co. - small	✓	✓	✓	✓	✓	✓	✓	✓	✓
- large	✓	✓	✓	✓	✓	✓	✓	✓	✓
Campus Co. - dedicated	✓	✓	✗	✓	✓	?	✓	✗	✓
- umbrella	✗	✗	✗	✗	✗	?	✗	✗	✗
Jnt. Venture - academic manager	✓	✓	✗	✗	✓	✓	✓	✗	✓
- professional manager	✓	✓	✗	✓	✓	✓	✓	✓	✓
Indep. Ac. Co. - academic manager	✓	✓	✗	✗	✓	✓	✓	✗	✓
- professional manager	✓	✓	✗	✗	✓	✓	✓	✓	✓

Key:

- ✓ university prefers to license to this type of organisation
- ✓ university might license to this type, depending on circumstances
- ✗ university would prefer not to license to this type
- ✗ university would not usually license to this type
- ? no decision taken

Note:

where professional managers in joint ventures or independent academic spin-off companies are concerned a may be taken to imply that the university would allow it, but does not have the skills/contacts/time to locate and vet such a manager itself and has not sufficient interest to locate other agencies to do this for it

✓

FIGURE 16: RESEARCHERS' ABILITY TO DETERMINE THE RETURN TO BE LEVIED FOR THE RIGHT TO COMMERCIALY EXPLOIT THEIR IP (1989/90)

i) Inventions

	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓			✓*	?	✓*		
Concession				✓		?		✓	✓
No Concession	✓		✓			?			

ii) Software, Designs, Other Tangible IP

	Bristol	City	Durham	Glasgow	Hull	Kent	Liverpool	Strathclyde	York
Legal Right		✓				-			
Concession				✓	✓	-	✓	✓	✓
No Concession	✓		✓			-			

Key:

- ✓ university gives this concession as a matter of policy
- ✓ university might make concession
- ✓ researcher shares this right with the university; the two must agree
- not appropriate (no assertion of rights over this IP)
- ? no decision made as yet

Notes:

- * according to policy, researchers should enjoy these rights; in practice they do not - they rely on concessions

FIGURE 17: DISSEMINATION OF INFORMATION - THE REMOVAL OF THE BTG'S MONOPOLY

<i>Within</i>	6 months	12 months	18 months	24 months
Bristol	AC	-	-	-
City	?	?	?	?
Durham	SA	-	-	-
Glasgow	AC	-	-	-
Hull	SA	-	-	-
Kent	SA	-	-	-
Liverpool	-	-	AC	-
Strathclyde	-	-	-	-
York	SA	AC	-	-

FIGURE 18: DISSEMINATION OF INFORMATION - THE RESEARCH COUNCIL'S OFFER

<i>Within</i>	6 months	12 months	18 months	24 months
Bristol	SA	-	-	-
City	-	-	-	-
Durham	SA	-	-	-
Glasgow	AC	-	-	-
Hull	SA	-	-	-
Kent	SA	-	-	-
Liverpool	-	-	AC	-
Strathclyde	-	-	-	-
York	SA	-	-	-

Key:

AC	whole academic community
SA	selected academics
-	information not disseminated in this six month period
?	dissemination claimed but no evidence of it found

FIGURE 19: DISSEMINATION OF INFORMATION - THE AUTHORISATION FROM THE RESEARCH COUNCILS

<i>Within</i>	6 months	12 months	18 months	24 months
Bristol	-	-	-	SA
City	AC	-	n/a	n/a
Durham	SA	-	-	-
Glasgow	AC	-	-	AC
Hull	-	-	-	-
Kent	-	-	-	-
Liverpool	AC	AC	-	-
Strathclyde	-	-	AC	-
York	SA	-	-	-

FIGURE 20: DISSEMINATION OF INFORMATION - THE GOVERNMENT'S WISH WITH REGARD TO THE ROLE OF THE RESEARCHER IN THE EXPLOITATION PROCESS

<i>Within</i>	6 months	12 months	18 months	24 months
Bristol	-	-	-	-
City	-	-	-	-
Durham	-	-	-	-
Glasgow	-	-	-	-
Hull	-	-	-	-
Kent	-	-	-	-
Liverpool	-	-	-	-
Strathclyde	-	-	-	-
York	-	-	-	-

Key:

AC	whole academic community
SA	selected academics
-	information not disseminated in this six month period
?	dissemination claimed but no evidence of it found
n/a	not applicable

FIGURE 21: DISSEMINATION OF INFORMATION - TELLING NEW STAFF ABOUT THE AUTHORISATION FROM THE RESEARCH COUNCILS

	In Writing	Face to Face
Bristol	-	-
City	89 >>	-
Durham	-	88 >>
Glasgow	-	-
Hull	-	-
Kent	-	-
Liverpool	90 >>	89 >>*
Strathclyde	-	-
York	90 >>	-

FIGURE 22: DISSEMINATION OF INFORMATION - TELLING NEW STAFF ABOUT THE GOVERNMENT'S WISH WITH REGARD TO THE ROLE OF THE RESEARCHER IN THE EXPLOITATION PROCESS

	In Writing	Face to Face
Bristol	-	-
City	-	-
Durham	-	-
Glasgow	-	-
Hull	-	-
Kent	-	-
Liverpool	-	-
Strathclyde	-	-
York	-	-

Key: 89 >> from the year specified onwards
 - information not disseminated by this mechanism

Note: * new staff are obliged to attend within their first three years' employment at the university

FIGURE 23: DISSEMINATION OF INFORMATION - REMINDING STAFF ABOUT THE AUTHORISATION FROM THE RESEARCH COUNCILS

	Focus	In Writing (Trigger)	Focus	In Writing (Ongoing)	Focus	Face to Face
Bristol	SA	87/88/89	-	-	SA	various
City	n/a	n/a	n/a	n/a	n/a	n/a
Durham	SA	87/88/89	AC	-	SA	one
Glasgow	SA	89	-	-	SA	various
Hull	-	-	-	-	SA	various
Kent	-	-	-	-	-	-
Liverpool	SA	87/88/89	AC	90 >>	SA	various
Strathclyde	GR	88 >>	-	-	SA	various
York	AC	90	AC	90 >>	SA	various

FIGURE 24: DISSEMINATION OF INFORMATION - REMINDING STAFF ABOUT THE GOVERNMENT'S WISH WITH REGARD TO THE ROLE OF THE RESEARCHER IN THE EXPLOITATION PROCESS

	In Writing	Face to Face
Bristol	-	-
City	-	-
Durham	-	-
Glasgow	-	-
Hull	-	-
Kent	-	-
Liverpool	-	-
Strathclyde	-	-
York	-	-

Key:

- AC whole academic community
- SA selected academics
- GR all grant recipients
- n/a not applicable

Note:

- 90, 88/89 in each of the years specified
- 89 >> from the year specified onwards
- information not disseminated by this mechanism
- various in a variety of face to face contexts
- one in only one face to face context

FIGURE 25: DATE AND MANNER OF DISSEMINATING IP POLICY STATEMENTS TO EXISTING MEMBERS OF STAFF

University	Trigger	Ongoing
Bristol	-	-
City	89	-
Durham	-	-
Glasgow	82/89	-
Hull	87/90	-
Kent	-	-
Liverpool	-	78>>
Strathclyde	-	-
York	90	-

Key:

- 82/89 in each of the years specified
- 78>> from the year specified
- no IP policy statement disseminated in this manner

FIGURE 26: DATE AND MANNER OF DISSEMINATING IP POLICY STATEMENTS TO NEW MEMBERS OF STAFF

University	Trigger	Ongoing
Bristol	-	-
City	89	-
Durham	-	-
Glasgow	82/89	-
Hull	-	-
Kent	-	-
Liverpool	-	78>>
Strathclyde	-	-
York	90	-

Key:

- 82/89 in each of the years specified
- 78>> from the year specified
- no IP policy statement disseminated in this manner

FIGURE 27: UNIVERSITIES' APPROACH TO DEDICATED IL/P STRUCTURES

University	Support for the Concept	Putting Concept into Practice	Date	Publicising the Concept	Publicising Actual Example	Number of Publicity Items	Date(s)
Bristol	✓	✓	1987>>	✓	✓	2	1985, 1986
City	×	×		n/a	n/a		
Durham	×	×		n/a	n/a		
Glasgow	✓	✓	1982>>	✓	✓	5	1985, 1986, 1987, 1988
Hull	✓	✓	1985>>	×	×	-	
Kent	✓	✓	1982-89	×	✓	3	1987, 1988
Liverpool	✓	✓	1987>>*	×	✓	1	1987
Strathclyde	✓	✓	1984>>*	×	✓	1	1987
York	✓	✓	1988>>	×	✓	1	1989

Key:

- ✓ in favour in principle/ practice or publicity of this type identified
- ×
- n/a not in favour in principle/practice or no publicity of this type identified
- not appropriate
- missed opportunity
- 1987>> from the year specified
- 1982-1989 during the years specified
- 1986 in the year specified

Note:

* this is the year in which the current structure was created; there were a variety of embryonic structures prior to this

NB:

university newsletters published between May 1985 and September 1990 were searched for publicity items on this subject. The figures given in column 7 above relate to articles/parts of articles identified as dealing with this subject

FIGURE 28: UNIVERSITIES' APPROACH TO HOLDING COMPANIES

University	Support for the Concept	Putting Concept into Practice	Date	Publicising the Concept	Publicising Actual Example	Number of Publicity Items	Date(s)
Bristol	✓	✓	1987>>	✓	×	1	1986
City	×	n/a		n/a	n/a		
Durham	✓	✓	1988-90	×	×	-	-
Glasgow	×	n/a		n/a	n/a		
Hull	✓	✓	1985>>	×	×	-	-
Kent	×	n/a		n/a	n/a		
Liverpool	✓	✓	1985-89	✓	×	1	1986
Strathclyde	×	n/a		n/a	n/a		
York	×	n/a		n/a	n/a		

Key:

✓ in favour in principle/ practice or publicity of this type identified

×

n/a not in favour in principle/practice or no publicity of this type identified

- not appropriate

missed opportunity

1987>> from the year specified

1982-1989 during the years specified

1986 in the year specified

NB:

university newsletters published between May 1985 and September 1990 were searched for publicity items on this subject.
The figures given in column 7 above relate to articles/parts of articles identified as dealing with this subject

FIGURE 29: UNIVERSITIES' APPROACH TO JOINT VENTURES WITH MEMBERS OF STAFF

University	Support for the Concept	Putting Concept into Practice	Number of Examples	Date(s)	Publicising the Concept	Publicising Actual Example	Number of Publicity Items	Date(s)
Bristol	✓	×			×	n/a		
City	✓	×			×	n/a		
Durham	?				×	n/a		
Glasgow	✓	✓	4	1986, 1988, 1988, 1989	×	✓	2	1986, 1988
Hull	✓	✓	1	1989	×	✓	1	1989
Kent	✓	✓	1#	1989	×	×	-	-
Liverpool	✓	✓	4*	1985, 1985, 1985, 1988	×	✓	4	1986, 1988
Strathclyde	✓	✓	>10	1984-1989	×	✓	1	1987
York	✓	✓	2	1986, 1988	×	×		

Key:

- ✓ in favour in principle/ practice or publicity of this type identified
- ×
- n/a not in favour in principle/practice or no publicity of this type identified
- not appropriate
- 1986 missed opportunity
- ? in the year specified
- university's position unclear

Note:

- # excluding a joint venture with an academic in the social sciences
- * joint ventures with members of the administrative staff in some cases

NB:

university newsletters published between May 1985 and September 1990 were searched for publicity items on this subject.
The figures given in column 7 above relate to articles/parts of articles identified as dealing with this subject

FIGURE 30: UNIVERSITIES' APPROACH TO UNIVERSITY COMPANIES

University	Support for the Concept	Putting Concept Into Practice	Number of Examples	Date(s)	Publicising the Concept	Publicising Actual Example	Number of Publicity Items	Date(s)
Bristol	✓	✓	1	1986	✓	✓	1	1986
City	✓	✓	3	1977, 1984, 1988	✓	✓	7	1984, 1985, 1987, 1988
Durham	✓	×	n/a		×	n/a		
Glasgow	✓	✓	1	1985	✓	✓	1	1985
Hull	✓	✓	2	1985, 1987	×	✓	2	1985, 1987
Kent	✓	×	n/a		×	n/a		
Liverpool	✓	✓	2	1985, 1988	×	×		
Strathclyde	×	n/a	n/a		n/a			
York	✓	✓	2	1986	×	✓	2	1986

Key:

✓ in favour in principle/ practice or publicity of this type identified

× not in favour in principle/practice or no publicity of this type identified

n/a not appropriate

- missed opportunity

1982-1989 during the years specified

1986 in the year specified

NB:

university newsletters published between May 1985 and September 1990 were searched for publicity items on this subject.
The figures given in column 7 above relate to articles/parts of articles identified as dealing with this subject

FIGURE 31: UNIVERSITIES' APPROACH TO SCIENCE PARKS

University	Support for the Concept	Putting Concept into Practice	Date(s)	Publicising the Concept	Publicising Actual Example	Number of Publicity Items	Date(s)
Bristol	✓	×	early 1990s	✓	n/a	2	1985, 1988
City	✓	✓	1988	✓	✓	2	1988, 1989
Durham	✓	✓	1986	✓	✓	3	1987
Glasgow	✓	✓	1983	✓	✓	4	1985, 1986, 1987, 1989
Hull	✓	✓	1985	×	✓	1	1989
Kent	✓	✓	1985	×	×	-	-
Liverpool	✓	✓	1981	×	×	4	1989, 1990
Strathclyde	✓	✓	1983, 1990	✓	✓	3	1987, 1990
York	✓	×	early 1990s	✓	n/a	3	

Key:

✓ in favour in principle/ practice or publicity of this type identified

× not in favour in principle/practice or no publicity of this type identified

n/a not appropriate

- missed opportunity

1987>> from the year specified

1982-1989 during the years specified

1986 in the year specified

NB:

university newsletters published between May 1985 and September 1990 were searched for publicity items on this subject. The figures given in column 7 above relate to articles/parts of articles identified as dealing with this subject

**FIGURE 32: THE INTRODUCTION OF FORMULAE TO GOVERN THE
DISTRIBUTION OF INCOME FROM EXPLOITING IP - A COMPARISON OF DATES**

University	Introduced	Modified
Bristol	1983	1989
City	1975 *	1989
Durham	1987 #	
Glasgow	1978	
Hull	1987	1990
Kent	1982	1988, 1989
Liverpool	1978	
Strathclyde	1963 *	1990
York	1979 *	1989

Key:

- * approximate date
- # Durham does not employ a formula, but from 1987 it indicated that it would share the proceeds "equitably".

FIGURE 33: INCOME RECEIVED BY INVENTOR(S) AT DIFFERENT NET INCOME LEVELS IN THE NINE PARTICIPATING UNIVERSITIES

University	£ 5,000	%	£ 10,000	%	£ 30,000	%	£ 50,000	%	£ 100,000	%	£ 20,5m	%	£ 1m	%
Bristol	4250	85	7750	78	18250	61	28250	57	45174	45	177174	36	343840	34
City	5000	100	8750	88	23750	79	38750	76	63750	64	163750	33	288750	29
Durham	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-
Glasgow	2500	50	5000	50	15000	50	25000	50	50000	50	250000	50	500000	50
Kent	3000	60	5500	55	10500	35	15500	31	28000	28	128000	26	253000	25
Liverpool	2500	50	5000	50	15000	50	25000	50	50000	50	250000	50	500000	50
Strathclyde	4000	80	8000	80	20000	67	32000	64	52000	52	172000	34	297000	30
York	4200	84	7800	78	21800	73	31800	64	56800	57	256800	51	506800	51
Hull (1)	2500	50	5000	50	15000	50	25000	50	50000	50	250000	50	500000	50
(2)	3000	60	6000	60	18000	60	30000	60	60000	60	300000	60	600000	60
(3)	3750	75	7500	75	22500	75	35000	70	65000	65	260000	52	510000	51
(4)	3750	75	7500	75	22500	75	37500	75	70000	70	270000	54	520000	52
Average	3470		6630		17980		28630		52072.4		220772.4		429939	
Std Deviation	888.5694		1468.03		4150.783		6483.706		10120.76		55592.17		121239.6	
St Dev/Av (%)	25.60719		22.14223		23.08556		22.64655		19.43594		25.18076		28.19925	

Notes:

- (a) in every case except Strathclyde, the income from royalties is distributed only after all cost incurred have been recouped; at Strathclyde costs incurred act as a first charge on 80% of any royalty income received and the rest is treated as immediately distributable income
- (b) in every case except Hull, the proportions distributed to the inventors are the same irrespective of how many inventors there are
- see Note (d)
- (c) in every case except Hull, the figures given relate to aggregate income, irrespective of the time taken to accumulate that income; in one of Hull's formulae it relates to annual income - see Note (d)
- (d) Hull University distributes royalty income differently according to who paid the initial patenting costs, how much the University contributed to the exploitation process and how many inventors there were:
- (1) where the University pays the patenting costs, Hull returns 50% of the net income to the inventors, no matter how many there were;
 - (2) where the University does not commit any funds to protecting IP but gives official support to and makes a substantial administrative input into negotiations for the commercial exploitation of an invention; Hull returns 60% of the net income to the inventors, no matter how many there were;
 - (3) where external sponsors meet the patenting costs and there are up to three inventors, Hull returns 75% of the first £40,000 received each year to the inventors, 50% thereafter;
 - (4) where external sponsors meet the patenting costs and there are four or more inventors, Hull returns 75% of the first £80,000 received each year to the inventors, 50% thereafter.

FIGURE 34: PROPORTION OF THE INCOME FROM IP GIVEN TO ACADEMIC INVENTORS IN THE NINE PARTICIPATING UNIVERSITIES - AS COMPARED TO THE PROPORTIONS RECOMMENDED BY THE CVCP AND THE AUT

	£ 5,000	%	£ 10,000	%	£ 30,000	%	£ 50,000	%	£ 100,000	%	£ 500,000	%	£ 1,000,000	%
CVCP	4,500	90	9,000	90	24,000	80	34,000	68	59,000	59	259,000	52	509,000	51
AUT1	3,750	75	7,500	75	22,500	75	37,500	75	62,500	63	262,500	53	512,500	51
AUT2	4,250	85	8,000	80	19,500	65	29,500	59	51,700	52	189,832	38	356,499	36
Average AUT1-2	4,000	80	7,750	78	21,000	70	33,500	67	57,100	57	226,166	45	434,500	43
Average Bristol-Hull	3,470		6,630		17,980		28,630		51,572		220,772		429,939	
Standard Deviation	888.57		1,468.03		4,150.78		6,483.71		10,120.76		55,592.17		121,239.58	
Standard Deviation	25.61		22.14		23.09		22.65		19.62		25.18		28.20	
Average														
Discrepancy 1 (Average Bristol:Hull - CVCP)	-29.68		-35.75		-33.48		-18.76		-14.40		-17.32		-18.39	
Discrepancy 2 (Average Bristol:Hull - AUT1-2)	-15.27		-16.89		-16.80		-17.01		-10.72		-2.44		-1.06	

Notes

- Discrepancy 1: the difference between CVCP recommendations and the average payment actually made by Bristol-Hull, expressed as a %
Discrepancy 2: the difference between the average of AUT recommendations and the average payment actually paid by Bristol-Hull, expressed as a %

FIGURE 35: INCOME RECEIVED BY INVENTOR(S) AT DIFFERENT NET INCOME LEVELS IN THIRTY ONE UK UNIVERSITIES

University	£ 5,000	%	£ 10,000	%	£ 30,000	%	£ 50,000	%	£ 100,000	%	£ 500,000	%	£ 1,000,000	%
1	4,500	90	9,000	90	23,000	77	33,000	66	49,534	50	182,867	37	349,533	35
2	3,750	75	7,500	75	21,250	71	31,250	63	56,250	56	256,250	51	506,250	51
3	5,000	100	7,500	75	22,500	75	37,500	75	62,500	63	162,500	33	287,500	29
4	2,500	50	5,000	50	15,000	50	25,000	50	41,500	42	173,500	35	338,500	34
5	2,500	50	5,000	50	15,000	50	25,000	50						
6	4,750	95	8,500	85	21,475	72	33,100	66	58,100	58	210,305	42	375,305	38
7	5,000	100												
8	4,600	92	9,100	91	24,100	80	34,100	68	55,100	55	175,100	35	325,100	33
9	4,500	90	9,000	90	24,000	80	34,000	68	59,000	59	195,000	39	345,000	35
10	5,000	100	7,500	75	17,500	58	27,500	55	52,500	53	232,500	47	432,500	43
11	4,000	80	7,500	75	21,500	72	31,500	63						
12	4,200	84	7,400	74	17,500	58	27,500	55	52,500	53	252,500	51	502,500	50
13	3,500	70	7,000	70	21,000	70	35,000	70	57,500	58	237,500	48	462,500	46
14	5,000	100	10,000	100	27,500	92	37,500	75	62,500	63	200,000	40	325,000	33
15	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
16	4,200	84	7,800	78	18,000	60	28,000	56	53,000	53	253,000	51	503,000	50
17	4,250	85	7,750	78	17,750	59	27,750	56	44,416	44	177,750	36	344,416	34
18	4,400	88	7,800	78	18,000	60	28,000	56	53,000	53	192,000	38	357,000	36
19	3,750	75	7,500	75	22,500	75	35,000	70	60,000	60	260,000	52	510,000	51
20	5,000	100	10,000	100	30,000	100	50,000	100	100,000	100	500,000	100	1,000,000	100
21	4,000	80	8,000	80	22,000	73	34,000	68	58,000	58	172,000	34	272,000	27
22	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
23	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
24	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
25	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
26	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
27	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
28	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
29	2,250	45	4,500	45	13,500	45	22,500	45	45,000	45	225,000	45	450,000	45
30	1,650	33	3,300	33	9,900	33	16,500	33	33,000	33	165,000	33	330,000	33
31	2,500	50	5,000	50	15,000	50	25,000	50	50,000	50	250,000	50	500,000	50
Average	3574.194		6721.667		18599.17		29290		53692.86		231170.4		447003.7	
Std Dev	1077.255		1843.239		4576.931		6318.206		11073.39		62785.18		136107.6	
Std Dev / Av	30.13981		27.42236		24.60826		21.5712		20.62358		27.1597		30.44889	

Note Rows 5, 7 and 11 are incomplete because university formulae do not permit comparison in the income bands which have been left blank

FIGURE 36: PROPORTION OF THE INCOME FROM IP GIVEN TO ACADEMIC INVENTORS IN THE 31 UK UNIVERSITIES - AS COMPARED TO THE PROPORTIONS RECOMMENDED BY THE CVCP AND THE AUT

	£ 5,000	%	£ 10,000	%	£ 30,000	%	£ 50,000	%	£ 100,000	%	£ 500,000	%	£ 1,000,000	%
CVCP	4,500	90	9,000	90	24,000	80	34,000	68	59,000	59	259,000	52	509,000	51
AUT1	3,750	75	7,500	75	22,500	75	37,500	75	62,500	63	262,500	53	512,500	51
AUT2	4,250	85	8,000	80	19,500	65	29,500	59	51,700	52	189,832	38	356,499	36
Average AUT1-2	4,000	80	7,750	78	21,000	70	33,500	67	57,100	57	226,166	45	434,500	43
Average 1-31	3,574		6,722		18,599		29,290		53,693		231,170		447,004	
Standard Deviation	1,077.26		1,843.24		4,576.93		6,318.21		11,073.39		62,785.18		136,107.60	
Standard Deviation	30.14		27.42		24.61		21.57		20.62		27.16		30.45	
Average														
Discrepancy 1 (Average of 1:31-CVCP)	-25.91		-33.89		-29.04		-16.08		-9.88		-12.04		-13.87	
Discrepancy 2 (Average of 1:31 - Average of AUT1-2)	-11.91		-15.03		-12.91		-14.37		-6.35		-2.16		-2.80	

Notes

Discrepancy 1: the difference between CVCP recommendations and the average payment actually made by 31 UK universities, expressed as a %

Discrepancy 2: the difference between the average of AUT recommendations and the average payment actually paid by 31 UK universities, expressed as a %

FIGURE 37: INCOME RETAINED BY THE DEPARTMENT IN THE NINE PARTICIPATING UNIVERSITIES - AT VARIOUS NET INCOME LEVELS

Unlversity	£ 5,000	%	£ 10,000	%	£ 30,000	%	£ 50,000	%	£ 100,000	%	£0.5m	%	£1m	%
Bristol	375	8	1125	11	5875	20	10875	22	27413	27	161413	32	328080	33
City	0	0	750	8	3750	13	6750	14	21750	15	201750	40	426750	43
Durham	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-	<i>ad hoc</i>	-
Glasgow	1250	25	2500	25	7500	25	12500	25	25000	25	125000	25	250000	25
Kent	0	0	0	0	0	0	0	0	0	72	0	0	0	0
Liverpool	1250	25	2500	25	7500	25	12500	25	25000	25	125000	25	250000	25
Strathclyde	200	4	400	4	2000	7	3600	7	9600	38	65600	13	140600	14
York	400	8	1100	11	4100	18	9100	18	21600	22	121600	24	246600	25
Hull	1750	35	3500	35	10500	35	17500	35	35000	35	175000	35	350000	35
(1)	1400	28	2800	28	8400	28	14000	28	28000	28	140000	28	280000	28
(2)	875	18	1750	18	5250	18	10500	21	28000	28	168000	34	343000	34
(3)	875	18	1750	18	5250	18	8750	18	21000	21	161000	32	336000	34
(4)														
Average	761.3636364		1652.272727		5465.909091		9643.181818		22033		131305.7273		268275.4545	
Std Dev	603.5689311		1090.094867		2986.391483		4881.189544		9629.491627		56403.90493		116227.3867	
Std Dev/Av (%)	79.27472527		65.97548023		54.6366841		50.61803911		43.7048592		42.95616505		43.32389891	

FIGURE 38: DISSEMINATION OF INFORMATION TO EXISTING MEMBERS OF STAFF - REVENUE-SHARING FORMULAE

University	Trigger	Form	Ongoing Form	
Bristol	83	?	-	-
	89	5	-	-
City	89	1	-	-
Durham	87	4	-	-
Glasgow	82	1	-	-
	89	1	-	-
Hull	87	1	-	-
	90	1	-	-
Kent	82	1	-	-
Liverpool	-	-	80>>*	3
Strathclyde	90	2	-	-
York	90	1	80>>*	3

Key:

- 83/89 trigger information in this/these years
- 80>> ongoing information available from this year
- 1 dedicated policy document/code of practice *etc.*
- 2 university newsletter
- 3 staff handbook
- 4 terms and conditions of employment
- 5 standing orders of Council re. new appointments
- ? not known
- no information disseminated in this manner

Note:

- * approximate year of introduction

FIGURE 39: DISSEMINATION OF INFORMATION TO NEW MEMBERS OF STAFF - REVENUE-SHARING FORMULAE

University	Date	Type of Information	Form of Information
Bristol	? 89>>	? trigger	? 5
City	89>>	trigger	1
Durham	87>>	trigger	4
Glasgow	82>89 89>>	trigger trigger	1 1
Hull	-	-	-
Kent	82>88 88>>	trigger trigger	6# 6#
Liverpool	80>>*	ongoing	3
Strathclyde	-	-	-
York	80>> 90>>	ongoing trigger	3 1

Key:

- 89>> from the year specified
- 82>89 during the period specified
- no information disseminated in this manner
- ? information probably disseminated but not known how/when
- 1 dedicated policy document/code of practice *etc.*
- 2 university newsletter
- 3 staff handbook
- 4 terms and conditions of employment
- 5 standing orders of Council re. new appointments
- 6 dedicated revenue-sharing document

Note:

- * approximate year of introduction
- # reputed to be disseminated but no trace remained

FIGURE 41A: RESEARCH GRANT AND CONTRACT INCOME EARNED BY THE PARTICIPATING UNIVERSITIES IN 1984/85

University	1	2	3	4	5	6	7	8
Bristol	8.7	9	17.5	15	7.5	2	85	4
City*	1.7	43	7.5	47	1.5	=7	81	5
Durham	2.9	31	11	38	2.2	6	77	7
Glasgow	11.6	5	15.7	19	11	1	93	3
Hull	1.6	46	7.4	47	1.5	=7	94	=1
Kent	2.2	41	11.7	32	1.4	9	61	8
Liverpool	6.8	13	11.5	33	6.4	3	94	=1
Strathclyde	6.5	11	14.9	23	5	4	80	6
York	3.8	27	19	10	2.3	5	59	9

Note: * City's figures are for 1985/86; there is no surviving record of the figures for 1984/85.

Information derived from - UGC University Statistics 1984/85, volume 3: Finance, Universities Statistical Record, September 1986.

FIGURE 41B: RESEARCH GRANT AND CONTRACT INCOME EARNED BY THE PARTICIPATING UNIVERSITIES IN 1988/89

University	1	2	3	4	5	6	7	8
Bristol	14.8	10	20.4	13	12.5	3	85	4
City	3	43	9.5	47	2.2	9	74	=6
Durham	5.9	30	15.6	=30	4.4	5	74	=6
Glasgow	22.9	5	21.4	12	21	1	93	1
Hull	2.7	47	8.5	40	2.5	8	92	=2
Kent	4.7	33	16.3	28	3.4	6	74	8
Liverpool	15.1	9	18.1	21	14	2	92	=2
Strathclyde	12.5	13	19.6	17	10	4	82	5
York	5.9	29	19.8	15	3.3	7	56	9

Information derived from - UGC University Statistics 1988/89, volume 3: Finance, Universities Statistical Record, September 1990.

- Key:
- 1 total research grant and contract income earned by university (£m)
 - 2 rank order/UK universities (£)
 - 3 % of recurrent annual grant
 - 4 rank order/UK universities (% of grant)
 - 5 research grant and contract income earned by science base (£m)
 - 6 rank order/9 participating universities (£)
 - 7 % of university's total research grant and contract income
 - 8 rank order/9 participating universities (% of grant)
 - = joint ranked order .

FIGURE 42: SUMMARY OF THE WRITTEN METHODS WHICH THE PARTICIPATING UNIVERSITIES USED/PLAN TO USE TO ALERT THE ACADEMIC COMMUNITY TO THE IMPORTANCE OF IDENTIFYING POTENTIALLY EXPLOITABLE IP AND NOTIFYING THE UNIVERSITY BEFORE DISCLOSING RESEARCH FINDINGS (1986-91)

University	Internal Source	External Source	Target	Manifestation	Date
Bristol	Administration		A	7	1989>>
City	Secretary		A	6	1989
Durham	Administration		C	4	1987>>
Glasgow		BTG	E, C	1	1989
	IL Office		A	1	1991
	Administration		A	8	1982>>
Hull	-	-	-	-	-
Kent	Administration		A	2	1989
	Administration		A	8	1990>>
Liverpool		BTG	A	1	1989
	IL Office		A	2	1991>>
Strathclyde	IL Office		C	10, 14	1988>>
	Administration		A	8	1970s>>
York	IL Office		A	6	1990
	IL Office		A	3	1989>>
	Administration		A	8	1991>>*

Key:	A	whole academic community
	B	Research Committee members
	C	HoDs and/or Deans
	D	research group leaders/principal investigators
	E	other selected groups of academic/research staff
	F	staff development programme
	G	individual faculty/department or groups of specific faculties/departments
	H	in-faculty/in-department research committee members
	I	faculty/departmental meeting
	J	staff member visited by outsiders
	-	no written/verbal method employed
	1	dedicated pamphlet
	2	university newsletter
	3	regular internal commercial bulletin
	4	annual memo
	5	one-off memo
	6	IP policy statement
	7	terms and conditions of appointment
	8	staff handbook/research handbook
	1989	in the year stated
	1990>>	from the year stated, annually

Note: * approximate date

FIGURE 43: SUMMARY OF THE VERBAL METHODS WHICH THE PARTICIPATING UNIVERSITIES USED/PLAN TO USE TO ALERT THE ACADEMIC COMMUNITY TO THE IMPORTANCE OF IDENTIFYING POTENTIALLY EXPLOITABLE IP AND NOTIFYING THE UNIVERSITY BEFORE DISCLOSING RESEARCH FINDINGS (1986-91)

University	Internal Speaker/s	External Speaker/s	Target	Manifestation	Date
Bristol	IL Office		G	10	1987>>
	IL Office		J	14	1987>>
	IL Office		A	9	1988
	IL Office		G	9	1989
		Patent Agent	G	13	1989>>
City	-	-	-	-	-
Durham	Administration		B	10	1987>>
	Administration		F	9	1991>>
		BTG	E	11	1986>>
Glasgow	IL Office		F	9	1989>>
	IL Office		G	9	1989
	IL Office		G	10	1988>>
		BTG	E	11	1986>>
Hull	IL Office		A	9	1990
	IL Office		E	10	1986>>
		Patent Office	A	12	1989
Kent		BTG	A	9	1989
Liverpool	IL Office		F	9	1989>>
	IL Office		A	9	1990>>
	IL Office		G	10	1988>>
	IL Office		H	10	1989>>
	IL Office		C	10	1991>>
	IL Office		D	10	1991>>
	IL Office		J	14	1988>>
		BTG	E	11	1986>>
Strathclyde	IL Office		G	9	1988>>
	IL Office		I	14	1986>>
	IL Office		E	10, 14	1988>>
	IL Office		C	10, 14	1988>>
		BTG	E	11	1986>>
York	IL Office		A	9	1989
	IL Office		E	10, 14	1989>>
	IL Office		C	10, 14	1989>>

Key:	A	whole academic community
	B	Research Committee members
	C	Holds and/or Deans
	D	research group leaders/principal investigators
	E	other selected groups of academic/research staff
	F	staff development programme
	G	individual faculty/department or groups of specific faculties/departments
	H	in-faculty/in-department research committee members
	I	faculty/departmental meeting
	J	staff member visited by outsiders
	-	no written/verbal method employed
	9	seminar/presentation
	10	informal talk
	11	IP trawl

12	Patent Office Roadshow
13	on-campus IP "surgery"
14	casual conversation

1989	in the year stated
1990>>	from the year stated, annually

Note: * approximate date

FIGURE 44: EVALUATING POTENTIALLY EXPLOITABLE IP - A SUMMARY OF POLICY-IMPLEMENTERS' GRASP OF THE PRINCIPLES

University	Scientific Evaluation	Technical Evaluation	Market Evaluation
Bristol*	✓	✓	✓
City	✓	✓	✓
Durham	×	✓	✓
Glasgow	✓	✓	✓
Hull	×	✓	✓
Kent**	×	✓	✓
Liverpool	×	✓	✓
Strathclyde	✓	✓	✓
York***	✓	✓	✓
<hr/>			
Key:	✓	in-principle appreciation of the need for this form of evaluation	
	×	no in-principle appreciation of the need for this form of evaluation	
Notes:	*	from 1987>>	
	**	from 1987-1989	
	***	from 1989>>	

FIGURE 45: EXPLAINING TO ACADEMICS WHY AND HOW TO EVALUATE THEIR POTENTIALLY EXPLOITABLE IP - A SUMMARY OF PRACTICE IN THE NINE PARTICIPATING UNIVERSITIES

University	Scientific Evaluation	Technical Evaluation	Market Evaluation
Bristol*	✓	✓	✓
City	✓	✓	✓
Durham	×	✓	✓
Glasgow	×	✓	✓
Hull	×	✓	✓
Kent**	×	✓	✓
Liverpool	×	✓	✓
Strathclyde	×	✓	✓
York***	✓	✓	✓

Key:	✓	policy-implementer explains why there is a need for this form of evaluation and how to do it
	×	policy-implementer does not explain why there is a need for this form of evaluation and how to do it

Notes:	*	from 1987>>
	**	from 1987-1989
	***	from 1989>>

FIGURE 46: PUTTING PRINCIPLES INTO PRACTICE - A SUMMARY OF THE EVALUATION TECHNIQUES UNDERTAKEN BY ACADEMICS THEMSELVES IN THE NINE PARTICIPATING UNIVERSITIES

University	Scientific Evaluation	Technical Evaluation	Market Evaluation
Bristol	×	×	×
City	✓	×	∅
Durham	×	×	∅
Glasgow	×	×	∅
Hull	×	×	∅
Kent	×	×	∅
Liverpool	×	×	∅
Strathclyde	×	×	✓
York	×	×	∅

Key:

- ✓ academics themselves undertake this form of evaluation
- ×
- ∅ academics themselves do not undertake this form of evaluation but may have some say in the choice of organisation to which this task is delegated

FIGURE 47: PROVIDING INFORMATION ON THE DIFFERENT TYPES OF IP PROTECTION

University	Information Provision
Bristol	✓ *
City	✓
Durham	✓
Glasgow	✓
Hull	✓
Kent	✓ **
Liverpool	✓
Strathclyde	✓
York	✓
Key:	✓ information provided by policy-implementer
Note:	* from 1987 onwards; prior to that, information may have been provided indirectly or academics may have had to find this out for themselves
	** between 1987-90 only; prior to 1987, it is doubtful whether much, if any, information was provided

**FIGURE 48: PROVIDING INFORMATION ABOUT THE PROCEDURES
AND COSTS ENTAILED IN DIFFERENT TYPES OF IP PROTECTION**

University	Information Provision
Bristol	✓ *
City	✓
Durham	?
Glasgow	✓
Hull	✓
Kent	✓ **
Liverpool	✓
Strathclyde	✓
York	✓

Key:

✓	information provided by policy-implementer
✓	information provided indirectly
?	doubtful whether much, if any, information is provided

Note:

*	from 1987 onwards; prior to that, information may have been provided indirectly or academics may have had to find this out for themselves
**	between 1987-89 only; outwith these dates, it is doubtful whether much, if any, information was provided

FIGURE 49: PROVIDING INFORMATION ON THE CONVENTIONS OF DRAFTING PATENT/DESIGN SPECIFICATIONS

University	Information Provision	
Bristol	×	
City	×	
Durham	∩	
Glasgow	×	
Hull	×	
Kent	×	
Liverpool	×	
Strathclyde	∩	
York	×	
<hr/>		
Key:	∩	information provided indirectly
	×	no information provided

FIGURE 51: GUIDING ACADEMICS' APPROACH TO POTENTIAL LICENCEES/ASSIGNEES

University	Information Provision		
	In Principle	Drawing Up an Agreement	
Bristol	✓	*	×
City	✓		×
Durham	✓		×
Glasgow	✓		×
Hull	✓		×
Kent	✓	*	×
Liverpool	✓		×
Strathclyde	✓		✓
York	✓	**	×
<hr/>			
Key:	✓	information provided	
	×	information not provided	
Notes:	*	from 1987 onwards; prior to that, information may have been provided indirectly or academics may have had to find this out for themselves	
	**	from 1988/89 onwards; prior to that, academics may have had to find this out for themselves	

FIGURE 52: NEGOTIATING LICENCING AGREEMENTS WITH SPIN-OFF COMPANIES FOUNDED/CO-FOUNDED BY MEMBERS OF THE ACADEMIC STAFF - THE PARTICIPATING UNIVERSITIES' APPROACH

University	Terms of Licence	
Bristol	×	
City	✓	
Durham	×	
Glasgow	×	
Hull	✓	
Kent	✓	
Liverpool	✓	
Strathclyde	✓	
York	✓	
<hr/>		
Key:	✓	academic spin-off companies receive preferential terms
	×	academic spin-off companies treated like any other company

FIGURE 53: GUIDING WOULD-BE ACADEMIC ENTREPRENEURS TO WRITE BUSINESS PLANS - THE PARTICIPATING UNIVERSITIES' APPROACH

University	Provider
Bristol	1 [*] , 3 [^]
City	3
Durham	3 ^{**}
Glasgow	1 ^{***} , 3
Hull	3
Kent	1 ^{*#} , 3 [#]
Liverpool	2 ^{##} , 3
Strathclyde	1, 3
York	1 ^{****^} , 3 ^{^^}

Key:	1	IL office staff
	2	referral to other university provider
	3	referral to external provider(s)
Notes:	*	limited guidance only
	**	no guidance or referral for academics founding independent spin-off companies
	***	no guidance for academics founding independent spin-off companies
	[^]	from 1987 only
	^{^^}	from 1989 only
	[#]	from 1987-1989 only
	^{##}	guidance would be retrospective, rather than prospective

**FIGURE 54: POLICY-IMPLEMENTERS' KNOWLEDGE OF
ALTERNATIVE SOURCES OF START-UP ACCOMMODATION (1989/90)**

University	Number Known to Policy-Implementers	Referral to Other Information Sources
Bristol	0	-
City	0	-
Durham	0	-
Glasgow	0	A, B, C
Hull	0	B
Kent	1#	B
Liverpool	2	A
Strathclyde	?	A, B, C
York	3	B

Key:	A	director/manager of university science park
	B	local economic development officers
	C	SDA property section
	-	no referral to other sources of information

Note:	**	Information provided by local informants such as local economic development officers, SDA property division etc.
	#	Known to policy implementer in post from 1987-89

**FIGURE 55: GIVING ACADEMICS GUIDANCE ON OTHER ASPECTS
OF BUSINESS START-UP - THE NINE PARTICIPATING
UNIVERSITIES' APPROACH**

University	Attitude	Extent of In-House Advice	Referral to External Advice
Bristol	3	D*	Y*
City	1	E, C	Y
Durham	3	F	N
Glasgow	2	B	Y
Hull	2	F	Y
Kent	2**, 3^	B**, F^	Y**, N^
Liverpool	2	E^^#	Y
Strathclyde	1	A	Y
York	2^^	B^^##	Y^^

Key:	1	university feels it has a moral responsibility
	2	university feels it has some responsibility
	3	university feels it has no responsibility
	A	extensive, hands-on, company-specific advice available
	B	fairly extensive, hands-on, company-specific advice available
	C	university may buy in a "midwife" in specific situations
	D	selection of publications available to browse through
	E	very limited in-house advice
	F	no in-house advice available
	Y	yes, academics referred to external sources of advice
	N	no, academics not referred to external sources of advice

Notes:	*	from 1987>> only
	**	1987-89 only
	^	1986-87, 1990>>
	^^	1989>> only
	#	may not be available for independent academic spin-off companies
	##	not available for independent academic spin-off companies

FIGURE 56: EXTENT OF PARTICIPATING UNIVERSITIES' CONTACT WITH EXTERNAL SOURCES OF BUSINESS START-UP ADVICE

University	Sources of External Advice by Type							
	1	2	3	4	5	6	7	
Bristol	✓	✓	×	✓	✓	-	✓	*
City	×	✓	✓	✓	✓	×	×	
Durham	×	×	×	×	×	×	×	
Glasgow	✓	✓	×	×	×	✓	×	
Hull	✓	×	✓	✓	✓	-	✓	
Kent	✓	✓	×	×	×	-	×	
Liverpool	✓	✓	✓	×	✓	-	✓	#
Strathclyde	✓	✓	✓	✓	✓	✓	✓	# ##
York	✓	✓	✓	×	×	-	×	

Key:	1	local economic development department officers
	2	local enterprise agencies/trusts
	3	bankers with an interest in small business
	4	accountants
	5	commercial lawyers
	6	national agencies (SDA-type)
	7	other
	✓	university has both knowledge of and contact with this source of assistance
	×	university has no knowledge of/no contact with this source of assistance
	-	this source of assistance is not available locally

Notes:	*	local chamber of commerce
	#	science park/incubator unit director
	##	Industry Department (Scotland)

FIGURE 57: OBTAINING ADVICE ON THE CORRECT FORM OF PROTECTION FOR COMPLEX DISCOVERIES

University	Likely Source of Advice
Bristol	2~, 1*
City	2
Durham	2
Glasgow	1
Hull	1
Kent	1#, 2**
Liverpool	1
Strathclyde	1
York	2

Key:	1	chartered patent agent
	2	other organisation (eg. a potential licensee/assignee such as a company or a "middle-man" like the BTG or Research Corporation)
Notes:	~	from 1986-early 1987
	*	from early 1987 on
	#	from 1987-89 only
	**	since mid-1989

FIGURE 58: OBTAINING A TECHNICAL EVALUATION OF A DISCOVERY

University	Likely Source of Evaluation
Bristol	2~, 1*
City	2
Durham	2
Glasgow	1
Hull	1
Kent	1#, 2**
Liverpool	1
Strathclyde	1
York	2

Key:	1	chartered patent agent
	2	other organisation (eg. a potential licensee/assignee such as a company or a "middle-man" like the BTG or Research Corporation)
Notes:	~	from 1986-early 1987
	*	from early 1987 on
	#	from 1987-89 only
	**	since mid-1989

**FIGURE 59: RELATIVE CONTRIBUTIONS MADE BY ACADEMICS
AND PATENT AGENTS TO THE PROCESS OF DRAFTING
PATENT/REGISTERED DESIGN SPECIFICATIONS**

<u>University</u>	<u>Procedure</u>
Bristol	1, 4
City	1, 2, 4
Durham	3, 5
Glasgow	1, 4
Hull	3 or 1, 3*
Kent	1, 2, 4~
Liverpool	1, 2, 4
Strathclyde	1, 3, 5
York	3 or 3, 5#

Key:	1	preliminary discussion between patent agent and academic
	2	academic provides salient details in writing
	3	academic writes specification
	4	patent agent writes specification
	5	patent agent refines academic's specification

Notes:	*	Hull follows the second procedure if writing the specification is not straightforward
	~	Kent followed this procedure until mid-1989; it is not known which procedures it will follow now
	#	York follows this second procedure only if it can persuade the department or the centre to pay for the cost

FIGURE 60: PARTICIPATING UNIVERSITIES' APPROACH TO FUNDING EXPERT EVALUATION OF POTENTIALLY EXPLOITABLE IP

University	Never	Occasionally	Whenever Necessary
Bristol		✓	
City		✓	
Durham	✓		
Glasgow			✓
Hull	✓		
Kent	✓		
Liverpool		✓	
Strathclyde		✓	
York	✓		

FIGURE 61: SUMMARY OF THE NINE PARTICIPATING UNIVERSITIES' APPROACH TO THE COST OF ACQUIRING AND MAINTAINING PATENTS/REGISTERED DESIGNS

University	Pays Cost	Formal Budget	Budget Flexibility	Annual Expenditure 1989/90 (approx)	£ per Capita	
					All Staff FTEs	Science Staff FTEs
Bristol	✓	✓	✓	18000	12.76	-
City	∅	×	-	10000	21.79	40.65
Durham	✓	×	-	4000	5.28	13.7
Glasgow	✓	✓	✓	35000	20.11	27.52
Hull	✓	✓	~	1600 #	2.08	6.12
Kent	✓ †	×	-	-	-	-
Liverpool	✓	×	-	75000 *	50.37	71.98
Strathclyde	✓	✓	✓	75000 *	60.14	100.27
York	∅	×	-	-	-	-

Key: ✓ pays the cost of acquiring patents or registered designs/has a formal patent budget/adopts a flexible approach
 ∅ may pay the cost of acquiring patents or registered designs if the department cannot or will not
 × does not pay the cost of acquiring the cost of patents or registered designs/has no formal patent budget
 - no information available/not applicable

Notes: * the annual budget varies between £70,000 - £80,000; this is the average
 # this figure is an approximation of annual expenditure; it is calculated on the basis that £8,000 of the £20,000 originally put by for patent protection was recently added to the IL office's budget to offset the costs of patent protection which it had borne over the previous 5 years
 † until mid 1989
 ~ there is a dedicated patent fund rather than an annual budget

FIGURE 62: A COMPARISON OF THE TIME ALLOWED - BY CUSTOM OR BY ENTITLEMENT - FOR PERSONAL CONSULTANCY IN THE NINE PARTICIPATING UNIVERSITIES

University	Time Limit
Bristol	1 day/week
City	1 day/week
Durham	1 or 2 days/month
Glasgow	30 days/year
Hull	45 days/year*
Kent	no limit#
Liverpool	1 day/week
Strathclyde	25 days/year
York	no limit
NB	Academics are generally expected to take the time they are allowed for personal consultancy in a flexible way, not rigidly - ie. not every Friday or every second Friday etc
Notes:	<p>* from 1990/91; previously, there was an earnings limit, rather than a time limit</p> <p># Kent has no centrally-dictated limit; however, individual laboratory directors are free to impose their own limit or treat each case on an ad hoc basis</p>

FIGURE 63: THE NINE PARTICIPATING UNIVERSITIES' APPROACH TO TEMPORARILY FREEING ACADEMICS FROM THEIR PRIMARY COMMITMENTS ON AN INFORMAL BASIS

University	Approach	
Bristol	2	
City	1	
Durham	2	#
Glasgow	1	
Hull	1	
Kent	2	
Liverpool	1	
Strathclyde	1	
York	2	
<hr/>		
Key:	1	against the idea of temporarily freeing academics on an informal basis
	2	centre does not promote the idea but might not object if a department proposed such an arrangement
Note:	#	would expect the academic concerned to offer some kind of quid pro quo to the department, however

FIGURE 64: THE NINE PARTICIPATING UNIVERSITIES' APPROACH TO TEMPORARILY FREEING ACADEMICS FROM THEIR PRIMARY COMMITMENTS VIA A PART-TIME CONTRACT

University	Approach	Percentage Free Time
Bristol	1	negotiable
City	1	negotiable
Durham	1	negotiable
Glasgow	2	negotiable
Hull	1	negotiable
Kent	3 #	negotiable
Liverpool	1	negotiable
Strathclyde	2	upto 70%
York	1	negotiable

Key:	1	part-time contract negotiable; paid pro-rata
	2	part-time contract negotiable; academics/their companies allowed to pay for a (possibly more junior) replacement and retain full salary
	3	part-time contract negotiable, possibly with full salary
Note:	#	salary might be covered pro-rata by the university centrally

FIGURE 65: THE NINE PARTICIPATING UNIVERSITIES' APPROACH TO TEMPORARILY FREEING ACADEMICS FROM THEIR PRIMARY COMMITMENTS VIA LEAVE OF ABSENCE

University	Approach
Bristol	3
City	3
Durham	3
Glasgow	2* or 3
Hull	3
Kent	1, 2# or 3
Liverpool	3
Strathclyde	n/a
York	1 or 3

Key:	1	leave of absence could be granted in the form of a sabbatical/a series of sabbaticals, with appropriate salary arrangements
	2	leave of absence/secondment on full salary
	3	leave of absence without salary
Note:	*	salary might be covered by the company
	#	salary might be covered by the university centrally

**FIGURE 66: SABBATICALS, PARTIAL AND FULL LEAVE OF ABSENCE -
HOW MUCH RESPITE DO THEY OFFER WOULD-BE ACADEMIC ENTREPRENEURS?**

University	Sabbatical	Full Leave of Absence	Maximum Extension Likely	Partial Leave of Absence
Bristol	n/a	1 year	1 year	-
City	n/a	1 year	no extension/1 year	1-2 years
Durham	n/a	upto 2 years	extension unlikely	no fixed limit
Glasgow	n/a	1 year	1 year	no fixed limit
Hull	n/a	upto 2 years	extension unlikely	-
Kent	1 term#	no fixed limit	no fixed limit	no fixed limit
Liverpool	n/a	-	-	-
Strathclyde	n/a	upto 3 years	rolling 1 year's notice	n/a
York	1 term	no fixed limit	no fixed limit	no fixed limit

Key: - no information available

Note: # several sabbaticals could be aggregated, if entitlement permits

FIGURE 67A: RANGE OF FINANCIAL SUPPORT MECHANISMS SET UP BY THE PARTICIPATING UNIVERSITIES WHICH COULD BE USED TO ASSIST ACADEMICS WISHING TO ENTREPRENEURIALY EXPLOIT THEIR RESEARCH DISCOVERIES

University	Types of Financial Help					
	1	2	3	4	5	6
Bristol	×	×	×	✓ *	×	×
City	×	✓	×	?	✓	-
Durham	×	✓	×	×	?	×
Glasgow	✓	✓	×	✓	✓	✓
Hull	✓	×	×	×	✓	✓
Kent	×	×	×	×	✓	✓
Liverpool	×	✓ **	×	✓ *	✓ ≠	×
Strathclyde	×	✓ #	×	✓ # ≠	✓	✓
York	✓	×	×	✓ *	✓	✓

FIGURE 67B: LEVEL OF FINANCIAL SUPPORT PROVIDED BY EACH MECHANISM

University	Mechanism				
	1	2	3	4	5
Bristol	n/a	n/a	n/a	-	n/a
City	n/a	□	n/a	n/a	□
Durham	n/a	...	n/a	n/a	n/a
Glasgow	NFM	NFM	n/a	<£20k	NFM
Hull	<£2k	n/a	n/a	n/a	<£5k
Kent	n/a	n/a	n/a	n/a	-
Liverpool	n/a	NFM	n/a	NFM	NFM
Strathclyde	n/a	<£50k	n/a	NFM	NFM
York	<£5k	n/a	n/a	NFM	NFM

Key:	1	seedcorn grant
	2	development grant/loan/capital
	3	guaranteeing an academic's bankloan
	4	soft loan/underwriting from university funds
	5	buying equity in the company
	6	helping solicit venture capital from external sources
	✓	university provides this type of financial help
	×	university does not provide this type of financial help
	?	university undecided about this kind of financial provision
	-	no information available
	□	not known; hypothetical situation to date
	n/a	not applicable
	NFM	no fixed maximum

Notes:	*	only in the case of a department's commercial activities which may or may not be spun off as a company in due course
	**	only in the case of IP which it is planned to exploit via a university company or a joint venture with members of staff
	#	Strathclyde does not give "soft" loans; it is sometimes prepared to provide convertible loan capital, charging the full, commercial rate for it
	≠	used to provide this type of financial help > no longer provides it

FIGURE 68: PHYSICAL AND HUMAN RESOURCES WHICH ENTREPRENEURIAL ACADEMICS ARE ALLOWED TO USE, DEMAND PERMITTING, IN THE NINE PARTICIPATING UNIVERSITIES

University	Type of Resource				
	1	2	3a	3b	4
Bristol	✓	✓	✓ *	✓ *	✓
City	✓	✓	✓	×	✓
Durham	✓	✓	✓	✓	✓
Glasgow	✓	✓	✓	×	✓
Hull	✓	✓ **	×	×	✓
Kent	✓	✓	✓	✓	✓
Liverpool	✓	✓	✓	✓	✓
Strathclyde	✓	✓ **	✓	×	×
York	✓	✓	✓	✓	✓

Key:	1	equipment (tools, computers, instrumentation, plant etc);
	2	communications (telephone, fax etc);
	3a	accommodation (existing office/laboratory space);
	3b	accommodation (extra, dedicated space);
	4	personnel (technicians, secretaries etc).
	✓	university permits use, demand permitting
	✓	university reluctant to permit use, but does so on occasion
	×	university does not permit use

Notes:	*	with the exception of companies whose activities might contravene the health and safety regulations
	**	academic entrepreneurs are expected to pay for the installation and use of a separate telephone line
	#	there are, nonetheless, one or two academic entrepreneurs whose companies are located in UFC-funded accommodation

FIGURE 69: FEES LEVIED BY THE NINE PARTICIPATING UNIVERSITIES FOR PHYSICAL AND HUMAN RESOURCES USED BY ACADEMICS TRYING TO ENTREPRENEURIALY EXPLOIT RESEARCH DISCOVERIES

University	Type of Resource				
	1	2	3a	3b	4
Bristol	A1, G/E	B1, B2	A1, G/E	G	A1, G
City	C1, D2	B1, B2	A1, G	-	D1, D2
Durham	A1, C2	A1, B2	A1, C2	C1, G	D1, D2
Glasgow	D1/E, D2/E	B1/E, B2	A1, G	-	D1/E, D2/E
Hull	D1, D2	B1, B2	-	-	D1, D2
Kent	C1/E, C2/E	B1, B2	A1, C2/E	C1/E, C2/E	D1, D2
Liverpool	D1, D2	B1, B2	A1, A2	D1, D2	D1, D2
Strathclyde	D1, D2	B1, B2	D1, D2	-	-
York	G/E	B1, B2	A1, G	B1/C1/D1, G	F

Key:	1	equipment (tools, computers, instrumentation, plant etc);
	2	communications (telephone, fax etc);
	3a	accommodation (existing office/laboratory space);
	3b	accommodation (extra, dedicated space);
	4	personnel (technicians, secretaries etc).
	A1	free in the start-up phase
	A2	free once the company is up and running
	B1	at cost price in the start-up phase
	B2	at cost price once the company is up and running
	C1	for a marginal fee in the start-up phase
	C2	for a marginal fee once the company is up and running
	D1	for a full, commercial fee in the start-up phase
	D2	for a full, commercial fee once the company is up and running
	E	marginal fee/rent in exchange for quid pro quo, redeemable in the longer term
	F	fee negotiated by personnel concerned
	G	negotiable once the company is up and running
	-	no use permitted

FIGURE 70: USE OF PHYSICAL AND HUMAN RESOURCES AND THE FEE LEVIED - WHO MAKES THE DECISION IN THE NINE PARTICIPATING UNIVERSITIES?

University	Type of Resource				
	1	2	3a	3b	4
Bristol	HoD	HoD	HoD	centre	HoD
City	T	HoD	T	-	T
Durham	HoD	HoD	HoD	centre*	HoD
Glasgow	T	T	T	-	T
Hull	E	E	-	-	E
Kent	HoD	HoD	HoD	centre*	HoD
Liverpool	T	T	T	centre*	T
Strathclyde	HoD	HoD	HoD	-	-
York	T	HoD	HoD	centre	HoD

Key:

- 1 equipment (tools, computers, instrumentation, plant etc);
- 2 communications (telephone, fax etc);
- 3a accommodation (existing office/laboratory space);
- 3b accommodation (extra, dedicated space);
- 4 personnel (technicians, secretaries etc).

- HoD head of department
- C centre
- T decision taken jointly by HoD and centre
- E decision may be taken by either the HoD or the centre
- no use permitted

Note:

- * the HoD would make the decision about additional space already allocated to the department; the centre would only make the decision about additional, non- allocated space

FIGURE 71: UGC COST CENTRES FROM WHICH HEADS OF DEPARTMENT WERE DRAWN

Cost Centre Number	Cost Centre Name	Number of Interviewees Drawn from Cost Centre
5	Pharmacology	1
6	Pharmacy	1
9	Biochemistry	2
10	Psychology	1
11	Other Biological Sciences	2
14	Chemistry	2
15	Physics	1
16	Other Physical Sciences	1
17	Mathematics	1
18	Computer Sciences	2
22	Electrical & Electronic Engineering	3
23	Mechanical, Aero & Prod. Engineering	3
26	Architecture	1
29	Geography	2

Note:

- (1) The cost centres from which Deans at Hull were drawn are included in this table in view of the fact that these interviewees had dual status - Dean and Head of Department.
- (2) The total exceeds the number of informants interviewed in their capacity as Head of Department because some departments belonged to more than one UGC cost centre.

FIGURE 72A: A SUMMARY OF DEANS' AND/OR HEADS' OF DEPARTMENT AWARENESS OF THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER - (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Removal of BTG's Monopoly		Research Councils' Offer	
	Aware	Unaware	Aware	Unaware
Hull	6 (100%)	0 (0%)	4 (67%)	2 (33%)
Liverpool	6 (75%)	2 (25%)	6 (75%)	2 (25%)
Strathclyde	6 (86%)	1 (14%)	5 (72%)	2 (28%)
York	2 (50%)	2 (50%)	2 (50%)	2 (50%)
Totals:	20 (80%)	5 (20%)	17 (65%)	8 (35%)

FIGURE 72B: INFORMATION SOURCES - HEADS' OF DEPARTMENT AND DEANS' RECOLLECTION OF HOW THEY LEARNED ABOUT THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER - (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Removal of BTG's Monopoly	Research Councils' Offer
Hull	previous university [1] Sub-Committee on Patents [1] university circular [3] media [1]	previous university [1] Sub-Committee on Patents [1] <i>no recollection</i> [2]
Liverpool	university circular [1] SERC [1] <i>no recollection</i> [4]	university circular [1] SERC [1] <i>no recollection</i> [4]
Strathclyde	Research Committee [1] IL office [1] media [1] <i>no recollection</i> [3]	Research Committee [1] IL office [1] <i>no recollection</i> [3]
York	Media [2]	Media [1] University circular [1]

Note:

Figures in brackets refer to the number of interviewees reporting this information source.

FIGURE 73: A SUMMARY OF DEANS' AND/OR HEADS' OF DEPARTMENT ATTITUDES (AT THE TIME) TO THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER - (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Attitudes			Unaware	Not Known	Total
	In Favour	Indifferent	Against			
Hull	3 (50%)	1 (17%)	0	2 (33%)	0	6
Liverpool	6 (75%)	0	0	2 (25%)	0	8
Strathclyde	3 (43%)	2 (29%)	0	1 (14%)	1 (14%)	7
York	2 (50%)	0	0	2 (50%)	0	4
Totals:	14 (56%)	3 (12%)	0	7 (28%)	1 (4%)	25

FIGURE 74: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR ATTITUDES (HELD AT THE TIME) TO THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER

Categories Reasons (paraphrased)

Expertise [2]

- Belief that the department was already sufficiently commercially-oriented that assuming rights and responsibilities previously enjoyed by the BTG would not be such a big step
- Belief, based on hearsay, that the BTG was not so good at exploiting university IP anyway

Relevance [1]

- Rights and responsibilities offered by the Research Councils not relevant to interviewee's discipline/field
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 75: DEANS' AND/OR HEADS' OF DEPARTMENT PERCEPTIONS OF THE UNIVERSITY OF HULL'S REASON(S) FOR ACCEPTING THE RESEARCH COUNCILS' OFFER

Categories Reasons (paraphrased)

Financial gain [6]

_____ To make money

Expertise [2]

_____ Belief that the university would make better judgements than the BTG

_____ Belief that the the university would be more effective at technology transfer

Contact with Industry [2]

_____ To foster contact with industry

_____ To gain access to new research ideas through contact with industry/commerce

Relevance [1]

_____ To generate publicity and improve the university's reputation

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 76: THE VIEWS OF DEANS' AND/OR HEADS' OF DEPARTMENT AT HULL UNIVERSITY ON WHO SHOULD HAVE BEEN INVOLVED IN THE PROCESS OF ACCEPTING/REJECTING THE RESEARCH COUNCILS' OFFER

Categories of People to Involve

Consultation	Decision
<hr/>	
/	/
A + B	A + B
C --> D -->	?
C -->	?
A + B -->	?
A + B + C -->	?
<hr/>	

Key:

- A Individual academics (those with experience of IPR)
- B Individual administrators (those with interest/expertise in IPR)
- C Representative academics (HoDs)
- D Dual-membership entity (Sub-Committee on Patents)
- / Interviewee's response not categorisable in this manner
- ? Interviewee omitted to specify this stage of the process

Note:

While HoDs comprise a definable group in any university, HoDs at Hull have no formal group membership (equivalent to, say, the Deans' Group) and no formal means of establishing, let alone articulating group views. They were therefore considered to be representatives of a formally recognised entity - their department.

FIGURE 77: THE LIKELIHOOD OF INDIVIDUAL SCIENCE OR TECHNOLOGY BASED DISCIPLINES GENERATING COMMERCIALLLY EXPLOITABLE IP - A COMPARISON OF DEANS' AND/OR HEADS' VIEWS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK)

University	Certain Disciplines More/Less Likely		No Disciplines More/Less Likely		Total	%
	N	%	N	%		
Hull	5	83	1	17	6	100
Liverpool	4	50	4	50	8	100
Strathclyde	4	57	3	43	7	100
York	4	100	0	0	4	100
Totals:	17	68	8	32	25	

**FIGURE 78: DISCIPLINES SEEN BY HEADS OF DEPARTMENTS AND DEANS
AS MORE OR LESS LIKELY TO GENERATE COMMERCIALY EXPLOITABLE IP**

University	More Likely	Less Likely
Hull	The "hard" sciences "Applied" disciplines	Mathematics Geography
Liverpool	Immunology Information technology Microbiology	
Strathclyde	Biosciences Computer science Electrical engineering Electronics Information technology Molecular genetics Pharmacy	Civil engineering Mathematics Physics (population dynamics) Statistics
York	Agri & food science Biomedical engineering Biotechnology Computer science Electrical engineering Electronics Information technology	Mathematics

**FIGURE 79: CRITERIA SEEN BY DEANS AND/OR HEADS OF DEPARTMENT
AS INFLUENCING THE GENERATION OF COMMERCIALY EXPLOITABLE IP
- (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE)**

University	Criteria
Hull	Sound physics and chemistry departments
Liverpool	Level of research activity of individual academic Research calibre of individual academic The breadth of science and technology disciplines in the university The organisation of research in the university The ethos of the university
Strathclyde	Extent of individual academic's relationship with industry Extent to which individual academics have an applied outlook Extent to which individual academics are enterprising/entrepreneurial The university's commitment to excellence

FIGURE 80: HEADS' OF DEPARTMENT AND DEANS' ESTIMATIONS OF THE DEGREE TO WHICH THEIR STAFF WERE AWARE OF THE UNIVERSITY'S WISH TO IDENTIFY COMMERCIALY EXPLOITABLE IP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK)

University	Degree of Awareness					N	%
	5	4	3	2	1		
Hull	0	1	4	0	1	6	100
Liverpool	0	0	4	2	2	8	100
Strathclyde	3	1	1	2	0	7	100
York	2	0	0	1	1	4	100
Totals:	5	1	10	5	4	25	
%	20	4	40	20	16	100	

Key:

5 = very aware
1 = unaware

FIGURE 81: EXPLANATIONS VOLUNTEERED BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR LEVELS OF STAFF AWARENESS OF THE UNIVERSITY'S WISH TO IDENTIFY IP

Category	Reason (paraphrased)
----------	----------------------

Orientation [1]

	_____ It is not something which staff worry about too much
--	--

Relevance [1]

	_____ IP is not relevant to their research area
--	---

Publicity [1]

	_____ The university has not publicised its wishes outside strategy papers with limited access
--	--

Controversy [1]

	_____ Staff feel that if they generate and successfully exploit IP, the department will get less £ from the centre
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 82: DEANS' AND/OR HEADS' OF DEPARTMENT PERCEPTIONS OF STAFF ATTITUDES TO BEING ASKED TO "FLAG" POTENTIALLY EXPLOITABLE IP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	A t t i t u d e					N	%
	'5'	'4'	'3'	'2'	'1'		
Hull	4	1	1	0	0	6	100
Liverpool	3	1	0	2	2	8	100
Strathclyde	5	1	0	0	1	7	100
York	1	0	3	0	0	4	100
Totals:	13	3	4	2	3	25	
%	52	12	16	8	12	100	

Key:

5 = very positive

1 = very negative

FIGURE 83: PROACTIVE OR REACTIVE? - HEADS' OF DEPARTMENT AND DEANS' VIEWS ON THE APPROACH WHICH THEIR UNIVERSITY SHOULD ADOPT TO THE IDENTIFICATION OF POTENTIALLY EXPLOITABLE IP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Approach				N	%
	'4'	'3'	'2'	'1'		
Hull	3	0	1	2	6	100
Liverpool	3	3	0	2	8	100
Strathclyde	6	0	0	1	7	100
York	3	0	0	1	4	100
Totals:	15	3	1	6	25	
%	60	12	4	24	100	

Key:

4 = Proactive

3 = Proactive in theory but not practice

2 = Midway between proactive and reactive

1 = Reactive

FIGURE 84: "FAIL-SAFE" MECHANISMS - THE VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY ON SCRUTINISING RESEARCH PROPOSALS, INTERIM/FINAL REPORTS AND DRAFTS OF PAPERS

Fail-Safe Mechanism	In Favour N	Against N	Totals N	%
Research Proposals	3	3	6	100
Interim/Final Reports	4	2	6	100
Drafts of Papers	1	5	6	100

FIGURE 85: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR REJECTING FAIL-SAFE MECHANISMS FOR THE IDENTIFICATION OF IP

Categories	Reasons (paraphrased)
------------	-----------------------

Expertise [2]

- | | |
|-------|---|
| _____ | The ILO would not have the requisite expertise |
| _____ | No individual or entity within the university has the requisite expertise |

Time [2]

- | | |
|-------|---|
| _____ | It would impose an intolerable delay on publication |
|-------|---|

Cost-Benefit [1]

- | | |
|-------|---|
| _____ | Failure to identify IP at the proposal stage could have a negative impact on people's expectations further "downstream" |
|-------|---|
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 86: VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY ON WHO SHOULD OWN INTELLECTUAL PROPERTY GENERATED BY ACADEMICS

Ownership Preferences	N
Academics should be treated like any other employee - <i>ie.</i> it should be owned by the employer	2
IP should be jointly owned by the university and the academics who generated it	1
IP generated by academics should be owned by the academics concerned	2
It is immaterial who owns the IP	1
Total	6
Percentage	100

FIGURE 87: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR THEIR VIEWS ON THE OWNERSHIP OF IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
Infrastructure [2]	<hr/> <p>The university provides the infrastructure/environment/facilities but the academics provide the ideas</p>
Locus of Direction [1]	<hr/> <p>Today the locus of direction in academic research is no different to the locus of direction in industry, so why distinguish between them?</p>
Potential to Exploit [1]	<hr/> <p>A university is not like any other employer; it does not have the ability to exploit IP</p>
Motivation [1]	<hr/> <p>It would be very demotivating for academics if the university claimed ownership</p>
Inconsequence [1]	<hr/> <p>It does not matter who owns the IP because the outcome will be the same either way</p>
Mission [1]	<hr/> <p>It is the mission of the professions to render service to the community; enabling the university to generate an income from is one way in which academics can render service</p> <hr/>

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 88: VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Views	N
Agreed with the broad concept of "protecting" IP generated by academics	5
Uneasy about the broad concept of "protecting" IP generated by academics	1
Disagreed with the concept of "protecting" IP generated by academics	0
Total	6
Percentage	100

FIGURE 89: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR THEIR VIEWS ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
<hr/>	
Financial gain [3]	
	An academic who freely gave away IP and watched it grow into a £ multi-million business in which he had no share would kick himself
	It gives the university the chance to earn £ independent of the UGC or industry
Blurred Boundaries [1]	
	It is sometimes difficult to draw the line between what constitutes fundamental research which should go into the public domain and commercial applications of that research

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons given which fell into the category in question.

FIGURE 90: VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY ON TREATING ACADEMIC RESEARCH DISCOVERIES AS SECRET KNOW-HOW

Views	N
Agreed without reservation with the idea of treating academic research discoveries as secret know-how	0
Accepted the idea of treating academic research discoveries as secret know-how provided certain conditions were fulfilled	2
Disagreed with the idea of treating academic research discoveries as secret know-how	4
Total	6
Percentage	100

FIGURE 91: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR THEIR VIEWS ON "PROTECTING" IP BY TREATING IT AS SECRET KNOW-HOW

Categories	Reasons (paraphrased)
-------------------	------------------------------

Function of University [3]	
-----------------------------------	--

	_____ Secret know-how is contrary to the function of a university
--	---

Practical Difficulties [1]	
-----------------------------------	--

	_____ Secrecy has had a serious and problematical impact on a laboratory in the department
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 92: VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY ON THE MERITS OF PATENTING VERSUS SECRET KNOW-HOW

Views	N
Patenting is preferable if there is a choice	5
Patenting is not necessarily preferable even if there is a choice	1
Total	6
Percentage	100

FIGURE 93: WHO DECIDES WHETHER AND HOW TO "PROTECT" IP GENERATED BY ACADEMICS? DEANS' AND HEADS' OF DEPARTMENT AWARENESS OF UNIVERSITY POLICY (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Aware	Unaware	Guessed Correctly	Guessed Wrongly
Hull	1	5	0	0
Liverpool	0	7	1	4
Strathclyde	0	6	3	3
York	2	2	2	0
Totals	3	20	6	7

FIGURE 94: DEANS' AND HEADS' OF DEPARTMENT ATTITUDES TO UNIVERSITY POLICY VIS-A-VIS WHO DECIDES WHETHER AND HOW TO "PROTECT" IP GENERATED BY ACADEMICS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Agree	Ambivalent	Disagree	N
Hull	6 (100%)	0	0	6
Liverpool	3 (38%)	2 (25%)	3 (38%)	8
Strathclyde	3 (50%)	3 (50%)	0	6
York	2 (50%)	2 (50%)	0	4
Totals	14 (58%)	7 (29%)	3 (13%)	24

FIGURE 95: DECIDING WHETHER AND HOW TO "PROTECT" IP GENERATED BY ACADEMICS - REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL FOR THEIR ATTITUDE TO UNIVERSITY POLICY ON THE RIGHT OF FINAL DECISION

Categories	Dimensions
------------	------------

Academic freedom [2]

	It must be upto the individual academic to have the freedom to decide
--	---

Pragmatic considerations [1]

	It would be impossible to stop academics disclosing their discoveries if they wished to
--	---

Opportunity cost [1]

	If academics do not publish their discoveries within 6-12 months, their work is out of date, so they must have the right of final decision
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 96: ATTITUDES OF DEANS AND HEADS OF DEPARTMENT TO TEMPORARILY REDUCING AN INVENTOR'S WORKLOAD TO HELP HIM/HER DRAFT/WRITE A PATENT SPECIFICATION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Attitude	Hull %		Liverpool %		Strathclyde %		York %	
Prepared to reduce workload	1	17	2	25	1	14	1	25
Might reduce workload	2	33	1	13	2	29	1	25
Not prepared to reduce workload	3	50	3	38	1	14	1	25
Department brings in patent agent	-	-	-	-	-	-	1	25
Totals:	6	100	6	75	4	50	4	100

Key

- not appropriate

FIGURE 97: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR THEIR ATTITUDE TOWARDS TEMPORARILY REDUCING AN INVENTOR'S WORKLOAD TO HELP HIM/HER WRITE A PATENT SPECIFICATION

Category	Reasons (paraphrased)
<hr/>	
Cost/benefit [2]	
	Why should other busy people help one member of staff to increase his personal income?
	You should always try to help members of staff who are clearly "going places"
Nature of the task [2]	
	Academic workloads consist of research, teaching and administration; writing a patentspecification is an integral part of doing research
	Writing a patent specification is similar to writing research proposals, and the departmentis lobbying the university for help for members of staff who write research proposals
Departmental flexibility [1]	
	The department is already moving towards a modular approach so that it is flexible enough to accommodate a wide range of individual interests
Practical considerations [1]	
	Everyone is working flat out; it would not be feasible

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

**FIGURE 98: VIEWS OF DEANS AND /OR HEADS OF DEPARTMENT ON THE MERITS OF PATENTING
VERSUS SECRET KNOW-HOW (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK)**

Views	N	%
Patenting is preferable if there is a choice	17	68
Patenting is not necessarily preferable even if there is a choice	7	28
	24	96

FIGURE 99: THE ENTREPRENEURIAL EXPLOITATION OF "HARD" INTELLECTUAL PROPERTY - VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK ON THREE ENTREPRENEURIAL SCENARIOS

a) University Companies

University	In Favour	Ambivalent/ Uncertain	Not in Favour	No Data	N
Hull	3 (50%)	2 (33%)	0	1 (17%)	6
Liverpool	6 (75%)	2 (25%)	0	0	8
Strathclyde	2 (29%)	1 (14%)	0	4 (57%)	7
York	2 (50%)	2 (50%)	0	0	4
Totals:	13 (52%)	7 (28%)	0	5 (20%)	25

b) Joint Ventures Between the University and Members of the Academic Staff

University	In Favour	Ambivalent/ Uncertain	Not in Favour	No Data	N
Hull	3 (50%)	2 (33%)	0	1 (17%)	6
Liverpool	7 (88%)	1 (13%)	0	0	8
Strathclyde	4 (57%)	2 (29%)	1 (14%)	0	7
York	2 (50%)	2 (50%)	0	0	4
Totals:	16 (64%)	7 (28%)	1 (4%)	1 (4%)	25

c) Independent Academic Spin-Off Companies

University	In Favour	Ambivalent/ Uncertain	Not in Favour	No Data	N
Hull	2 (33%)	0	0	4 (67%)	6
Liverpool	4 (50%)	4 (50%)	0	0	8
Strathclyde	0	0	7 (100%)	0	7
York	3 (75%)	1 (25%)	0	0	4
Totals:	9 (36%)	5 (20%)	7 (28%)	4 (16%)	25

FIGURE 100: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT AT THE UNIVERSITY OF HULL FOR THEIR VIEWS ON THE ENTREPRENEURIAL EXPLOITATION OF "HARD" INTELLECTUAL PROPERTY GENERATED WITHIN THE UNIVERSITY

Categories Reasons (paraphrased)

Income generation [4]

- University companies must be a good vehicle for getting the highest return on the exploitation of IP and advertising the university's capabilities at the same time
- A university company would seem to offer more £ from exploiting IP than any other route
- The greater financial gain which should accrue to the university from a joint venture makes it a more attractive proposition than licensing to ICI, or, for that matter, setting up an independent academic spin-off company
- Knowing the university, it would expect a big pay-off from a minute stake and would have no interest in counting the hours the academics put in compared to what it contributed

Fitness for the task [4]

- One would imagine that where joint ventures were concerned, the whole would be greater than the sum of the parts - that is to say, the skills of the academic(s) and the moral support and reputation of the university should help enormously when seeking £ for start-up
- Independent academic spin-off companies are the best solution because the university would stifle the creative accounting which small firms have to do to survive
- In a university company or a joint venture, the heavy hand of the university would be a worry
- Spin-off companies are a good idea provided they are run by academics with expert assistance where required, not by industrialists who simply don't understand academics or academia

Control [3]

- Independent academic-spin-off companies would be the most appropriate because the Registrar would not be involved; the company could have its own dynamic, free of university control
- An independent academic spin-off company would be better than a university company or a joint venture because the university would just try to control the staff involved in those two scenarios
- Well, the university would like the idea of a joint venture, wouldn't it, so that it could control what the staff were doing

Technology transfer mechanism [2]

- A joint venture would demonstrate that the university was actively interested in technology transfer, which it certainly has not been in the past
- We should have as many technology transfer mechanisms as possible, so all of these entrepreneurial scenarios should be encouraged

Founding initiative [1]

Any company set up to exploit IP should evolve naturally from within on the initiative of the academics concerned, rather than be set up in response to a political decision

Modus operandi [1]

A university company would have to have its own core staff and academics should not be forced to contribute to its activities, which would constitute an extra layer of work

Blurring of the divide [1]

The examples of companies started at this university have shown that academic entrepreneurs blur the divide between the department and the company, which is not acceptable; on the other hand, this has been less problematical lately, so perhaps it is a learning exercise

Cost/benefit [1]

A company set up to exploit "hard" IP makes no intellectual demands on the academic(s) involved, unlike a company set up to do contract R&D

Role models [1]

The role models we've had at this university have shown that you can be an excellent academic and have a successful business

Salary levels [1]

The university does not pay its staff well enough to expect more than a 40-hour week from them, so why shouldn't academics try to exploit their IP entrepreneurially if they want to give it a try?

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 101: VIEWS EXPRESSED BY DEANS AND/OR HEADS OF DEPARTMENT AT THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK ON EXTENSIVE CONSULTANCY

University	Some Impact	No Impact	Positive Impact	Negative Impact
Hull	6 (100%)	0	4 (67%)	5 (83%)
Liverpool	8 (100%)	0	4 (50%)	7 (88%)
Strathclyde	5 (71%)	2 (29%)	4 (80%)	2 (40%)
York	4 (100%)	0	3 (75%)	3 (75%)

NB Totalling the numbers in columns 4 and 5 exceeds the total from columns 2 and 3 in every instance because some interviewees felt that extensive consultancy could have both a positive and a negative impact

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 102: TYPES OF IMPACT WHICH DEANS AND/OR HEADS OF DEPARTMENT AT HULL UNIVERSITY FELT THAT EXTENSIVE CONSULTANCY WOULD HAVE

Categories Reasons (paraphrased)

Students [6]

- _____ Extensive consultancy would impact negatively on postgraduate students
- _____ Extensive consultancy would almost certainly impact negatively on the academic's teaching
- _____ Extensive consultancy is an ideal way of identifying new material for undergraduate classes so that we can keep students uptodate with real-world problems

Research [3]

- _____ Extensive consultancy is bound to have a negative impact on the publication rate of the academics doing it

Administrative load [2]

- _____ If people are doing a lot of consultancy, their administrative work is bound to suffer

Motivation [2]

- _____ Earning too much £ from outside the university leads to divided loyalties
- _____ Consultancy doesn't have a negative impact at all; in fact, it makes life more interesting

Bridging the divide [2]

- _____ Extensive consultancy will lead to new partnerships with industry and is to be welcomed
 - _____ Consultancy leads to the long-overdue blurring of the divide between university and industry
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - i.e.. the number of reasons which fell into this category

FIGURE 103: VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT THE UNIVERSITY OF HULL ON THE IMPOSITION OF A TIME LIMIT WITH REGARD TO THE AMOUNT OF PERSONAL CONSULTANCY DONE BY ACADEMICS

In Favour of Limit	In Favour of Guidelines	In Favour of No Limit	No Data	N
2 ## (33%)	1 (17%)	1 (17%)	2 (33%)	6

Note:

One informant had already banned all personal consultancy in his department and restricted in-house consultancy to being done at weekends and in the evenings

FIGURE 104: CHARACTERISTICS OF THE COMMERCIAL ARMS ASSOCIATED WITH THE DEPARTMENTS OF TWO INTERVIEWEES FROM HULL UNIVERSITY

Start Date	Locus of Founding Initiative	Own Staff	Dedicated Accommodation	Financial Basis	Beneficiaries
1980s	Research Group	Yes	No	Indirect support from Department	Department (centre)
1980s	Head of Department	No	No	Indirect support from Department	Department (centre)

Note:

Beneficiaries enclosed in parentheses are indirect beneficiaries - that is to say, they benefit by virtue of a share of the overheads levied on the contract research/consultancy etc done by the departmental commercial arm

**FIGURE 105: BENEFITS (OTHER THAN DIRECT FINANCIAL BENEFITS)
CONFERRED BY A DEPARTMENTAL COMMERCIAL ARM - AS PERCEIVED BY
TWO HEADS OF DEPARTMENT FROM HULL UNIVERSITY**

Categories Benefits (paraphrased)

Helping industry [1]

_____ Having a commercial arm means that we don't have to say no to requests from industry for assistance

Resource for colleagues [1]

_____ The commercial side of the department provides a service and a resource to colleagues in other departments who pay marginal rates - or even nothing if the problem is sufficiently interesting to us

Staff time [1]

_____ Having the commercial arm frees my permanent academic staff from having to do "bread and butter" consultancy and lets them get on with more important things

Advancing the discipline [1]

_____ The commercial arm supplies us with new and unexpected problems which keep staff alert intellectually and helps advance the discipline

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of benefits which fell into this category

FIGURE 106: REASONS GIVEN BY HEADS OF DEPARTMENT AT HULL UNIVERSITY FOR NOT HAVING A DEPARTMENTAL COMMERCIAL ARM

Categories	Reasons (paraphrased)
Expense [1]	<hr/> <p>We have an independent academic spin-off company embedded in the department which performs the same function - and having seen the expense incurred in setting up and running that, I think this may be a preferable solution</p>
Risk [2]	<hr/> <p>We have an independent academic spin-off company embedded in the department which performs the same function - and having seen the risks it is obliged to take, I think this may be a preferable solution</p> <hr/> <p>Setting up a commercial arm risks jeopardising the good relationships with members of staff which I currently have, as HoD</p>
Effort required [1]	<hr/> <p>There is a lot of effort involved in setting up and running something like this; we prefer to leave it to independent academic spin-off companies with which we have a symbiotic relationship</p>
Competitor [1]	<hr/> <p>The department considered setting up a commercial arm but felt it would compete with a multi-disciplinary research centre which effectively acts as the commercial arm of several departments</p>
Control [1]	<hr/> <p>It is difficult for the HoD to maintain sufficient control over a commercial arm</p> <hr/>

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 107: VIEWS EXPRESSED BY HEADS OF DEPARTMENT AT HULL UNIVERSITY ON THREE MECHANISMS FOR GIVING WOULD-BE ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP

a) Formal Reductions in/Rescheduling of Would-Be Academic Entrepreneurs' Normal Workloads for a Limited Period

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
3 (50%)	1 (17%)	2 (33%)	3 (50%)	1 (17%)	2 (33%)

b) Part-Time Contract for a Limited Period

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
5 (83%)	0	1 (17%)	2 (33%)	3 (50%)	1 (17%)

c) Complete Leave of Absence for a Limited Period

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
5 (83%)	0	1 (17%)	2 (33%)	3 (50%)	1 (17%)

FIGURE 108: INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY - A SUMMARY OF DEANS' AND/OR HoDs' AWARENESS OF UNIVERSITY'S APPROACH (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

a) University's Approach to Earnings Limits

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	2 (33%)	0	0	4 (67%)	6
Liverpool	0	0	8 (100%)	0	8
Strathclyde	6 (86%)	0	1 (14%)	0	7
York	4 (100%)	0	0	0	4
Totals:	12 (48%)	0	9 (36%)	4 (16%)	25

b) University's Approach to Levying a Percentage of the Consultancy Fee

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	4 (67%)	0	0	2 (33%)	6
Liverpool	2 (25%)	4 (50%)	2 (25%)	0	8
Strathclyde	5 (71%)	0	2 (29%)	0	7
York	4 (100%)	0	0	0	4
Totals:	15 (60%)	4 (16%)	4 (16%)	2 (8%)	25

FIGURE 109: INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY - A SUMMARY OF DEANS' AND/OR HoDs' ATTITUDES TO THEIR OWN UNIVERSITY'S APPROACH (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

a) University's Approach to Earnings Limits

University	Agreed	Ambivalent	Disagreed	No Data	N
Hull	2# (33%)	0	0	4 (67%)	6
Liverpool	4 (50%)	2 (25%)	1 (13%)	1 (13%)	8
Strathclyde	6 (86%)	0	1 (14%)	0	7
York	4 (100%)	0	0	0	4
Totals:	16 (64%)	2 (8%)	2 (8%)	5 (20%)	25

b) University's Approach to Levying a Percentage of the Consultancy Fee

University	Agreed	Ambivalent	Disagreed	No Data	N
Hull	2~ (33%)	0	2* (33%)	2 (33%)	6
Liverpool	2 (25%)	5** (63%)	1 (13%)	0	8
Strathclyde	2 (29%)	3 (43%)	2 (29%)	0	7
York	3 (75%)	1 (25%)	0	0	4
Totals:	9 (36%)	9 (36%)	5 (20%)	2 (8%)	25

Note:

- # Hull removed the earnings limit with effect from 1990-91; this figure indicates agreement with that move, not agreement with the imposition of an earnings limit
- ~ Hull levied no percentage charge until 1990-91; this figure indicates agreement with levying no percentage charge, not agreement with its introduction
- * Hull introduced a £125 per day levy in 1990-91; this figure indicates disagreement with the introduction of this levy
- ** Informants from Liverpool were ambivalent about the specific percentage levied, not about the principle - with one exception: one informant disagreed with a blanket levy, feeling the university should distinguish between "bread and butter" consultancy and "creative" consultancy

FIGURE 110: REASONS GIVEN BY DEANS AND/OR HoDs AT HULL UNIVERSITY FOR THEIR ATTITUDE TO THE UNIVERSITY'S APPROACH TO INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY

Categories Reasons (paraphrased)

Quid pro quo [1]

_____The university provides no [*gratis*] support; why should it take a cut?

Motivation [1]

_____The university wants to motivate staff; does it think that levying a charge of £125 per day is motivating?

Part of remit [1]

_____All the consultancy in our department is done in-house and is seen as a part of the department's remit; why should the university take a cut?

Career development [1]

_____Doing consultancy is one means of developing the particular strengths of members of staff - and hence their career and, by extension, the department's; why should this be "taxed"?

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons given which fell into this category

FIGURE 111: THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION - A SUMMARY OF DEANS' AND/OR HoDs' AWARENESS OF UNIVERSITY POLICY AND BELIEFS CONCERNING POLICY IMPLEMENTATION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

a) Awareness of University Policy

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	4 (67%)	1 (17%)	1 (17%)	0	6
Liverpool	7 (88%)	1 (12%)	0	0	8
Strathclyde	5 (71%)	0	0	2 (29%)	7
York	4 (100%)	0	0	0	4
Totals:	20 (80%)	2 (8%)	1 (4%)	2 (8%)	25

b) Beliefs Concerning Likelihood of Policy Being Implemented in Practice

University	Likely	Uncertain	Unlikely	No Data	N
Hull	0	4 (67%)	1 (13%)	1 (13%)	6
Liverpool	0	1 (13%)	3 (38%)	4 (50%)	8
Strathclyde	3# (43%)	1 (14%)	1* (14%)	2 (28%)	7
York	1# (25%)	0	3* (75%)	0	4
Totals:	4 (16%)	6 (24%)	8 (32%)	7 (28%)	25

Notes:

The impact of personal consultancy on promotion is not made explicit in Strathclyde's or York's promotions criteria; these informants believe that consultancy is taken into account

* The impact of personal consultancy on promotion is not made explicit in Strathclyde's or York's promotions criteria; these informants believe that consultancy is **not** taken into account

FIGURE 112: THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION - A SUMMARY OF DEANS' AND/OR HoDs' OWN ATTITUDES (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Should Count	Ambivalent	Should Not Count	No Data	N
Hull	6 (100%)	0	0	0	6
Liverpool	5 (63%)	1 (13%)	0	2 (25%)	8
Strathclyde	5 (71%)	0	1 (14%)	1 (14%)	7
York	3 (75%)	0	1 (25%)	0	4
Totals:	19 (76%)	1 (4%)	2 (8%)	3 (12%)	25

FIGURE 113: REASONS GIVEN BY DEANS AND/OR HoDs AT HULL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION

Categories	Reasons (paraphrased)
<hr/>	
Holistic approach [1]	
	Consultancy should be one of the factors taken into account; it contributes to evidence of a well-rounded person
Bridge to industry [2]	
	Links with industry are vitally important and this is a key way to develop links; it should therefore be rewarded
Appropriate activity [1]	
	These days departments should play the team game; if you've got someone who is good at consultancy and develops valuable contacts through them, that person should be rewarded for his contribution to the team effort

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 114: THE DISTRIBUTION OF INCOME FROM THE EXPLOITATION OF IP - A SUMMARY OF DEANS' AND/OR HoDs' AWARENESS OF THEIR UNIVERSITY'S APPROACH (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	0	5 (83%)	0	1 (17%)	6
Liverpool	1 (12%)	2 (25%)	5 (63%)	0	8
Strathclyde	2 (29%)	5 (71%)	0	0	7
York	1 (25%)	3 (75%)	0	0	4
Totals:	4 (16%)	15 (60%)	5 (20%)	1 (4%)	25

FIGURE 115: THE DISTRIBUTION OF INCOME FROM THE EXPLOITATION OF IP - A SUMMARY OF DEANS' AND/OR HoDs' ASSESSMENT OF THE EFFECTIVENESS OF THIS INCENTIVE (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Effective	Ambivalent/ Uncertain	Ineffective	No Data	N
Hull	0	4 (67%)	1 (17%)	1 (17%)	6
Liverpool	0	7 (88%)	1 (13%)	0	8
Strathclyde	1 (14%)	4 (57%)	2 (29%)	0	7
York	2 (50%)	1 (25%)	1 (25%)	0	4
Totals:	3 (12%)	16 (64%)	5 (20%)	1 (4%)	25

FIGURE 116: REASONS GIVEN BY DEANS AND/OR HoDs AT HULL UNIVERSITY FOR VIEWS ON THE EFFECTIVENESS OF DISTRIBUTING INCOME FROM THE EXPLOITATION OF IP AS AN INCENTIVE

Categories	Reasons (paraphrased)
Comparative disincentive [1]	
	Prior to the introduction of the sliding scale formula, academics kept 100% of the income from the exploitation of IP, so naturally giving up a percentage now is a major disincentive
Hypothetical reward [1]	
	In theory a share of the income is a good incentive, but since the university never bothers to publicise examples of it happening, its really very hypothetical, which must diminish its force
Extra effort [1]	
	It requires a considerable extra effort to get something to the stage where it can be exploited commercially, and extra effort should be rewarded, but ...
Concern about beneficiaries [2]	
	If distributing the income creates "haves" and "have-nots" in the university, care should be taken to redistribute some of the income among the "have-nots", too
	It is not right for the department to benefit from the distribution of income - it should be just the individuals and the centre
Conflicts with other policies [1]	
	It would be very nice for the department to get some uncommitted income to spend, but the introduction of income generation targets tends to take the icing off the cake

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 117: THE IMPACT OF PATENTS, LICENSES etc ON PROMOTION - A SUMMARY OF DEANS' AND/OR HoDs' AWARENESS OF UNIVERSITY POLICY AND BELIEFS CONCERNING POLICY IMPLEMENTATION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

a) Awareness of University Policy

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	3 (50%)	1 (17%)	1 (17%)	1 (17%)	6
Liverpool	6 (75%)	0	1 (13%)	1 (13%)	8
Strathclyde	4 (57%)	0	0	3 (43%)	7
York	2 (50%)	1 (25%)	1 (25%)	0	4
Totals:	15 (60%)	2 (8%)	3 (12%)	5 (20%)	25

b) Beliefs Concerning Likelihood of Policy Being Implemented in Practice

University	Likely	Uncertain	Unlikely	No Data	N
Hull	1 (17%)	0	0	5 (83%)	6
Liverpool	2# (25%)	1 (13%)	3* (38%)	2 (25%)	8
Strathclyde	2# (29%)	0	2 (29%)	3 (43%)	7
York	1# (25%)	0	2# (25%)	1 (25%)	4
Totals:	6 (24%)	1 (4%)	7 (28%)	11 (44%)	25

Notes:

- # The impact of patents, licenses *etc* on promotion is not made explicit in **Liverpool's, Strathclyde's or York's** promotions criteria; these informants believe that in practice consultancy is nonetheless likely to be taken into account
- * The impact of patents, licenses *etc* on promotion is not made explicit in **Liverpool's, Strathclyde's, York's** promotions criteria; these informants believe that in practice consultancy is **not** likely to be taken into account

FIGURE 118: THE IMPACT OF PATENTS, LICENSES etc ON PROMOTION - A SUMMARY OF DEANS' AND/OR HoDs' OWN ATTITUDES (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Should Count	Ambivalent	Should Not Count	No Data	N
Hull	4 (67%)	1 (17%)	0	1 (17%)	6
Liverpool	4 (50%)	0	0	4 (50%)	8
Strathclyde	2 (29%)	2 (29%)	0	3 (43%)	7
York	2 (50%)	1 (25%)	0	1 (25%)	4
Totals:	12 (48%)	4 (16%)	0	9 (36%)	25

FIGURE 119: REASONS GIVEN BY DEANS AND/OR HoDs AT HULL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PATENTS, LICENSES etc ON PROMOTION

Categories Reasons (paraphrased)

Income generation [2]

- | — Given that departments are about to face the introduction of annual income generation targets, it would seem churlish not to reward people for their contribution, whether it takes the form of contract research, royalties or whatever
- | — If this kind of activity brings resources into the university, it should be rewarded

UGC places value on patents *etc* [1]

- | — It is clear from the research selectivity exercises that the UGC places value on patents *etc* - so why shouldn't we?

Outcome of research [1]

- | — It is important to reward the outcomes of research, as well as the research itself

Note:

The figure in square brackets following the category name denotes the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 120: INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP - A SUMMARY OF DEANS' AND/OR HoDs' AWARENESS OF THEIR UNIVERSITY'S APPROACH (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	2 (33%)	0	0	4 (67%)	6
Liverpool	1 (13%)	1 (13%)	6 (75%)	0	8
Strathclyde	0	0	7 (100%)	0	7
York	2 (50%)	0	1 (25%)	1 (25%)	4
Totals:	5 (20%)	1 (4%)	14 (56%)	5 (50%)	25

FIGURE 121: INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP - A SUMMARY OF DEANS' AND/OR HoDs' ATTITUDES TO THEIR UNIVERSITY'S APPROACH (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Agreed	Ambivalent	Disagreed	No Opinion	N
Hull	1 (17%)	0	0	5 (83%)	6
Liverpool	3 (38%)	1 (13%)	2 (25%)	2 (25%)	8
Strathclyde	5# (71%)	0	1 (14%)	1 (14%)	7
York	4* (100%)	0	0	0	25
Totals:	13 (52%)	4 (16%)	3 (12%)	5 (20%)	25

Note:

qualified agreement in 3 instances

FIGURE 122: REASONS GIVEN BY DEANS AND/OR HoDs AT HULL UNIVERSITY FOR THEIR ATTITUDE TO INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP

Categories	Reasons (paraphrased)
Compensation [1]	If people devote time during the working week (ie. Monday to Friday 9-5) to their businesses, then it is right in principle for the university to charge them for the time they have not devoted to conventional university activities

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 123: IMPACT OF THE ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION - A SUMMARY OF DEANS' AND/OR HoDs' AWARENESS OF UNIVERSITY POLICY AND BELIEFS CONCERNING POLICY IMPLEMENTATION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

a) Awareness of University Policy

University	Aware	Semi-Aware	Unaware/ Wrong	No Data	N
Hull	4 (67%)	0	1 (17%)	1 (17%)	6
Liverpool	7 (88%)	0	0	1 (12%)	8
Strathclyde	7 (100%)	0	0	0	7
York	3 (75%)	0	0	1 (25%)	4
Totals:	21 (84%)	0	1 (4%)	3 (12%)	25

b) Beliefs Concerning Likelihood of Policy Being Implemented in Practice

University	Likely	Uncertain	Unlikely	No Data	N
Hull	1# (17%)	0	1* (17%)	4 (67%)	6
Liverpool	2# ~ (25%)	3 (38%)	2* (25%)	1 (13%)	8
Strathclyde	2# ~ (29%)	3 (43%)	2* (29%)	0	7
York	0	1 (25%)	1* (25%)	2 (50%)	4
Totals:	5 (20%)	7 (28%)	6 (24%)	7 (28%)	25

Note:

- # The impact of the entrepreneurial exploitation of IP on promotion is not made explicit in any of the four universities' promotions criteria; these informants believe that in practice it is nonetheless likely to be taken into account
- * The impact of the entrepreneurial exploitation of IP on promotion is not made explicit in any of the four universities' promotions criteria; these informants believe that in practice consultancy is **not** likely to be taken into account
- ~ One informant felt this was likely to be a **negative** rather than a positive impact

FIGURE 124: IMPACT OF THE ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION - A SUMMARY OF DEANS' AND/OR HoDs' OWN ATTITUDES (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	Should Count	Ambivalent	Should Not Count	No Data	N
Hull	5 (83%)	0	0	1 (17%)	6
Liverpool	3~ (38%)	2 (25%)	2 (25%)	1 (13%)	8
Strathclyde	2 (29%)	3 (43%)	2 (29%)	0	7
York	3 (75%)	0	0	1 (25%)	4
Totals:	13 (52%)	5 (20%)	4 (16%)	3 (12%)	25

Note:

~ one informant suggested it should have a negative impact

FIGURE 125: REASONS GIVEN BY DEANS AND/OR HoDs AT HULL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION

Reward for strengths [1]

These days departments should play the team game, rather than have everyone try to get a good score in every "box" (*ie.* teaching, research administration); if someone has the ability and interest to exploit IP entrepreneurially, that person should be rewarded for his contribution to the team effort

Appropriate skill [1]

These days universities are expected to become increasingly entrepreneurial - so it is only right to reward staff who take a lead where this is concerned

Sign of ability [1]

Academic entrepreneurship is undoubtedly a sign of a person with ideas, initiative and drive - and on that basis, it should be rewarded

Benefit to university [1]

Any activity which benefits the university should be rewarded - and academic entrepreneurship falls into that category

Note:

The figure in square brackets following the category name denotes the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 126: REASONS GIVEN BY HEADS OF DEPARTMENT AND DEANS AT LIVERPOOL UNIVERSITY FOR ATTITUDES (HELD AT THE TIME) TO THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER

Categories	Reasons (paraphrased)
Relevance [4]	Rights and responsibilities offered by the Research Councils would allow the university to become more relevant to the needs of industry/the community
Expertise [2]	Belief, based on hearsay, that the BTG was not so good at exploiting university IP
	Knowledge, based on experience, that using the BTG had not been good at exploiting university IP

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 127: HEADS' OF DEPARTMENT AND DEANS' PERCEPTIONS OF THE UNIVERSITY OF LIVERPOOL'S REASON(S) FOR ACCEPTING THE RESEARCH COUNCILS' OFFER

Categories	Reasons (paraphrased)
-------------------	------------------------------

Financial [6]

	To generate revenue
--	---------------------

Expertise [1]

	Belief that the university would ensure that IP was exploited faster than the BTG had
--	---

Relevance [1]

	To signal the university's relevance
--	--------------------------------------

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

✓

FIGURE 128: THE VIEWS OF HEADS' OF DEPARTMENT AND DEANS' AT LIVERPOOL UNIVERSITY ON WHO SHOULD HAVE BEEN INVOLVED IN THE PROCESS OF ACCEPTING/REJECTING THE RESEARCH COUNCILS' OFFER

Categories of People to Involve

Consultation	Decision
E1 →	E1
A →	?
A + C →	?
C →	?
A →	?
B1 →	D1 + B2
F + B2 →	?
E2 + C + D2 →	?

Key:

- A Individual academics (those with experience of IPR)
- B Individual administrators
 - 1 (ILO)
 - 2 (interest/expertise in IPR)
- C Representative academics (HoDs, Chairman of Academic Committee)
- D Dual status individuals
 - 1 (Vice-Chancellor)
 - 2 (Pro-Vice-Chancellors)
- E Academic entities
 - 1 (Senate)
 - 2 (Research Committee)
- F Dual-membership entity (University Management Group)
- ? Interviewee omitted to specify this stage of the process

Note:

While HoDs comprise a definable group in any university, HoDs at Liverpool have no formal group membership (equivalent to, say, the Deans' Group) and no formal means of establishing, let alone articulating group views. They were therefore considered to be representatives of a formally recognised entity - their department.

FIGURE 129: EXPLANATIONS VOLUNTEERED BY HEADS OF DEPARTMENT AND DEANS AT LIVERPOOL UNIVERSITY FOR LEVELS OF STAFF AWARENESS OF THE UNIVERSITY'S WISH TO IDENTIFY IP

Category	Reason (paraphrased)
----------	----------------------

Organisation of Research [2]

	Levels of awareness have increased since most members of staff joined a major research group
--	--

Publicity [2]

	Staff never hear about the university's wishes in this respect
	The HoD always copies circulars on this subject to his staff

Orientation [2]

	Staff are oriented towards the department's aspirations, not the university's
	It is not uppermost in/at the forefront of academics' minds

Type of Research Sponsorship [1]

	Large percentage of staff have done contract research for industry
--	--

Experience [1]

	Departmental staff have never had any experience of IP being exploited
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 130: "FAIL-SAFE" MECHANISMS - THE VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY ON SCRUTINISING RESEARCH PROPOSALS, INTERIM/FINAL REPORTS AND DRAFTS OF PAPERS

Fail-Safe Mechanism	In Favour of Idea N	Prepared to Consider Idea N	Against Idea N	Total N	%
Research Proposals	0	1	7	8	100
Interim/Final Reports	0	1	7	8	100
Drafts of Papers	2	1	5	8	100

FIGURE 131: REASONS GIVEN BY HEADS OF DEPARTMENT AND DEANS AT LIVERPOOL UNIVERSITY FOR REJECTING FAIL-SAFE MECHANISMS FOR THE IDENTIFICATION OF IP

Categories	Reasons (paraphrased)
-------------------	------------------------------

Expertise [4]

- | | |
|--|---|
| | The ILO would not have the requisite expertise |
| | Even the Research Councils don't have the requisite expertise, so how could the university? |

Cost-Benefit [3]

- | | |
|--|--|
| | It would be a complete waste of effort |
|--|--|
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 132: VIEWS OF HEADS OF DEPARTMENT AND DEANS AT LIVERPOOL UNIVERSITY ON WHO SHOULD OWN INTELLECTUAL PROPERTY GENERATED BY ACADEMICS

Ownership Preferences	N
Academics should be treated like any other employee - <i>ie.</i> it should be owned by the employer	4
IP should be jointly owned by the university and the academics who generated it	2
IP generated by academics should be owned by the academics concerned	2
Total	8
Percentage	100

FIGURE 133: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY FOR THEIR VIEWS ON THE OWNERSHIP OF IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
<hr/>	
Infrastructure [5]	
	The university provides the infrastructure/environment/facilities without which the IP could not be generated
	The university provides the infrastructure/environment/facilities but the academics provide the ideas
Locus of Direction [3]	
	Today the locus of direction in academic research is no different to the locus of direction in industry, so why distinguish between them?
	Academics research without direction from their employer; in this they are very different from most researchers in industry.
Morality [1]	
	If the academic had the idea, this should not be taken from him/her
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 134: THE VIEWS OF DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Views	N
Agreed with the broad concept of "protecting" IP generated by academics	5
With some reservations agreed with the broad concept of "protecting" IP generated by academics	2
Disagreed with the concept of "protecting" IP generated by academics	1
Total	8
Percentage	100

FIGURE 135: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY FOR THEIR VIEWS ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
Financial gain [1]	_____ It is a good way for the university to earn an honest penny
Counteracting Foreign Competition [2]	_____ Otherwise the hawks will get you
	_____ To stop the US, the Germans, the French and the Japanese getting hold of our ideas before we can
Control [1]	_____ To control the interests of the university and the staff concerned
Ignorance of Objections [1]	_____ There is no obvious objection to the broad concept of "protecting" such IP
Inherent difficulties [2]	_____ "Protecting" IP is only a good idea if it is cast-iron protection and the return justifies the cost
	_____ "Protecting" IP entails difficulties like registering theses under false titles
Secrecy [1]	_____ Secrecy in labs will kill the development of science and engineering

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 136: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY ON TREATING ACADEMIC RESEARCH DISCOVERIES AS SECRET KNOW-HOW

Views	N
Agreed without reservation with the idea of treating academic research discoveries as secret know-how	2
Accepted the idea of treating academic research discoveries as secret know-how provided certain conditions were fulfilled	2
Disagreed with the idea of treating academic research discoveries as secret know-how	4
Total	8
Percentage	100

FIGURE 137: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY FOR THEIR VIEWS ON "PROTECTING" IP BY TREATING IT AS SECRET KNOW-HOW

Categories	Reasons (paraphrased)
------------	-----------------------

Function of University [3]

	Secret know-how is contrary to the function of a university
--	---

End justifies means [2]

	This is the price a university might have to pay in order to become a resource for the community
--	--

	The end justifies the means
--	-----------------------------

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 138: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY ON THE MERITS OF PATENTING VERSUS SECRET KNOW-HOW

Views	N
Patenting is preferable if there is a choice	4
Patenting not necessarily preferable even if there is a choice	4
Total	8
Percentage	100

**FIGURE 139: DECIDING WHETHER AND HOW TO "PROTECT" IP
GENERATED BY ACADEMICS - REASONS GIVEN BY DEANS AND HEADS OF
DEPARTMENT AT LIVERPOOL FOR THEIR ATTITUDE TO UNIVERSITY
POLICY ON THE RIGHT OF FINAL DECISION**

Categories Reasons (paraphrased)

Academic freedom [5]

- _____ It must be up to the individual academic to have the freedom to decide
- _____ Academic freedom is fundamental
- _____ It is dangerous to prevent academics from publishing

Commercial judgement [1]

- _____ The university has better commercial judgement than academics

Pragmatism [3]

- _____ It would be impossible to stop academics disclosing their discoveries if they wished to
- _____ It would be impossible to police a publication ban
- _____ It would be so easy to get round a ban on disclosure

IP ownership [1]

- _____ The university owns the IP, so it should have the right of final decision
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 140: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TOWARDS TEMPORARILY REDUCING AN INVENTOR'S WORKLOAD TO HELP HIM/HER CONCENTRATE ON WRITING A PATENT SPECIFICATION

Category	Reasons (paraphrased)
<hr/>	
Departmental flexibility [3]	
	There are enough academic staff in the department to make it possible to adopt a flexible approach to individual needs
	It should be possible to be flexible about their teaching or administrative load or help by providing extra secretarial support
	Semi-devolved budgets make it difficult to be flexible in the way that departments used to be
Nature of the task [2]	
	Writing a patent specification is part of the intellectual activity of a university
	Writing a patent specification is just another university/departmental activity
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 141: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT THE UNIVERSITY OF LIVERPOOL FOR THEIR VIEWS ON THE ENTREPRENEURIAL EXPLOITATION OF "HARD" INTELLECTUAL PROPERTY GENERATED WITHIN THE UNIVERSITY

Categories Reasons (paraphrased)

Risk [5]

- _____ The university has been too cautious; it should take £5m and invest it in its entrepreneurial staff; it might lose the lot, but it might make £100m
- _____ The university missed the boat in the 1970s by being too cautious; this university should now make up for lost time
- _____ Other universities which were less cautious have shown how valuable university companies and science parks can be
- _____ Entrepreneurially exploiting IP is fine, provided you pay close attention to working out the likely risk
- _____ University companies are fine as long as the university does not appoint high-risk entrepreneurs to lead them without having properly calculated the consequences

Conflicts [4]

- _____ If a company did well, it would impinge on the academic's departmental responsibilities; he would write fewer papers and his colleagues would have to do more and more of his work
- _____ In order to make it fly, a company would need a lot of input from the academic(s) who generated the IP being exploited - and that would lead to conflicts between the needs of the company and the needs of the department, especially where a "hard" company was concerned
- _____ Entrepreneurial exploitation of IP is fine provided it does not distract the academic(s) concerned from their mainstream university work
- _____ Starting companies to exploit IP is okay as long as it does not divert staff from the things which the HoD regards as more important

Fitness for the task [3]

- _____ We have to ask ourselves: how good are academics at being entrepreneurs?
- _____ Academics would need to find themselves able partners because they don't have the requisite business skills
- _____ Academics at the coalface probably know best what the exploitation potential of a discovery is - and a company can provide the necessary staff and expertise to help them to exploit it to the full

Cost/benefit [3]

- _____ University companies are fine as long as they don't lead to academics getting involved in Mickey Mouse activities academically, as they seem to have at Salford
- _____ So far successful university companies have shown that they need the university to put in a lot of time and £; there is a limit to how many companies can receive this treatment
- _____ Academics would be better spending their time doing new research rather than trying to exploit existing research discoveries

Income generation [3]

- _____ The university should try to get the maximum financial benefit from the exploitation of its own IP - and if that means doing it entrepreneurially, fine
- _____ Setting up a company to exploit a discovery should give the university the highest return on its investment in the IP
- _____ Exploiting IP via companies is fine as long as the university does not have naive, short-term expectations of the return on its capital

Blurring the divide [1]

- _____ Academics should go out and be buccaneers - but at arms' length from the university, and a university company is not arms' length enough

Midwife to enterprise [1]

- _____ It is quite in keeping with the university's role to act as a midwife to enterprise

Third party benefit [1]

- _____ Entrepreneurially exploiting IP is a good idea provided it is done in a way which benefits the city, the region and the UK - in that order

Anti-ossification strategy [1]

- _____ Universities must be moving structures; the more they are involved in the outside world the better

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 142: TYPES OF IMPACT WHICH DEANS AND HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY FELT THAT EXTENSIVE CONSULTANCY WOULD HAVE

Categories Reasons (paraphrased)

Research [9]

- _____ Extensive consultancy would have a negative impact on the publication rate of the academics concerned
- _____ Spending one's time doing consultancy would negatively affect one's ability to do research
- _____ Extensive consultancy would have a negative impact on one's chances of discovering and understanding new knowledge
- _____ Consultancy leads to the identification of new areas of research to pursue
- _____ Consultancy often leads to the new contract research opportunities

Students [4]

- _____ Extensive consultancy would have a bad affect on the supervision of students
- _____ Extensive consultancy leads to students being neglected
- _____ Consultancy provides new material for undergraduate classes

Administrative load [1]

- _____ If people are away doing consultancy a lot, you can be sure they will not be doing their fair share of administrative work

Access [4]

- _____ Consultancy leads to academics accessing new expertise which they would not otherwise have
- _____ Consultancy is a means of making new connections
- _____ Consultancy gives the department access to state-of-the-art facilities which the university cannot afford
- _____ Consultancy opens academics minds to the world outside academia

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 143: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT THE UNIVERSITY OF LIVERPOOL ON THE IMPOSITION OF A TIME LIMIT WITH REGARD TO THE AMOUNT OF PERSONAL CONSULTANCY DONE BY ACADEMICS

In Favour of Limit	In Favour of Guidelines	In Favour of No Limit	N
1 (13%)	2 (25%)	5 (63%)	8

FIGURE 144: CHARACTERISTICS OF THE COMMERCIAL ARMS ASSOCIATED WITH THE DEPARTMENTS OF ONE INTERVIEWEE AT LIVERPOOL UNIVERSITY

Start Date	Locus of Founding Initiative	Own Staff	Dedicated Accommodation	Financial Basis	Beneficiaries
1980s	Academics involved	Yes	No	Indirect support from Department	Academics involved (department) (centre)
1980s	Academics involved	No	No	Indirect support from Department	Department (centre)

Note:

Beneficiaries enclosed in parentheses are indirect beneficiaries - that is to say, they benefit by virtue of a share of the overheads levied on the contract research/consultancy etc done by the departmental commercial arm

**FIGURE 145: BENEFITS (OTHER THAN DIRECT FINANCIAL BENEFITS)
CONFERRED BY A DEPARTMENTAL COMMERCIAL ARM - AS PERCEIVED BY
ONE HEAD OF DEPARTMENT FROM LIVERPOOL UNIVERSITY**

Categories Benefits (paraphrased)

Enhancement of reputation [2]

|_____The commercial arm has won for itself an international reputation

Job creation [2]

|_____The commercial arm has enabled us to take on a temporary lecturer

|_____The commercial arm is a source of employment for our new young post-docs

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of benefits which fell into this category

**FIGURE 146: GROUNDS FOR CONTROVERSY CREATED BY THE
ESTABLISHMENT OF A DEPARTMENTAL COMMERCIAL ARM - AS REPORTED
BY ONE HEAD OF DEPARTMENT FROM LIVERPOOL UNIVERSITY**

Categories Grounds (paraphrased)

Type of work [1]

Despite the fact that both commercial arms in the department have an international reputation, there was concern about the type of work each was contracting to do; it was perceived by some to be "bread and butter"-oriented when they started out

Legitimacy [1]

There have been and still are long, drawn-out arguments about the legitimacy of using the departmental xerox machine *etc* and other UGC-funded resources for commercial work - even though a fee is levied for the use of them

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of grounds which fell into this category

FIGURE 147: REASONS GIVEN BY HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY FOR NOT HAVING A DEPARTMENTAL COMMERCIAL ARM

Categories Reasons (paraphrased)

Inutility [3]

- _____ Staff are already working flat out; thus there is no point in creating a mechanism for generating more £ - and more work
- _____ Staff are attracting enough consultancy as it is, without a formal mechanism for marketing themselves

Opportunity costs [1]

- _____ We know from observing other universities that commercial arms in this discipline make £ at the expense of academically productive work

Beneficiaries [1]

- _____ Any commercial arm must be set up to directly benefit the host department, but it would appear from those which already exist that this is difficult to achieve
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 148: VIEWS EXPRESSED BY HEADS OF DEPARTMENT AT LIVERPOOL UNIVERSITY ON THREE MECHANISMS FOR GIVING WOULD-BE ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP

a) Formal Reductions in/Rescheduling of Would-Be Academic Entrepreneurs' Normal Workloads for a Limited Period

	IN PRINCIPLE		IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
0	2 (25%)	4 (50%)	0	2 (25%)	4 (50%)

b) Part-Time Contract for a Limited Period

	IN PRINCIPLE		IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
2 (25%)	3 (38%)	0	0	2 (25%)	3 (38%)

c) Complete Leave of Absence for a Limited Period

	IN PRINCIPLE		IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
2 (25%)	3 (38%)	0	0	2 (25%)	3 (38%)

NB:

Percentages given in this table relate to the percentage of all the interviewees subscribing to this view - *i.e.* there is no adjustment for missing data

FIGURE 149: REASONS GIVEN BY DEANS AND HoDs AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TO THE UNIVERSITY'S APPROACH TO INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY

Categories	Reasons (paraphrased)
Motivation [2]	<p>A 25% cut is a total disincentive</p> <p>The percentage cut should not be too high because it could deter people from doing consultancy - and we need them to do it in order to cultivate contacts in industry which could generate real problems for students to tackle in their projects</p>
Excess [2]	<p>It is reasonable for the university to take a small percentage cut to cover the cost of providing professional indemnity etc, but 25% is way over the top</p>
Quid pro quo [2]	<p>It is reasonable for the university to take a small percentage cut to cover the cost of providing professional indemnity etc</p>
Lack of discrimination [1]	<p>There's a difference between what I call "bread and butter" consultancy and "creative" consultancy; the "creative" consultancy is to the department's advantage, and yet it gets "taxed" in the same way</p>
Indicator [1]	<p>A limit on consultancy earnings provides an indicator to staff of what is reasonable and what is excessive</p>

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 150: REASONS GIVEN BY DEANS AND HoDs AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION

Categories	Reasons (paraphrased)
Gauge of external value [2]	Consultancy is a good gauge of a person's standing in the outside world
Holistic approach [1]	Consultancy is one of a variety of activities which a well-rounded person should exhibit; it should therefore be rewarded
Inappropriate [1]	The only thing which should be rewarded by promotion is research - as manifested by publications
Income generation [1]	Consultancy itself should probably not be rewarded by promotion unless it is published; but if it leads to a piece of contract research, that should be taken into account with regard to promotion
Creativity [1]	Some consultancy can be extremely creative intellectually and should be rewarded just like any other intellectual activity

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 151: REASONS GIVEN BY DEANS AND HoDs AT LIVERPOOL UNIVERSITY FOR THEIR VIEWS ON THE EFFECTIVENESS OF DISTRIBUTING INCOME FROM THE EXPLOITATION OF IP AS AN INCENTIVE

Categories	Reasons (paraphrased)
<hr/>	
Hypothetical reward [6]	
	There have not been any examples of people in this department getting a share of income from the exploitation of IP, so it is really rather hypothetical
	I can't think of a single example of a member of staff or the department benefitting this way. It isn't the talk of the coffee room and, in fact, I haven't heard of any examples of anyone anywhere in the university benefitting in this way
In conflicts with other policies [1]	
	It is good to get this kind of unexpected income, but since departments have got to achieve savings targets, it is all off-set against that and we never get to enjoy spending it
Illogical [1]	
	It isn't really an incentive because you only get a share of the income if there is any, not for bothering to notify the university or for putting in extra effort to bring the discovery to the point where it is exploitable
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 152: REASONS GIVEN BY DEANS AND HoDs AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PATENTS, LICENSES *etc* ON PROMOTION

Holistic Approach [1]

— The kind of activity which leads to patents, licenses *etc* is one of a whole range of activities which should be taken into account; you should be looking at the whole person, not simply one or two dimensions of that ~~person~~

Sign of ability [2]

— Patents, licenses *etc* are an outward sign of a person's ability, just like publications, and should be rewarded as such

— You obviously should not hang a whole case on someone's patents or licenses, but you should use it as evidence of that member of staff's general ability

Note:

The figure in square brackets following the category name denotes the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 153: REASONS GIVEN BY DEANS AND HoDs AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TO INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP

Categories Reasons (paraphrased)

Parity [2]

It is fair for the university to take a % cut from academic entrepreneurs if they are going to take one from academics who earn £ from personal consultancy - otherwise they would all rush out and get Schedule D numbers to avoid this levy.

***Quid Pro Quo* [4]**

The university is not sharing the risk, so why should it share the reward?

Why should the university expect a penny more from licensing IP to academics than it would get from licensing it to ICI?

Academics are employed seven days a week, so the university should be compensated for any reduction in effort directed towards conventional academic activities

The university provided the research facilities, the use of which gave birth to the company, so the university should share in the reward

Time Limit [1]

There should be a strict limit on the length of time tha the university is allowed to "tax" any individual academic entrepreneur

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 154: REASONS GIVEN BY DEANS AND/OR HoDs AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION

Categories	Reasons (paraphrased)
Contribution to the community [1]	
	----- This kind of activity enhances the reputation of the university in the local community and makes a genuine contribution to the community
Inappropriate [3]	
	----- The university pays lipservice to this kind of activity. In practice, nothing but research publications count for promotion, nothing else gets rewarded - and that is how I think it should be
	----- Even if the academic is involved in a joint venture with the university, this is an entirely separate, non-academic activity and should be treated that way by the promotions committee
	----- Academic entrepreneurship is likely to have a diversionary impact on academics, diverting their efforts away from the things you would normally measure, so it should be treated as a negative factor
Sign of ability [2]	
	----- Academic entrepreneurship is a sign that a person is well-rounded - and those are the kind of people we should be promoting
	----- Starting a company should not be rewarded <i>per se</i> ; however, if a great deal of intellectual activity is entailed, it might be justifiable to argue that it should be taken into account by the promotions committee

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 154: REASONS GIVEN BY DEANS AND HoDs AT LIVERPOOL UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION

Contribution to community [1]

- This kind of activity enhances the reputation of the university in the local community and makes a genuine contribution to the community

Inappropriate [3]

- The university pays lipservice to this kind of activity. In practice, nothing but research publications count for promotion, nothing else gets rewarded - and that is how I think it should be
- Even if the academic is involved in a joint venture with the university, this is an entirely separate, non-academic activity and should be treated that way by the promotions committee
- Academic entrepreneurship is likely to have a diversionary impact on academics, diverting their efforts away from the things you would normally measure, so it should be treated as a negative factor

Sign of ability [2]

- Academic entrepreneurship is a sign that a person is well-rounded and - and those are the kind of people we should be promoting
- Starting a company should not be rewarded *per se*; however, if a great deal of intellectual activity is entailed, it might be justifiable to argue that it should be taken into account by the promotions committee

Note:
The figure in square brackets following the category name denotes the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 155: REASONS GIVEN BY HEADS OF DEPARTMENT AND DEANS AT STRATHCLYDE UNIVERSITY FOR ATTITUDES (HELD AT THE TIME) TO THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER

Categories	Reasons (paraphrased)
<hr/>	
Expertise [2]	
	Fear that patenting is beyond the expertise and/ or resources of any UK university
	Belief that the university was just as professional at exploitation as the BTG - so why have middlemen?
Control [1]	
	To give the department and the university more control over specific IP opportunities
Interest [1]	
	Lack of interest in the exploitation of IP
Persuasive Concept [1]	
	Sounded like a sound idea/move in the right direction etc
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 156: DEANS' AND/OR HEADS' OF DEPARTMENT PERCEPTIONS OF THE UNIVERSITY OF STRATHCLYDE'S REASON(S) FOR ACCEPTING THE RESEARCH COUNCILS' OFFER

Categories	Reasons (paraphrased)
Mission [4]	
	Assumption of the rights and responsibilities previously enjoyed by the BTG is in keeping with the university's technology transfer tradition
	Assumption of the rights and responsibilities previously enjoyed by the BTG is in keeping with the university's technology transfer remit
Enterprise [4]	
	Assumption of the rights and responsibilities previously enjoyed by the BTG represents the kind of entrepreneurial opportunity relished by the Principal
Financial gain [2]	
	To get a bigger slice of the cake
Expertise [1]	
	Belief that the the university would be more effective at technology transfer
Control [1]	
	To give the university the freedom to transfer technology in whatever way it sees fit

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 157: THE VIEWS OF HEADS' OF DEPARTMENT AND DEANS' AT STRATHCLYDE UNIVERSITY ON WHO SHOULD HAVE BEEN INVOLVED IN THE PROCESS OF ACCEPTING/REJECTING THE RESEARCH COUNCILS' OFFER

Categories of People to Involve

Consultation	Decision
C -->	D1
A + B1 + B2 + D2 -->	?
B2 + D2 -->	D1
/	/
B2 + D2 -->	D1
/	/
B2 + D2 -->	D1

Key:

- A Representative academics (Deans)
- B Individual administrators
 - 1 - ("senior administrators")
 - 2 - (ILO)
- C Academic entity (Senate)
- D Dual-membership entities
 - 1 - (Court)
 - 2 - (University Management Group)
- / Interviewee's response not categorisable in this manner
- ? Interviewee omitted to specify this stage of the process

FIGURE 158: EXPLANATION VOLUNTEERED BY ONE DEAN AT STRATHCLYDE UNIVERSITY FOR THE LEVEL OF STAFF AWARENESS OF THE UNIVERSITY'S WISH TO IDENTIFY IP

Category	Reason (paraphrased)
----------	----------------------

Publicity [1]	
---------------	--

	There has been a lot of publicity about IP
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 159: "FAIL-SAFE" MECHANISMS - THE VIEWS OF DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY ON SCRUTINISING RESEARCH PROPOSALS, INTERIM/FINAL REPORTS AND DRAFTS OF PAPERS

Fail-Safe Mechanism	In Favour of Idea N	Prepared to Consider Idea N	Against Idea N	Total N	%
Research Proposals	0	0	7	7	100
Interim/Final Reports	0	0	7	7	100
Drafts of Papers	0	2	5	7	100

FIGURE 160: REASONS GIVEN BY HEADS OF DEPARTMENT AND DEANS AT STRATHCLYDE UNIVERSITY FOR REJECTING FAIL-SAFE MECHANISMS FOR THE IDENTIFICATION OF IP

Categories	Reasons (paraphrased)
Expertise [3]	<div>_____The ILO would not have the requisite expertise</div>
Time [4]	<div>_____It would impose an intolerable delay on publication</div>
Cost-Benefit [2]	<div>_____It would be a complete waste of effort</div>
Confidentiality [2]	<div>_____It would infringe confidentiality agreements</div>
Strategy [1]	<div>_____It is mistaken to imagine that new science/technology necessarily leads to new intellectual property</div>

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 161: VIEWS OF HEADS OF DEPARTMENT AND DEANS AT STRATHCLYDE UNIVERSITY ON WHO SHOULD OWN INTELLECTUAL PROPERTY GENERATED BY ACADEMICS

Ownership Preferences	N
Academics should be treated like any other employee - <i>ie.</i> it should be owned by the employer	2
IP generated by academics should be owned by the academics concerned	1
IP ownership in universities should be flexible	2
Whoever pays for the research should own the IP	1
Total	6
Percentage	86

FIGURE 162: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY FOR THEIR VIEWS ON THE OWNERSHIP OF IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
------------	-----------------------

Infrastructure [4]

- | | |
|--|--|
| | The university provides the infrastructure/environment/facilities without which the IP could not be generated |
| | Ownership should depend on the extent to which the university has provided the infrastructure/environment/facilities required to generate the IP in question |
| | These days the university does not provide all the infrastructure/environment/facilities required to generate IP, so why should it claim ownership? |

Locus of Direction [1]

- | | |
|--|---|
| | Academics research without direction from their employer; in this they are very different from most researchers in industry |
|--|---|

Motivation [1]

- | | |
|--|--|
| | It would be very demotivating for junior staff if research group leaders claimed ownership; since the university is in the same relationship to all members of staff, it should own the IP |
|--|--|

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 163: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Views	N
Agreed with the broad concept of "protecting" IP generated by academics	3
Disagreed with the concept of "protecting" IP generated by academics	2
No opinion	1
Total	6
Percentage	86

FIGURE 164: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY FOR THEIR VIEWS ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
------------	-----------------------

Financial gain [2]

_____ Universities can't behave like charities any more

Counteracting Foreign Competition [1]

_____ Otherwise the IP will end up in Japan or Germany

Secrecy [2]

_____ It should all go into the public domain

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 165: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY ON TREATING ACADEMIC RESEARCH DISCOVERIES AS SECRET KNOW-HOW

Views	N
Agreed without reservation with the idea of treating academic research discoveries as secret know-how	0
Accepted the idea of treating academic research discoveries as secret know-how provided certain conditions were fulfilled	2
Disagreed with the idea of treating academic research discoveries as secret know-how	4
Total	6
Percentage	86

FIGURE 166: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY FOR THEIR VIEWS ON "PROTECTING" IP BY TREATING IT AS SECRET KNOW-HOW

Categories	Reasons (paraphrased)
-------------------	------------------------------

Function of University [3]	
-----------------------------------	--

	It is the function of a university to put academic research discoveries into the public domain
--	--

	Neither the academic nor the university is entitled to decide on this course of action since it conflicts with the function of a university
--	---

	The university's function demands that PhD theses are not embargoed for long; the same rule should apply to other research findings
--	---

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 167: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY ON THE MERITS OF PATENTING VERSUS SECRET KNOW-HOW

Views	N
Patenting is preferable if there is a choice	5
Patenting not necessarily preferable even if there is a choice	1
Total	6
Percentage	86

**FIGURE 168: DECIDING WHETHER AND HOW TO "PROTECT" IP
GENERATED BY ACADEMICS - REASONS GIVEN BY DEANS AND HEADS OF
DEPARTMENT AT STRATHCLYDE FOR THEIR ATTITUDE TO UNIVERSITY
POLICY ON THE RIGHT OF FINAL DECISION**

Categories Reasons (paraphrased)

Income generation [2]

_____ The university needs to generate an income

Opportunity cost [1]

_____ The university might lose £, so it must have the right of final decision

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 169: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY FOR THEIR ATTITUDE TOWARDS TEMPORARILY REDUCING AN INVENTOR'S WORKLOAD TO HELP HIM/HER CONCENTRATE ON WRITING A PATENT SPECIFICATION

Category	Reasons (paraphrased)
----------	-----------------------

Characteristics of the patent [2]	
-----------------------------------	--

	It would depend on how important the patent was perceived to be
--	---

	It would depend on how urgently the patent needed to be filed
--	---

Cost/benefit [1]	
------------------	--

	Some HoDs put the needs of the department before the needs of individuals
--	---

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 170: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT AT THE UNIVERSITY OF STRATHCLYDE FOR THEIR VIEWS ON THE ENTREPRENEURIAL EXPLOITATION OF "HARD" INTELLECTUAL PROPERTY GENERATED WITHIN THE UNIVERSITY

Categories Reasons (paraphrased)

Conflicts [7]

	Academics cannot serve two masters unless they are very, very talented and energetic
	The outside world does not observe the rhythms of the university - and it exerts sufficient pressure that eventually the rhythms of the university are likely to have to give way
	There have been examples of campus companies in the US where serious questions were raised by government about the inherent conflict of interests
	The entrepreneurial exploitation of IP can have excellent consequences, but it should always remain a peripheral activity, lest it conflicts with mainstream activities
	There is a great chance that academics will become side-tracked if they get involved in entrepreneurially exploiting the IP they generated
	Entrepreneurially exploiting IP is a good idea in principle but in practice it would have to be monitored very closely for ethical conflicts
	It is not hard to deduce that there would be the potential for conflicts between academic and commercial values

Income generation [4]

	The university made the creation of the IP possible and the university should get the highest possible share in the benefits, so university companies or joint ventures are preferable
	The entrepreneurial exploitation of IP via joint ventures or a university company is a good idea because it should generate a greater income from the IP for the university than would come from royalties
	Things should be entrepreneurially exploited via the university, so that it gets the benefit, not the individuals
	Exploitation for private gain is wrong when the university has put its resources into the generation of the discovery, so we should not allow independent academic spin-off companies

Fitness for the task [3]

	To date all the examples of independent academic spin-off companies at this university have been very poorly successful
	Scientists are amateurs when it comes to business; it is good to see that the university has learned from its mistakes on this score
	Business is extraordinarily complex and frankly the university is just as amateurish as individual academics

Cost/benefit [3]

- _____ The university - that is to say, the Business Ventures Group - has a very poor record of getting a return on its investments in academic-inspired start-up companies
- _____ The university should be more disciplined about the amount of £ it is prepared to make available to joint ventures with members of the academic staff
- _____ I would prefer academics to devote their energies to what we know they are good at and what they are actually here for

Risk [1]

- _____ It's a good idea in theory but there are tremendous dangers involved if this kind of thing is not done very carefully and ethically
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 171: TYPES OF IMPACT WHICH DEANS AND HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY FELT THAT EXTENSIVE CONSULTANCY WOULD HAVE

Categories Reasons (paraphrased)

Research [6]

- _____ Extensive consultancy leads to the neglect of scholarly research
- _____ Extensive consultancy leads to bad ratings in the research selectivity exercises
- _____ Consultancy might be the only kind of research which some academics do
- _____ Consultancy is a means to stimulating interaction between academic and industrial scientists and is to be welcomed
- _____ Consultancy is often the first step in the process of winning valuable contract research

Third party benefit [3]

- _____ Academics are generally good at consultancy, so why shouldn't they do it?
- _____ It is important for academics to have an input to technology, to industry and commerce
- _____ Academics have a moral duty to do consultancy, since the tax-payer does not owe them a living; however, all consultancy should be done in-house, not on a personal basis

Students [1]

- _____ Too much consultancy leads to the neglect of students

Motivation [1]

- _____ Consultancy is a good for staff motivation; it gets them away from the academic grind once in a while
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - i.e., the number of reasons which fell into this category

FIGURE 172: VIEWS OF DEANS AND HEADS OF DEPARTMENT AT THE UNIVERSITY OF STRATHCLYDE ON THE IMPOSITION OF A TIME LIMIT WITH REGARD TO THE AMOUNT OF PERSONAL CONSULTANCY DONE BY ACADEMICS

In Favour of Limit	In Favour of Guidelines	In Favour of No Limit	N
4 (57%)	0	2 (29%)	1 (14%)

FIGURE 173: CHARACTERISTICS OF THE COMMERCIAL ARMS ASSOCIATED WITH THE DEPARTMENTS OF THREE INTERVIEWEES FROM STRATHCLYDE UNIVERSITY

Start Date	Locus of Founding Initiative	Own Staff	Dedicated Accommodation	Financial Basis	Beneficiaries (£)
1980s	Department	Yes	No	Self-funding	Department (centre)
1980s	Department	No	No	Direct support from Department	Department (centre)
1980s	Head of Department	No	No	Indirect support from Department	Academics involved (department) (centre)
1980s	Head of Department	Yes	No	Self-funding	Department (centre)
1980s	Head of Department	Yes	No	Indirect support from Department	Department (centre)
1970s	Research Group	Yes	No	Self-funding	Commercial Arm itself

Note:

Beneficiaries enclosed in parentheses are indirect beneficiaries - that is to say, they benefit by virtue of a share of the overheads levied on the contract research/consultancy etc done by the departmental commercial arm

FIGURE 174: BENEFITS (OTHER THAN DIRECT FINANCIAL BENEFITS) CONFERRED BY A DEPARTMENTAL COMMERCIAL ARM - AS PERCEIVED BY THREE HEADS OF DEPARTMENT FROM STRATHCLYDE UNIVERSITY

Categories Benefits (paraphrased)

Provision of a service [4]

- _____ Our commercial arm maintains the hardware and maintains and updates the software in the department free of charge
- _____ The commercial arm is responsible for maintaining the equipment and instrumentation in the department - that's part of the deal
- _____ The commercial arm brings personnel and facilities into the department which everyone can use when there is spare capacity
- _____ The commercial arm acquires equipment which is made available to members of the department when demand permits

Quality assurance [2]

- _____ The staff of the commercial not only maintain the equipment and instrumentation in the department, but they do so within a QA system
- _____ Routing all consultancy through the commercial arm (but not taking more than an overhead on the fee) means that the department can ensure that all reports are quality-controlled

Enhancement of reputation [4]

- _____ Routing all consultancy through the commercial arm (but not taking more than an overhead on the fee) means that all reports are sent out in the house style with uniform covers and the university's name and logo on them
- _____ Routing all consultancy through the commercial arm (but not taking more than an overhead on the fee) allows the department - and hence the university - to blow its trumpet about its consultancy activities; we wouldn't be able to do that if it were mostly underground as it used to be when the university took a cut
- _____ The activity of the commercial arm gives the university a high profile - it promotes it, effectively

Source of expertise [1]

- _____ Having the commercial arm allows the department to sub-contract its sophisticated computer analysis requirements to the staff there, instead of having to recruit and train research assistants for each contract - who then leave and the end of their contracts and are a lost resource to the department

Stimulus to collaboration [1]

- _____ The commercial arm is designed to break down the barriers between departments and stimulate collaboration
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - i.e., the number of benefits which fell into this category

**FIGURE 175: GROUNDS FOR CONTROVERSY CREATED BY THE
ESTABLISHMENT OF A DEPARTMENTAL COMMERCIAL ARM - AS REPORTED
BY HEADS OF DEPARTMENT FROM STRATHCLYDE UNIVERSITY**

Categories Grounds (paraphrased)

Threat [1]

Both commercial arms were resented by members of staff initially on the basis that they posed a threat to their own efforts to get £ for consultancy and research; now they see that a team approach enables a more co-ordinated and successful marketing of their capabilities

Tail wagging the dog [1]

Eventually the commercial arm became so large, relative to the department, that it was decided to spin it off as a separate company

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of grounds which fell into this category

FIGURE 176: VIEWS EXPRESSED BY HEADS OF DEPARTMENT AT STRATHCLYDE UNIVERSITY ON THREE MECHANISMS FOR GIVING WOULD-BE ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP

a) Formal Reductions in/Rescheduling of Would-Be Academic Entrepreneurs' Normal Workloads for a Limited Period

Supportive	IN PRINCIPLE		IN PRACTICE		
	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
n/a	n/a	n/a	n/a	n/a	n/a

b) Part-Time Contract for a Limited Period

Supportive	IN PRINCIPLE		IN PRACTICE		
	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
5 (71%)	0	0	1 (14%)	4 (57%)	0

c) Complete Leave of Absence for a Limited Period

Supportive	IN PRINCIPLE		IN PRACTICE		
	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
n/a	n/a	n/a	n/a	n/a	n/a

NB:

Percentages given in this table relate to the percentage of all the interviewees subscribing to this view - *i.e.* there is no adjustment for missing data

FIGURE 177: REASONS GIVEN BY DEANS AND HoDs AT STRATHCLYDE UNIVERSITY FOR THEIR ATTITUDE TO THE UNIVERSITY'S APPROACH TO INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY

Categories	Reasons (paraphrased)
<hr/>	
Preference for in-house consultancy [2]	
	People should not be doing personal consultancy, in any case; it should all be done in-house, through the university, with the university taking the profit
Transparency [2]	
	Imposing a percentage cut would just drive the whole thing underground again; it is much better for the university to know what is going on and to be able to blow its trumpet about it, where it can
Consistency [1]	
	How could the university say on the one hand that you are allowed spend so much time doing consultancy and then tax people for doing it? It would be inconsistent and therefore bad policy
Options to benefit university [1]	
	There should either be an earnings limit, or else all consultancy should be done in-house, through the university
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons given which fell into this category

FIGURE 178: REASONS GIVEN BY DEANS AND HoDs AT STRATHCLYDE UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION

Categories	Reasons (paraphrased)
Appropriate to discipline [3]	
	_____ Consultancy is highly appropriate in my discipline
	_____ Consultancy is very appropriate in certain disciplines
Appropriate to university [1]	
	_____ This is a technological university; of course consultancy should be taken into account
Holistic approach [1]	
	_____ Consultancy is one of the factors which, taken together, make up a well-rounded person
Difficult to evaluate [1]	
	_____ Consultancy is impossible to evaluate in intellectual terms unless it is published, so how could it be taken into account for promotion?
Impact of research assessment [1]	
	_____ The research assessment exercises have killed off the possibility of rewarding any activities unless they result in quality publications

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons given which fell into this category

FIGURE 179: REASONS GIVEN BY DEANS AND HoDs AT STRATHCLYDE UNIVERSITY FOR THEIR VIEWS ON THE EFFECTIVENESS OF DISTRIBUTING INCOME FROM THE EXPLOITATION OF IP AS AN INCENTIVE

Categories	Reasons (paraphrased)
<hr/>	
Hypothetical reward [3]	
	It probably would act as an incentive to people who have that kind of IP, but it is all very hypothetical in this department
	I am not aware of anyone in this department having benefitted in this way, so it may be a very hypothetical incentive
	I can only think of one instance in the entire university of academics benefitting from the exploitation of their IP. There may be other examples, but if there are, no-one knows about them
Dependent on orientation [2]	
	It depends on an individual's orientation, really. People are either interested in the commercial exploitation of their research discoveries or they are not - and I don't think this is liable to change their attitude
	Most academics are not driven by £ - it's the intellectual challenge which motivates them, so I doubt whether this will have a great affect
Just reward [1]	
	We have been campaigning for a long time for departments to share in the proceeds - and now they do. It is a very good incentive for departments, though I am not sure it will make individual academics change their behaviour
Self-defeating [1]	
	I am totally against individual academics profitting personally from this kind of activity. If we had paid royalties to members of the research team instead of ploughing them back into further development work, then there would not have been any royalties to distribute once the initial product saturated the market
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 180: REASONS GIVEN BY DEANS AND/OR HoDs AT STRATHCLYDE UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PATENTS, LICENSES etc ON PROMOTION

Categories	Reasons (paraphrased)
<hr/>	
Holistic approach [3]	
	Patents and licenses etc are just one aspect of a well-rounded person which should be taken into account
Variable quality [2]	
	Patents, like publications, are of variable quality; significant patents should be counted, but the mere act of patenting does not signify
Stimulation of activity [1]	
	We should be trying to stimulate this kind of activity, so I have argued for a long time that taking them into account for promotion should be made explicit
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

NB:

Number exceed number of interviewees expressing their opinion because two gave more than one reason

FIGURE 181: REASONS GIVEN BY DEANS AND HoDs AT STRATHCLYDE UNIVERSITY FOR THEIR ATTITUDE TO INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP

Categories Reasons (paraphrased)

Preferable mechanisms [2]

if the university should feel for some reason that it was entitled to a cut, then it should acquire equity in the academic entrepreneur's company, "not tax" the income they receive personally for their extra effort

Parity [1]

if the university does not "tax" academics earning £ from personal consultancy, it should not "tax" academics' personal income from their companies

Compensation [1]

unless the entrepreneurial activity directly benefits the university, no academic these days should have sufficient spare time to devote to company start-up - so the university should be compensated for the fact that they are devoting less time to their primary commitments, for the fact that other people are having to cover for them

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category - *ie.* the number of reasons which fell into this category

FIGURE 182: REASONS GIVEN BY DEANS AND HoDs AT STRATHCLYDE UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION

Alternative reward [2]

- Spin-off companies bring their own form of reward; people should not be rewarded twice for the same activity
- Unless we are talking about the commercial arm of the department, spin-Off companies have their own form of reward; this should not be taken into account by the promotions committee, even if it is done within the framework of a university company or a joint venture

Holistic Approach [2]

- We should be looking at the whole person, not just one or two dimensions, and academic entrepreneurship should be seen as a legitimate university activity, especially if it has been sanctioned by the university
- Academic entrepreneurship is one of a whole range of activities which should be taken into account by the promotions committee, particularly if it is done within the framework of a university company or a joint venture

Appropriate [1]

- In my discipline, academic entrepreneurship is a very appropriate activity

Note:

The figure in square brackets following the category name denotes the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 183: REASONS GIVEN BY HEADS OF DEPARTMENT AT YORK UNIVERSITY FOR ATTITUDES (HELD AT THE TIME) TO THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER

Categories	Reasons (paraphrased)
Expertise [1]	Knowledge, based on experience, that using the BTG had not been good at exploiting university IP
Control [1]	To give the university control over the exploitation of IP by forcing the BTG to compete against other exploitation agents

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 184: HEADS' OF DEPARTMENT PERCEPTIONS OF THE UNIVERSITY OF YORK'S REASON(S) FOR ACCEPTING THE RESEARCH COUNCILS' OFFER

Categories	Reasons (paraphrased)
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Financial gain [1]

	To generate extra revenue
--	---------------------------

Logic [1]

	The university is at the interface between the sponsor and the academic and is therefore best placed to exploit any resulting IP
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

**FIGURE 185: THE VIEWS OF HEADS' OF DEPARTMENT AT YORK UNIVERSITY
ON WHO SHOULD HAVE BEEN INVOLVED IN THE PROCESS OF
ACCEPTING/REJECTING THE RESEARCH COUNCILS' OFFER**

Categories of People to Involve

Consultation	Decision
A ->	C
A ->	?
A ->	B
A ->	C

Key:

- A Representative academics (HoDs)
- B Academic entity - (Professorial Board)
- C Dual-membership entity (Commercial Activities Sub-Committee)
- ? Interviewee omitted to specify this stage of the process

FIGURE 186: EXPLANATIONS VOLUNTEERED BY HEADS OF DEPARTMENT AT YORK UNIVERSITY FOR LEVELS OF STAFF AWARENESS OF THE UNIVERSITY'S WISH TO IDENTIFY IP

Category	Reason (paraphrased)
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Publicity [1]

	The average academic has a clearer concept of a corporation than a university, so it is difficult to perceive the university's wishes unless it publicises them
--	---

Type of Research Sponsorship [1]

	Pure department which receives nearly all its funding from the Research Councils
--	--

Experience [1]

	Initial enthusiasm was turned off as a result of the way IP was handled in the Alvey Programme
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 187: "FAIL-SAFE" MECHANISMS - THE VIEWS OF DEANS AND HEADS OF DEPARTMENT AT YORK UNIVERSITY ON SCRUTINISING RESEARCH PROPOSALS, INTERIM/FINAL REPORTS AND DRAFTS OF PAPERS

Fail-Safe Mechanism	In Favour of Idea N	Prepared to Consider Idea N	Against Idea N	Total N	%
Research Proposals	0	0	4	4	100
Interim/Final Reports	1	3	0	4	100
Drafts of Papers	1	0	3	4	100

FIGURE 188: REASONS GIVEN BY HEADS OF DEPARTMENT AND DEANS AT YORK UNIVERSITY FOR REJECTING FAIL-SAFE MECHANISMS FOR THE IDENTIFICATION OF IP

Categories	Reasons (paraphrased)
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Bureaucracy [3]	
------------------------	--

	It would be a bureaucratic nightmare/create bureaucratic obstacles to publication
--	---

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 189: VIEWS OF HEADS OF DEPARTMENT AT YORK UNIVERSITY ON WHO SHOULD OWN INTELLECTUAL PROPERTY GENERATED BY ACADEMICS

Ownership Preferences	N
Academics should be treated like any other employee - <i>ie.</i> it should be owned by the employer	2
IP should be jointly owned by the university and the academics who generated it	1
It is immaterial who owns the IP	1
Total	4
Percentage	100

FIGURE 190: REASONS GIVEN BY HEADS OF DEPARTMENT AT YORK UNIVERSITY FOR THEIR VIEWS ON THE OWNERSHIP OF IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
<hr/>	
Infrastructure [2]	
	The university provides the infrastructure/environment/facilities without which the IP could not be generated
	The university provides the infrastructure/environment/facilities but the academics provide the ideas
Locus of Direction [1]	
	Academics research without direction from their employer; in this they are very different from most researchers in industry.
Inconsequence [1]	
	It does not matter who owns the IP as long as both the academic(s) and the university share in the benefits
Potential to Exploit [1]	
	Academics cannot afford to protect and exploit IP; their university can
Income Potential [1]	
	The income from the exploitation of IP could be considerable (<i>ergo</i> the university should own the IP)
Reputation [1]	
	The exploitation of IP does not enhance an academic's reputation; it could enhance the university's reputation
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 191: VIEWS OF HEADS OF DEPARTMENT AT YORK UNIVERSITY ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Views	N
Agreed with the broad concept of "protecting" IP generated by academics	2
Conditionally agreed with the concept of "protecting" IP generated by academics	1
Total	3
Percentage	75

FIGURE 192: REASONS GIVEN BY HEADS OF DEPARTMENT AT YORK UNIVERSITY FOR THEIR VIEWS ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS

Categories	Reasons (paraphrased)
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Financial gain [2]	
--------------------	--

	It gives the university the chance to earn £ independent of the UGC or industry
--	---

	It should be a conscious strategy to earn £ for the academic, for the university and for the country
--	--

Cost/benefit [1]	
------------------	--

	"Protecting" IP is not acceptable if it facilitates commercial at the expense of intellectual exploitation
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

**FIGURE 193: VIEWS OF HEADS OF DEPARTMENT AT YORK UNIVERSITY ON
TREATING ACADEMIC RESEARCH DISCOVERIES AS SECRET KNOW-HOW**

Views	N
Agreed without reservation with the idea of treating academic research discoveries as secret know-how	0
Accepted the idea of treating academic research discoveries as secret know-how provided certain conditions fulfilled	4
Disagreed with the idea of treating academic research discoveries as secret know-how	0
Total	4
Percentage	100

FIGURE 194: VIEWS OF HEADS OF DEPARTMENT AT YORK UNIVERSITY ON THE MERITS OF PATENTING VERSUS SECRET KNOW-HOW

Views	N
Patenting is preferable if there is a choice	3
Patenting not necessarily preferable even if there is a choice	1
Total	4
Percentage	100

FIGURE 195: DECIDING WHETHER AND HOW TO "PROTECT" IP GENERATED BY ACADEMICS - REASONS GIVEN BY HEADS OF DEPARTMENT AT YORK FOR THEIR ATTITUDE TO UNIVERSITY POLICY ON THE RIGHT OF FINAL DECISION

Categories	Reasons (paraphrased)
Onus to consult [2]	<p>The academic(s) concerned should consult members of their research group</p> <p>The academic(s) concerned should consult their HoD</p>
Academic freedom [1]	<p>It must be upto the individual academic to have the freedom to decide</p>
Pragmatism [1]	<p>It would be impossible to stop academics disclosing their discoveries if they wished to</p> <p>It would be impossible to police a publication ban</p>

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 196: REASONS GIVEN BY HEADS OF DEPARTMENT AT YORK UNIVERSITY FOR THEIR ATTITUDE TOWARDS TEMPORARILY REDUCING AN INVENTOR'S WORKLOAD TO HELP HIM/HER CONCENTRATE ON WRITING A PATENT SPECIFICATION

Category	Reasons (paraphrased)
Nature of the task [1]	Writing a patent specification is a similar activity to writing a paper - and nobody gets help with their workload for that
Departmental flexibility [1]	The department has already demonstrated a flexible approach to another member of staff who was involved in the exploitation of a piece of IP
Characteristics of the patent [1]	It would depend on how important the patent was perceived to be

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 197: REASONS GIVEN BY HEADS OF DEPARTMENT AT THE UNIVERSITY OF YORK FOR THEIR VIEWS ON THE ENTREPRENEURIAL EXPLOITATION OF "HARD" INTELLECTUAL PROPERTY GENERATED WITHIN THE UNIVERSITY

Categories Reasons (paraphrased)

Income generation [4]

- _____ To generate an income for the university
- _____ To create wealth for the university
- _____ To give the university an income from dividends and equity as well as an income from royalties
- _____ Entrepreneurially exploiting IP is acceptable as long as the university and the department shares in the profits

Conflicts [3]

- _____ Experience seems to show that line management responsibilities impinge too much on academics' primary commitments and their output, especially where "hard" companies are concerned
- _____ Getting involved in the entrepreneurial exploitation of IP is alright as long as the academics concerned have minor, non-line management roles in the company, because this would impact too much on their academic life
- _____ It is very difficult for the academic(s) concerned to partition their roles

Fitness for the task [3]

- _____ Running a department these days is not so very different to "playing games" in the markets
- _____ I can't think of any reason why we should not exploit IP entrepreneurially; it is just an extension of having, say, a university press, isn't it?
- _____ The university has neither the expertise, the time nor the procedures to do truly entrepreneurial things with a wholly-owned company

Third party Benefit [3]

- _____ To create wealth for the country
- _____ To create challenging jobs for graduates
- _____ We should be encouraging the entrepreneurial exploitation of IP because this region desperately needs an industrial base and this could help create one

Market [1]

- _____ Entrepreneurially exploiting IP is okay as long as you stick to niche markets and don't try to compete with existing companies by marketing things which embody incremental advances or add-ons

Control [1]

Joint ventures are fine but the university should restrict itself to being a minority share-holder so that it has no control at all; it simply isn't geared up to the speed of decision-making required in companies

Reputation [1]

I would have thought a joint venture was a good idea because it would be more likely to get off the ground with the university's name and resources behind it

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 198: TYPES OF IMPACT WHICH HEADS OF DEPARTMENT AT YORK UNIVERSITY FELT THAT EXTENSIVE CONSULTANCY WOULD HAVE

Categories Reasons (paraphrased)

Research [3]

- _____ Extensive consultancy is bound to impinge negatively on an academic's publication rate
- _____ Focussing on the transfer of existing research results conflicts with an academic's remit, which is to make new research discoveries
- _____ Consultancy is a means to making industrial contacts and sooner or later many of those industrial contacts will want contract research done - and they will come to us because they know us

Access [2]

- _____ Consultancy gives our staff access to state-of-the-art instrumentation which the university could never afford
- _____ Consultancy gives us an opportunity to solve real problems, which is vital for our discipline

Staff recruitment [1]

- _____ The fact that there is no limit on the amount of consultancy undertaken makes it much easier for us to recruit staff, which is difficult enough in this discipline

Students [3]

- _____ Extensive consultancy is likely to lead to postgraduate students being inadequately supervised
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - i.e., the number of reasons which fell into this category

FIGURE 199: VIEWS OF HEADS OF DEPARTMENT AT THE UNIVERSITY OF YORK ON THE IMPOSITION OF A TIME LIMIT WITH REGARD TO THE AMOUNT OF PERSONAL CONSULTANCY DONE BY ACADEMICS

In Favour of Limit	In Favour of Guidelines	In Favour of No Limit	N
1 (25%) ##	1 (25%)	2 (50%)	4

Note:

This particular HoD had imposed a local time limit in his own department (20 days per year) even though the university imposed none

FIGURE 200: CHARACTERISTICS OF THE COMMERCIAL ARMS ASSOCIATED WITH THE DEPARTMENTS OF TWO INTERVIEWEES FROM YORK UNIVERSITY

Start Date	Locus of Founding Initiative	Own Staff	Dedicated Accommodation	Financial Basis	Beneficiaries
1980s	Academics involved	Yes	No	Indirect support from Department & occasional direct support from centre	Academics involved (department) (centre)
1980s	Department	Yes	Yes	Direct support from Department	Department (centre)
1970s	Head of Department	Yes	Yes	Self-funding	Academics, Department (centre)

Note:

Beneficiaries enclosed in parentheses are indirect beneficiaries - that is to say, they benefit by virtue of a share of the overheads levied on the contract research/consultancy etc done by the departmental commercial arm

**FIGURE 201: BENEFITS (OTHER THAN DIRECT FINANCIAL BENEFITS)
CONFERRED BY A DEPARTMENTAL COMMERCIAL ARM - AS PERCEIVED BY
TWO HEADS OF DEPARTMENT FROM YORK UNIVERSITY**

Categories Benefits (paraphrased)

Enhancement of reputation [1]

|_____ Our commercial arm brings kudos to the department, since it is internationally known

Sprat to catch the mackerel [1]

|_____ The activities of the commercial arm act as a sprat to catch the mackerel of contract research

Teaching aid [1]

|_____ The commercial arm is an excellent source of problems for undergraduate projects

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.*, the number of benefits which fell into this category

**FIGURE 202: GROUNDS FOR CONTROVERSY CREATED BY THE
ESTABLISHMENT OF A DEPARTMENTAL COMMERCIAL ARM - AS REPORTED
BY HEADS OF DEPARTMENT FROM YORK UNIVERSITY**

Categories Grounds (paraphrased)

Opportunity costs [1]

Having a commercial arm located in department space - which subsequently became a company -was an opportunity cost and we had to ask them to move out

Distractions [1]

There is fear that the commercial arm will take people away from pure research in order to do applied research to pay for the bricks and mortar which house the commercial arm

Resentment [1]

People feel "half-nelsoned" into contributing to the success of a commercial arm which they did not want in the first place

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.*, the number of grounds which fell into this category

FIGURE 203: REASONS GIVEN BY HEADS OF DEPARTMENT AT YORK UNIVERSITY FOR NOT HAVING A DEPARTMENTAL COMMERCIAL ARM

Categories	Reasons (paraphrased)
Inutility [2]	Staff expertise is highly individual; there would be no point in creating a mechanism to promote that expertise on a corporate basis
Blurring the divide [1]	There are doubts about the distinction between the remit of the department and the remit of the commercial arm being clearly enough defined; my belief is that experience in other departments shows that it usually is not

Note: Figures in square brackets after the category name indicate the number of "mentions" - *i.e.*, the number of reasons which fell into this category

FIGURE 204: VIEWS EXPRESSED BY HEADS OF DEPARTMENT AT YORK UNIVERSITY ON FOUR MECHANISMS FOR GIVING WOULD-BE ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP

a) Formal Reductions in/Rescheduling of Would-Be Academic Entrepreneurs' Normal Workloads for a Limited Period

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
0	4 (100%)	0	0	4 (100%)	0

b) Part-Time Contract for a Limited Period

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
1 (25%)	3 (75%)	0	1 (25%)	3 (75%)	0

c) Complete Leave of Absence for a Limited Period

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
2 (50%)	2 (50%)	0	2 (50%)	2 (50%)	0

d) Extending Previously Agreed Periods of Absence

IN PRINCIPLE			IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
1 (25%)	2 (50%)	1 (25%)	1 (25%)	2 (50%)	1 (25%)

FIGURE 205: REASONS GIVEN BY HoDs AT YORK UNIVERSITY FOR THEIR ATTITUDE TO THE UNIVERSITY'S APPROACH TO INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY

Categories	Reasons (paraphrased)
Transparency [1]	If the university imposed an earnings limit or took a percentage cut, people would become reticent about their activities, and that would be a bad thing
Motivation [1]	In a way, I would like the university to get a percentage cut from people's personal consultancy fees, but it would be a complete disincentive, so forget it
Illogicality [1]	The important thing is not what people <u>earn</u> from doing personal consultancy, but how much <u>time</u> they take - and since different people command very different fees, an earnings limit would be completely illogical from that point of view

Note: Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 206: REASONS GIVEN BY HoDs AT YORK UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION

Categories	Reasons (paraphrased)
Difficult to evaluate [1]	Consultancy is impossible to evaluate in intellectual terms unless it is published and that makes it very difficult to reward through promotion, in practice
Appropriate to discipline [1]	Consultancy is highly appropriate in my discipline
Alternative reward [1]	People who do consultancy are rewarded financially. They should not expect to be rewarded twice, so they have to make a choice

Note: Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 207: REASONS GIVEN BY HoDs AT YORK UNIVERSITY FOR THEIR VIEWS ON THE EFFECTIVENESS OF DISTRIBUTING INCOME FROM THE EXPLOITATION OF IP AS AN INCENTIVE

Categories	Reasons (paraphrased)
<hr/>	
Hypothetical reward [1]	
	I have my doubts about the effectiveness of this as an incentive, because it is largely hypothetical so far
Dependent on orientation [1]	
	You know, scientists are extraordinarily unmercenary compared to, say, lawyers. Experience in this department has shown that most of them plough the £ back into the department, rather than keep it personally
Just reward [2]	
	It is a just reward for both the individual and the department and I am sure it will make people put their hands up when there is IP to exploit
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 208: REASONS GIVEN BY HoDs AT YORK UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF PATENTS, LICENSES etc ON PROMOTION

Categories	Reasons (paraphrased)
Discipline-limited activity [1]	
	The ability to get patents and licenses is restricted to certain disciplines, so I am not at all sure that we should be taking account of them for promotion purposes
Value to university [1]	
	The vice-chancellor lists patents and licenses in the annual report, so they are clearly of value to the university - and if they are, people should be rewarded for creating them

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 209: REASONS GIVEN BY HoDs AT YORK UNIVERSITY FOR THEIR ATTITUDE TO INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP

Categories	Reasons (paraphrased)
Disincentive [2]	the university should be doing everything it can to encourage academic entrepreneurship and levying a "tax" would simply be a disincentive
Parity [2]	if the university does not "tax" academics earning £ from personal consultancy it should not "tax" academic entrepreneurs personal income
Preferable mechanism [1]	as long as academics are fulfilling their primary commitments, why should the university take a cut? And if they are not fulfilling their commitments, a part-time contract is a preferable mechanism for recouping lost effort

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category - *ie.* the number of reasons which fell into this category

FIGURE 210: REASONS GIVEN BY HoDs AT YORK UNIVERSITY FOR THEIR ATTITUDE TO THE IMPACT OF ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION

Benefit to university [2]

- Academic spin-off companies bring £ and other, more ephemeral benefits to the university, like the PR value; they are a legitimate university activity and successful ones should be rewarded
- This kind of activity is good for the university in terms of £ and kudos. We need to start thinking about the benefit of academics' activities to the university as a whole, to create different paths to the same reward

Overly narrow promotion criteria [1]

- The promotion criteria are overly narrow at present. They should be widened to take explicit account of activities like academic entrepreneurship and continuing education

Note:

The figure in square brackets following the category name denotes the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 211: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT FOR ATTITUDES (HELD AT THE TIME) TO THE REMOVAL OF THE BTG'S MONOPOLY AND THE RESEARCH COUNCILS' OFFER (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Category	Dimensions
Expertise [8]	<ul style="list-style-type: none"> Fear that patenting is beyond the expertise and resources of any UK university Belief that the department was already sufficiently commercially- oriented that assuming rights and responsibilities previously enjoyed by the BTG would not be such a big step Belief that the university was just as professional at exploitation as the BTG - so why have middlemen? Belief, based on hearsay, that the BTG was not so good at exploiting university IP Knowledge, based on experience, that using the BTG had not been good at exploiting university IP
Relevance [5]	<ul style="list-style-type: none"> Rights and responsibilities offered by the Research Councils not relevant to interviewee's discipline/field Rights and responsibilities offered by the Research Councils would allow the university to become more relevant to the needs of industry/the community
Control [2]	<ul style="list-style-type: none"> To give the department more control over specific IP opportunities To give the university control over the exploitation of IP by forcing the BTG to compete against other exploitation agents
Persuasive Concept [1]	<ul style="list-style-type: none"> Sounded like a sound idea/move in the right direction etc
Interest [1]	<ul style="list-style-type: none"> Lack of interest in the exploitation of IP

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 212: DEANS' AND/OR HEADS' OF DEPARTMENT PERCEPTIONS OF THEIR UNIVERSITY'S REASON(S) FOR ACCEPTING THE RESEARCH COUNCILS' OFFER (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Category	Dimensions
Financial gain [15]	<ul style="list-style-type: none"> To generate extra income
Expertise [3]	<ul style="list-style-type: none"> Belief that the university would make better judgements than the BTG Belief that the the university would be more effective at technology transfer Belief that the university would ensure that IP was exploited faster than the BTG had
Mission [4]	<ul style="list-style-type: none"> Assumption of the rights and responsibilities previously enjoyed by the BTG is in keeping with the university's technology transfer tradition Assumption of the rights and responsibilities previously enjoyed by the BTG is in keeping with the university's technology transfer remit
Enterprise [4]	<ul style="list-style-type: none"> Assumption of the rights and responsibilities previously enjoyed by the BTG represents the kind of entrepreneurial opportunity relished by the Principal
Relevance [2]	<ul style="list-style-type: none"> To signal the university's relevance To generate publicity and improve the university's reputation
Contact with Industry [2]	<ul style="list-style-type: none"> To foster contact with industry To gain access to new research ideas through contact with industry/commerce
Control [1]	<ul style="list-style-type: none"> To give the university the freedom to transfer technology in whatever way it sees fit
Logic [1]	<ul style="list-style-type: none"> The university is at the interface between the sponsor and the academic and is therefore best placed to exploit any resulting IP

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

**FIGURE 213: AGGREGATE ESTIMATION OF THE DEGREE OF AWARENESS
OF THE UNIVERSITY'S WISH TO IDENTIFY IP
(UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)**

University	Aggregate Estimation of the Degree of Awareness
Hull	2.66
Liverpool	2.25
Strathclyde	3.70
York	3.25

Note:

Aggregate estimation of the degree of awareness in the cost centres from which interviewees were drawn was calculated by adding the scale points allocated to interviewees in each university and dividing by the number of interviewees. Thus, the maximum possible estimation = 5, while the minimum = 1.

FIGURE 214: EXPLANATIONS VOLUNTEERED BY DEANS AND/OR HEADS OF DEPARTMENT FOR LEVELS OF STAFF AWARENESS OF THEIR UNIVERSITY'S WISH TO IDENTIFY IP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Category	Dimensions
Orientation [4]	<ul style="list-style-type: none"> Staff are oriented towards the department's aspirations, not the university's It is not uppermost in/at the forefront of academics' minds It is not something which staff worry about too much
Relevance of Research [1]	<ul style="list-style-type: none"> Not relevant to research area
Type of Research Sponsorship [2]	<ul style="list-style-type: none"> Pure department which receives nearly all its funding from the Research Councils Large percentage of staff have done contract research for industry
Organisation of Research [2]	<ul style="list-style-type: none"> Levels of awareness have increased since most members of staff joined a major research group
Publicity [5]	<ul style="list-style-type: none"> The average academic has a clearer concept of a corporation than a university, so it is difficult to perceive the university's wishes unless it publicises them Staff never hear about the university's wishes in this respect The university has not publicised its wishes outside strategy papers with limited access The HoD always copies circulars on this subject to his staff There has been a lot of publicity about IP
Experience [2]	<ul style="list-style-type: none"> Departmental staff have never had any experience of IP being exploited Initial enthusiasm was turned off as a result of the way IP was handled in the Alvey Programme

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 215: SCRUTINISING RESEARCH PROPOSALS, INTERIM/FINAL REPORTS AND DRAFTS OF PAPERS - HEADS' OF DEPARTMENT AND DEANS' VIEWS OF "FAIL-SAFE" MECHANISMS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Fail-Safe Mechanism	In Favour		Open-Minded		Against		Total	
	N	%	N	%	N	%	N	%
Research Proposals	3	13	1	4	20	83	24	100
Interim/Final Reports	5	21	4	17	15	63	24	100
Drafts of Papers	4	17	3	13	17	71	24	101

Note:

The percentage totalling >100% is due to rounding to the nearest integer

FIGURE 216: REASONS GIVEN BY HEADS OF DEPARTMENT AND DEANS FOR REJECTING FAIL-SAFE MECHANISMS FOR THE IDENTIFICATION OF IP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Categories	Dimensions
<hr/>	
Expertise [9]	
	The ILO would not have the requisite expertise
	No individual or entity within the university has the requisite expertise
	Even the Research Councils don't have the requisite expertise, so how could the university?
Cost/Benefit [7]	
	Failure to identify IP at the proposal stage could have a negative impact on people's expectations further "downstream"
	It would be a complete waste of effort
	It is mistaken to imagine that new science/technology necessarily leads to new intellectual property
Time Constraints [6]	
	It would impose an intolerable delay on publication
Bureaucracy [3]	
	It would be a bureaucratic nightmare/create bureaucratic obstacles to publication
Confidentiality [2]	
	It would infringe confidentiality agreements
<hr/>	

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 217: HEADS' OF DEPARTMENT AND DEANS' VIEWS WHO SHOULD OWN INTELLECTUAL PROPERTY GENERATED BY ACADEMICS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Ownership Preferences	N	%
Academics should be treated like any other employee - <i>ie.</i> it should be owned by the employer	10	42
IP should be jointly owned by the university and the academics who generated it	4	17
IP generated by academics should be owned by the academics concerned	5	21
IP ownership in universities should be flexible	2	8
Whoever pays for the research should own the IP	1	4
It is immaterial who owns the IP	2	8
	24	100

FIGURE 218: DEANS' AND/OR HEADS' OF DEPARTMENT EXPLANATIONS FOR THEIR VIEWS ON THE OWNERSHIP OF IP GENERATED BY ACADEMICS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Categories	Dimensions
Infrastructure [13]	<ul style="list-style-type: none"> The university provides the infrastructure/environment/facilities without which the IP could not be generated Ownership should depend on the extent to which the university has provided the infrastructure/environment/facilities required to generate the IP in question The university provides the infrastructure/environment/facilities but the academics provide the ideas These days the university does not provide all the infrastructure/environment/facilities required to generate IP, so why should it claim ownership?
Locus of Direction [6]	<ul style="list-style-type: none"> Today the locus of direction in academic research is no different to the locus of direction in industry, so why distinguish between them? There is no longer a great difference between the locus of direction in academic research universities and the locus of direction in industry, so it would probably be superfluous to distinguish between them Academics research without direction from their employer; in this they are very different from most researchers in industry.
Inconsequence [2]	<ul style="list-style-type: none"> It does not matter who owns the IP because the outcome will be the same either way It does not matter who owns the IP as long as both the academic(s) and the university share in the benefits
Potential to Exploit [2]	<ul style="list-style-type: none"> Academics cannot afford to protect and exploit IP; their university can A university is not like any other employer; it does not have the ability to exploit IP
Motivation [2]	<ul style="list-style-type: none"> It would be very demotivating for academics if the university claimed ownership It would be very demotivating for junior staff if research group leaders claimed ownership; since the university is in the same relationship to all members of staff, it should own the IP
Income Potential [1]	<ul style="list-style-type: none"> The income from the exploitation of IP could be considerable (<i>ergo</i> the university should own the IP)
Morality [1]	<ul style="list-style-type: none"> If the academic had the idea, this should not be taken from him/her
Reputation [1]	<ul style="list-style-type: none"> The exploitation of IP does not enhance an academic's reputation; it could enhance the university's reputation
Mission [1]	<ul style="list-style-type: none"> It is the mission of the professions to render service to the community; enabling the university to generate an income from IPR is one way in which academics can render service

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons given which fell into the category in question.

FIGURE 219: HEADS' OF DEPARTMENT AND DEANS' VIEWS ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Views	N	%
Agreed with the concept of "protecting" IP generated by academics	18	75
Conditionally agreed with the concept of "protecting" IP generated by academics	1	4
Disagreed with the concept of "protecting" IP generated by academics	2	8
No opinion	3	12
	24	99

FIGURE 220: HEADS' OF DEPARTMENT AND DEANS' REASONS FOR THEIR VIEWS ON THE BROAD CONCEPT OF "PROTECTING" IP GENERATED BY ACADEMICS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Categories Dimensions

Financial gain [8]

- _____ An academic who freely gave away IP and watched it grow into a £ multi-million business in which he had no share would kick himself
- _____ Universities can't behave like charities any more
- _____ It is a good way for the university to earn an honest penny
- _____ It gives the university the chance to earn £ independent of the UGC or industry
- _____ It should be a conscious strategy to earn £ for the academic, for the university and for the country

Counteracting Foreign Competition [3]

- _____ Otherwise the hawks will get you
- _____ Otherwise the IP will end up in Japan or Germany
- _____ To stop the US, the Germans, the French and the Japanese getting hold of our ideas before we can

Control [1]

- _____ To control the interests of the university and the staff concerned

Ignorance of Objections [1]

- _____ There is no obvious objection to the broad concept of "protecting" such IP

Inherent difficulties [2]

- _____ "Protecting" IP is only a good idea if it is cast-iron protection and the return justifies the cost
- _____ "Protecting" IP entails difficulties like registering theses under false titles

Cost/benefit [1]

- _____ "Protecting" IP is not acceptable if it facilitates commercial at the expense of intellectual exploitation

Secrecy [2]

- _____ Secrecy in labs will kill the development of science and engineering
- _____ It should all go into the public domain

Drawing the Line [1]

- _____ It is sometimes difficult to draw the line between what constitutes fundamental research which should go into the public domain and commercial applications of that research
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 221: HEADS' OF DEPARTMENT AND DEANS' VIEWS ON "PROTECTING" IP BY TREATING IT AS SECRET KNOW-HOW (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Views	N	%
Accepted the idea of "protecting" IP by treating it as secret know-how	4	17
Conditionally accepted the idea of "protecting" IP by treating it as secret know-how	8	33
Disagreed with the idea of "protecting" IP by treating it as secret know-how	12	50
	24	100

FIGURE 222: DECIDING WHETHER AND HOW TO "PROTECT" IP GENERATED BY ACADEMICS - REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT FOR THEIR ATTITUDE TO UNIVERSITY POLICY ON THE RIGHT OF FINAL DECISION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) - CATEGORIES AND DIMENSIONS

Categories Dimensions

Academic freedom [8]

- _____ It must be upto the individual academic to have the freedom to decide
- _____ Academic freedom is fundamental
- _____ It is dangerous to prevent academics from publishing

Pragmatism [5]

- _____ It would be impossible to stop academics disclosing their discoveries if they wished to
- _____ It would be impossible to police a publication ban

Onus to consult [2]

- _____ The academic(s) concerned should consult members of their research group
- _____ The academic(s) concerned should consult their HoD

Opportunity cost [2]

- _____ If academics do not publish their discoveries within 6-12 months, their work is out of date, so they must have the right of final decision
- _____ The university might lose £, so it must have the right of final decision

Income generation [2]

- _____ The university needs to generate an income

IP ownership [1]

- _____ The university owns the IP, so it should have the right of final decision

Commercial judgement [1]

- _____ The university has better commercial judgement than academics
-

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 223: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT FOR THEIR ATTITUDE TOWARDS TEMPORARILY REDUCING AN INVENTOR'S WORKLOAD TO HELP HIM/HER CONCENTRATE ON WRITING A PATENT SPECIFICATION - (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK) CATEGORIES AND DIMENSIONS

Categories	Dimensions
Departmental flexibility [6]	
	There are enough academic staff in the department to make it possible to adopt a flexible approach to individual needs
	The department is already moving towards a modular approach so that it is flexible enough to accommodate a wide range of individual interests
	The department has already demonstrated a flexible approach to another member of staff who was involved in the exploitation of a piece of IP
	It should be possible to be flexible about their teaching or administrative load or by providing extra secretarial support
	Semi-devolved budgets make it difficult to be flexible in the way that departments used to be
	Everyone is working flat out; it would not be feasible
Nature of the task [5]	
	Writing a patent specification is part of the intellectual activity of a university
	Writing a patent specification is just another university/departmental activity
	Writing a patent specification is a similar activity to writing a paper - and nobody gets help with their workload for that
	Academic workloads consist of research, teaching and administration; writing a patent specification is an integral part of doing research
	Writing a patent specification is similar to writing research proposals, and the department is lobbying the university for help for members of staff who write research proposals
Cost/benefit [3]	
	Some HoDs put the needs of the department before the needs of individuals
	Why should other busy people help one member of staff to increase his personal income?
	You should always try to help members of staff who are clearly "going places"
Characteristics of the patent [2]	
	It would depend on how important the patent was perceived to be
	It would depend on how urgently the patent needed to be filed

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 224: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT YORK FOR THEIR VIEWS ON THE ENTREPRENEURIAL EXPLOITATION OF "HARD" INTELLECTUAL PROPERTY GENERATED WITHIN THE UNIVERSITY (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories Dimensions

Second party benefit [42]

- ____ University companies must be a good vehicle for getting the highest return on the exploitation of IP and advertising the university's capabilities at the same time
- ____ A university company would seem to offer more £ from exploiting IP than any other route
- ____ The greater financial gain which should accrue to the university from a joint venture makes it a more attractive proposition than licensing to ICI, or, for that matter, setting up an independent academic spin-off company
- ____ Knowing the university, it would expect a big pay-off from a minute stake and would have no interest in counting the hours the academics put in compared to what it contributed
- ____ The university should try to get the maximum financial benefit from the exploitation of its own IP - and if that means doing it entrepreneurially, fine
- ____ Setting up a company to exploit a discovery should give the university the highest return on its investment in the IP
- ____ Exploiting IP via companies is fine as long as the university does not have naive, short-term expectations of the return on its capital
- ____ The university made the creation of the IP possible and the university should get the highest possible share in the benefits, so university companies or joint ventures are preferable
- ____ The entrepreneurial exploitation of IP via joint ventures or a university company is a good idea because it should generate a greater income from the IP for the university than would come from royalties
- ____ Things should be entrepreneurially exploited via the university, so that it gets the benefit, not the individuals
- ____ Exploitation for private gain is wrong when the university has put its resources into the generation of the discovery, so we should not allow independent academic spin-off companies
- ____ To generate an income for the university
- ____ To create wealth for the university
- ____ To give the university an income from dividends and equity as well as an income from royalties
- ____ Entrepreneurially exploiting IP is acceptable as long as the university and the department shares in the profits
- ____ I would have thought a joint venture was a good idea because it would be more likely to get off the ground with the university's name and resources behind it
- ____ Universities must be moving structures; the more they are involved in the outside world the better
- ____ Independent academic-spin-off companies would be the most appropriate because the Registrar would not be involved; the company could have its own dynamic, free of university control

An independent academic spin-off company would be better than a university company or a joint venture because the university would just try to control the staff involved in those two scenarios

Well, the university would like the idea of a joint venture, wouldn't it, so that it could control what the staff were doing

Joint ventures are fine but the university should restrict itself to being a minority share-holder so that it has no control at all; it simply isn't geared up to the speed of decision-making required in companies

A company set up to exploit "hard" IP makes no intellectual demands on the academic(s) involved, unlike a company set up to do contract R&D

University companies are fine as long as they don't lead to academics getting involved in Mickey Mouse activities academically, as they seem to have at Salford

So far successful university companies have shown that they need the university to put in a lot of time and £; there is a limit to how many companies can receive this treatment

Academics would be better spending their time doing new research rather than trying to exploit existing research discoveries

The university - that is to say, the Business Ventures Group - has a very poor record of getting a return on its investments in academic-inspired start-up companies

The university should be more disciplined about the amount of £ it is prepared to make available to joint ventures with members of the academic staff

I would prefer academics to devote their energies to what we know they are good at and what they are actually here for

If a company did well, it would impinge on the academic's departmental responsibilities; he would write fewer papers and his colleagues would have to do more and more of his work

In order to make it fly, a company would need a lot of input from the academic(s) who generated the IP being exploited - and that would lead to conflicts between the needs of the company and the needs of the department, especially where a "hard" company was concerned

Entrepreneurial exploitation of IP is fine provided it does not distract the academic(s) concerned from their mainstream university work

Starting companies to exploit IP is okay as long as it does not divert staff from the things which the HoD regards as more important

Academics cannot serve two masters unless they are very, very talented and energetic

The outside world does not observe the rhythms of the university - and it exerts sufficient pressure that eventually the rhythms of the university are likely to have to give way

There have been examples of campus companies in the US where serious questions were raised by government about the inherent conflict of interests

The entrepreneurial exploitation of IP can have excellent consequences, but it should always remain a peripheral activity, lest it conflicts with mainstream activities

There is a great chance that academics will become side-tracked if they get involved in entrepreneurially exploiting the IP they generated

Entrepreneurially exploiting IP is a good idea in principle but in practice it would have to be monitored very closely for ethical conflicts

It is not hard to deduce that there would be the potential for conflicts between academic and commercial values

Experience seems to show that line management responsibilities impinge too much on academics' primary commitments and their output, especiall where "hard" companies are concerned

Getting involved in the entrepreneurial exploitation of IP is alright as long as the academics concerned have minor, non-line management roles in the company, because this would impact too much on their academic life

It is very difficult for the academic(s) concerned to partition their roles

Third party benefit [9]

A joint venture would demonstrate that the university was actively interested in technology transfer, which it certainly has not been in the past

We should have as many technology transfer mechanisms as possible, so all of these entrepreneurial scenarios should be encouraged

The examples of companies started at this university have shown that academic entrepreneurs blur the divide between the department and the company, which is not acceptable; on the other hand, this has been less problematical lately, so perhaps it is a learning exercise

Academics should go out and be buccaneers - but at arms' length from the university, and a university company is not arms' length enough

It is quite in keeping with the university's role to act as a midwife to enterprise

We should be encouraging the entrepreneurial exploitation of IP because this region desperately needs an industrial base and this could help create one

Entrepreneurially exploiting IP is a good idea provided it is done in a way which benefits the city, the region and the UK - in that order

To create wealth for the country

To create challenging jobs for graduates

Intrinsic characteristics of the enterprise/the entrepreneurs [15]

One would imagine that where joint ventures were concerned, the whole would be greater than the sum of the parts - that is to say, the skills of the academic(s) and the moral support and reputation of the university should help enormously when seeking £ for start-up

Independent academic spin-off companies are the best solution because the university would stifle the creative accounting which small firms have to do to survive

In a university company or a joint venture, the heavy hand of the university would be a worry

Spin-off companies are a good idea provided they are run by academics with expert assistance where required, not by industrialists who simply don't understand academics or academia

We have to ask ourselves: how good are academics at being entrepreneurs?

Academics would need to find themselves able partners because they don't have the requisite business skills

Academics at the coalface probably know best what the exploitation potential of a discovery is - and a company can provide the necessary staff and expertise to help them to exploit it to the full

	To date all the examples of independent academic spin-off companies at this university have been very poorly successful
	Scientists are amateurs when it comes to business; it is good to see that the university has learned from its mistakes on this score
	Business is extraordinarily complex and frankly the university is just as amateurish as individual academics
	Running a department these days is not so very different to "playing games" in the markets
	I can't think of any reason why we should not exploit IP entrepreneurially; it is just an extension of having, say, a university press, isn't it?
	The university has neither the expertise, the time nor the procedures to do truly entrepreneurial things with a wholly-owned company
	Any company set up to exploit IP should evolve naturally from within on the initiative of the academics concerned, rather than be set up in response to a political decision
	A university company would have to have its own core staff and academics should not be forced to contribute to its activities, which would constitute an extra layer of work

Extrinsic factors [8]

	The university has been too cautious; it should take £5m and invest it in its entrepreneurial staff; it might lost the lot, but it might make £100m
	The university missed the boat in the 1970s by being too cautious; this university should now make up for lost time
	Other universities which were less cautious have shown how valuable university companies and science parks can be
	Entrepreneurially exploiting IP is fine, provided you pay close attention to working out the likely risk
	University companies are fine as long as the university does not appoint high-risk entrepreneurs to lead them without having properly calculated the consequences
	Entrepreneurially exploiting IP is okay as long as you stick to niche markets and don't try to compete with existing companies by marketing things which embody incremental advances or add-ons
	The university does not pay its staff well enough to expect more than a 40-hour week from them, so why shouldn't academics try to exploit their IP entrepreneurially if they want to give it a try?
	The role models we've had at this university have shown that you can be an excellent academic <u>and</u> have a successful business

Note:

Figures in square brackets after the category name indicate the number of "mentions" - i.e.. the number of reasons which fell into this category

FIGURE 225: TYPES OF IMPACT WHICH DEANS AND/OR HEADS OF DEPARTMENT AT THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK FELT THAT EXTENSIVE CONSULTANCY WOULD HAVE

Categories Dimensions

Research [23]

- _____ Spending one's time doing consultancy would negatively affect one's ability to do research
- _____ Extensive consultancy would have a negative impact on one's chances of discovering and understanding new knowledge
- _____ Extensive consultancy would have a negative impact on the publication rate of the academics concerned
- _____ Focussing on the transfer of existing research results conflicts with an academic's remit, which is to make new research discoveries
- _____ Extensive consultancy leads to the neglect of scholarly research
- _____ Extensive consultancy leads to bad ratings in the research selectivity exercises
- _____ Consultancy might be the only kind of research which some academics do
- _____ Consultancy is a means to making industrial contacts and sooner or later many of those industrial contacts will want contract research done - and they will come to us because they know us
- _____ Consultancy is often the first step in the process of winning valuable contract research
- _____ Consultancy leads to the identification of new areas of research to pursue

Students [12]

- _____ Extensive consultancy would almost certainly impact negatively on the academic's teaching
- _____ Too much consultancy leads to the neglect of students
- _____ Extensive consultancy is likely to lead to postgraduate students being inadequately supervised
- _____ Extensive consultancy is an ideal way of identifying new material for undergraduate classes so that we can keep students uptodate with real-world problems

Access [6]

- _____ Consultancy opens academics minds to the world outside academia
- _____ Consultancy is a means of making new connections
- _____ Consultancy leads to academics accessing new expertise which they would not otherwise have
- _____ Consultancy gives the department access to state-of-the-art facilities which the university cannot afford
- _____ Consultancy gives us an opportunity to solve real problems, which is vital for our discipline

Third party benefit [3]

- _____ Academics are generally good at consultancy, so why shouldn't they do it?
- _____ It is important for academics to have an input to technology, to industry and commerce
- _____ Academics have a moral duty to do consultancy, since the tax-payer does not owe them a living; however, all consultancy should be done in-house, not on a personal basis

Administrative load [3]

- _____ If people are doing a lot of consultancy, their administrative work is bound to suffer
- _____ If people are away doing consultancy a lot, you can be sure they will not be doing their fair share of administrative work

Motivation [3]

- _____ Earning too much £ from outside the university leads to divided loyalties
- _____ Consultancy doesn't have a negative impact at all; in fact, it makes life more interesting
- _____ Consultancy is a good for staff motivation; it gets them away from the academic grind once in a while

Bridging the divide [3]

- _____ Extensive consultancy will lead to new partnerships with industry and is to be welcomed
- _____ Consultancy leads to the long-overdue blurring of the divide between university and industry
- _____ Consultancy is a means to stimulating interaction between academic and industrial scientists and is to be welcomed

Staff recruitment [1]

- _____ The fact that there is no limit on the amount of consultancy undertaken makes it much easier for us to recruit staff, which is difficult enough in this discipline

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 226: VIEWS OF DEANS AND/OR HEADS OF DEPARTMENT ON THE IMPOSITION OF A TIME LIMIT WITH REGARD TO THE AMOUNT OF PERSONAL CONSULTANCY DONE BY ACADEMICS (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

University	In Favour of Limit	In Favour of Guidelines	In Favour of No Limit	No Data	N
Hull	2 (33%)	1 (17%)	1 (17%)	2 (33%)	6
Liverpool	1 (13%)	2 (25%)	5 (63%)	0	8
Strathclyde	6 (86%)	0	1 (14%)	0	7
York	1 (25%)	1 (25%)	2 (50%)	0	4
Totals:	10 (40%)	4 (16%)	9 (36%)	2 (8%)	25

FIGURE 227: VIEWS EXPRESSED BY HEADS OF DEPARTMENT ON MECHANISMS FOR GIVING WOULD-BE ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

a) Formal Reductions in/Rescheduling of Would-Be Academic Entrepreneurs' Normal Workloads for a Limited Period

	IN PRINCIPLE		IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
3 (19%)	7 (44%)	6 (38%)	3 (19%)	7 (44%)	6 (38%)

b) Part-Time Contract for a Limited Period

	IN PRINCIPLE		IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
13 (65%)	6 (30%)	1 (5%)	4 (20%)	12 (60%)	4 (20%)

c) Complete Leave of Absence for a Limited Period

	IN PRINCIPLE		IN PRACTICE		
Supportive	Ad Hoc Decision	Not Supportive	Supportive	Conditional Support	Unlikely to Be Supportive
9 (60%)	5 (33%)	1 (7%)	4 (27%)	7 (47%)	4 (27%)

FIGURE 228: BENEFITS (OTHER THAN DIRECT FINANCIAL BENEFITS) CONFERRED BY A DEPARTMENTAL COMMERCIAL ARM - AS PERCEIVED BY HEADS OF DEPARTMENT FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK

Categories Dimensions

Departmental/university resource [7]

	The commercial side of the department provides a service and a resource to colleagues in other departments who pay marginal rates - or even nothing if the problem is sufficiently interesting to us
	Our commercial arm maintains the hardware and maintains and updates the software in the department free of charge
	The commercial arm is responsible for maintaining the equipment and instrumentation in the department - that's part of the deal
	The commercial arm brings personnel and facilities into the department which everyone can use when there is spare capacity
	The commercial arm acquires equipment which is made available to members of the department when demand permits
	Having the commercial arm allows the department to sub-contract its sophisticated computer analysis requirements to the staff there, instead of having to recruit and train research assistants for each contract - who then leave at the end of their contracts and are a lost resource to the department
	The commercial arm is an excellent source of problems for undergraduate projects

Other benefits to department [7]

	Having the commercial arm frees my permanent academic staff from having to do "bread and butter" consultancy and lets them get on with more important things
	The commercial arm is designed to break down the barriers between departments and stimulate collaboration
	The staff of the commercial not only maintain the equipment and instrumentation in the department, but they do so within a QA system
	Routing all consultancy through the commercial arm (but not taking more than an overhead on the fee) means that the department can ensure that all reports are quality-controlled
	The activities of the commercial arm act as a sprat to catch the mackerel of contract research
	The commercial arm has enabled us to take on a temporary lecturer
	The commercial arm is a source of employment for our new young post-docs

Enhancement of reputation [7]

- _____ The commercial arm has won for itself an international reputation
- _____ Routing all consultancy through the commercial arm (but not taking more than an overhead on the fee) means that all reports are sent out in the house style with uniform covers and the university's name and logo on them
- _____ Routing all consultancy through the commercial arm (but not taking more than an overhead on the fee) allows the department - and hence the university - to blow its trumpet about its consultancy activities; we wouldn't be able to do that if it were mostly underground as it used to be when the university took a cut
- _____ The activity of the commercial arm gives the university a high profile - it promotes it, effectively
- _____ Our commercial arm brings kudos to the department, since it is internationally known

Third party benefit [2]

- _____ Having a commercial arm means that we don't have to say no to requests from industry for assistance
- _____ The commercial arm supplies us with new and unexpected problems which keep staff alert intellectually and helps advance the discipline

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 229: GROUNDS FOR CONTROVERSY CREATED BY THE ESTABLISHMENT OF DEPARTMENTAL COMMERCIAL ARMS - AS REPORTED BY HEADS OF DEPARTMENT FROM THE UNIVERSITIES OF LIVERPOOL, STRATHCLYDE & YORK

Categories Dimensions

Opportunity cost [3]

- _____ Despite the fact that both commercial arms in the department have an international reputation, there was concern about the type of work each was contracting to do; it was perceived by some to be "bread and butter"-oriented when they started out
- _____ Having a commercial arm located in department space - which subsequently became a company -was an opportunity cost and we had to ask them to move out
- _____ There is fear that the commercial arm will take people away from pure research in order to do applied research to pay for the bricks and mortar which house the commercial arm

Resentment [2]

- _____ Both commercial arms were resented by members of staff initially on the basis that they posed a threat to their own efforts to get £ for consultancy and research; now they see that a team approach enables a more co-ordinated and successful marketing of their capabilities
- _____ People feel "half-nelsoned" into contributing to the success of a commercial arm which they did not want in the first place

Legitimacy [1]

- _____ There have been and still are long, drawn-out arguments about the legitimacy of using the departmental xerox machine *etc* and other UGC-funded resources for commercial work - even though a fee is levied for the use of them

Tail wagging the dog [1]

- _____ Eventually the commercial arm became so large, relative to the department, that it was decided to spin it off as a separate company

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of grounds which fell into this category

FIGURE 230: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT FOR NOT HAVING A DEPARTMENTAL COMMERCIAL ARM (UNIVERSITIES OF HULL, LIVERPOOL & YORK)

Categories Dimensions

Pointlessness [6]

- _____ The department considered setting up a commercial arm but felt it would compete with a multi-disciplinary research centre which effectively acts as the commercial arm of several departments
- _____ Staff are already working flat out; thus there is no point in creating a mechanism for generating more £ - and more work
- _____ Staff are attracting enough consultancy as it is, without a formal mechanism for marketing themselves
- _____ Staff expertise is highly individual; there would be no point in creating a mechanism to promote that expertise on a corporate basis

Deterrent Aspects [7]

- _____ It is difficult for the HoD to maintain sufficient control over a commercial arm
- _____ We have an independent academic spin-off company embedded in the department which performs the same function - and having seen the risks it is obliged to take, I think this may be a preferable solution
- _____ Setting up a commercial arm risks jeopardising the good relationships with members of staff which I currently have, as HoD
- _____ There is a lot of effort involved in setting up and running something like this; we prefer to leave it to independent academic spin-off companies with which we have a symbiotic relationship
- _____ We know from observing other universities that commercial arms in this discipline make £ at the expense of academically productive work
- _____ We have an independent academic spin-off company embedded in the department which performs the same function - and having seen the expense incurred in setting up and running that, I think this may be a preferable solution
- _____ Any commercial arm must be set up to directly benefit the host department, but it would appear from those which already exist that this is difficult to achieve

Remit [1]

- _____ There are doubts about the distinction between the remit of the department and the remit of the commercial arm being clearly enough defined; my belief is that experience in other departments shows that it usually is not

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 231: REASONS GIVEN BY DEANS AND/OR HoDs FOR THEIR ATTITUDE TO THE IMPACT OF PERSONAL CONSULTANCY ON PROMOTION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories Reasons (paraphrased)

Appropriateness [9]

- _____ This is a technological university; of course consultancy should be taken into account
- _____ These days departments should play the team game; if you've got someone who is good at consultancy and develops valuable contacts through them, that person should be rewarded for his contribution to the team effort
- _____ Consultancy is very appropriate in certain disciplines
- _____ Consultancy is highly appropriate in my discipline
- _____ Some consultancy can be extremely creative intellectually and should be rewarded just like any other intellectual progressive intellectual activity
- _____ The only thing which should be rewarded by promotion is research - as manifested by publications
- _____ The research assessment exercises have made it inappropriate to reward any activities unless they result in quality publications

Evaluation [4]

- _____ Consultancy is a good gauge of a person's standing in the outside world
- _____ Consultancy is impossible to evaluate in intellectual terms unless it is published and that makes it very difficult to reward through promotion, in practice
- _____ Consultancy is impossible to evaluate in intellectual terms unless it is published, so how could it be taken into account for promotion?

Holistic approach [3]

- _____ Consultancy should be one of the factors taken into account; it contributes to evidence of a well-rounded person
- _____ Consultancy is one of a variety of activities which a well-rounded person should exhibit; it should therefore be rewarded
- _____ Consultancy is one of the factors which, taken together, make up a well-rounded person

Importance of links with industry [2]

Links with industry are vitally important and this is a key way to develop links; it should therefore be rewarded

Financial considerations [2]

Consultancy itself should probably not be rewarded by promotion unless it is published; but if it leads to a piece of contract research, that should be taken into account with regard to promotion

People who do consultancy are rewarded financially. They should not expect to be rewarded twice, so they have to make a choice

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 232: REASONS GIVEN BY DEANS AND/OR HoDs FOR THEIR VIEWS ON DISTRIBUTING INCOME FROM THE EXPLOITATION OF IP AS AN INCENTIVE (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories	Reasons (paraphrased)
Hypothetical reward [11]	
	There have not been any examples of people in this department getting a share of income from the exploitation of IP, so it is really rather hypothetical
	I can't think of a single example of a member of staff or the department benefitting this way. It isn't the talk of the coffee room and, in fact, I haven't heard of any examples of anyone anywhere in the university benefitting in this way
	In theory a share of the income is a good incentive, but since the university never bothers to publicise examples of it happening, its really very hypothetical, which must diminish its force
	It probably would act as an incentive to people who have that kind of IP, but it is all very hypothetical in this department
	I am not aware of anyone in this department having benefitted in this way, so it may be a very hypothetical incentive
	I can only think of one instance in the entire university of academics benefitting from the exploitation of their IP. There may be other examples, but if there are, no-one knows about them
	I have my doubts about the effectiveness of this as an incentive, because it is largely hypothetical so far
Just reward [4]	
	We have been campaigning for a long time for departments to share in the proceeds - and now they do. It is a very good incentive for departments, though I am not sure it will make individual academics change their behaviour
	It is a just reward for both the individual and the department and I am sure it will make people put their hands up when there is IP to exploit
	It requires a considerable extra effort to get something to the stage where it can be exploited commercially, and extra effort should be rewarded, but ...
Dependent on orientation [3]	
	It depends on an individual's orientation, really. People are either interested in the commercial exploitation of their research discoveries or they are not - and I don't think this is liable to change their attitude
	Most academics are not driven by £ - it's the intellectual challenge which motivates them, so I doubt whether this will have a great affect
	You know, scientists are extraordinarily unmercenary compared to, say, lawyers. Experience in this department has shown that most of them plough the £ back into the department, rather than keep it personally
Concern about beneficiaries [2]	
	If distributing the income creates "haves" and "have-nots" in the university, care should be taken to redistribute some of the income among the "have-nots", too
	It is not right for the department to benefit from the distribution of income - it should be just the individuals and the centre

Conflicts with other policies [2]

It would be very nice for the department to get some uncommitted income to spend, but the introduction of income generation targets tends to take the icing off the cake

It is good to get this kind of unexpected income, but since departments have got to achieve savings targets, it is all off-set against that and we never get to enjoy spending it

Comparative disincentive [1]

Prior to the introduction of the sliding scale formula, academics kept 100% of the income from the exploitation of IP, so naturally giving up a percentage now is a major disincentive

Self-defeating [1]

I am totally against individual academics profitting personally from this kind of activity. If we had paid royalties to members of the research team instead of ploughing them back into further development work, then there would not have been any royalties to distribute once the initial product saturated the market

Not what it claims to be [1]

It isn't really an incentive because you only get a share of the income if there is any, not for bothering to notify the university or for putting in extra effort to bring the discovery to the point where it is exploitable

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reasons given which fell into this category

FIGURE 233: REASONS GIVEN BY DEANS AND/OR HoDs FOR THEIR ATTITUDE TO THE IMPACT OF PATENTS, LICENSES etc ON PROMOTION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories	Reasons (paraphrased)
Holistic approach [3]	
	Patents and licenses etc are just one aspect of a well-rounded person which should be taken into account
Value to university [1]	
	The vice-chancellor lists patents and licenses in the annual report, so they are clearly of value to the university - and if they are, people should be rewarded for creating them
Stimulation of activity [1]	
	We should be trying to stimulate this kind of activity, so I have argued for a long time that taking them into account for promotion should be made explicit
Discipline-limited activity [1]	
	The ability to get patents and licenses is restricted to certain disciplines, so I am not at all sure that we should be taking account of them for promotion purposes
Variable quality [2]	
	Patents, like publications, are of variable quality; significant patents should be counted, but the mere act of patenting does not signify

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given into this category

FIGURE 234: REASONS GIVEN BY DEANS AND HEADS OF DEPARTMENT FOR REJECTING OUTRIGHT CERTAIN MECHANISMS FOR GIVING ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP (UNIVERSITIES OF HULL & LIVERPOOL)

Categories	Reasons (paraphrased)
Inability to get teaching cover [8]	<p>We don't have fully-devolved budgets in this university and if the department had not met its university-imposed savings targets, it could not use the salary savings to pay for teaching cover</p> <p>Because it is not at all clear that the university would allow the department to use the £ saved to buy in the necessary teaching support</p>
Logistics [2]	<p>The department faces a major logistical problem organising sabbaticals, let alone something like this</p> <p>It would be completely impossible logistically</p>
Non-mainstream activity [1]	<p>It is not part of an academic's primary responsibilities - unless the Vice-Chancellor turns round and says that it is</p>
Viability of department [2]	<p>Even if the department got £ as a quid pro quo, this would still be an intellectual opportunity cost</p> <p>The UFC has views on the number of staff which a department should have; it has been hard enough to allay their concerns over staff taking early retirement</p>
Personal gain [1]	<p>It would be of their own volition for their own personal gain</p>

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 235: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT FOR CONDITIONAL SUPPORT FOR CERTAIN MECHANISMS FOR GIVING ACADEMIC ENTREPRENEURS TIME TO DEVOTE TO BUSINESS START-UP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories Reasons (paraphrased)

Getting teaching cover [7]

- _____ I would support an academic requesting "formal" time off to devote to business start-up if I could be guaranteed the use of the salary savings to buy in teaching cover
- _____ We would have to be given the salary savings to provide teaching cover before I would agree to it

Observation of time constraints [7]

- _____ I would be supportive provided I was given at least 3 months' notice
- _____ I would be supportive provided I was given at least 12 months' notice
- _____ I'd have to be given at least a year's notice
- _____ As long as the arrangement was limited to one term's duration, I would be supportive

Nature of business idea [7]

- _____ I could be persuaded to support a member of staff in this way provided he was not planning to start up a "hard" company
- _____ The business would have to develop the academic in terms of his academic career as well as his business career
- _____ My support would depend on how successful the business looked likely to be
- _____ It would depend on the merit of the project

Departmental support [6]

- _____ It would have to have the support of the majority of the department
- _____ It would depend on the importance of the member of staff to the department - and therefore on the views of the department as a whole

Quid pro quo [4]

- _____ The university or the department would have to get some kind of quid pro quo
- _____ The university or the department would have to be compensated financially

Overcoming recruitment difficulties [1]

	It would depend on whether we could overcome the difficulties we often experience when trying to recruit staff
--	--

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 236: REASONS GIVEN BY DEANS AND/OR HoDs FOR THEIR ATTITUDE TO INCOME EARNED BY ACADEMICS FROM THE ENTREPRENEURIAL EXPLOITATION OF IP (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories	Reasons (paraphrased)
<i>Quid pro quo</i> [6]	
	----- The university is not sharing the risk, so why should it share the reward?
	----- Why should the university expect a penny more from licensing IP to academics than it would get from licensing it to ICI?
	----- Academics are employed seven days a week, so the university should be compensated for any reduction in effort directed towards conventional academic activities
	----- The university provided the research facilities, the use of which gave birth to the company, so the university should share in the reward
	----- If people devote time during the working week (<i>ie.</i> Monday-Friday, 9-5) to their businesses, then it is right in principle for the university to charge them for the time they have not devoted to conventional university activities
	----- Unless the entrepreneurial activity directly benefits the university, no academics these days should have sufficient spare time to devote to company start-up - so the university should be compensated for the fact that they are devoting less time to their primary commitments, for the fact that other people are having to cover for them
Parity [5]	
	----- If the university does not "tax" academics earning £ from personal consultancy, it should not "tax" the personal income earned by academic entrepreneurs
	----- It is fair for the university to take a percentage cut from academic entrepreneurs if they are going to take one from academics who earn £ from personal consultancy - otherwise they would all rush out and get Schedule D numbers to avoid this levy
	----- If the university does not "tax" academics earning £ from personal consultancy, it should not "tax" academic entrepreneurs' personal income

Preferential mechanisms [3]

- As long as academics are fulfilling their primary commitments, why should the university take a cut? And if they are not fulfilling their commitments, a part-time contract is a preferable mechanism for recouping lost effort
- If the university should feel for some reason that it was entitled to a cut, then it should acquire equity in the academic entrepreneur's company, not "tax" the income they receive personally for their extra effort

Disincentive [2]

- The university should be doing everything it can to encourage academic entrepreneurship and levying a "tax" would simply be a disincentive

Time Limit [1]

- There should be a strict limit on the length of time that the university is allowed to "tax" any individual academic entrepreneur

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 237: REASONS GIVEN BY DEANS AND/OR HEADS OF DEPARTMENT FOR THEIR ATTITUDE TO THE UNIVERSITY'S APPROACH TO INCOME EARNED BY ACADEMICS FROM PERSONAL CONSULTANCY (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories Dimensions

Motivation [4]

- The university wants to motivate its staff; does it think that levying a charge of £125 per day is motivating?
- A 25% cut is a total disincentive
- The percentage cut should not be too high because it could deter people from doing consultancy - and we need them to do it in order to cultivate contacts in industry which could generate real problems for students to tackle in their projects
- In a way, I would like the university to get a percentage cut from people's personal consultancy fees, but it would be a complete disincentive, so forget it

Transparency [3]

- Imposing a percentage cut would just drive the whole thing underground again; it is much better for the university to know what is going on and to be able to blow its trumpet about it, where it can
- If the university imposed an earnings limit or took a percentage cut, people would become reticent about their activities, and that would be a bad thing

Malconception [3]

- How could the university say on the one hand that you are allowed to spend so much time doing consultancy and then tax people for doing it? It would be inconsistent and therefore bad policy
- The important thing is not what people earn from doing personal consultancy, but how much time they take - and since different people command very different fees, an earnings limit would be completely illogical from that point of view
- There's a difference between what I call "bread and butter" consultancy and "creative" consultancy; the "creative" consultancy is to the department's advantage - and yet it gets taxed in the same way

Quid pro quo [4]

- _____ The university provides no [gratis] support; why should it take a cut?
- _____ It is reasonable for the university to take a small percentage cut to cover the cost of providing professional indemnity etc
- _____ It is reasonable for the university to take a small percentage cut to cover the cost of providing professional indemnity etc, but 25% is way over the top

Benefit to university [3]

- _____ People should not be doing personal consultancy, in any case; it should all be done in-house, through the university, with the university taking the profit
- _____ There should either be an earnings limit or else all consultancy should be done in-house, through the university

Appropriate activity [2]

- _____ All the consultancy in our department is done in-house and is seen as part of the department's remit, so why should the university take a cut?
- _____ Doing consultancy is one means of developing the particular strengths of members of staff - and hence their career and, by extension, the department's; why should this be taxed?

Indicator to staff [1]

- _____ A limit on consultancy earnings provides an indicator to staff of what is reasonable and what is excessive

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category

FIGURE 238: DEANS' AND HEADS' OF DEPARTMENT EXPLANATIONS AS TO WHY THEIR STAFF WOULD NOT HAVE A POSITIVE VIEW OF BEING ASKED TO "FLAG" IP (UNIVERSITY OF LIVERPOOL)

Categories Explanations (paraphrased)

Burdensome [3]

_____ Staff would perceive it as a burden

Financially Suspect [2]

_____ Suspicion of the cost of activities done by/on behalf of the centre

_____ Inappropriate to help the university generate £ which the UGC should be providing

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into the category in question.

FIGURE 239: SOURCE(S) OF IDEA(S) EXPLOITED BY ACADEMIC ENTREPRENEURS AT HULL UNIVERSITY

Categories	Source(s) of Idea(s) (paraphrased)
<hr/>	
Contract Research/Consultancy [2]	
	Contract research
	Consultancy
Demand [2]	
	Demand for product (from other researchers and/or industry)
Grant-aided research [1]	
	Peripheral to fundamental PhD research
Role models [1]	
	Knowledge of such hybrid institutes elsewhere in UK and US
Supposed market [2]	
	Belief there was a market opportunity
<hr/>	

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of sources of ideas which fell into the category in question. The figures relate to the source of the idea for each enterprise with which the six interviewees are associated - ie. eight *in toto*.

FIGURE 240: ACADEMICS' MOTIVE(S) FOR TRYING TO EXPLOIT THEIR IDEAS ENTREPRENEURIALLY - HULL UNIVERSITY

Categories Reason(s) Given

Income generation [4]

- _____ To generate an independent source of funding to keep research team intact
- _____ To generate an independent source of funding to keep technicians on staff when university contract expired
- _____ To generate an income for the department

Personal fulfilment [4]

- _____ To have fun
- _____ No interest in pursuing a career in academia
- _____ Unwillingness, as a "post-doc", to be treated by industry like a newly qualified undergraduate
- _____ Wish to see some value other than academic career development placed on research findings

Technology promotion [2]

- _____ To promote the technology through collaborative projects with industry
- _____ As a vehicle to obtain a licence from the MoD to exploit the technology

Reduction in pressure on department [1]

- _____ External requests for the device to be built interfered with departmental work
-

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reasons given which fell into the category in question. These figures relate to the reasons given by the 6 interviewees for wishing to pursue the 8 entrepreneurial ventures with which, as a group, they were associated; the total exceeds the aggregate number of enterprises associated with these interviewees because some interviewees gave more than one reason.

FIGURE 241: PREVIOUS BUSINESS EXPERIENCE OF THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	No Business Experience	Similar Experience	Business Experience	N
Hull	6 (100%)	0	0	6
Liverpool	7 (88%)	0	1 (12%)	8
Strathclyde	0	3 (50%)	3 (50%)	6
York	3 (60%)	2 (40%)	0	5
Totals:	16 (64%)	5 (20%)	4 (16%)	25

FIGURE 242: CLOSE FAMILY INVOLVEMENT IN SELF-EMPLOYMENT OR SMALL OR MEDIUM-SIZED BUSINESSES (SMEs) - AS REPORTED BY THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Family Members Self-Employed/SME Owners	Family Members Not Self-Employed/SME Owners	N
Hull	4 (67%)	2 (33%)	6
Liverpool	3 (38%)	5 (63%)	8
Strathclyde	3 (50%)	3 (50%)	6
York	1 (20%)##	4 (80%)	5
Totals:	11 (44%)	14 (56%)	25

Note:

since interviewees were asked whether any of their close family had owned or run an SME, great-grandparents were not considered to be close enough to count

NB Percentages which add up to under or over 100 result from rounding down or up

FIGURE 243: PRIOR KNOWLEDGE OF/ACQUAINTANCESHIP WITH OTHER ACADEMICS WHO HAD STARTED A BUSINESS - AS REPORTED BY THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	No Prior Knowledge/ Acquaintanceship	Prior Knowledge/ Acquaintanceship	N
Hull	1 (17%)	5 (83%)	6
Liverpool	1 (13%)	7 (88%)	8
Strathclyde	2 (33%)	4 (67%)	6
York	1 (20%)	4 (80%)	5
Totals:	5 (20%)	20 (80%)	25

FIGURE 244: USE MADE OF ENTREPRENEURIAL NETWORKS - AS REPORTED BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Made Use of Available Network	Did Not Make Use Available Network	N
Hull	1 (20%)	4 (80%)	5
Liverpool	1 (14%)	6 (86%)	7
Strathclyde	1 (25%)	3 (75%)	4
York	0	4 (100%)	4
Totals:	3 (15%)	17 (85%)	20

FIGURE 245: PRIOR KNOWLEDGE OF THEIR UNIVERSITY'S POLICY VIS-A-VIS ACADEMICS STARTING UP BUSINESS VENTURES - AS REPORTED BY 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Prior Knowledge	No Prior Knowledge	N
Hull	0	6 (100%)	6
Liverpool	3 (38%)	5 (63%)	8
Strathclyde	2 (33%)	4 (67%)	6
York	3 (60%)	2 (40%)	5
Totals:	8 (32%)	17 (68%)	25

NB Percentages which add up to under or over 100 result from rounding down or up

FIGURE 246: REPRESENTATIVE(S) OF HULL UNIVERSITY WITH WHOM FIVE WOULD-BE ACADEMIC ENTREPRENEURS DISCUSSED THEIR PLANS

Status of Interviewee	University Representative(s) (in sequence)
Research Fellow	Head of Department
Professor	Registrar > Vice-Chancellor > Finance Officer
Lecturer	Pro-Vice-Chancellor > Registrar, Vice-Chancellor, university accountant and ILO jointly
Lecturer (1st time) Reader (2nd time)	Registrar > Personnel Officer ILO
Professor & HoD	Vice-Chancellor > next Vice-Chancellor > Registrar

Key:

> then

FIGURE 247: OBJECTIVES OF FIVE WOULD-BE ACADEMIC ENTREPRENEURS IN DISCUSSING THEIR PLANS WITH REPRESENTATIVES OF HULL UNIVERSITY

Status of Interviewee	Objective(s)
Research Fellow	Establishment of departmental commercial arm Redefinition of duties to allow him to progress departmental commercial arm
Professor	Permission to set up an independent company
Lecturer	Permission to set up a company University to take a share in the company
Lecturer (1st time) Reader (2nd time)	Permission to set up a company To inform university that the first partnership had been dissolved and to suggest the creation of a departmental commercial arm in its place
Professor & HoD	Advice on the best way forward

FIGURE 248: FIVE WOULD-BE ACADEMIC ENTREPRENEURS' EXPECTATIONS REGARDING HULL UNIVERSITY'S RESPONSE TO THEIR PLANS

Status of Interviewee	Expectations
Research Fellow	University would agree to the plans outlined
Professor	Mutual information exchange Permission to set up an independent company
Lecturer	No expectations; prepared to fight to get his way if necessary
Lecturer (1st time)	-
Reader (2nd time)	Progress towards his objective
Professor & HoD	No expectations (<i>vis-a-vis</i> the first Vice-Chancellor) Doubtful that the second Vice-Chancellor would agree, in view of the first Vice-Chancellor's very negative response

Key:

- no data

FIGURE 249: THE ACTUAL RESPONSE OF HULL UNIVERSITY TO THE FIVE WOULD-BE ACADEMIC ENTREPRENEURS' PLANS

Status of Interviewee	Actual Response
Research Fellow	Positive <i>in principle</i> ; zero <i>in practice</i>
Professor	Positive: Council granted permission to set up an independent company
Lecturer	Positive: university granted permission to set up a joint venture and took a small equity stake
Lecturer (1st time)	Positive: Registrar outlined operating conditions and university granted permission
Reader (2nd time)	Zero response: ILO neither responded nor notified the Registrar, as requested
Professor & HoD	Negative: Vice-Chancellor refused permission (1st V/C) Positive: Registrar discussed and agreed operating conditions and university granted permission (2nd V/C)

FIGURE 250: THE ROLE PLAYED BY THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK IN HELPING THE 25 WOULD-BE ACADEMIC ENTREPRENEURS SET UP THEIR 42 BUSINESS VENTURES

University	Role Initially Reported**		Role Actually Played##		N
	Yes	No	Yes	No	
Hull	2 (25%)	6 (75%)	5 (63%)	3 (38%)	8
Liverpool	2 (14%)	12 (86%)	8 (57%)	6 (43%)	14
Strathclyde	13 (93%)	1 (7%)	13 (93%)	1 (7%)	14
York	5 (83%)	1 (17%)	5 (83%)	1 (17%)	6

Notes:

****** interviewees' spontaneous response

investigator's assessment, following further questioning

NB **N** relates to the number of enterprises founded/co-founded by the 25 interviewees

FIGURE 251: TYPES OF ASSISTANCE PROVIDED BY HULL UNIVERSITY IN RELATION TO FIVE ENTERPRISES STARTED BY ACADEMIC ENTREPRENEURS

Types of Assistance	Provided Initially	Provided Later
Use of equipment	1	0
Use of instrumentation	1	0
Use of accommodation~~	5	4
Use of technicians	1	1
In-house professional advice	0	0
Referral to outside professional advice	0	0
Use of secretarial staff	2	2
Use of communications#	5	4
Funding##	1	1
Miscellaneous*	3	2
Infrastructure**	2	2

Notes:

~~ eg. office space/laboratory space *etc* plus heating and lighting

eg. telephone, facsimile *etc*

eg. loan from university funds, guaranteed bank loan, underwriting, seedcorn grant, development grant, successful introduction to venture capitalists/underwriters, purchase of equity stake *etc*

* eg. photocopying, stationery *etc*

** eg. practical assistance with company registration, billing, debt collection, tax, VAT, administration, publicity *etc*

FIGURE 252: THE ATTITUDE OF ENTREPRENEURS AT THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK TO THE ROLE (IF ANY) PLAYED BY THEIR UNIVERSITY IN HELPING SET UP THEIR BUSINESS(ES)

University	Satisfaction Levels					N
	5	4	3	2	1	
Hull	2 (29%)	1 (14%)	1 (14%)	2 (29%)	1 (14%)	7#
Liverpool	5 (50%)	1 (10%)	0	1 (10%)	3 (30%)	10#
Strathclyde	9 (82%)	0	0	0	2 (18%)	11##
York	4 (67%)	0	0	2 (33%)	0	6#
Totals:	20 (59%)	2 (6%)	1 (3%)	5 (15%)	6 (18%)	34

Key:

- 5 satisfied
- 4 satisfied, but not entirely
- 3 satisfied and dissatisfied in equal measure
- 2 not really satisfied
- 1 definitely not satisfied

Notes:

- # excludes businesses founded prior to taking up employment at the university or some time after leaving the university
- ## excludes businesses still in the process of being set up

NB N relates to the total number of enterprises under consideration, while the figures under each satisfaction level relate to the number of entrepreneurs who expressed this level of satisfaction - *ie.* each business is dealt with separately

FIGURE 253: REASONS CITED BY ACADEMIC ENTREPRENEURS AT HULL UNIVERSITY FOR EXPRESSING GREATER OR LESSER DISSATISFACTION WITH THE ROLE (IF ANY) PLAYED BY THE UNIVERSITY IN HELPING SET UP THEIR BUSINESS(ES)

Categories	Reasons (paraphrased)
Lack of vision [1]	
	I wanted this business to be set up as the department's commercial arm, so that we could deliver an exciting new technology to industry and have the university and the department reap the rewards; the university displayed complete lack of vision
Lack of guidance [1]	
	The university agreed to everything I asked for in relation to the business - but I'm left wondering what it really thinks about my entrepreneurial activities, what priority (if any) the business should take in relation to my departmental responsibilities, how it will affect my chances of promotion. There's a need for guidance, for a forum in which these questions can be aired
Lack of recognition [1]	
	In order to put paid to rumours, I wish the university would formally recognise that the intimate relationship between the department and my company cannot be evaluated in strict, quantifiable terms - but that the <i>quid pro quo</i> arrangements we have are more beneficial than a strictly quantified arrangement
Risk aversion [2]	
	I wanted this business to be set up as the department's commercial arm, but the university was not prepared to pay the high salaries it would have had to pay commercial staff; it wasn't prepared to take the risk, I suppose
	I would have been happy for the business to have been a joint venture with the university, or even a wholly-owned university company, partly because I found it desperately hard to generate any working capital - but the university would not take the risk
Wimpishness [1]	
	The government department which claimed ownership of the IPR was chancing its arm; if the university had been prepared to fight it, it could have asserted its rights - but the university gave up at the first hurdle

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *i.e.* the number of reasons which fell into this category. The number of reasons exceeds the number of dissatisfied entrepreneurs because one gave more than one reason for his dissatisfaction.

**FIGURE 254: THE INTENDED CHARACTER OF THE 42 ENTERPRISES
FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM
THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND
YORK**

<u>University</u>	<u>"Hard"</u>	<u>"Soft"</u>	<u>Combination</u>	<u>Total</u>
Hull	4 (50%)	2 (25%)	2 (25%)	8
Liverpool	5 (38%)	6 (46%)	2 (15%)	13*
Strathclyde	5 (36%)	6 (43%)	3 (21%)	14
York	0	2 (33%)	4 (66%)	6#
Totals:	14 (34%)	16 (39%)	11 (27%)	41

Notes:

* the 14th enterprise was a shell company which could not be meaningfully characterised in this way

since two of the interviewees were entrepreneurially involved with the same company; only 6 enterprises are characterised here, rather than 7

NB: in some instances percentages may not total 100% due to rounding up or down

Figure 255: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM HULL UNIVERSITY FOR THEIR COMPANY NOT OBTAINING A LICENSE IN RELATION TO THE IP INITIALLY EXPLOITED

Reasons	N
University did not require a licence	2
University made no claim over the IPR	2
Technology was peripheral to PhD research	1
Company founded prior to employment at Hull	1
Total:	6

FIGURE 256: AGE OF THE ENTERPRISES FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK**

University	Range	Average	Business Years (aggregated)	N
Hull	1-13 years	7.25 years	58	8
Liverpool	1-17 years	6.36 years	89	14
Strathclyde	1-19 years	4.50 years	63	14
York	2-9 years	4.50 years	27	6

Note:

****** age in 1990 or the last year the enterprise was still in operation or the last year in which the interviewee was associated with the enterprise

Figure 257: BUSINESS HISTORY OF ENTERPRISES STARTED BY ACADEMICS FROM HULL UNIVERSITY

Type of Business (outset)	Business Status (1990)	Type of Business (1990)	Involvement of Academic (1990)
H & S	1	H & S	ii*
H & S	1	H & S	i
H	1#	H & S	i**
H	2##	n/a	n/a
H	1	H	i
S	2###	n/a	n/a
S	1	S	i
H	1	H	ii***

Key:

H " hard"
H & S a combination of "hard" and "soft"
S " soft"
1 still in operation
2 no longer in operation
i still actively involved in this business
ii no longer involved in this business
n/a not applicable

Notes:

this business acquired by another company
wound up this business
dissolved this partnership
* sold his share of this business and left it to set up another
** as an employee of this business
*** retired from this business

FIGURE 258: WHETHER THE 25 ACADEMIC ENTREPRENEURS MADE LONG-TERM PROJECTIONS AT THE OUTSET IN RELATION TO THE ENTERPRISE(S) THEY FOUNDED/CO-FOUNDED

University	Projections			Total
	Yes	No	No Data	
Hull	4 (50%)	4 (50%)	0	8
Liverpool	8 (62%)	3 (23%)	2 (15%)	13*
Strathclyde	10 (71%)	0	4 (29%)	14
York	4 (66%)	0	2 (33%)	6#
Totals:	26 (63%)	7 (17%)	8 (20%)	41

Note:

* this question is meaningless in the context of the fourteenth company, which was simply a shell company, founded for one specific purpose

although 5 academics are associated with 7 enterprises at York, two are associated with the same enterprise - hence the number of enterprises totals 6, not 7

FIGURE 259: LONG-TERM PROJECTIONS MADE IN RELATION TO 26 OF THE 44 ENTERPRISES BY THEIR ACADEMIC FOUNDERS/CO-FOUNDERS

Projections	N	Universities
<hr/>		
(1) Infinite Projections		
The business must become as large as possible	10	Hull (1) Liverpool (3) Strathclyde (6)
The business should make as much £ as possible	1	York
The business must grow and grow just to stand still	4	Hull (1) Liverpool (1) Strathclyde (2)
(2) Finite Projections (Growth-oriented)		
The business should expand to the point where it can be acquired by a larger company within 5-8 years	1	York
The business must quickly attain a turnover of at least £100,000 p.a.	1	Hull
The business should expand until it is at least big enough to support three families	1	Liverpool
The business should expand moderately	4	Hull (1) Liverpool (1) Strathclyde (2)
(3) Finite Projections (Limiting)		
The business should not expand beyond about 15 employees	1	York
The business should maintain its current, moderate level of activity	2	Liverpool (1) York (1)
The business should remain a purely peripheral activity	1	Liverpool
<hr/>		

**FIGURE 260: ANNUAL TURNOVER OF THE ENTERPRISES
FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM
THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND
YORK****

University	Range	Average	Total	N
Hull	£35,000 - £2,500,000	£667,500	£4,005,000	6*
Liverpool	£12,000 - £1,200,000	£405,166	£4,862,000	12*
Strathclyde	£50,000 - £500,000	£248,571	£1,740,000	7#
York	£150,000 - £2,000,000	£700,000	£3,500,000	5##

Notes:

****** annual turnover in 1990 or the last year the enterprise was still in operation or the last year in which the interviewee was associated with the enterprise - *ie.* between 1986 and 1990

***** no data elicited in relation to 2 enterprises

no data elicited in relation to 3 enterprises, and no turnover figures yet in relation to 4 enterprises founded during 1989-1990

one enterprise excluded since the annual turnover regularly fluctuated between £50,000 and £500,000

**FIGURE 261: NUMBER OF EMPLOYEES IN THE ENTERPRISES
FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM
THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND
YORK****

University	Range	Average	Total	N
Hull	0 - 60	15	117	8
Liverpool	0 - 33	8	111	14
Strathclyde	0 - 25	7	69	10#
York	4 - 50	19	115	6

Notes:

- **** number of employees in 1990 or the last year the enterprise was still in operation or the last year in which the interviewee was associated with the enterprise
- #** no data elicited in relation to 4 enterprises

FIGURE 262: NUMBERS OF (MAJOR) BUSINESS PARTNERS INVOLVED AT THE OUTSET IN EACH ENTERPRISE FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Number of Partners (inclusive)						N
	1	2	3	4	5	6	
Hull	1 (13%)	6 (75%)	1 (13%)	0	0	0	8
Liverpool	0	5 (42%)	2 (17%)	5 (42%)	0	0	12*
Strathclyde	0	1 (14%)	2 (29%)	2 (29%)	1 (14%)	1 (14%)	7*
York	1 (17%)	2 (33%)	0	0	2 (33%)	1 (17%)	6#
Total No of Enterprises	2 (6%)	14 (42%)	5 (15%)	8 (24%)	2 (6%)	2 (6%)	33

Notes:

N refers to the number of enterprises under consideration

***** a number of enterprises had to be excluded from this analysis on the basis that they were not/not yet operating in the kind of legal framework which required the number of partners to be formally and explicitly identified

although 5 academics are associated with 7 enterprises at York, two are associated with the same enterprise - hence the number of enterprises totals 6, not 7

NB: in some instances percentages may not total 100% due to rounding up or down

FIGURE 263: HOW THE ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK IDENTIFIED THEIR ORIGINAL BUSINESS PARTNERS IN THE ENTERPRISES THEY CO-FOUNDED

University	Source of Business Partners						N
	Family	Fellow Academic	University	Private Sector/A	Private Sector/B	Public Sector	
Hull	1 (13%)	5 (63%)	1 (13%)	0	1 (13%)	0	8
Liverpool	8 (33%)	10 (42%)	2 (8%)	1 (4%)	3 (13%)	0	24
Strathclyde	0	9 (45%)	5 (25%)	2 (10%)	0	4 (20%)	20
York	1 (7%)	10 (67%)	2 (13%)	0	1 (7%)	1 (7%)	15
Total/Source of Partner	10	34	10	3	5	5	

NB: Private Sector/A denotes institutional partners; Private Sector/B denotes individuals

NB: in some instances percentages may not total 100% due to rounding up or down

FIGURE 264: BUSINESS ROLES ASSUMED AT THE OUTSET BY ACADEMIC ENTREPRENEURS FROM HULL UNIVERSITY

Role(s) Assumed	Partner(s)' Roles	Employed Managerial Roles
Managing Director & Technical Director	Secretary	n/a
Chairman	Technical Director	n/a
Managing Director	sleeping partner	n/a
Managing Director	n/a	n/a
Chairman & Managing Director	Secretary & non-executive directors	n/a
Director	Managing Director & Secretary	n/a
Secretary	Managing Director	n/a
Chairman	Secretary	n/a

FIGURE 265: TIME DEVOTED TO THEIR BUSINESS(ES) BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Mon-Fri	Evenings	Weekends
Hull	more & more 0.5 days/wk 5 days/wk~ 3 hours#/wk 0.5 days/wk occasionally	most some some occasionally occasionally most	both days both days some occasionally occasionally most (plus holidays)
Liverpool	1 day/wk none 1 day###/wk none none none 1 hour/wk varied** varied** none 1.5 days/wk	some 3 per week occasionally some most most none varied** varied** most most	some some occasionally some most most (plus holidays) none varied** varied** most most
Strathclyde	2.5 days/wk+ varied <u>at first</u> <u>then</u> 0.5 days/wk 3.5 days/wk a few hours/wk 10 hours/wk a few hours/wk 3.5 days*/wk a few hours/wk a few hours/wk a few hours/wk a few hours/wk a few hours/wk 0.5 days/wk	most some many most a few a few a few some a few a few a few a few a few some	most some many most a few a few a few some a few a few a few a few a few some
York	5 days/wk~ 0.5 days/wk 1 day/wk varied++ 1.5 days/wk 1 day/wk#	most occasionally occasionally varied++ many many	most occasionally occasionally varied++ many many

Notes:

- ~ this academic entrepreneur left the university in order to devote all his time to his business
- # lunch-hours only
- ## 7-9 in morning plus lunch-hours only
- ** no set pattern; time-sheets suggest equivalent to 1-2 days per week, which could be done Monday-Friday, 9-5 and/or evenings and/or weekends
- * pre-existing early retirement agreement involved a commitment of 1.5 days/week to the university
- + formally seconded to the company 2.5 days per week
- ++ probably around 20-25 hours per week, averaged over the year, which might be done Monday-Friday, 9-5 and/or evenings and/or weekends

FIGURE 266: ACADEMIC ENTREPRENEURS' VIEWS ON THE IMPACT OF THEIR BUSINESS ACTIVITIES ON THEIR ACADEMIC COMMITMENTS

University	Negative Impact	No Impact	Positive Impact	N
Hull	2# *	1# #	4	6
Liverpool	2	2## **	6	8
Strathclyde	3	0	6	6
York	1~~	2	3	5
Total/Type of Impact	8	5	19	
Total/Interviewees				25

Notes:

not in the pre-start-up phase; only once the company was started up

* only sporadically

academic left the university in order to set up the business

** academic had virtually no involvement with the business

~~ minimal negative impact

NB N indicates the number of academic entrepreneurs questioned; where N is less than the sum of columns 2-4, this indicates that some academic entrepreneurs felt their business activities had both a negative and a positive impact.

FIGURE 267: VIEWS OF ACADEMIC ENTREPRENEURS FROM HULL UNIVERSITY ON THE WAY(S) IN WHICH THEIR BUSINESS ACTIVITIES IMPACTED ON THEIR ACADEMIC COMMITMENTS

Category	Impact (paraphrased)
Diversion [2]	
	All my energies went into the business instead of the department
	Eventually the demands of the business distracted me from giving my full attention to the needs of the department
Beneficial to teaching [3]	
	It boosted the students' morale to know they were being taught by somebody with real-world experience
	Staff from the company teach very effectively on the Masters programme
	Students benefit from the software expertise gained by the company
Improved efficiency [3]	
	Running the business improved my management skills and made me more efficient at university administration
	Running the business made me a sharper and more effective manager in the university; as time went by I began to perceive my colleagues as indolent and indecisive
	I get far more research done and far more research disseminated because the company gives me access to three extra researchers

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of examples of positive/negative impact which fell into the category in question.

FIGURE 268: FAVOURS SOUGHT BY THE 25 ACADEMIC ENTREPRENEURS AT THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK IN ORDER TO ACCOMMODATE BUSINESS COMMITMENTS

University	No Favours	Favours Sought	Nature of Favour(s)	N
Hull	5	1	* part-time contract ($\frac{2}{3}$)	6
Liverpool	5	3	* sabbatical then early retirement; * rescheduling of lectures/seminars <i>etc</i> * partial secondment ($\frac{1}{3}$) to the business	8
Strathclyde	4	2	* two-thirds secondment to business * research-only contract & half-time secondment to business##	6
York	1	4	* leave of absence; * rescheduling of lectures/seminars/tutorials * rescheduling of departmental commitments * part-time contract ($\frac{2}{3}$)	5

Note:

this request came from the Principal to the would-be academic entrepreneur, not *vice versa*

FIGURE 269: THE REACTION OF COLLEAGUES TO ACADEMIC ENTREPRENEURSHIP - AS PERCEIVED BY THE SIX ACADEMIC ENTREPRENEURS FROM HULL UNIVERSITY

Categories	Reactions (paraphrased)
Short-changing the university [2]	<ul style="list-style-type: none"> One research assistant made it clear he thought the university was not getting a good deal out of me People outside the department mistakenly assumed that I was ripping off the department
Disgust [1]	<ul style="list-style-type: none"> Most of my colleagues thought that industry was a dirty word
Jealousy [1]	<ul style="list-style-type: none"> Some lecturers and most fellow research assistants were very jealous
Resentment [1]	<ul style="list-style-type: none"> I was given to understand that I had been singled out for "fast-tracking" - yet I had thrown this back in their face by going into business, rather than stay in academia
Concern [1]	<ul style="list-style-type: none"> As the business grew, some colleagues were concerned about its growth and the way it took up so much of the HoD's and his partner's time
Inscrutability [1]	<ul style="list-style-type: none"> There was never any discussion and it was difficult to deduce what people thought about it
Neutrality [1]	<ul style="list-style-type: none"> Fellow members of staff portrayed themselves as neutral
Support [2]	<ul style="list-style-type: none"> Most people in the department were supportive because they knew that the department benefitted from my various business activities A lot of them thought it was a good idea
Pride [1]	<ul style="list-style-type: none"> A lot of my colleagues were very proud of what we had achieved

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reactions which fell into the category in question. The number of mentions exceeds the number of academic entrepreneurs because some got different reactions from different colleagues.

FIGURE 270: NATURE OF HEAD OF DEPARTMENTS' REACTIONS TO THE BUSINESS ACTIVITIES OF ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Reactions				N
	Supportive	Neutral	Antipathetic	Changeable	
Hull	1	1	0	1#	3
Liverpool	4	5	1	1##	7
Strathclyde	4	2	1~	1*	6
York	6	0	1	0	5
Total Instances	15	8	3	3	
Total Academics					21

Notes:

Supportive > Antipathetic > Neutral

Antipathetic > Supportive

* Supportive > Antipathetic

~ slightly

NB N indicates the number of academic entrepreneurs questioned; where N is less than the sum of columns 2-5, this indicates that some academic entrepreneurs had more than one HoD while they were engaged on their entrepreneurial activities and/or that where they were involved in more than one enterprise, their HoD(s) reacted in a different way to different enterprises

NB Academic entrepreneurs who were HoD when they launched their enterprise are excluded from this particular analysis

FIGURE 271: ACADEMIC ENTREPRENEURSHIP AND PROMOTION PROSPECTS - ATTITUDE AND EXPERIENCE OF THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Considered/Researched Promotions Criteria Prior to Start-Up		
	Yes	No	N/A
Hull	0	5	1
Liverpool	1	7	0
Strathclyde	1	5	0
York	0	3	2

University	Promotion After Launching First Enterprise?			Worried About Promotion Prospects?		
	Yes	No	N/A	Yes	No	N/A
Hull	3	2	1	1	4	1
Liverpool	4	3	1	1	6	1
Strathclyde	1	5	0	0	4	2
York	0	3	2	2	1	2

FIGURE 272: TO STAY IN THE UNIVERSITY OR TO LEAVE? - WHAT THE 25 ACADEMIC ENTREPRENEURS CONTEMPLATED WHEN STARTING UP THEIR ENTERPRISE(S)

University	To Stay	Foot in Both Camps	To Leave	N 1	N 2
Hull	6	0	1	7#	6
Liverpool	9	0	2	11* #	8
Strathclyde	8	5	1	14	6
York	4	0	2	6#	5
Total/Type of Contemplation	27	5	6		
Total/Enterprises				38	
Total/Interviewees					25

Notes:

- N1** number of enterprises with which the academic entrepreneurs questioned were associated
N2 number of academic entrepreneurs questioned
excludes enterprises founded prior to taking up employment at the university
***** excludes enterprises founded some time after leaving the university, not planned at the time of leaving

FIGURE 273: IMMEDIATE OUTCOME OF THE 25 ACADEMIC ENTREPRENEURS' CONTEMPLATIONS

University	Stayed	Foot in Both Camps	Left	N
Hull	5	0	1	6
Liverpool	7	0	1	8
Strathclyde	3	1	2	6
York	2	1	2	5

NB N indicates the total number of academic entrepreneurs questioned

FIGURE 274: TO STAY IN THE UNIVERSITY OR TO LEAVE? - THE REMAINING ACADEMIC ENTREPRENEURS' CONTEMPLATIONS SOME TIME AFTER STARTING UP THEIR ENTERPRISE(S)

University	To Stay	Foot in Both Camps	To Leave	N 1	N 2
Hull	3	0	3	6#	5##
Liverpool	6	1	3	10*#	7##
Strathclyde	6	5	0	11	4##
York	2	1	0	2#	3##

Notes:

N 1 number of enterprises with which the academic entrepreneurs questioned were associated

N 2 number of academic entrepreneurs questioned

excludes enterprises founded prior to taking up employment at the university

***** excludes enterprises founded some time after leaving the university, not planned at the time of leaving

excludes academic entrepreneurs who had already left

FIGURE 275: OUTCOME OF THE REMAINING ACADEMIC ENTREPRENEURS' LATER CONTEMPLATIONS

University	Stayed	Foot in Both Camps	Left	N
Hull	2	0	3	5##
Liverpool	6	0	1	7##
Strathclyde	4	0	0	4##
York	2	1	0	3##

Notes:

N the total number of academic entrepreneurs questioned

excludes academic entrepreneurs who had already left soon after setting up their first enterprise

FIGURE 276: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM HULL UNIVERSITY FOR LEAVING THE UNIVERSITY

Category	Reason(s) (paraphrased)
Personal fulfilment [3]	
	I wanted to devote the time I had been devoting to the demands of the department to doing research
	I was no longer interested in the kind of research which I had been doing in the university
	I had no interest in a career in academia
Departmental restructuring [2]	
	Following the restructuring of a number of departments, there was no suitable job for me
Rejection of change [1]	
	After 1979, UK universities changed ... in fact, they deteriorated, which made me uncomfortable about being there
Promotion prospects [1]	
	In the light of the reaction to press coverage of my business, I recognised that I had burned my boats where my promotion prospects were concerned
Demonstration of commitment to investors [1]	
	It was vital to demonstrate my commitment to the business to potential investors

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *i.e.* the number of reasons which fell into this category. The total number of reasons (8) exceeds the number of academic entrepreneurs who left Hull (4) because most gave more than one reason.

**FIGURE 277: REASONS GIVEN BY ACADEMIC ENTREPRENEURS
FROM HULL UNIVERSITY FOR NOT LEAVING THE UNIVERSITY
TO DEVOTE MORE TIME TO THEIR BUSINESS INTERESTS**

Reasons

	I couldn't be lured out by something like double the salary I get now ... I'd only go if things in the university were not as I would like them to be
	I wouldn't leave the university unless it was no longer possible to do the things I like doing

NB It was felt that these reasons did not really explain why these interviewees had chosen to remain in the university - therefore there was no point in trying to categorise them

FIGURE 278: SOURCE(S) OF IDEA(S) EXPLOITED BY ACADEMIC ENTREPRENEURS AT LIVERPOOL UNIVERSITY

Categories Source(s) of Idea(s) (paraphrased)

Academic tool [5]

- _____ Desire to overcome specific teaching difficulties
- _____ Desire to improve on existing product to save scarce resources
- _____ Software required in the process of grant-aided research

Contract research/consultancy [7]

- _____ Consultancy
- _____ Contract research

Role model [1]

- _____ Desire to improve on former commercial arm of department

Supposed demand [1]

- _____ Acquired existing company which had gone into receivership

Demand [1]

- _____ To act as R&D arm of another company

Tax avoidance [1]

- _____ Shell company on the Isle of Man to receive the royalties from a product made by a company founded earlier by the academic entrepreneur
-

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of sources of ideas which fell into the category in question. These figures relate to the source(s) of the idea for *each* enterprise with which the eight interviewees are associated - 14 *in toto*; the total exceeds the aggregate number of enterprises associated with these interviewees, because where two enterprises were concerned, the idea came from more than one source

FIGURE 279: ACADEMICS' MOTIVE(S) FOR TRYING TO EXPLOIT THEIR IDEAS ENTREPRENEURALLY - LIVERPOOL UNIVERSITY

Categories	Reason(s) Given
Income generation [6]	
	To generate income for themselves and the university from exploitation of the technology
	To generate an income for the department
	To generate an independent source of funding to keep technicians on staff when university contract expired
	Intended to generate income for the department but, following HoD's rejection of idea, to generate income for the partners
Third party benefit [6]	
	To solve real problems without impinging on the university
	Universities receive lots of public funding and should give the country a return on its investment
	To solve a common problem encountered in teaching a particular subject
	To provide a resource for industry and academia
	Belief that industry's needs could be better served by computerisation
	To help someone he knew socially to achieve a work-related target
Tax avoidance [2]	
	A way of avoiding having to pay schedule E tax on consultancy earnings
	Shell company on the Isle of Man to reduce tax liability on royalties from a particular licence
Personal fulfilment [2]	
	For fun
	For the intellectual challenge
Commercial realism [1]	
	To make industry pay commercial prices for the expertise which it usually got "on the cheap" from the department
Opportunity [1]	
	It would have been stupid not to take advantage of the opportunity

Corporate venturing [1]

	To set up in business a talented Masters student who wished to go into business on his own account
--	--

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reasons given which fell into the category in question. These figures relate to the reasons given by the 8 interviewees for wishing to pursue the 14 entrepreneurial ventures with which, as a group, they were associated; the total exceeds the aggregate number of enterprises associated with these interviewees because some interviewees gave more than one reason.

**FIGURE 280: REPRESENTATIVE(S) OF LIVERPOOL UNIVERSITY
WITH WHOM THE EIGHT WOULD-BE ACADEMIC ENTREPRENEURS
DISCUSSED THEIR PLANS**

Status of Interviewee	University Representative(s) (in sequence)
Professor	ILO > Registrar
Senior Research Fellow	HoD
Senior Lecturer	ILO > Vice-Chancellor
Senior Lecturer (1st time)	n/a
Senior Lecturer (2nd time)	HoD
Reader (3rd time)	-
Reader (4th time)	CEO of university company > Vice-Chancellor
Reader# (5th time)	n/a
Reader# (6th time)	n/a
Professor & HoD	ILO > Registrar
Professor & HoD (1st time)	- *
Professor & HoD (2nd time)	Research Sub-Committee
Lecturer	HoD
Senior Lecturer	ILO > Vice-Chancellor

Key:

- n/a not appropriate, for one reason or another (eg. not employed by university)
- spoke to nobody
- > then

Note:

- # under the early retirement scheme, whereby retirees retained approximately 30% of their workload
- * spoke to the Registrar, years later, retrospectively

FIGURE 281: OBJECTIVES OF EIGHT WOULD-BE ACADEMIC ENTREPRENEURS IN DISCUSSING THEIR PLANS WITH REPRESENTATIVES OF LIVERPOOL UNIVERSITY

Status of Interviewee	Objective(s)
Professor	To inform university of plans To get permission to set up a company
Senior Research Fellow	To set up a departmental commercial arm To get advice on how best to proceed
Senior Lecturer	To get permission to set up a company
Senior Lecturer (1st time)	n/a
Senior Lecturer (2nd time)	To set up departmental commercial arm
Reader (3rd time)	n/a
Reader (4th time)	To help CEO of university company to achieve his targets
Retired# (5th time)	n/a
Retired# (6th time)	n/a
Professor & HoD	To set up a departmental commercial arm To get permission to take on an employee specially to progress the commercial arm
Professor & HoD (1st time)	To get permission to set up the enterprise
Professor & HoD (2nd tm)	n/a
Lecturer	To get permission to become a company director To get permission to do outside work
Senior Lecturer	To formalise a departmental commercial arm which was operating informally To get the Vice-Chancellor to accept the business plan and underwrite the project

Key:

n/a not appropriate (*eg.* not employed by university at the time)

Note:

under the early retirement scheme, whereby retirees retained approximately 30% of their workload

FIGURE 282: EIGHT WOULD-BE ACADEMIC ENTREPRENEURS' EXPECTATIONS REGARDING LIVERPOOL UNIVERSITY'S RESPONSE TO THEIR PLANS

<u>Status of Interviewee</u>	<u>Expectations</u>
Professor	Registrar would agree to his plans
Snr Research Fellow	-
Snr Lecturer	Not at all sure what to expect
Snr Lecturer (1st time)	n/a
Snr Lecturer (2nd time)	Not at all sure what to expect
Reader (3rd time)	n/a
Reader (4th time.)	Positive outcome
Retired# (5th time)	n/a
Retired# (6th time)	n/a
Professor & HoD	University would agree to both objectives
Professor & HoD (1st time)	n/a
Professor & HoD (2nd time)	University would agree to his objective
Lecturer	-
Snr Lecturer	Hopeful, because it was largely a question of formalising the <i>status quo</i>

Key:

- no data

n/a not appropriate (*eg.* not employed by university at the time)

FIGURE 283: THE ACTUAL RESPONSE OF LIVERPOOL UNIVERSITY TO THE EIGHT WOULD-BE ACADEMIC ENTREPRENEURS' PLANS

<u>Status of Interviewee</u>	<u>Actual Response</u>
Professor	Positive: university outlined operating conditions and granted permission
Snr Research Fellow	Positive and negative: HoD supportive but wished to squander resources on glossy brochures; proposal therefore rejected by academic
Snr Lecturer	Positive: university agreed to joint venture being set up
Snr Lecturer (1st time)	n/a
Snr Lecturer (2nd time)	Negative: HoD refused permission to set up departmental commercial arm
Reader (3rd time)	n/a
Reader (4th time.)	Positive: university agreed to joint venture being set up
Retired# (5th time)	n/a
Retired# (6th time)	n/a
Professor & HoD	Positive and zero: ILO very helpful; Registrar totally disinterested
Professor & HoD (1st time)	n/a
Professor & HoD (2nd time)	Positive: Research Sub-Committee agreed to proposal
Lecturer	Positive: HoD arranged permission to do outside work and permission to become company director
Snr Lecturer	Very positive: Vice-Chancellor gave permission and found a benefactor to underwrite the project

Key:

n/a not appropriate

FIGURE 284: TYPES OF ASSISTANCE PROVIDED BY LIVERPOOL UNIVERSITY IN RELATION TO EIGHT ENTERPRISES STARTED BY ACADEMIC ENTREPRENEURS

Types of Assistance	Provided Initially	Provided Later
Use of equipment	7	6
Use of instrumentation	5	4
Use of accommodation~~	7	4
Use of technicians	3	2
In-house professional advice	2	0
Referral to outside professional advice	0	0
Use of secretarial staff	3	2
Use of communications#	8	5
Funding##	4	1
Miscellaneous*	8	6
Infrastructure**	5	3

Notes:

~~ *eg. office space/laboratory space etc plus heating and lighting*

eg. telephone, facsimile etc

eg. loan from university funds, guaranteed bank loan, underwriting, seedcorn grant, development grant, successful introduction to venture capitalists/underwriters, purchase of equity stake etc

* *eg. photocopying, stationery etc*

** *eg. practical assistance with company registration, billing, debt collection, tax, VAT, administration, publicity etc*

FIGURE 285: REASONS CITED BY ACADEMIC ENTREPRENEURS AT LIVERPOOL UNIVERSITY FOR EXPRESSING GREATER OR LESSER DISSATISFACTION WITH THE ROLE (IF ANY) PLAYED BY THE UNIVERSITY IN HELPING SET UP THEIR BUSINESS(ES)

Categories Reasons (paraphrased)

Financial profligacy [2]

- Having a university umbrella company with a millionaire businessman as its CEO means that right away you've got an unnecessary overhead of at least £50,000 a year. The two start-up companies which became subsidiaries of the umbrella company were forced to accept an accumulated deficit from the very beginning
- The CEO of the university's umbrella company had over-ambitious plans and operated on far too grandiose a scale, given the wealth-creating potential of the small companies concerned

Greed [1]

- For years the university took no interest whatsoever in the department's commercial arm. Then, when they saw how successful it had become, they plucked it like a ripe plum and spun it off as a separate company, against the wishes of the department, for its own financial benefit

Competence [2]

- We thought the infrastructure that was to be provided by the university's umbrella company was a wonderful idea. The company would handle all the central things like dealing with income tax, VAT, company registration, doing all the things that we didn't necessarily want to get involved in and we could get on and do the technical side of things. But gradually we discovered that these things hadn't been done. They hadn't even got around to registering the company.
- Basically, I wanted to set this up as a departmental commercial arm and have someone tell me how to market our products. But nobody knew how to market our products - so we just got on and tried to do our best by ourselves - for our own benefit

Patronising approach [1]

- The chairman of the university's umbrella company treated me like an imbecile, even though I had an entrepreneurial track record. He made us go to his downtown office and explain ourselves even if all we wanted was a little petty cash for postage stamps
-

Note:

The figure in square brackets after the category name indicates the number of "mentions" - ie. the number of reasons which fell into this category

FIGURE 286: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM LIVERPOOL UNIVERSITY FOR THEIR COMPANY NOT OBTAINING A LICENSE IN RELATION TO THE IP INITIALLY EXPLOITED

Reasons	N
University did not own the IPR	2
Belief that the university did not own the IPR	1
University did not require a license	2
Business's "products" not licensable	5
Product concept based on fundamental idea already in the public domain	1
Business founded prior to employment at Liverpool	1
Business founded after academic took early retirement	2
Academic chose not to inform the university that patentable IPR had been created	1
Total:	15

Note:

The number of reasons exceeds the number of enterprises which did not acquire a license because one academic entrepreneur gave two reasons

Figure 287: BUSINESS HISTORY OF ENTERPRISES STARTED BY ACADEMICS FROM LIVERPOOL UNIVERSITY

Type of Business (outset)	Business Status (1990)	Type of Business (1990)	Involvement of Academic (1990)
H & S	1	H & S	i
H	2#	n/a	n/a
S	1	H	i
H	2##	n/a	n/a
S	2##	n/a	n/a
H	1	H	i
H	1	H	ii*
H	1	H	i
-	1	-	i
S	1###	S	iii**
S	1	H & S	i
S	1	S	i
H & S	1####	H & S	iii***
S	1	S	i

Key:

H "hard"
H & S a combination of "hard" and "soft"
S "soft"
- shell company
1 still in operation
2 no longer in operation
i still actively involved in this business
ii nominally still involved in this business
iii no longer involved in this business
n/a not applicable

Notes:

this business now moribund
wound up this business
in a different legal framework
business taken over by another company and its name changed
* involvement in business very ill-defined from outset
** never had an active involvement in the business
*** sold his share of this business and left it

FIGURE 288: BUSINESS ROLES ASSUMED AT THE OUTSET BY ACADEMIC ENTREPRENEURS FROM LIVERPOOL UNIVERSITY

Role(s) Assumed	Partner(s)' Roles	Employed Managerial Roles
Chairman	Secretary & directors without portfolio	n/a
Partner	Partner	n/a
Administrative Director	Managing Director & Technical Director & Chairman* (nominee)	n/a
Partner	Partners	n/a
Partner	Partner	n/a
Technical Director	Chairman & Managing Director	Marketing Director
director without	Chairman (nominee) & directors without portfolio	n/a
Partner	Partner	Partner**
n/a#	n/a#	Employees responsible for all aspects of business
Managing Director	Secretary	n/a
Director	n/a#	n/a
Managing Director & Secretary	Technical Director	n/a
Deputy Director	Director & director	n/a

Notes:

enterprise traded informally from within the university

** two partners own a third of the shares in the business; the third earns his share by assuming responsibility for much of the technical and company development required

NB shell company has been omitted from this list

FIGURE 289: VIEWS OF ACADEMIC ENTREPRENEURS FROM LIVERPOOL UNIVERSITY ON THE WAY(S) IN WHICH THEIR BUSINESS ACTIVITIES IMPACTED ON THEIR ACADEMIC COMMITMENTS

Category	Impact (paraphrased)
<hr/>	
Deleterious to teaching [2]	
	I gave less attention to undergraduate teaching
	My business required me to travel a lot throughout the UK, so I couldn't always adhere to my lecture schedule
Beneficial to teaching [1]	
	The company provides an excellent source of real-world final year projects
Beneficial to one's <i>modus operandi</i> [3]	
	The business led me to see things in new ways, to operate in the way that the Enterprise in Higher Education initiative is trying (but failing) to inculcate
	Running the first business was good preparation for running another enterprise, but within the university this time
	The business taught me how to make my presence felt in Brussels
Beneficial to research [1]	
	The consultancy work done by the company will bring in extra contract research to the department
Publicity-generating [1]	
	The work done by the company boosts the profile of the department
Motivating [1]	
	This enterprise helps my motivation, because if you're a Reader at 40 and you don't want a Chair, what else is there to do in a university?
<hr/>	

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of examples of positive/negative impact which fell into the category in question.

FIGURE 290: THE REACTION OF COLLEAGUES TO ACADEMIC ENTREPRENEURSHIP - AS PERCEIVED BY THE EIGHT ACADEMIC ENTREPRENEURS FROM LIVERPOOL UNIVERSITY

Categories	Reactions (paraphrased)
Jealousy [2]	
	They showed that they were jealous through their back-chat, their obstructiveness, their attempts to divert resources from the enterprise
	The junior and middle staff were jealous of the fact that I was making things happen
Resentment [2]	
	As time went by, there was increasingly strong resentment about the fact that we ploughed all the income back into the enterprise, instead of acting as a "cash cow" for the department
	Some of the junior and middle staff were resentful about the enterprise's swing away from pure research towards applied research
Snide comments [2]	
	They have been known to sneeringly refer to us as "our captains of industry" and once suggested our company might like to tackle the catering at the graduate buffet
	I got comments about the "game" I was in on an ongoing basis
Concern [1]	
	Some colleagues are concerned that the enterprise is beginning to dominate the department, that the tail is beginning to wag the dog
Inscrutability [3]	
	No reaction so far, perhaps because we have maintained a low profile
	Nobody has asked any questions and there have not been any obvious "vibes"
	It is not easy to deduce what they were thinking, but then I was always a loner; I didn't go to coffee with the rest of them
Neutrality [1]	
	There have been no bad "vibes" as far as I can detect, probably because they know I try to keep the interface squeaky-clean
Support [1]	
	The senior staff were very supportive, very positive

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reactions which fell into the category in question. The number of mentions exceeds the number of academic entrepreneurs because some got different reactions from different colleagues.

**FIGURE 291: REASONS GIVEN BY ACADEMIC ENTREPRENEURS
FROM LIVERPOOL UNIVERSITY FOR LEAVING THE UNIVERSITY**

Category	Reason(s) (paraphrased)
Demands of the business [1]	
	_____ The demands of the business meant I couldn't afford the time I needed to devote to my academic commitments
Promotion prospects [1]	
	_____ It was evident from the promotion criteria that I had no future in the university
Rejection of change [1]	
	_____ I hated all the changes which were being inflicted on the university at that time

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *ie.* the number of reasons which fell into this category. The total number of reasons (3) exceeds the number of academic entrepreneurs who left Liverpool (2) because one gave more than one reason.

FIGURE 292: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM LIVERPOOL UNIVERSITY FOR NOT LEAVING THE UNIVERSITY TO DEVOTE MORE TIME TO THEIR BUSINESS INTERESTS

Categories	Reasons (paraphrased)
<hr/>	
Career aspirations [1]	
	My ideal future career would be to become a Vice-Chancellor somewhere; if that doesn't happen, I'll just retire; I don't want another career as a businessman
Risk [1]	
	I knew from what had happened to companies founded by colleagues in other universities that the industry we were in was too volatile, too risky
Profit levels [1]	
	We can't leave until the business can support three families; its profit levels are not high enough at the moment
Lack of involvement [1]	
	The business was set up to provide a service, not for its own sake, and it has provided an excellent service with little and latterly no involvement on my part
<hr/>	

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *i.e.* the number of reasons which fell into this category.

NB Data were not elicited in relation to two academic entrepreneurs who remained in the university.

FIGURE 293: SOURCE(S) OF IDEA(S) EXPLOITED BY ACADEMIC ENTREPRENEURS AT STRATHCLYDE UNIVERSITY

Categories	Source(s) of Idea(s) (paraphrased)
Academic tool [1]	Software developed as a research tool
Collaboration [1]	Belief that collaboration with academic from another university could lead to an exploitable product
Grant-aided research [4]	Outcome of research done for Research Councils or charities or NGOs
Contract research/consultancy [3]	Contract research
	Consultancy
Supposed demand [4]	Belief there was a market opportunity
	Commissioned consultant to identify opportunities for exploitation within department
Demand [3]	Way of accommodating requests for consultancy totalling £0.25m
	Acquired a division of an existing company which was surplus to requirements
	Way of coping with burgeoning demand which would take the pressure off the department

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of sources of ideas which fell into the category in question. These figures relate to the source(s) of the idea for each enterprise with which the six interviewees are associated - 14 *in toto*; the total exceeds the aggregate number of enterprises associated with these interviewees, because one enterprise was concerned, the idea came from more than one source.

FIGURE 294: ACADEMICS' MOTIVE(S) FOR TRYING TO EXPLOIT THEIR IDEAS ENTREPRENEURIALY (STRATHCLYDE UNIVERSITY)

Categories	Reason(s) Given
More effective teaching [6]	
	Universities are graduate factories and entrepreneurial academics, having been exposed to commercial reality, will turn out more useful graduates
Applied outlook [2]	
	Always more interested in developing and implementing research findings than moving on to other basic research
	Enthusiasm for seeing ideas applied and used
No alternative [1]	
	The research was funded by an agency which relies on companies to exploit any resulting IP - but no existing company was interested in exploiting it
BTG support [1]	
	The BTG was very keen to exploit the technology via a start-up company
Financial expediency [2]	
	It was not possible to attract DTI funding or venture capital if it was exploited by the commercial arm of the department, as originally planned
	To attract DTI funding
Pursuit of excellence [1]	
	To help the department attain a world-class reputation in this particular field
Income generation [2]	
	To generate revenue for the department and the university
	To generate an independent source of funding to keep research assistants employed between Research Council contracts and after Research Councils invoked six-year rule
Segregation mechanism [1]	
	To be able to respond to commercial opportunities without impinging on the work of the department

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reasons which fell into the category in question. These figures relate to the reasons given by the six interviewees for wishing to pursue the 14 entrepreneurial ventures with which, as a group, they are associated; the total exceeds the aggregate number of enterprises associated with these interviewees because some interviewees gave more than one reason.

FIGURE 295: REPRESENTATIVE(S) OF STRATHCLYDE UNIVERSITY WITH WHOM THE FIVE WOULD-BE ACADEMIC ENTREPRENEURS DISCUSSED THEIR PLANS

Status of Interviewee	University Representative(s) (in sequence)
Professor & HoD	Principal
Senior Lecturer (1st time)	ILO > Principal
Senior Lecturer (2nd time)	ILO > Principal
External Candidate for Chair (1st time)	Interview panel > Principal > Finance Officer
Professor (2nd time)	Principal > ILO
Professor (3rd time)	Principal > ILO
Senior Lecturer#	ILO > Principal > ILO
Professor (1st time)	ILO
Professor (2nd time)	ILO
Professor (3rd time)	ILO
Professor (4th time)	ILO
Professor (5th time)	ILO
Professor (1st time)	Junior members of Bursar's staff > Bursar
Professor (2nd time)	ILO

Key:

> then

FIGURE 296: OBJECTIVES OF FIVE WOULD-BE ACADEMIC ENTREPRENEURS IN DISCUSSING THEIR PLANS WITH REPRESENTATIVES OF STRATHCLYDE UNIVERSITY

Status of Interviewee	Objective(s)
Professor & HoD	University's agreement to participate in a joint venture Permission to personally participate in a joint venture
Senior Lecturer (1st time)	Permission to set up departmental commercial arm
Senior Lecturer (2nd time)	Permission to exploit "hard" IP via (existing) departmental commercial arm
External Candidate for Chair (1st time)	Permission to set up departmental commercial arm
Professor (2nd time)	Permission to set up independent company
Professor (3rd time)	Permission to set up second departmental arm
Senior Lecturer#	Permission to set up independent company
Professor (1st time)	Permission to set up independent joint venture A licence for the IPR
Professor (2nd time)	To persuade university to jointly acquire an existing company Permission to become a company director
Professor (3rd time)	Persuade the university to set up a wholly-owned company to exploit a particular expertise
Professor (4th time)	Permission to set up departmental hybrid academic/commercial unit
Professor (5th time)	Permission to set up a company
Professor (1st time)	To find a mechanism to allow any income generated to cover the cost of researchers' salaries between contracts, computing charges, exhibition fees, headed notepaper <i>etc</i>
Professor (2nd time)	To spin off the commercial arm of the department as a separate company

FIGURE 297: FIVE WOULD-BE ACADEMIC ENTREPRENEURS' EXPECTATION(S) REGARDING STRATHCLYDE UNIVERSITY'S RESPONSE TO THEIR PLANS

Status of Interviewee	Expectations
Professor & HoD	Fairly favourable response
Snr Lecturer (1st time)	-
Snr Lecturer (2nd time)	-
External Candidate for Chair (1st time)	-
Professor (2nd time)	Principal would agree to his plans
Professor (3rd time)	Principal would agree to his plans
Snr Lecturer#	University would agree to his plans
Professor (1st time)	University would agree to his plans
Professor (2nd time)	University would agree to his plans
Professor (3rd time)	University would agree to his plans
Professor (4th time)	University would agree to his plans
Professor (5th time)	University would agree to his plans
Professor (1st time)	University would agree to his plans, since they would bring in £
Professor (2nd time)	University would agree to his plans

Key:

-no data

FIGURE 298: THE ACTUAL RESPONSE OF STRATHCLYDE UNIVERSITY TO THE FIVE WOULD-BE ACADEMIC ENTREPRENEURS' PLANS

<u>Status of Interviewee</u>	<u>Actual Response</u>
Professor & HoD	Positive: university agreed to participate in joint venture and gave him permission to participate in it, too
Snr Lecturer (1st time)	Positive: university agreed to a departmental commercial arm being established
Snr Lecturer (2nd time)	Mixed: permission to exploit "hard" IP via existing commercial arm refused; ILO doubtful and negative at first about exploitation via company start-up instead; university agreed to participate in joint venture once external investors showed interest
External Candidate for Chair (1st time)	Positive: university gave permission to set up departmental commercial arm
Professor (2nd time)	Positive: Principal gave permission to set up independent company
Professor (3rd time)	Positive: Principal gave permission to set up a second departmental commercial arm
Snr Lecturer#	Positive: university gave permission to set up independent company
Professor (1st time)	Positive and negative: university gave permission to set up independent joint venture but sought a return on its IP which academic regarded as unacceptable; project therefore shelved
Professor (2nd time)	Positive: university jointly participated in acquisition of existing company
Professor (3rd time)	Positive: university positively disposed to idea of setting up a wholly-owned company
Professor (4th time)	Positive: university positively disposed to idea of setting up departmental hybrid academic/commercial unit
Professor (5th time)	Positive: university positively disposed to idea of company being set up
Professor (1st time)	Positive: university agreed to mechanism whereby income generated could be reinvested in research team who generated it
Professor (2nd time)	Positive: university agreed to the departmental commercial arm being converted into an independent academic spin-off company and took an equity share

FIGURE 299: TYPES OF ASSISTANCE PROVIDED BY STRATHCLYDE UNIVERSITY IN RELATION TO THIRTEEN ENTERPRISES STARTED BY ACADEMIC ENTREPRENEURS

Types of Assistance	Provided Initially	Provided Later
Use of equipment	9	6
Use of instrumentation	9	6
Use of accommodation~~	8	5
Use of technicians	2	0
In-house professional advice	11	4
Referral to outside professional advice	5	4
Use of secretarial staff	5	2
Use of communications#	9	5
Funding##	8	6
Miscellaneous*	6	4
Infrastructure**	5	3

Notes:

- ~~ *eg. office space/laboratory space etc plus heating and lighting*
- # *eg. telephone, facsimile etc*
- ## *eg. loan from university funds, guaranteed bank loan, underwriting, seedcorn grant, development grant, successful introduction to venture capitalists/underwriters, purchase of equity stake etc*
- * *eg. photocopying, stationery etc*
- ** *eg. practical assistance with company registration, billing, debt collection, tax, VAT, administration, publicity etc*

FIGURE 300: REASONS CITED BY ACADEMIC ENTREPRENEURS AT STRATHCLYDE UNIVERSITY FOR EXPRESSING GREATER OR LESSER DISSATISFACTION WITH THE ROLE (IF ANY) PLAYED BY THE UNIVERSITY IN HELPING SET UP THEIR BUSINESS(ES)

Categories	Reasons (paraphrased)
Onerous terms [2]	<p>Basically I gave up my company because the university was completely intransigent about the terms on which it required royalties to be paid, even though it did not own the IP outright ... their demands seemed very onerous to me</p> <p>It seems to me that the university was intent on spinning off a company from a former departmental commercial arm at all costs - and having a stake in the future profits of that company, no matter what the cost to the R&D base of the department. I wasn't even consulted about the financial arrangements. They took the products and a "dowry" and left me with a debt and punitive interest charges which will take the department years to repay</p>

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 301: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM STRATHCLYDE UNIVERSITY FOR THEIR COMPANY NOT OBTAINING A LICENSE IN RELATION TO THE IP INITIALLY EXPLOITED

Reasons	N
Licensable IPR eventually exploited via company instead of departmental commercial arm - and company duly sought a license	1
Licensable IPR exploited via departmental commercial arm	1
Business's "products" not licensable	5
Business's licensable "products" licensed in from third parties	1
Total:	8

Figure 302: BUSINESS HISTORY OF ENTERPRISES STARTED BY ACADEMICS FROM STRATHCLYDE UNIVERSITY

Type of Business (outset)	Business Status (1990)	Type of Business (1990)	Involvement of Academic (1990)
H	1	S	ii*
H & S	1	S	i
H	2#	n/a	n/a
S	1	S	i
S	1	H & S	i
S	1	S	i
H	1	H	i
H	2###	n/a	n/a
H	1	H	i
S	3	n/a	n/a
S	4	n/a	n/a
S	4	n/a	n/a
H & S	2###	n/a	n/a
H & S	1	H & S	ii**

Key:

H	"hard"
H & S	a combination of "hard" and "soft"
S	"soft"
1	still in operation
2	no longer in operation
3	only just registered
4	still in the process of being set up
i	still actively involved in this business
ii	no longer involved in this business
n/a	not applicable

Notes:

#	university withdrew license from this business
##	this business on the shelf due to licensing difficulties
###	this business recreated in a different legal framework
*	sold his share of this business and left it
**	no interest in this business in its new legal framework

FIGURE 303: BUSINESS ROLES ASSUMED AT THE OUTSET BY ACADEMIC ENTREPRENEURS FROM STRATHCLYDE UNIVERSITY

Role(s) Assumed	Partner(s)' Roles	Employed Managerial Roles
Technical Director	Chairman (nominee) & non-executive directors	Managing Director
Director#	n/a	n/a
Chairman & Technical Director	Managing Director & Secretary & non-executive directors	n/a
Director#	n/a	n/a
Technical Director	non-executive directors	Managing Director
Director#	n/a	n/a
Managing Director	Technical Director & Projects Director	n/a
Technical Director	Managing Director & Marketing Director	n/a
Managing Director	not yet determined	n/a
Director#	n/a	n/a
No involvement	Managing Director & Technical Director	n/a

Notes:

enterprise traded informally from within the university

NB 3 enterprises omitted from this list since they have yet to assume the formal existence which is intended for them

FIGURE 304: VIEWS OF ACADEMIC ENTREPRENEURS FROM STRATHCLYDE UNIVERSITY ON THE WAY(S) IN WHICH THEIR BUSINESS ACTIVITIES IMPACTED ON THEIR ACADEMIC COMMITMENTS

Category	Impact (paraphrased)
Deleterious to publication rates [3]	
	It reduced the number of papers I wrote ... I never got around to publishing the fundamentally interesting aspects of the research
	It must affect the number of research papers I write
Beneficial to teaching [3]	
	The work of this enterprise helped develop a revolutionary new way to teach this subject - which is now acknowledged all over the world
	Universities are essentially graduate factories and my involvement with the business enables me to expose students to real problems, rather than virtual ones
	It was my job to teach product development, quality control <i>etc</i> in the context of my particular discipline - and this was all related to what my business was trying to do
Beneficial to learning [1]	
	The business obliges me to gain an in-depth knowledge of a topic, rather than a shallow, purely theoretical knowledge
Beneficial to research [2]	
	Research conducted in the company for the company has led to theoretical insights which I can publish
	The contacts I make through the business give me access as an academic to sources of strategic research funding which I might not otherwise have

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of examples of positive/negative impact which fell into the category in question.

FIGURE 305: THE REACTION OF COLLEAGUES TO ACADEMIC ENTREPRENEURSHIP - AS PERCEIVED BY THE SIX ACADEMIC ENTREPRENEURS FROM STRATHCLYDE UNIVERSITY

Categories	Reactions (paraphrased)
<hr/>	
Resentment [3]	
	Once we got devolved budgets and the department had to bear the cost of my secondment to the business, they were very resentful
	A lot of people thought it was unseemly to be involved in such a non-academic activity ... you could feel it in the air
	They were a bit resentful about my commercial activities
Jealousy [1]	
	The other professors, in particular, were jealous of my research-only contract
Snide comments [1]	
	They made a lot of snide remarks about what the business was trying to do
Qualified acceptance [3]	
	The staff in the department accept what I am trying to do business-wise, because they know my main interest is theoretical research, and that I publish more than anyone else in my research group
	I haven't encountered any negative reactions, but then I've taken early retirement; I know other academic entrepreneurs in the department caused concern with regard to their academic commitments
	As long as everyone fulfils their academic commitments, does lots of research and publishes, nobody minds what else they do
<hr/>	

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reactions which fell into the category in question. The number of mentions exceeds the number of academic entrepreneurs because some got different reactions from different colleagues.

FIGURE 306: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM STRATHCLYDE UNIVERSITY FOR LEAVING/INTENDING TO LEAVE THE UNIVERSITY

Categories	Reasons (paraphrased)
Promotion prospects [1]	
	My interests happened to involve the commercial exploitation of my research findings - and I knew I would not be promoted if I pursued those interests
Personal fulfilment [1]	
	I need new challenges ... I'm not the kind of academic who gets a Chair and then sits around and waits for his pension to arrive
Control of commercialisation [1]	
	The first time I developed something exploitable, it never got beyond the working prototype stage, because the university was not in a position to take it further. This time, I was determined that it should be taken further. The only person who could take it forward was me, and the early retirement scheme provided the ideal framework in which to do that

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *i.e.* the number of reasons which fell into this category. The total number of reasons (3) exceeds the number of academic entrepreneurs who left Strathclyde (2) because one gave more than one reason.

FIGURE 307: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM STRATHCLYDE UNIVERSITY FOR NOT LEAVING THE UNIVERSITY TO DEVOTE MORE TIME TO THEIR BUSINESS(ES) INTERESTS

Categories	Reasons (paraphrased)
<hr/>	
Main interests [2]	
	My main interest is advancing theoretical knowledge, rather than the businesses I co-founded
	My main interest lies in advancing knowledge through research and devising better teaching methods, not running a business
Profit levels [1]	
	None of the businesses are in a position yet to pay half my salary
Security [1]	
	For historical reasons, I haven't built up an adequate pension and I need to build one up if I am to be secure once I retire
<hr/>	

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 308: SOURCE(S) OF IDEA(S) EXPLOITED BY ACADEMIC ENTREPRENEURS AT YORK UNIVERSITY

Categories	Source(s) of Idea(s) (paraphrased)
<hr/>	
Teaching [1]	<ul style="list-style-type: none"> Outcome of student project
Grant-aided research [several**]	<ul style="list-style-type: none"> Outcome of research done for Research Councils, charities etc
Expertise [several**]	<ul style="list-style-type: none"> Academic's own expertise
Contract research/consultancy [several**]	<ul style="list-style-type: none"> Consultancy Contract research
Supposed demand [1]	<ul style="list-style-type: none"> Belief in market opportunity
Demand [1]	<ul style="list-style-type: none"> Knowledge of market opportunity
<hr/>	

Key:

****** Some enterprises were founded to exploit a variety of things - too numerous to identify and count.

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of sources of ideas which fell into the category in question. These figures relate to the source(s) of the idea for each enterprise with which the five interviewees are associated - 5 *in toto*; the total exceeds the aggregate number of enterprises associated with these interviewees, because where two enterprises were concerned, the idea came from more than one source.

FIGURE 309: ACADEMICS' MOTIVE(S) FOR TRYING TO EXPLOIT THEIR IDEAS ENTREPRENEURIALY (YORK UNIVERSITY)

Categories Reason(s) Given

Income generation [4]

	To keep my wife and child in a style which was out of the question on a university salary
	To generate £ to do research in an area receiving diminishing public funding
	To generate £ to be able to pay the salaries of researchers and technicians inbetween contracts
	To financially benefit the university and the entrepreneurs

University's preferred mode of exploitation [2]

	The university preferred the technology to be exploited via a separate company, rather than a commercial arm of the department
	Due to concern about liability, the university wished the service to be offered by a separate company, rather than the research group

Personal fulfilment [2]

	Work at the university was not mentally challenging, being preoccupied with solving trivial problems
	Because it offered a change of career

Third party benefit [1]

	To benefit industry
--	---------------------

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reasons which fell into the category in question. These figures relate to the reasons given by the 5 interviewees for wishing to pursue the 5 enterprises with which, as a group, they are associated; the total exceeds the aggregate number of enterprises associated with these interviewees, because some interviewees gave more than one reason.

FIGURE 310: REPRESENTATIVES OF YORK UNIVERSITY WITH WHOM THE FIVE ENTREPRENEURIAL ACADEMICS DISCUSSED THEIR PLANS

Status of Interviewee	University Representatives (in sequence)
Lecturer	HoD > Leave of Absence Committee
Senior Lecturer	n/a*
Lecturer	n/a#
Research Fellow (1st time)	n/a##
Reader (2nd time)	Finance Officer > Vice-Chancellor
Fellow (1st time)	n/a**
Fellow (2nd time)	Finance Officer > Vice-Chancellor

Key:

n/a not appropriate
> then

Note:

- * Company had already been set up by the time he became a partner
- # Finance Officer approached him, suggesting company start-up
- ## Registrar approached him, after he deliberately flouted rules relating to signatures on contracts; he then spoke with Finance Officer and Vice-Chancellor
- ** Interviewee was not a member of staff at this time

FIGURE 311: OBJECTIVES OF THE DISCUSSIONS BETWEEN FOUR ENTREPRENEURIAL ACADEMICS AND REPRESENTATIVES OF YORK UNIVERSITY

Status of Interviewee	Objective
Lecturer	To be given a year's leave of absence to set up a company
Senior Lecturer	n/a*
Lecturer	n/a (to get the academic to set up a company to minimise the risk to the university)#
Research Fellow (1st time)	n/a (to get university to agree to setting up a wholly-owned company)~~
Reader (2nd time)	To get university to agree to converting the wholly-owned company to a joint venture with venture capitalists and academics
Fellow (1st time)	n/a**
Fellow (2nd time)	Advice on the best way forward

Key:

n/a not appropriate

Notes:

- * Company had already been set up by the time he became a partner
- # Finance Officer approached academic, suggesting company start-up
- ** Interviewee was not a member of staff at this time
- ~~ Although this would-be academic entrepreneur did not make the initial approach to the university, by deliberately flouting rules relating to signatures on contracts and with this objective in mind he engineered a situation in which the university was bound to approach him

FIGURE 312: ENTREPRENEURIAL ACADEMICS' EXPECTATIONS REGARDING THE OUTCOME OF DISCUSSIONS WITH REPRESENTATIVES OF YORK UNIVERSITY

Status of Interviewee	Expectations
Lecturer	Uncertain what to expect
Senior Lecturer	n/a*
Lecturer	n/a#
Research Fellow (1st time)	n/a (uncertain what to expect)~~
Reader (2nd time)	Felt prospect of £0.25m would engender a positive response
Fellow (1st time)	n/a* *
Fellow (2nd time)	Uncertain what to expect - but did not feel dependent on university's agreement

Key:

n/a not appropriate

Note:

* Company had already been set up by the time he became a partner

Finance Officer approached him, suggesting company start-up

** Interviewee was not a member of staff at this time

~~ Although this would-be academic entrepreneur did not make the initial approach to the university, by deliberately flouting rules relating to signatures on contracts and with this objective in mind he engineered a situation in which the university was bound to approach him

FIGURE 313: THE ACTUAL RESPONSE OF YORK UNIVERSITY TO THE FIVE WOULD-BE ACADEMIC ENTREPRENEURS' PLANS

Status of Interviewee	Actual Response
Lecturer	Positive: granted a year's leave of absence
Senior Lecturer	n/a*
Lecturer	n/a (Positive: joint agreement that an independent academic spin-off company should be set up)#
Research Fellow (1st time)	n/a (Positive: university agreed to convert research unit into wholly-owned company)~~
Reader (2nd time)	Positive: university agreed to convert wholly-owned company into joint venture with venture capitalists and academics
Fellow (1st time)	n/a* *
Fellow (2nd time)	Positive: university debated pros and cons of various exploitation routes; a mutually satisfying route was agreed

Key:

n/a not appropriate

Note:

* Company had already been set up by the time he became a partner

Finance Officer approached academic, suggesting company start-up

** Interviewee was not a member of staff at this time

~~ Although this would-be academic entrepreneur did not make the initial approach to the university, by deliberately flouting rules relating to signatures on contracts and with this objective in mind he engineered a situation in which the university was bound to approach him

FIGURE 314: TYPES OF ASSISTANCE PROVIDED BY YORK UNIVERSITY IN RELATION TO FIVE ENTERPRISES STARTED BY ACADEMIC ENTREPRENEURS

Types of Assistance	Provided Initially	Provided Later
Use of equipment	5	3
Use of instrumentation	5	3
Use of accommodation~~	5	4
Use of technicians	3	1
In-house professional advice	1	0
Referral to outside professional advice	0	0
Use of secretarial staff	3	1
Use of communications#	5	5
Funding##	3	2
Miscellaneous*	4	0
Infrastructure**	0	0

Notes:

~~ *eg. office space/laboratory space etc plus heating and lighting*

eg. telephone, facsimile etc

eg. loan from university funds, guaranteed bank loan, underwriting, seedcorn grant, development grant, successful introduction to venture capitalists/underwriters, purchase of equity stake etc

* *eg. photocopying, stationery etc*

** *eg. practical assistance with company registration, billing, debt collection, tax, VAT, administration, publicity etc*

FIGURE 315: REASONS CITED BY ACADEMIC ENTREPRENEURS AT YORK UNIVERSITY FOR EXPRESSING GREATER OR LESSER DISSATISFACTION WITH THE ROLE (IF ANY) PLAYED BY THE UNIVERSITY IN HELPING SET UP THEIR BUSINESS(ES)

Categories	Reasons (paraphrased)
Financial profligacy [1]	
	The university forced the business to spend £000s on an expensive London lawyer in pursuit of charity status, which any honest person would have told them straight away was not tenable in the eyes of the Inland Revenue - and the reason for this profligacy is that the university felt that earning profits was not a good thing
Risk aversion [1]	
	I'm really disappointed that the university would not consider taking even a small equity stake in the company, partly out of loyalty and partly because it is missing out on something good - but the university is obsessively worried about incurring risks

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *ie.* the number of reasons which fell into this category

FIGURE 316: REASONS GIVEN BY ACADEMIC ENTREPRENEURS FROM YORK UNIVERSITY FOR THEIR COMPANY NOT OBTAINING A LICENSE IN RELATION TO THE IP INITIALLY EXPLOITED

Reasons	N
Business's original "product(s)" not licensable	2
Business founded prior to employment at York	1
Business founded after academic left York	1
Total:	4

FIGURE 317: BUSINESS HISTORY OF ENTERPRISES STARTED BY ACADEMICS FROM YORK UNIVERSITY

Type of Business (outset)	Business Status (1990)	Type of Business (1990)	Involvement of Academic (1990)
H & S	1#	H & S	ii*
H & S	1	H & S	i
S	1##	S	i
S	2###	n/a	n/a
H & S	1####	H, S~~	i**
H & S	1	H & S	i
H & S	1	H & S	i

Key:

H	"hard"
H & S	a combination of "hard" and "soft"
S	"soft"
1	still in operation
2	this business wound up
i	still actively involved in this business
ii	no longer involved in this business
n/a	not applicable

Notes:

#	name of this business now changed
##	in a different legal framework
###	this business wound up
####	this business split into two and acquired by two different companies
~~	this business split into two; one half "hard", the other half "soft"
*	sold his share of this business and left it
**	as an employee

FIGURE 318: BUSINESS ROLES ASSUMED AT THE OUTSET BY ACADEMIC ENTREPRENEURS FROM YORK UNIVERSITY

Role(s) Assumed	Partner(s)' Roles	Employed Managerial Roles
Managing Director (joint)	Managing Director (joint)	n/a
director	Secretary & directors	n/a
Chairman	directors (without portfolio)	Business Manager & Projects Manager
Managing Director (employed as such)	n/a	n/a
Managing Director	Research Director & Marketing Director & non-executive director	n/a
Managing Director	sleeping partner	n/a
Secretary	directors	n/a

FIGURE 319: VIEWS OF ACADEMIC ENTREPRENEURS FROM YORK UNIVERSITY ON THE WAY(S) IN WHICH THEIR BUSINESS ACTIVITIES IMPACTED ON THEIR ACADEMIC COMMITMENTS

Category	Impact (paraphrased)
<hr/>	
Deleterious to teaching [1]	
	The pressure of business activities means I sometimes end up with less good teaching material than I would like
Beneficial to teaching [3]	
	The training undertaken on behalf of the company brings me into contact with people with interesting problems, which are a good source of student projects
	The consultancy and contract research done on behalf of the company is a good source of final year undergraduate projects
	Our students are often more interested than my academic colleagues in applied research, and the company can give them some insights into this
Beneficial to research [1]	
	Whenever the university decides it is interested in £ from applied research, the company helps me to generate applied research contracts for the department
Bridge to industry [1]	
	The company acts as a very necessary interface between the university and industry
<hr/>	

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of examples of positive/negative impact which fell into the category in question.

FIGURE 320: THE REACTION OF COLLEAGUES TO ACADEMIC ENTREPRENEURSHIP - AS PERCEIVED BY THE FIVE ACADEMIC ENTREPRENEURS FROM YORK UNIVERSITY

Categories Reactions (paraphrased)

Jealousy [1]

_____ The little green eye of envy was cast over my activities because it enabled me to generate £ for the enterprise - and for me

Schadenfreude [1]

_____ A lot of them seemed to hope I would fail

Unknown quantity [2]

_____ I know from my previous university that there is the potential for sour grapes, but my position in the department cuts me off from other members of staff, so I don't really know

_____ I'm not really uptodate on what they think because we have tremendous communication problems in the department

Acceptance [2]

_____ They seem to accept it, probably because they know the university forced me to set up the company - or give up my research

_____ It didn't cause any negative reactions, probably because I left within a couple of months of setting up the company

Support [1]

_____ Some staff wished me well in my endeavours

Note:

The figures in square brackets after the category name indicate the number of "mentions" - ie. the number of reactions which fell into the category in question. The number of mentions exceeds the number of academic entrepreneurs because one got different reactions from different colleagues.

**FIGURE 321: REASONS GIVEN BY ACADEMIC ENTREPRENEURS
FROM YORK UNIVERSITY FOR LEAVING THE UNIVERSITY**

Categories	Reasons (paraphrased)
<hr/>	
Personal fulfilment [1]	
	To make lots of money, to keep my family in a style which could not be achieved on an academic salary
Not a natural academic [1]	
	I am not a natural academic; my period in academia was no more than a brief interlude in a life otherwise spent in industry
University ultimatum [1]	
	I had no great wish to leave the university. The university gave me an ultimatum. The company depended on me. We reached a compromise solution.
<hr/>	

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *ie.* the number of reasons which fell into this category

**FIGURE 322: REASONS GIVEN BY ACADEMIC ENTREPRENEURS
FROM YORK UNIVERSITY FOR NOT LEAVING THE UNIVERSITY TO
DEVOTE MORE TIME TO THEIR BUSINESS(ES) INTERESTS**

Categories	Reasons (paraphrased)
-------------------	------------------------------

Career aspirations [1]

	Despite the 1960s "bulge" and the difficulty attached to getting promotion, I want an academic career
--	---

Link with academia [1]

	It is important to me - and the business - to retain a strong link with academia
--	--

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *i.e.* the number of reasons which fell into this category

FIGURE 323: ACADEMICS' MOTIVES FOR TRYING TO EXPLOIT THEIR IDEAS ENTREPRENEURially - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

Categories Reasons Given

Personal Outlook [7]

- _____ Enthusiasm for seeing ideas applied and used
- _____ Always more interested in developing and implementing research findings than moving on to new basic research
- _____ The research was funded by an agency which relies on companies to exploit any resulting IP - but no existing company was interested in exploiting it
- _____ It would have been stupid not to take advantage of the opportunity
- _____ Unwillingness, as a "post-doc", to be treated by industry like a newly qualified graduate
- _____ Wish to see some value other than academic career development placed on research findings
- _____ No interest in pursuing a career in academia

Self-Benefit [13]

- _____ To have fun
- _____ For the intellectual challenge
- _____ Because it offered a change of career
- _____ A way of avoiding having to pay schedule E tax on consultancy earnings
- _____ Shell company on the Isle of Man to reduce tax liability on royalties from a particular license
- _____ To generate an independent source of funding to keep research team intact
- _____ To generate an income for themselves (and the university)
- _____ To generate income for the partners/entrepreneurs
- _____ To keep wife and child in a style which was out of the question on a university salary
- _____ To generate £ to do research in an area receiving diminishing public funding

Second-Party Benefit [16]

- _____ To generate an independent source of funding to keep technicians and/or research assistants on staff when university contracts expired or the Research Councils invoked the 6-year rule
- _____ To generate an income for the department and/or the university
- _____ To make industry pay commercial prices for the expertise it usually got "on the cheap" from the department
- _____ To attract DTI funding to the department/university
- _____ External requests for the device to be build interfered with departmental work
- _____ To help the department attain a world-class reputation in this field
- _____ To solve a common problem encountered in teaching a particular subject

Third-Party Benefit [14]

- Universities are graduate factories and entrepreneurial academics, having been exposed to commercial reality, will turn out more useful graduates
- To solve real problems/respond to commercial opportunities without impinging on the department/university
- To benefit/provide a resource for industry
- Universities receive lots of public funding and should give the country a return on its investment
- To help someone he knew socially to achieve a work-related target
- To set up in business a talented Masters student who wished to go into business on his own account

Technology Promotion [2]

- To promote the technology through collaborative projects with industry
- As a vehicle to obtain a license from the MoD to exploit the technology

Suggestibility [3]

- The BTG was very keen to exploit the technology via a start-up company
- The university preferred the technology to be exploited via a separate company, rather than a commercial arm of the department
- Due to concern about liability, the university wished the service to be offered by a separate company, rather than the research group

Note:

The figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of sources which fell into the category in question

FIGURE 324: NUMBERS OF BUSINESSES FOUNDED BY THE 25 ACADEMIC ENTREPRENEURS - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

Numbers of Businesses Founded						
6	5	4	3	2	1	0
1 (4%)	1 (4%)	0	1 (4%)	6 (24%)	15 (60%)	1**(4%)

Note:

** This particular academic entrepreneur became a partner after the business had been founded

FIGURE 325: AGE OF THE 24 ACADEMIC ENTREPRENEURS ON FOUNDING/CO-FOUNDING THEIR FIRST BUSINESS - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK**

Age Bands	N	%
20-24	0	0
25-29	4	17
30-34	3	13
35-39	5	21
40-44	4	17
45-49	4	17
50-54	4	17
55-59	0	0
Totals:	24	102##

Note

- **** The 25th did not found the business in which he was a partner; he was invited to join it after it had been running for a year
- ##** Total exceeds 100% due to rounding up

FIGURE 326: AGE OF THE 24 ACADEMIC ENTREPRENEURS ON
FOUNDING/CO-FOUNDING THEIR BUSINESSES - UNIVERSITIES OF HULL,
LIVERPOOL, STRATHCLYDE AND YORK**

Age Bands	B u s i n e s s e s						Total
	1st/Only	2nd	3rd	4th	5th	6th	
20-24	-	-	-	-	-	-	-
25-29	4 (10%)	-	-	-	-	-	4 (10%)
30-34	3 (7%)	1 (2%)	-	-	-	-	4 (10%)
35-39	5 (12%)	2 (5%)	-	-	-	-	7 (17%)
40-44	4 (10%)	3 (7%)	1 (2%)	1 (2%)	-	-	9 (21%)
45-49	4 (10%)	1 (2%)	2 (5%)	1 (2%)	2 (5%)	-	10 (24%)
50-54	4 (10%)	3 (7%)	-	-	-	1 (2%)	8 (19%)
55-59	-	-	-	-	-	-	-
Totals:	24 (57%)	10 (24%)	3 (7%)	2 (5%)	2 (5%)	1 (2%)	42(101%)##

Note:

****** The 25th did not found the business in which he was a partner; he was invited to join it after it had been running for a year

Total exceeds 100% due to rounding up

FIGURE 327: STATUS OF THE ACADEMIC ENTREPRENEURS AT THE TIME OF FOUNDING/CO-FOUNDING THEIR BUSINESS(ES) - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Businesses					
	1st/Only	2nd	3rd	4th	5th	6th
Hull	Res Fellow	-	-	-	-	-
	Professor/1-	-	-	-	-	-
	Lecturer	-	-	-	-	-
	Lecturer#	Lecturer	-	-	-	-
	Lecturer	Reader	-	-	-	-
	Professor/2	-	-	-	-	-
Liverpool	Professor/3	-	-	-	-	-
	Snr Res Fell	-	-	-	-	-
	Snr Lecturer	-	-	-	-	-
	n/a##	Snr Lecturer	Reader	Reader	Reader	Reader
	Professor/2	-	-	-	-	-
	Professor/2	Professor/2	-	-	-	-
	Lecturer	-	-	-	-	-
Snr Lecturer	-	-	-	-	-	
Strathclyde	Professor/2	-	-	-	-	-
	Snr Lecturer	Snr Lecturer	-	-	-	-
	Professor/1	Professor/2	Professor/1	-	-	-
	Snr Lecturer	-	-	-	-	-
	Professor/2a	Professor/2a	Professor/2a	Professor/2a	Professor/2a	-
	Professor/1	Professor/2	-	-	-	-
York	Lecturer	-	-	-	-	-
	Lecturer	-	-	-	-	-
	Reader	Reader	-	-	-	-
	n/a##	Fellow	-	-	-	-

Key:

Professor/1	-	personal Chair
Professor/2	-	head of department
Professor/2a	-	head of a division within a department
Professor/3	-	current/former Dean

Notes:

#	employed as a lecturer in another university at the time
##	not employed as a member of staff in a university at the time

NB The details of just four academic entrepreneurs are given in relation to York since the fifth did not found the business but became a partner a year after it had been founded

FIGURE 328: ACADEMIC ENTREPRENEURS WHO PARTIALLY OR WHOLLY LEFT THEIR UNIVERSITY TO PURSUE THEIR BUSINESS INTERESTS -"PUSHED" OR "PULLED"? - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Pushed	Pulled	Combination	N
Hull	3 (75%)	0	1 (25%)	4
Liverpool	1 (50%)	1 (50%)	0	2
Strathclyde	2 (67%)	1 (33%)	0	3
York	3 (100%)	0	0	3
Totals:	9 (75%)	2 (17%)	1 (8%)	12

FIGURE 329: ACADEMIC ENTREPRENEURS WHO STAYED IN THEIR UNIVERSITY WHILE PURSUING THEIR BUSINESS INTERESTS - "PULLED" OR "DETERRED" FROM LEAVING? - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Pulled	Deterred	No Data	N
Hull	2 (100%)	0	0	2
Liverpool	2 (33%)	2 (33%)	2 (33%)	6
Strathclyde	2 (50%)	2 (50%)	0	4##
York	2 (100%)	0	0	2
Totals:	8 (57%)	4 (29%)	2 (14%)	14## (100%)

Note:

Adding together the number of academic entrepreneurs from Strathclyde detailed in Figure 327, we get 7, not 6; this is because one academic entrepreneur reverted from a part-time to a full-time contract with the university

FIGURE 330: FOUNDATION DATES OF THE 42 BUSINESSES FOUNDED BY THE ACADEMIC ENTREPRENEURS - UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

Date Bands	B u s i n e s s e s						Total
	1st/Only	2nd	3rd	4th	5th	6th	
1961-65	1 (2%)	-	-	-	-	-	1 (2%)
1966-70	-	-	-	-	-	-	-
1971-75	3 (7%)	1 (2%)	-	-	-	-	4 (10%)
1976-80	6 (14%)	-	-	-	-	-	6 (14%)
1981-85	7 (17%)	3 (7%)	2 (5%)	1 (2%)	1 (2%)	-	14 (33%)
1986-90	6 (14%)	6 (14%)	2 (5%)	1 (2%)	1 (2%)	1 (2%)	17 (40%)
Totals:	23 (55%)	10 (24%)	4 (10%)	2 (5%)	2 (5%)	1 (2%)	42 (99%)##

Note:

Total = <100% due to rounding

FIGURE 331: BUSINESS ROLES ASSUMED AT THE OUTSET IN 39 INSTANCES BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK**

University	Roles Assumed							N
	1	2	3	4	5	6	7	
Hull	4 (40%)	3 (30%)	1 (10%)	1 (10%)	1 (10%)	0	0	10
Liverpool	2 (14%)	1 (7%)	1 (7%)	1 (7%)	4 (29%)	4 (29%)	1 (7%)	14
S'Clyde	2 (17%)	1 (8%)	0	4 (33%)	4 (33%)	0	1 (8%)	12
York	4 (57%)	1 (14%)	1 (14%)	0	1 (14%)	0	0	7
Totals:	12 (28%)	6 (14%)	3 (7%)	6 (14%)	10 (23%)	4 (9%)	2 (5%)	43

Key:

- 1 managing director
- 2 chairman
- 3 company secretary
- 4 technical director
- 5 other director/director without portfolio
- 6 partner
- 7 no role played

Note:

** one enterprise was excluded because it was a shell company; two were excluded because no data were obtained

NB

N refers to the aggregate number of roles played by academic entrepreneurs from the university in question, not to the number of academic entrepreneurs

FIGURE 332: SOURCE(S) OF IDEA(S) EXPLOITED BY ACADEMIC ENTREPRENEURS - CATEGORIES AND DIMENSIONS

Categories Dimensions

Contract Research/Consultancy [12+]**

- _____ Contract research
- _____ Consultancy

Supposed demand/market [8]

- _____ Acquired existing company which had gone into receivership
- _____ Commissioned consultant to identify opportunities for exploitation within department
- _____ Belief there was a market opportunity

Demand [7]

- _____ Acquired a division of an existing company which was surplus to requirements
- _____ Way of accommodating requests for consultancy totalling £0.25m
- _____ To act as R&D arm of another company
- _____ Way of coping with burgeoning demand which would take the pressure off the department
- _____ Demand for product (from other researchers and/or industry)
- _____ Knowledge of market opportunity

Academic tool [6]

- _____ Desire to overcome specific teaching difficulties
- _____ Desire to improve on existing product to save scarce resources
- _____ Software required in the process of grant-aided research
- _____ Software developed as a research tool

Expertise [several]**

- _____ Academic's own expertise

Grant-aided research [5+]**

- _____ Peripheral to fundamental PhD research
- _____ Outcome of research done for Research Councils or charities or NGOs

Role models [2]

- _____ Desire to improve on former commercial arm of department
- _____ Knowledge of such hybrid institutes elsewhere in UK and US

Tax avoidance [1]

_____ Shell company on the Isle of Man to receive the royalties from a product made by a company founded earlier by the academic entrepreneur

Collaboration [1]

_____ Belief that collaboration with academic from another university could lead to an exploitable product

Teaching [1]

_____ Outcome of student project

Note:

The figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of sources which fell into the category in question

****** Some enterprises were founded to exploit a variety of things - too numerous to identify and count

**FIGURE 333: GROWTH (MEASURED BY TURNOVER) OF THE ENTERPRISES
FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM THE
UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK****

University	Turnover/Age	N	Aggregate Turnover/Age	Growth Indices
Hull	£35,714 <i>per annum</i> £166,667 <i>per annum</i> £70,000 <i>per annum</i> £7,000 <i>per annum</i> £50,000 <i>per annum</i> £277,778 <i>per annum</i>	6*	£607,159	101.19
Liverpool	£150,000 <i>per annum</i> £1,500 <i>per annum</i> £10,000 <i>per annum</i> £6,000 <i>per annum</i> £150,000 <i>per annum</i> £16,000 <i>per annum</i> £52,000 <i>per annum</i> £44,118 <i>per annum</i> £48,000 <i>per annum</i> £66,667 <i>per annum</i> £25,000 <i>per annum</i> £175,000 <i>per annum</i>	12*	£744,285	62.02
Strathclyde	£40,000 <i>per annum</i> £8,333 <i>per annum</i> £45,000 <i>per annum</i> £500,000 <i>per annum</i> £0,000 <i>per annum</i> £200,000 <i>per annum</i> £45,454 <i>per annum</i>	7#	£838,787	119.83
York	£333,333 <i>per annum</i> £75,000 <i>per annum</i> £75,000 <i>per annum</i> £166,667 <i>per annum</i> £100,000 <i>per annum</i>	5##	£750,000	150.00

Notes:

- ** Growth was calculated by taking the annual turnover in 1990 (or the last year the enterprise was still in operation or the last year in which the interviewee was associated with the enterprise - *ie.* between 1986 and 1990), dividing the annual turnover for each enterprise by the age of the enterprise in years, adding together the resulting figures for each enterprise with which the university concerned was associated and then calculating the average
- no data elicited in relation to 2 enterprises
- # no data elicited in relation to 3 enterprises, and no turnover figures et in relation to 4 enterprises founded during 1989-90
- ## 1 enterprise excluded since the annual turnover regularly fluctuated between £50,000 and £500,000.

FIGURE 334: GROWTH (MEASURED BY NUMBER OF EMPLOYEES) OF THE ENTERPRISES FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK**

University	Employee Nos/Age	N	Aggregate Employee Nos/Age	Growth Indices
Hull	2.14 <i>per annum</i> 1.00 <i>per annum</i> 3.83 <i>per annum</i> 0.20 <i>per annum</i> 1.00 <i>per annum</i> 0.20 <i>per annum</i> 1.67 <i>per annum</i> 6.67 <i>per annum</i>	8	16.71	2.09
Liverpool	0.00 <i>per annum</i> 0.00 <i>per annum</i> 0.00 <i>per annum</i> 0.40 <i>per annum</i> 0.40 <i>per annum</i> 4.83 <i>per annum</i> 0.00 <i>per annum</i> 0.60 <i>per annum</i> 0.00 <i>per annum</i> 0.29 <i>per annum</i> 0.80 <i>per annum</i> 2.00 <i>per annum</i> 3.00 <i>per annum</i> 4.50 <i>per annum</i>	14	16.82	1.20
Strathclyde	2.00 <i>per annum</i> 0.50 <i>per annum</i> 12.50 <i>per annum</i> 0.00 <i>per annum</i> 0.00 <i>per annum</i> 0.00 <i>per annum</i> 9.00 <i>per annum</i> 0.00 <i>per annum</i> 0.00 <i>per annum</i> 1.00 <i>per annum</i>	10#	25.00	2.5
York	7.50 <i>per annum</i> 2.50 <i>per annum</i> 1.00 <i>per annum</i> 3.00 <i>per annum</i> 8.33 <i>per annum</i> 2.50 <i>per annum</i>	6	24.83	4.14

Notes:

** Growth was calculated by taking the number of employees which each enterprise had in 1990 (or the last year the enterprise was still in operation or the last year in which the interviewee was associated with the enterprise - i.e. between 1986 and 1990), dividing that number by the age in years of the enterprise in question, adding together the resulting figures for each enterprise with which the university concerned was associated and then calculating the average

no data elicited in relation to 4 enterprises

**FIGURE 335: BUSINESS CHARACTER BY BUSINESS PERFORMANCE
(MEASURED BY ANNUAL TURNOVER) - DATA ON 30** OF THE BUSINESSES
FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM THE
UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK**

University	"Hard"		"Soft"		Combination	
	1	2	1	2	1	2
Hull	2	£2,570,000 (64%)	2	£185,000 (5%)	2	£1,250,000 (31%)
Liverpool	5	£1,282,000 (26%)	4	£2,130,000 (44%)	3	£1,450,000 (30%)
Strathclyde	3	£290,000 (17%)	3	£950,000 (55%)	1	£500,000 (29%)
York	0		1	£150,000 (4%)	4	£3,350,000 (96%)
Totals:	10 (33%)		10 (33%)		10 (33%)	

Key:

- 1 Number of businesses
- 2 Aggregate annual turnover in 1990 (or the last year the enterprise was still operating or the last year in which the interviewee was associated with the enterprise)

Notes:

- ** 10 businesses had to be excluded due to absence of turnover data; 1 was excluded because it was a shell company which could not be categorised as "hard" or "soft"

**FIGURE 336: BUSINESS CHARACTER BY BUSINESS PERFORMANCE
(MEASURED BY GROWTH) - DATA ON 30** OF THE BUSINESSES
FOUNDED/CO-FOUNDED BY ACADEMIC ENTREPRENEURS FROM THE
UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK**

University	"Hard"		"Soft"		Combination	
	1	2	1	2	1	2
Hull	2	£347,778 (57%)	2	£57,000 (9%)	2	£202,381 (33%)
Liverpool	5	£229,500 (31%)	4	£291,785 (39%)	3	£223,000 (30%)
Strathclyde	3	£245,000 (29%)	3	£548,333 (65%)	1	£45,454 (5%)
York	0		1	£75,000 (10%)	4	£675,000 (90%)
Totals:	10 (33%)		10 (33%)		10 (33%)	

Key:

- 1 Number of businesses
- 2 Growth in 1990 (or the last year the enterprise was still operating or the last year in which the interviewee was associated with the enterprise)

Notes:

- ** 10 businesses had to be excluded due to absence of turnover data; 1 was excluded because it was a shell company which could not be categorised as "hard" or "soft"

FIGURE 337: PRINCIPAL OBJECTIVES OF 22 OF THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK IN DISCUSSING THEIR ENTREPRENEURIAL PLANS WITH REPRESENTATIVE(S) OF THEIR UNIVERSITY

University	Objectives						N
	1	2	3	4	5	6	
Hull	2 (33%)	2 (33%)	1 (17%)	0	1 (17%)	0	6
Liverpool	5 (56%)	3 (33%)	1 (11%)	0	0	0	9
Strathclyde	6 (43%)	3 (21%)	2 (14%)	2 (14%)	0	1 (7%)	14
York	0	0	1 (33%)	0	1 (33%)	1 (33%)	3
Totals:	13 (41%)	8 (25%)	5 (16%)	2 (6%)	2 (6%)	2 (6%)	32

Key:

- 1 To set up departmental commercial arm
- 2 To set up independent academic spin-off company
- 3 To set up a joint venture with the university
- 4 To set up a wholly-owned university company
- 5 To get advice on the best way forward
- 6 Other

Note:

N refers to the number of objectives - *ie.* it relates to the number of instances that would-be academic entrepreneurs from the university in question approached representatives of their university to discuss their entrepreneurial plans; it does not refer to the number of entrepreneurs

FIGURE 338: THE 22 ACADEMIC ENTREPRENEURS' EXPECTATIONS OF THE OUTCOME OF THEIR DISCUSSION(S) WITH REPRESENTATIVE(S) OF THEIR UNIVERSITY

University	E x p e c t a t i o n s						N
	1	2	3	4	5	6	
Hull	3 (50%)	0	1 (17%)	0	1 (17%)	1 (17%)	6
Liverpool	4 (44%)	1 (11%)	0	2 (22%)	0	2 (22%)	9
Strathclyde	11 (79%)	0	0	0	0	3 (21%)	14
York	1 (33%)	0	0	2 (67%)	0	0	3
Totals:	19 (59%)	1 (3%)	1 (3%)	4 (13%)	1 (3%)	6 (19%)	32

Key:

- 1 The university would agree to their proposals
- 2 Hopeful the university would agree to their proposals
- 3 No expectations
- 4 Uncertain what to expect
- 5 Doubtful that the university would agree to their proposals
- 6 No data

FIGURE 339: THE FOUR UNIVERSITIES' ACTUAL RESPONSE TO THE ENTREPRENEURIAL PROSPOSALS MADE BY THE 22 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK

University	Actual Response					N
	1	2	3	4	5	
Hull	0	4 (67%)	0	2 (33%)	0	6
Liverpool	1 (11%)	6 (67%)	1 (11%)	0	1 (11%)	9
Strathclyde	0	12 (86%)	2 (14%)	0	0	14
York	0	3 (100%)	0	0	0	3
Totals:	1 (3%)	25 (78%)	3 (9%)	2 (6%)	1 (3%)	32

Key:

- 1 Very positive
- 2 Positive
- 3 Positive and negative
- 4 Zero
- 5 Negative

FIGURE 340: TYPES OF ASSISTANCE OBTAINED BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK IN RELATION TO 31 OF THE 42 BUSINESSES FOUNDED

Types of Assistance	Provided Initially	Provided Later
Use of equipment	12%	13%
Use of instrumentation	11%	12%
Use of accommodation~~	14%	15%
Use of technicians	5%	4%
In-house professional advice	8%	4%
Referral to outside professional advice	3%	4%
Use of secretarial staff	7%	7%
Use of communications#	15%	17%
Funding##	9%	9%
Miscellaneous*	11%	11%
Infrastructure**	7%	7%
	102%	103%

Notes:

~~ eg. office space/laboratory space *etc* plus heating and lighting

eg. telephone, facsimile *etc*

eg. loan from university funds, guaranteed bank loan, underwriting, seedcorn grant, development grant, successful introduction to venture capitalists/underwriters, purchase of equity stake *etc*

* eg. photocopying, stationery *etc*

** eg. practical assistance with company registration, billing, debt collection, tax, VAT, administration, publicity *etc*

NB Percentages total >100% due to rounding up

FIGURE 341: NUMBERS OF THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK WHO OBTAINED A LICENSE TO EXPLOIT THE IP IN QUESTION

University	Number of "Hard" or Combination Enterprises	Number Obtaining a License	Total Number of Enterprises
Hull	6 (75%)	0	8
Liverpool	7 (50%)	0	14
Strathclyde	8 (57%)	6 (75%)	14
York	4 (67%)	1 (25%)	6
Totals:	25 (59%)	7 (28%)	42

FIGURE 342: REASONS GIVEN BY 18 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK FOR THEIR BUSINESSES NOT ACQUIRING A LICENSE FROM THEIR UNIVERSITY

University	Reasons						N1	N2
	1	2	3	4	5	6		
Hull	2 (33%)	0	2 (33%)	2 (33%)	0	0	6	6
Liverpool	6 (67%)	1 (11%)	0	2 (22%)	0	0	7	9
Strathclyde	0	0	0	0	1 (50%)	1 (50%)	2	2
York	2 (67%)	0	0	0	0	1 (33%)	3	3
Totals:	10 (50%)	1 (5%)	2 (10%)	4 (20%)	1 (5%)	2 (10%)	18	20

Key:

N1 Number of enterprises

N2 Number of reasons

1 University did not own the IP in question

2 University believed not to have owned the IP in question

3 University made no claim of ownership over the IP in question

4 University did not require a license for the IP in question

5 IP in question exploited via the commercial arm of a department

6 The IP in question was created by/licensed in from a third party

NB The percentages relate to reasons, not enterprises

FIGURE 343: VIEWS OF ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK ON THE WAY(S) IN WHICH THEIR BUSINESS ACTIVITIES IMPACTED ON THEIR ACADEMIC COMMITMENTS - CATEGORIES AND DIMENSIONS

Categories Dimensions

Affect teaching [13]

- _____ The work of this enterprise helped develop a revolutionary new way to teach this subject - which is now acknowledged all over the world
- _____ The company provides an excellent source of real-world final year projects
- _____ The training undertaken on behalf of the company brings me into contact with people with interesting problems, which are a good source of student projects
- _____ The consultancy and contract research done on behalf of the company is a good source of final year undergraduate projects
- _____ Staff from the company teach very effectively on the Masters programme
- _____ It was my job to teach product development, quality control *etc* in the context of my particular discipline - and this was all related to what my business was trying to do
- _____ Students benefit from the software expertise gained by the company
- _____ Universities are essentially graduate factories and my involvement with the business enables me to expose students to real problems, rather than virtual ones
- _____ It boosted the students' morale to know they were being taught by somebody with real-world experience
- _____ Our students are often more interested than my academic colleagues in applied research, and the company can give them some insights into this
- _____ The pressure of business activities means I sometimes end up with less good teaching material than I would like
- _____ My business required me to travel a lot throughout the UK, so I couldn't always adhere to my lecture schedule
- _____ I gave less attention to undergraduate teaching

Promote the work of the department [2]

- _____ The work done by the company boosts the profile of the department
- _____ The company acts as a very necessary interface between the university and industry

Affect learning [1]

- _____ The business obliges me to gain an in-depth knowledge of a topic, rather than a shallow, purely theoretical knowledge

Motivate [1]

- _____ This enterprise helps my motivation, because if you're a Reader at 40 and you don't want a Chair, what else is there to do in a university?

Affect research [7]

- Research conducted in the company for the company has led to theoretical insights which I can publish
- I get far more research done and far more research disseminated because the company gives me access to three extra researchers
- The contacts I make through the business give me access as an academic to sources of strategic research funding which I might not otherwise have
- The consultancy work done by the company will bring in extra contract research to the department
- Whenever the university decides it is interested in £ from applied research, the company helps me to generate applied research contracts for the department
- It reduced the number of papers I wrote ... I never got around to publishing the fundamentally interesting aspects of the research
- It must affect the number of research papers I write

Imbue transferrable skills [5]

- The business led me to see things in new ways, to operate in the way that the Enterprise in Higher Education initiative is trying (but failing) to inculcate
- Running the business improved my management skills and made me more efficient at university administration
- Running the business made me a sharper and more effective manager in the university; as time went by I began to perceive my colleagues as indolent and indecisive
- The business taught me how to make my presence felt in Brussels
- Running the first business was good preparation for running another enterprise, but within the university this time

Act as a distraction [2]

- All my energies went into the business instead of the department
- Eventually the demands of the business distracted me from giving my full attention to the needs of the department

Note:

The figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of impacts which fell into the category in question

FIGURE 344: THE REACTION(S) OF COLLEAGUES TO ACADEMIC ENTREPRENEURSHIP - AS PERCEIVED BY THE 25 ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK - CATEGORIES AND DIMENSIONS

Categories Dimensions

Inscrutability [8]

- _____ There was never any discussion and it was difficult to deduce what people thought about it
- _____ Nobody has asked any questions and there have not been any obvious "vibes"
- _____ I'm not really uptodate on what they think because we have tremendous communication problems in the department
- _____ Fellow members of staff portrayed themselves as neutral
- _____ No reaction so far, perhaps because we have maintained a low profile
- _____ There have been no bad "vibes" as far as I can detect, probably because they know I try to keep the interface squeaky-clean
- _____ I know from my previous university that there is the potential for sour grapes, but my position in the department cuts me off from other members of staff, so I don't really know
- _____ It is not easy to deduce what they were thinking, but then I was always a loner; I didn't go to coffee with the rest of them

Resentment [7]

- _____ I was given to understand that I had been singled out for "fast-tracking" - yet I had thrown this back in their face by going into business, rather than stay in academia
- _____ Most of my colleagues thought that industry was a dirty word
- _____ A lot of people thought it was unseemly to be involved in such a non-academic activity you could feel it in the air
- _____ They were a bit resentful about my commercial activities
- _____ As time went by, there was increasingly strong resentment about the fact that we ploughed all the income back into the enterprise, instead of acting as a "cash cow" for the department
- _____ Once we got devolved budgets and the department had to bear the cost of my secondment to the business, they were very resentful
- _____ Some of the junior and middle staff were resentful about the enterprise's swing away from pure research towards applied research

Jealousy [5]

- _____ The little green eye of envy was cast over my activities because it enabled me to generate £ for the enterprise -and for me
- _____ They showed that they were jealous through their back-chat, their obstructiveness, their attempts to divert resources from the enterprise
- _____ The junior and middle staff were jealous of the fact that I was making things happen
- _____ The other professors, in particular, were jealous of my research-only contract
- _____ Some lecturers and most fellow research assistants were very jealous

Qualified acceptance [5]

- As long as everyone fulfils their academic commitments, does lots of research and publishes, nobody minds what else they do
- The staff in the department accept what I am trying to do business-wise, because they know my main interest is theoretical research, and that I publish more than anyone else in my research group
- They seem to accept it, probably because they know the university forced me to set up the company -or give up my research
- I haven't encountered any negative reactions, but then I've taken early retirement; I know other academic entrepreneurs in the department caused concern with regard to their academic commitments
- It didn't cause any negative reactions, probably because I left within a couple of months of setting up the company

Support [4]

- Most people in the department were supportive because they knew that the department benefitted from my various business activities
- A lot of them thought it was a good idea
- The senior staff were very supportive, very positive
- Some staff wished me well in my endeavours

Snide comments [3]

- They have been known to sneeringly refer to us as "our captains of industry" and once suggested our company might like to tackle the catering at the graduate buffet
- I got comments about the "game" I was in on an ongoing basis
- They made a lot of snide remarks about what the business was trying to do

Short-changing the university [2]

- One research assistant made it clear he thought the university was not getting a good deal out of me
- People outside the department mistakenly assumed that I was ripping off the department

Concern [2]

- As the business grew, some colleagues were concerned about its growth and the way it took up so much of the HoD's and his partner's time
- Some colleagues are concerned that the enterprise is beginning to dominate the department, that the tail is beginning to wag the dog

Schadenfreude [1]

- A lot of them seemed to hope I would fail

Pride [1]

- A lot of my colleagues were very proud of what we had achieved

Note:

The figures in square brackets after the category name indicate the number of "mentions" - *i.e.* the number of reactions which fell into the category in question

FIGURE 345: PATTERN OF SPONSORSHIP ACHIEVED BY THE SCIENCE BASE IN THE NINE PARTICIPATING UNIVERSITIES, 1984/85

University	A %	B %	C %
Bristol	71	7	22
City*	42	13	45
Durham	58	16	26
Glasgow	73	9	18
Hull	63	8	29
Kent	66	8	26
Liverpool	69	9	22
Strathclyde	39	23	38
York	70	8	23

Note: * this is the figure for 1985/86; there are no figures extant for City for 1984/85

Information derived from the financial data relating to 1984/85, communicated by UK universities to the USR - and the UGC - on Form 3, Table 3.

FIGURE 346: PATTERN OF SPONSORSHIP ACHIEVED BY THE SCIENCE BASE IN THE NINE PARTICIPATING UNIVERSITIES, 1988/89

University	A %	B %	C %
Bristol	70	11	19
City	43	21	36
Durham	54	30	16
Glasgow	58	8	34
Hull	40	31	29
Kent	59	7	34
Liverpool	63	15	22
Strathclyde	40	17	43
York	61	9	30

Key: A research councils and charities
 B industry/commerce
 C central/local government and various overseas funding agencies

Information derived from the financial data relating to 1988/89, communicated by UK universities to the USR - and the UGC - on Form 3, Table 3.

FIGURE 347: EXTENT TO WHICH THE BUSINESSES FOUNDED/CO-FOUNDED BY THE 25 ACADEMIC ENTREPRENEURS MAINTAINED THEIR INTENDED CHARACTER

University	N	Maintained Character	Changed Character	Direction of Change
Hull	8	7 (88%)	1 (12%)	H --> H & S
Liverpool	13**	11 (79%)	2 (21%)	S --> H S --> H & S
Strathclyde	14	13 (93%)	1 (7%)	H & S --> S
York	6	5 (83%)	1 (17%)	S --> H & S --> H, S##
Totals:	41	36 (88%)	5 (12%)	

Note:

****** excluding shell company

this business split into two; one "hard", one "soft"

FIGURE 348: REASONS CITED BY ACADEMIC ENTREPRENEURS FROM THE UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE AND YORK FOR EXPRESSING GREATER OR LESSER DISSATISFACTION WITH THE ROLE (IF ANY) PLAYED BY THE UNIVERSITY IN HELPING SET UP THEIR BUSINESS(ES)

Categories Dimensions

Financial misjudgement [6]

- _____ The university forced the business to spend £000s on an expensive London lawyer in pursuit of charity status, which any honest person would have told them straight away was not tenable in the eyes of the Inland Revenue -and the reason for this profligacy is that the university felt that earning profits was not a good thing
- _____ Having a university umbrella company with a millionaire businessman as its CEO means that right away you've got an unnecessary overhead of at least £50,000 a year. The two start-up companies which became subsidiaries of the umbrella company were forced to accept an accumulated deficit from the very beginning
- _____ The CEO of the university's umbrella company had over-ambitious plans and operated on far too grandiose a scale, given the wealth-creating potential of the small companies concerned
- _____ Basically I gave up my company because the university was completely intransigent about the terms on which it required royalties to be paid, even though it did not own the IP outright ... their demands seemed very onerous to me
- _____ It seems to me that the university was intent on spinning off a company from a former departmental commercial arm at all costs - and having a stake in the future profits of that company, no matter what the cost to the R&D base of the department. I wasn't even consulted about the financial arrangements. They took the products and a "dowry" and left me with a debt and punitive interest charges which will take the department years to repay
- _____ For years the university took no interest whatsoever in the department's commercial arm. Then, when they saw how successful it had become, they plucked it like a ripe plum and spun it off as a separate company, against the wishes of the department, for its own financial benefit

Risk aversion [3]

- _____ I wanted this business to be set up as the department's commercial arm, but the university was not prepared to pay the high salaries it would have had to pay commercial staff; it wasn't prepared to take the risk, I suppose
- _____ I would have been happy for the business to have been a joint venture with the university, or even a wholly-owned university company, partly because I found it desperately hard to generate any working capital - but the university would not take the risk
- _____ I'm really disappointed that the university would not consider taking even a small equity stake in the company, partly out of loyalty and partly because it is missing out on something good - but the university is obsessively worried about incurring risks

Approach to competency [3]

- _____ Basically, I wanted to set this up as a departmental commercial arm and have someone tell me how to market our products. But nobody knew how to market our products -so we just got on and tried to do our best by ourselves - for our own benefit
- _____ We thought that the infrastructure that was to be provided by the university's umbrella company was a wonderful idea. The company would handle all the central things like dealing with income tax, VAT, company registration, doing all the things that we didn't necessarily want to get involved in and we could get on and do the technical side of things. But gradually we discovered that these things hadn't been done. They hadn't even got around to registering the company.
- _____ The chairman of the university's umbrella company treated me like an imbecile, even though I had an entrepreneurial track record. He made us go to his downtown office and explain ourselves even if all we wanted was a little petty cash for postage stamps

Wimpishness [1]

- _____ The government department which claimed ownership of the IPR was chancing its arm; if the university had been prepared to fight it, it could have asserted its rights - but the university gave up at the first hurdle

Lack of vision [1]

I wanted this business to be set up as the department's commercial arm, so that we could deliver an exciting new technology to industry and have the university and the department reap the rewards; the university displayed complete lack of vision

Lack of transparency [1]

The university agreed to everything I asked for in relation to the business - but I'm left wondering what it really thinks about my entrepreneurial activities, what priority (if any) the business should take in relation to my departmental responsibilities, how it will affect my chances of promotion. There's a need for guidance, for a forum in which these questions can be aired

Lack of endorsement [1]

In order to put paid to rumours, I wish the university would formally recognise that the intimate relationship between the department and my company cannot be evaluated in strict, quantifiable terms - but that the *quid pro quo* arrangements we have are more beneficial than a strictly quantified arrangement

Note:

The figure in square brackets after the category name indicates the number of "mentions" - *i.e.* the number of reasons which fell into this category. The number of reasons exceeds the number of dissatisfied entrepreneurs because one gave more than one reason for his dissatisfaction.

FIGURE 349: REASONS GIVEN BY DEANS AND/OR HoDs FOR THEIR ATTITUDE TO THE IMPACT OF ENTREPRENEURIAL EXPLOITATION OF IP ON PROMOTION (UNIVERSITIES OF HULL, LIVERPOOL, STRATHCLYDE & YORK)

Categories	Dimensions
Validity of the activity itself [6]	
	----- Academic entrepreneurship is likely to have a diversionary impact on academics, diverting their efforts away from the things you would normally measure, so it should be treated as a negative factor
	----- The university pays lipservice to this kind of activity. In practice, nothing but research publications count for promotion, nothing else gets rewarded - and that is how I think it should be
	----- Even if the academic is involved in a joint venture with the university, this is an entirely separate, non-academic activity and should be treated that way by the promotions committee
	----- We should be looking at the whole person, not just one or two dimensions, and academic entrepreneurship should be seen as a legitimate university activity, especially if it has been sanctioned by the university
	----- Academic entrepreneurship is one of a whole range of activities which should be taken into account by the promotions committee, particularly if it is done within the framework of a university company or a joint venture
	----- In my discipline, academic entrepreneurship is a very appropriate activity
Value [4]	
	----- Any activity which benefits the university should be rewarded - and academic entrepreneurship falls into this category
	----- This kind of activity enhances the reputation of the university in the local community and makes a genuine contribution to the community
	----- Academic spin-off companies bring £ and other, more ephemeral benefits to the university, like the PR value; they are a legitimate university activity and successful ones should be rewarded
	----- This kind of activity is good for the university in terms of £ and kudos. We need to start thinking about the benefits of academics' activities to the university as a whole, to create different paths to the same reward

Sign of ability [3]

- Academic entrepreneurship is undoubtedly a sign of a person with ideas, initiative and drive - and on that basis, it should be rewarded
- Academic entrepreneurship is a sign that a person is well-rounded - and those are the kind of people we should be promoting
- Starting a company should not be rewarded *per se*; however, if a great deal of intellectual activity is entailed, it might be justifiable to argue that it should be taken into account by the promotions committee

Validity of skills [3]

- These days departments should play the team game, rather than have everyone try to get a good score in every "box" (*ie.* teaching, research, administration); if someone has the ability and interest to exploit IP entrepreneurially, that person should be rewarded for his/her contribution to the team effort
- These days universities are expected to become increasingly entrepreneurial - so it is only right to reward staff who take a lead where this is concerned
- The promotion criteria are overly narrow at present. They should be widened to take explicit account of activities like academic entrepreneurship and continuing education

Alternative Reward System [2]

- Spin-off companies bring their own form of reward; people should not be rewarded twice for the same activity
- Unless we are talking about the commercial arm of the department, spin-off companies have their own form of reward; this should not be taken into account by the promotions committee, even if it is done within the framework of a university company or a joint venture

Note:

Figures in square brackets after the category name indicate the number of "mentions" - *ie.* the number of reasons given which fell into this category