

Business-University Collaboration

**A response to the Lambert Review of Business-
University Collaboration by the Institute of Biology**

22nd April 2003 [3]

Introduction

The Government, its Departments and Agencies, regularly consult with the scientific community on a wide range of issues. This activity is becoming an increasingly important aspect of the Institute of Biology's work, especially since it and the specialist Affiliated Societies present a consensus view from the biological and life sciences community. Increasingly, the Institute and the Affiliated Societies will be proactively highlighting pressing topics and encouraging Parliamentarians to investigate them.

In response to a call for evidence for the Lambert Review of Business-University Collaboration, a survey on this subject was sent out to 550 working Fellows of the Institute of Biology and 90 industrial companies. Sixty-six replies were received and their views are summarised in the following response document.

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1. The Institute of Biology is the independent and charitable body charged by Royal Charter to further the study and application of the UK's biology and allied biosciences. Its 14,500 members and over 60 specialist learned Affiliated Societies make the Institute ideally placed to respond to the above consultation.
2. This response's principal points include:
 - i. Business-University collaborations are common, with formal and informal relationships being formed through a range of activities. (Paragraphs 3, 4 and 5)
 - ii. The barriers to strengthening such relationships are mainly related to a lack of understanding of each other's working practices, which can create difficulties in agreeing to timelines, costs and intellectual property issues. (Paragraph 6)
 - iv. Both Businesses and Universities feel that a clearly defined project, mutual interest in the project outcomes, and mutual trust and support are important components of successful Business-University collaboration. (Paragraph 7)
 - v. Higher salaries, better defined career paths, and promoting science careers at the undergraduate level would make science and technology careers more attractive to graduates, in order that businesses can attract the best talent in future. The Institute of Biology has previously drawn attention to the detrimental effects of short-term contracts for research staff in the House of Commons Science and Technology Committee report HC1046 (Paragraph 9)
 - vi. Businesses are satisfied with the quality of graduate recruits, although practical skills could be improved. There is concern over the lack of good science and technology graduates available for recruit in the future. (Paragraph 8)
 - vii. Businesses should increase their levels of interaction with Universities in order to recruit high quality graduates and increase the UK knowledge base in science and technology. (Paragraph 10)
 - viii. Greater financial transparency at the start of a collaboration, in terms of recovery of overheads by Universities, intellectual property agreements and timelines, would improve present financial arrangements for both Businesses and Universities. Longer-term research contracts would be beneficial to Universities. (Paragraph 11)
 - ix. The R&D tax credits scheme is new and, thus, not widely known or used. Therefore, the scheme is not a driver of demand for research and skills at present, but the long-term impact of the scheme is yet to be seen. (Paragraph 12)

General points

Collaboration between Universities and Businesses is common.

3. A high proportion (over two-thirds) of individuals surveyed, from both Universities and Businesses, were found to have experience of Business-University collaboration within the last 24 months. Most have undertaken a joint venture, with collaborative research the most common type for both Universities and Businesses, and half of Universities reporting to have worked with industry on development projects. Almost all Businesses have used information in academic publications in the past, but comparatively few Universities (a third) have used industry patents and/or prototypes.

Meetings and conferences are the most frequently reported type of informal contact between Businesses and Universities.

4. Almost all Universities and Businesses have had informal contacts with each other through meetings and conferences, underlining the importance of such events to Business-University collaboration. A high proportion of both Businesses and Universities have also been involved in work experience for students and industry-sponsored University posts or studentships. Academic secondments to industry are infrequent, however, and few Businesses (a quarter) have undertaken continuing professional development (CPD) training provided by Universities.

Research contracts are the most frequently reported type of formal contract between Businesses and Universities.

5. Overall, research contracts are cited as by far the most common type of formal contract existing between Businesses and Universities. In contrast, business support for Universities has low incidence, although about half of Businesses and Universities have experience of consulting projects with each other.

The main barriers to developing or strengthening relationships between Businesses and Universities relate to a lack of understanding of each other's working practices.

6. Differing working practices mean that Businesses and Universities often encounter conflict when working together. For example, Businesses feel that Universities are too expensive, while Universities object that Businesses are unaware of the overheads involved and the need to recover them in their fees. Furthermore, while Universities feel that the level of record keeping requested by Businesses is excessive, Businesses sense that Universities are unaware of the high standards of record keeping required by regulatory authorities.

Time is another contentious issue: Universities find it difficult to devote time to collaborative projects due to other work commitments, but Businesses are frustrated with the slow pace of Universities and lack of adherence to project timelines. In general, the driving forces behind the commercial and the academic side of a collaboration are different, which can hinder relationships between Businesses and Universities.

Other hurdles, cited by Businesses, to developing or strengthening relationships with Universities are:

- Financial restraints
- Lack of understanding by Universities of the level of confidentiality required
- The time consuming nature of taking on work experience or research students
- Unreasonable intellectual property terms requested by Universities
- Universities carrying out consultancy/testing services that compete with the sponsoring Business
- Unsatisfactory organisational and administration frameworks in Universities
- Lack of control over project focus.

Other hurdles, cited by Universities, to developing or strengthening relationships with Businesses are:

- Lack of trained staff to facilitate Business-University collaborations
- Unreasonable intellectual property terms requested by Businesses, and tightening of intellectual property requirements by Universities
- Concern by academics that participation in commercial work will affect their ability to produce refereed papers
- Difficulties in obtaining funding for 'proof of principle' research
- The view by industry that only the elite Universities are worth working with, with the result that opportunities are denied to other Universities
- Scaling down of activity by UK companies
- Conflicts with Universities' goals for education, excellence in research and publicising information
- Abandonment of projects by Businesses before completion
- The short-term nature of collaborations
- Lack of information on related research being carried out by the sponsoring company
- Difficulties in making contact and working with smaller companies.

Successful Business-University collaboration requires a clearly defined project and mutual understanding.

7. Both Businesses and Universities feel that a clearly defined project, mutual interest in the project outcomes, and mutual trust and support are important components of successful Business-University collaboration. It should be understood by both Businesses and Universities that the driving forces behind the commercial and the academic side of a collaboration are different. A legal agreement arranged beforehand would help to focus and formalise the objectives of the project. Financial benefit is deemed to be less important in such collaborations.

Most Businesses feel that the quality of graduate recruits is satisfactory.

8. Most Businesses are satisfied with the quality of graduate recruits, although many feel that gaps in skills and disciplines exist. Practical skills are the most commonly cited deficit, with business acumen and management skills also mentioned as lacking. Concern is expressed over the lack of good science and technology graduates available for recruit in the future.

Higher salaries, better defined career paths, and promoting science careers at the undergraduate level can make science and technology careers more attractive to graduates.

9. Improving salaries and conditions is felt to be key to making science and technology careers more attractive to graduates and postgraduates. Defining and structuring career paths is also deemed important, for example, by officially recognising skills learnt on the job and encouraging participation in CPD programmes. The Institute of Biology has previously drawn attention to the detrimental effects of short-term contracts for research staff in the House of Commons Science and Technology Committee Eighth Report: Short-term Research Contracts in Science and Engineering [HC1046]

Making science more enjoyable at the undergraduate level, by instilling creativeness and imagination in the curriculum, would increase the number of students wishing to continue with science into their careers. Developing more vocational courses (as well as more general science degrees), which include industry placements, would help to focus and encourage students wanting a career in science. Adjacent to these issues, it is felt that increased respect for the science professions by the media is vital to improving the profile of science careers in the UK.

Businesses should interact with Universities to facilitate recruitment of high quality graduates and postgraduates

10. Although many Businesses plan to attract high quality recruits in future, few have communicated such plans to Universities. Greater interaction between Businesses and Universities is needed to facilitate recruitment processes and thus increase the UK knowledge base in science and technology. Businesses are best placed to implement such interaction, for example, via targeted recruitment programmes. Businesses would benefit their future recruitment by supporting scholarship programmes and collaborating with Universities in the development of vocational science courses.

Financial considerations help Business-University collaborations, but the current financing arrangements could be more effective

11. Generally, financial considerations are felt to help, rather than hinder, relationships between Businesses and Universities. Current financing arrangements could be more effective, but detailed programmes were not identified due to the complexity of each individual arrangement. Generally, mutual understanding of the priorities and motives of each party is important for the success of financial arrangements, in order that Universities understand the commercial pressures on projects and Businesses appreciate the often long-term nature of research. Both parties should show transparency in terms of overheads, timelines and intellectual property, and agreement on the procedures in case of premature project termination would engender greater trust between the parties.

Universities would benefit from longer-term financial arrangements, and would do well to invest in innovative research that may lead to profitable business contracts in the future. Businesses suggest that the financial resources required of industry for new ventures should be limited by Government support for formal Business-University collaborations.

At present, R&D tax credits are not a driver of demand for research and skills, but it is too early to tell the long-term impact.

12. The R&D tax credits scheme is new and, thus, not widely known or used. Therefore, the scheme is not a driver of demand for research and skills at present, but the long-term impact of the scheme is yet to be seen. There are downsides to R&D tax credits, which may also be contributing to low usage of the scheme, such as the long time period that exists between initial investment and receipt of tax credits (creating cash flow problems for small businesses), and difficulties in defining work as 'R&D'. Sourcing project work abroad, in countries where the cost of research is lower, is suggested as a means to the same end as R&D tax credits.

Background information

Respondents

13. A survey on Business-University collaboration was sent out to 550 working Fellows of the Institute of Biology and 90 industrial companies. A total of 66 respondents took part in this survey. The respondents were comprised of 22 representatives from Businesses, 37 representatives from Universities and seven from other organisations. Among the Business representatives, four belonged to organisations with 1–10 employees, four to organisations with 11–50 employees and 13 to organisations with over 50 employees (one did not disclose this detail). Fifty-six of the respondents were members of the Institute of Biology.

Openness

14. The Institute, in line with Government policy on openness and *Science and Society* Select Committee recommendations, are pleased for this response to be publicly available and will be shortly placing a version on www.iob.org. Should the Lambert Review of Business-University Collaboration have any queries regarding this response then they should in the first instance address them to Catherine Joynson, Science Policy Advisor, Institute of Biology, 20-22 Queensberry Place, London, SW7 2DZ [c.joynson@iob.org].