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The Lambert Review
Of Business-University Collaboration
1 Horse Guards Road
London
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Your Ref:

Our Ref: HPRF-03-04-0002

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Dear Richard

The industrial and academic partners of the High Power Radio Frequency (RF) Faraday Partnership would like to thank you for the opportunity to contribute to your review.

The question of how the long term links between business and UK universities can be strengthened to the benefit of the UK's economy is of prime importance to all Faraday Partnerships, it is a fundamental element for them being setup. This input represents a brief summary of the integrated views and experiences of the industrial and academic partners of the High Power Radio Frequency (RF) Faraday Partnership.

The first point to make is that there is no one answer to the question "how" at the start of the above paragraph. What works for one set of parties will be less successful for another set. For any relationship to work in the long term, all parties must receive a benefit. For industry, benefit usually means an improved "bottom line" and so can relatively easily be quantified. For academia, there is a less obvious measure, but could be more research projects, increased expertise in a particular field, increased research income, or something else. Whatever the metric chosen, it is extremely





useful at the outset to identify what each party wants out of the relationship, so that it is obvious that the collaboration is working.

Traditionally, the UK has had much success in developing technology to the point of product and system prototypes and has spectacularly failed to generate UK wealth by not taking the final step and developing these prototypes into something marketable. A key strength of the Faraday Partnerships is that they consider the entire life cycle, from research to exploitation, at the outset of any project. Planning the exploitation of the technology from the start also encourages and strengthens the industry-academia link as it necessitates identification of what each party is going to get out of the joint programme. Each successful project will help to build the relationship and move the collaboration forward.

Business-University collaboration best practice

Input from industrial members seems to indicate that links with Universities tend to happen by chance rather than design, a personal contact through an employee, a chance meeting at a conference and are centred around the most pressing problem at that time. A research project to address the problem is defined, the programme of work completed at the University and the results handed over. The industrial partner then needs to exploit this technology, which often takes as much effort again.

A preferable approach is for industry to clearly define what it wants to be able to do and then to search out the most appropriate University. This can be done directly or through a third party, such as a Faraday Partnership. The entire lifecycle of the project should be mapped out, starting from the current state of play up to and including how the industrial partner is going to implement the research and reap the benefits. This approach has many benefits including;

- Encourages holistic approach from the start
- University is a stakeholder in the final solution
- University can assist with and understand productionisation issues
- Industry does not feel abandoned part way through project



- Stimulates other project ideas, leading to an on-going link

Main Barriers to Strengthening relationships

The majority of industrial requirements do not require novel technologies, but novel applications of existing technologies, which in turn can lead to the development of new technologies. Academia can perceive this applied research as “non-core” activity and be reluctant to take on the research.

One of the main barriers which industry finds in working with Universities is time. Often industry want it’s research and development problems solved quicker than the standard solutions (PhD studentships, Research Programmes, etc), which are typically single or multiple years, allow.

How business can attract best graduates and post graduates

The earlier that a business can develop a relationship with a student the easier it is to attract them once they have made the decision to transfer from academia to industry. The High Power RF Faraday Partnership is developing a database of undergraduates to enable, where appropriate, a mentoring service to be offered. The database will enable industrial partners to offer short term (ie summer holiday) employment to suitable undergraduates which will allow the undergraduate to experience working in industry and allow industry to get a closer look at the graduate before any long term commitments are made on either side.

Taking a slightly higher level view, industry would like to attract the best sixth form candidates to study industry related science and engineering degrees. Such degrees are often seen by many sixth formers as the “hard work” way to a degree, If there was some distinction between the perceived “hard” and “softer” degrees it might tempt more students to take engineering degrees.

Financial considerations – help or hinderance

If a business is not profitable or fails to maintain a positive cash flow it will cease to exist. Any investment in research and development has to be supported by a business



case which shows the return on that investment. Any scheme which improves the return on investment figures will help the research approvals process.

Many businesses have grown into systems engineering companies which source sub systems world wide and integrate them, with their own components, into complete systems. This is a common business model, used by many high technology companies. Whilst they continue with research and development of their own components, this is a relatively small amount of the total value of the complete system and hence turnover. This has the consequence of companies being small in terms of the technology in which they are leading the field, but in terms of turnover, they cannot be classed as an SME and hence do not get the R & D tax advantages. It is felt that in this high tech world, assessing the R & D tax credits on the company turnover is too crude a discriminator.

I am sure that you will be inundated with responses to your request for input, and for this reason I have only addressed the main issues already identified as important by the industrial members of the High Power RF Faraday Partnership. I would be happy to clarify any issues which I have not explained in sufficient detail for your needs. In this high tech world, we as a country need to focus our resources on high added value work if we are to prosper. We need to maximise the return on knowledge and know-how wherever it resides by encouraging an inclusive, stakeholder ethos. Your work is a vital component of the UK's initiative to build a high tech economy.

Yours

Steve Bowater
Project Director HPRF Faraday Partnership