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When David meets Goliath – University and Industry Collaborations

Growing opportunities to facilitate the transfer of knowledge from the scientific community into practical business impacts mean that we now have more 'linked scientists' who span the world of academia and business.

These scientists can use their research techniques to investigate important business issues and so provide significant value for business. One way that they do this is to participate in collaborative projects with the business community. But these activities have their share of critics, who see this crossover as a form of 'academic capitalism', the spectre of 'profit' encroaching into the world of academia. Some academics fear that these ties will erode autonomy, result in conflicting priorities, and potentially destabilise the research community with a dependence on temporary contract researchers whose employment will depend on industry contracts.

Professor Alice Lam of the Science in Society Programme, Royal Holloway University of London, finds that collaboration projects between universities and business have often proved problematic. One of the main issues is the divergent work patterns of the two and the impact of industrial interaction on the careers of academic scientists. The careers path in academic circles relies on competition with peers pushing scientists to produce good quality science. So what are the benefits for a career scientist in developing links with industry? How do they reconcile the requirements of business and still pursue good science?

An example of such collaboration is that of a biomedical research centre that seeks to combine fundamental research with drug discovery. The centre recruited a small team of eminent scientists from industry at the time it was founded. These people constitute a core group of 'linked scientists' who have brought with them industrial competences and networks. However, the great majority of the researchers affiliated to the centre have departmental appointments and they maintain a disciplinary-based research orientation.

The model of industrial collaboration adopted by the centre is predominantly academic. Academics seek to control the research agenda and the knowledge transfer process. But despite this orientation, the centre has spun off several companies to exploit the new ideas it has developed and to bring in research income. It also collaborates with small biotechnology companies. Until recently, it has consciously avoided collaboration with large companies for fear of losing control, but is now seeking to forge partnerships with bigger firms.

Another example is a university-industry collaborative research centre for molecular science. This is an archetypal hybrid research organisation situated at the interface between the two sectors, where two-way flows of people and knowledge take place within permeable organisational boundaries. The centre is formally affiliated to an academic department but enjoys a relatively high degree of autonomy. It has one main, though not exclusive, company sponsor with funding provision negotiated on a five-year rolling basis. The relationship with the company has been sustained by a range of ties

including collaborative research, student sponsorships, provision of training programmes, frequent visits and personnel exchanges. These joint activities provide a shared space in which collaboration is managed through the subtle alignment of academic research goals with the strategic interests of the company. The centre balances academic freedom with industrial interests. The majority of the centre staff are non-permanent researchers and sponsored PhD students. There is a clear framework for the sharing of intellectual property rights, but younger researchers are often shielded from commercial activities such as patenting to ensure that their training is consistent with educational goals. This model provides an environment for joint knowledge production, and for the development of linked scientists.

But for a hybrid organisation that spans institutional sectors, the task of maintaining a stable cooperative dynamic is an ongoing challenge. Despite its strategic importance in generating research resources, the centre's status remains secondary to that of the host department, which continues to maintain control over appointments and promotions. The lack of stable funding and employment is another source of organisational tension.

The third example is that of a university-based biotech spin-off firm. Its operation is closer to that of an industrial research organisation. The firm was founded by three academic inventors with financial support from university seed funds and venture capital. The academic inventors retained their full-time academic positions while holding part-time posts in the company. The corporate research activities were pursued primarily in their academic laboratories, and the firm employed a small number of post-doctoral researchers who worked alongside other academic researchers. The academic inventors perform the dual role of researcher and entrepreneur, and they facilitate close interface between the founding labs and the firm.

The problem here is that the spin-off firm is a fragile organisation whose legitimacy is contested, in part because of the academic community's historical ambivalence about the commercialisation of research. There is evidence of a shift in attitudes in the scientific community over the past 20 years towards greater tolerance of commercialisation. But the presence of a business unit in an academic lab has caused some anxiety and conflicts over issues such as sharing of lab space and ownership of research tools, and over the division of labour between the post-docs employed by the firm and those who were publicly funded.

The introduction of a 'for profit' business and secrecy culture into the academic lab can generate suspicion and disrupt the team environment. The young researchers can be the most vulnerable group because of publication restrictions and uncertain employment prospects. A longer-term unintended consequence is the potentially negative impact on the climate of academic freedom and the danger of young researchers learning about the cash value of research, instead of its scientific value, early on in their careers.