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‘Technology transfer’ is the tip of the iceberg of university engagement

How do academics engage with industry and what are the impacts of such engagement? In recent years, there has been an increasing focus on the role that universities can play in contributing to innovation, productivity and social welfare. Both research and policy has focused on the process of the commercialisation of science through mechanisms such as patents, licences and spin-outs.

However, this study shows that university engagement is not restricted to science departments. There is also considerable knowledge exchange from other academic disciplines. Furthermore, universities also engage with public institutions, voluntary organisations and social enterprises. Yet these types of knowledge exchange remain largely hidden.

The study concludes that it is important to acknowledge the diverse and varied impacts of business-university knowledge exchange relations.

Key Findings

Partnerships between academics and businesses have evolved in unexpected ways

- Technology transfer is the least common form of external interaction. People-based interactions, problem-solving and community-based interactions are much more common.
- These types of engagement can foster a rich set of interactions that may lead to further and deeper patterns of collaborative research and teaching-based activity.

Intermediaries or ‘boundary spanners’ play a vital role in initiating and facilitating connections between academics and business

- Boundary spanners in the business organisation initiated over 80 per cent of the collaborations between academics and businesses that were studied.
- University Technology Transfer Offices (TTOs) acted as intermediary in only 24 per cent of collaborations, probably because most interactions do not require the contractual inputs from a TTO.
- Boundary spanners were found more often in big businesses than in small ones.

Technology development is not the only motivation for business university collaboration

- Businesses seek collaborations with academics for service development, human resource management, training and marketing as well as for technology development.
- Academics engage with businesses to support their research and teaching activities.

Companies take account of the unpredictability of innovation related outcomes in evaluating the success of their interactions with academics

- A third of collaborating firms believed that interactions with academics had a significant impact on the firms' activities. A quarter believed that the interactions had little or no impact.
- Most businesses saw the most important reason for collaborating as being to provide new insights and strengthen the firm's reputation.

Cultural differences and intellectual property disputes are not obstacles to engagement that concern businesses and academics

- A lack of time, bureaucracy and inflexible university administration are the main obstacles cited by academics.
- Businesses are concerned mostly with a lack of resources to manage interactions, lack of public policy programmes to encourage interactions, difficulty in identifying partners and insufficient benefits from interactions.

The nature of the collaboration often determines whether it will require local or national connections

- People and community-based interactions are more likely to be local. Problem-based interactions, where specific expertise is required, are more likely to lead to distant partners.
- Most local interactions involve training-related activities. Nationally-oriented interactions include joint research with academics and academic consultancy services.
- Academics from new universities are more likely to be involved in regional, people-based interactions. Academics from the Russell Group of universities are more likely to be engaged in international interactions.

Implications

The variety of roles that universities play in national and regional economies should be seen as complementary and not conflicting

- Universities with a strong regional orientation may focus on the development of regional skills and connectivity with regional businesses.
- Universities with an international orientation may help attract international investors and other economic actors wishing to access the UK knowledge base.
- Collaborative networks should not be constrained by predetermined geographical or administrative boundaries

In order to improve the quality of interactions it is important to understand the barriers to collaboration across different institutional groupings

- Academics from younger universities report the greatest problems arising from the bureaucracy and inflexibility of administrators.
- The relatively high degree of individual involvement with external organisations may be outstripping the resources available within institutions to support such interactions.
- Smaller firms are least likely to employ somebody to liaise with academia.

Greater attention needs to be paid to understanding and increasing the role of boundary spanners

- Boundary spanners need to have experience of both academic and business environments as well as the skills to overcome barriers and foster relationships.
- Attention needs to be given to training boundary spanners and to understanding where they might be best located – in the university, in the business or outside both.

Methodology

This research adopted a multi-method approach to shed light on the factors that affect the incidence, form, effectiveness and regional impact of knowledge exchange activities between the business and higher education sectors in the UK. The project analysed both supply push (from academia) and demand pull (from businesses and other organisation) factors. The project used case studies and two large-scale surveys – including a survey of academics that generated more than 22,000 responses and survey of businesses that generated more than 2500 responses.

The research identified and quantified the wide range of interactions between academia and business (and other organisations). Patterns of interaction were grouped into four broad categories: technology transfer, people based, problem solving and community based.

Further Information

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