

# Collaboration with universities

## Summary

The high quality of UK academic research and the ability to collaborate with universities are key factors in attracting early-stage investment in R&D to the UK.

Collaboration with universities is an important route for early-stage and long-term strategic R&D and can play a crucial role in supporting company growth.

However, there is increasing international competition for this collaborative work, with the quality of research in many countries improving rapidly. The UK must work to maintain its leading position in academic excellence.

Collaboration with universities is an important part of R&D activities for many engineering companies: it de-risks R&D investment and facilitates access to cutting-edge research, world-class expertise and research networks, at relatively low cost to the company.

The UK is ranked **sixth in the world** for **business-university collaboration**<sup>1</sup>.

Firms that receive a grant for innovation are more successful than peers; but their success is increased if there is an element of cooperation with the public sector, including universities<sup>2</sup>.

### What drives businesses interviewed to collaborate with UK universities?

- UK academic research is world-class.
- Many academics are interested in working on industrially-relevant problems and maintain a good balance of academic and practical engineering research work.
- Many UK universities collaborate across disciplines to solve industrial problems.
- Universities are open to collaboration with other universities.

### The variety of mechanisms for collaborating with universities helps companies make decisions about investing in R&D in the UK, depending on their business needs:

- Collaborative PhD studentships, such as the Research Councils' industrial CASE studentships.
- Fellowships for industry-academia collaboration for senior researchers, such as the Royal Academy of Engineering Industrial Fellowship scheme.
- Long-term strategic partnerships with universities, including funding research projects, laboratories or research centres.
- Short-term, milestone-driven projects, similar to research consultancy work.

(continue overleaf)



**Nearly all the companies** interviewed have R&D partnerships with UK universities - this is a key factor in supporting their R&D investment in the UK.

*"We work with a range of UK universities through collaborative PhD studentships, summer internships and sandwich placements. These give us access to a valuable and varied skill set that we do not necessarily have internally."*

**Dr Caroline Hargrove FEng,**  
Chief Technology Officer,  
McLaren Applied Technologies

- Consortia-based research projects, such as those funded by EU Framework Programmes and Innovate UK.
- Knowledge Transfer Partnerships that facilitate partnerships between university and business, with placement of a recent graduate in a company to address a challenge.

“Our collaboration with the University of Leeds through a Royal Academy of Engineering Research Chair award was game-changing for our company. Working with a research group focused on technologies in our sector accelerated our innovation and company growth. As a small company, we could not have done this work on our own.”

Eric Hawthorn FEng, Managing Director, Radio Design Ltd

“We try to locate earlier stage in-house R&D close to high-quality academic research in the relevant fields. Many of our internal labs are in the UK and USA for this reason.”

David Eyton CBE FEng,  
Head of Technology, BP plc

## To increase business R&D investment:

- Maintain the UK’s leading position as an excellent academic research base and increase opportunities for collaboration between academia and business.
- Continue to improve business-university relationships, building on previous recommendations such as those in the *Dowling Review of Business-University Research Collaborations*<sup>3</sup>.

The interviews highlighted the following areas where improvements could attract further R&D investment into early collaborative work in the UK:

- University administration can be slow compared to competitor countries, delaying projects and making it less attractive for companies to work with UK universities.
- There are cultural differences between UK academia and industry, particularly in approaches to project management. The welcome introduction of impact measures by UK research funders has driven significant culture change and should continue to be prioritised.
- Negotiating intellectual property ownership with some universities can be challenging and companies may no longer work with a university if it is difficult to reach an agreement. Existing good practices in fair and efficient handling of intellectual property should be shared widely.

## CASE awards

Industrial CASE awards are a highly valued route for academic-industry collaboration.

These awards provide access to industrial expertise and facilities for students and academic organisations and can accelerate research impact.

For companies, they provide a low-cost route to access cutting-edge academic research, build research networks and conduct research beyond the scope of the company.

CASE awards are currently only available at PhD level. Extending collaborations with individuals beyond this significantly increases costs to the company, meaning that collaborations forged through CASE awards are often paused on completion of the PhD.

It may be valuable for UKRI to consider a programme to extend CASE awards to early-career, postdoctoral-stage researchers. For example, the Irish Research Council runs an Enterprise Partnership Scheme, delivering two-year postdoctoral fellowships that it jointly funds with industry.



This explainer is part of a series based on interviews with individuals responsible for making decisions on R&D across a wide range of engineering companies.

→ See **Introduction** explainer to find out more.

1 *The Global Innovation Index 2018: Energizing the World with Innovation*, Cornell University, INSEAD, and WIPO, 2018. Ithaca, Fontainebleau, and Geneva.

2 *Estimating the effect of UK direct public support for innovation*, BIS Analysis Paper, 2014.

3 *The Dowling Review of Business University Collaborations*, Professor Dame Ann Dowling, 2015.