

# Innovation across sectors

## Summary

Innovation is often accelerated at the intersection of sectors. But it can be riskier for companies to innovate outside their core area, discouraging R&D investment.

Opportunities for cross-fertilisation between sectors to overcome sectoral boundaries are important and can offer significant opportunities for R&D and innovation in engineering companies.

Government should consider the introduction of support mechanisms targeting the application of technologies into new sectors or markets. This could promote new R&D investment in the UK and help bring game-changing innovations to priority sectors.

The Catapults could play an even greater role in facilitating cross-sector innovation.

Companies can learn lessons from those in other sectors facing similar technological challenges, and often collaborate informally to innovate. For example, machinery manufacturers may work with the automotive sector on electrification, or companies in construction may engage with traditional manufacturers to digitise manufacturing processes. Cross-sector collaboration has many benefits and can accelerate innovation:

- It helps introduce innovations to established industries.
- It develops cross-sector capabilities in businesses, particularly in supply chains.
- It can bring increased efficiencies compared to siloed sectoral focuses.
- Many companies also see potential applications of their technology to problems in other sectors.

**Innovation frequently occurs when different ideas and approaches are brought together**, at the interface of scientific or engineering fields, or different industry sectors.

## Case study

### BAE Systems and London buses

At its heart, BAE Systems is a systems engineering and integration company. They apply technology across land, air, sea and cybersecurity, making them a leading multinational defence company. However, their technology and skills could be applied to a variety of sectors.

Recently, BAE Systems worked with ADL, a leading bus and coach builder, to deliver 39 ultra-low emission buses for Go-Ahead's London bus fleet. These have integrated BAE Systems' cutting-edge electrification technology to reduce greenhouse gas emissions by 37% compared to conventional diesel buses.

## The challenge

In established engineering companies, investors and senior teams can be hesitant to invest in R&D outside the company's core sector as this is associated with a high level of risk.

- Companies can lack understanding of how different markets and sectors operate.
- It can be challenging to navigate innovation networks outside core sectors and make useful business connections.
- If the technology or application is highly novel, policy and regulatory frameworks may not be well developed.
- Even established companies can feel like startups when operating across sectors, carrying many of the risks of being a startup without being eligible for startup support, such as funding or mentoring.

There is significant demand for increased cross-sector collaboration from the engineering community. Government and industry should work together to maximise opportunities for this type of collaboration, with clear opportunities to implement this through the Industrial Strategy Grand Challenges and the Industrial Strategy Challenge Fund.

The Catapults are well placed to identify opportunities for innovation across sectors, with collaboration across the Catapult Network accelerating activities even further. Catapults already do a lot in this regard but boosting their cross-sectoral activities, using financial and non-financial support, could bring further benefits for business innovation in the UK.

## Case study

### Act Blade and Catapult

Act Blade<sup>2,3</sup> is an Edinburgh-based startup founded by a team from the yachting industry. The company has taken textiles used in cutting-edge yacht sails and used them to make new wind turbine blades. These have the potential to be 50% lighter than the standard glass fibre blades, so they can be made longer and more efficient, increasing energy production by almost 10%. The Offshore Renewable Energy Catapult supported Act Blade with advice on the wind energy market, helping the company to attract investment and providing testing facilities for its new blades.

## To increase business R&D investment:

- Government should work with industry to create opportunities for businesses willing to innovate across sectors to work together.

This could include:

- promoting collaboration across sectors
- supporting Catapult Centres to accelerate cross-sectoral work
- developing tailored grant mechanisms
- increasing access to business advice across sectors
- showcasing successful examples
- and extending SME R&D incentives to larger companies looking to enter new sectors.



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 *Engineering an economy that works for all: Industrial Strategy Green paper response*, Engineering the Future, 2018.

2 Offshore Renewable Energy Catapult case study. <https://ore.catapult.org.uk/stories/act-blade/>. Accessed October 2018.

3 From sailboats to wind turbines: the journey from big idea to realisation, Innovate UK, blog. <https://innovateuk.blog.gov.uk/2017/11/30/from-sailboats-to-wind-turbines-the-journey-from-big-idea-to-realisation/>. Accessed October 2018.