ROYAL ACADEMY OF ENGINEERING

Joined-up government approach

Summary

Engineering companies find strategic engagement across UK government organisations frustrating, fragmented, and not joined-up. This makes the UK less attractive for businesses to invest in R&D.

The ambitions in the Industrial Strategy are positive, with the potential to provide a stable and coherent backdrop for private investment in R&D and innovation.

In practice, this will require extensive engagement and alignment across government departments and agencies, and extensive industry input for success.

Throughout the innovation pathway, from concept to market, engineering companies engage with a broad range of government departments and agencies.

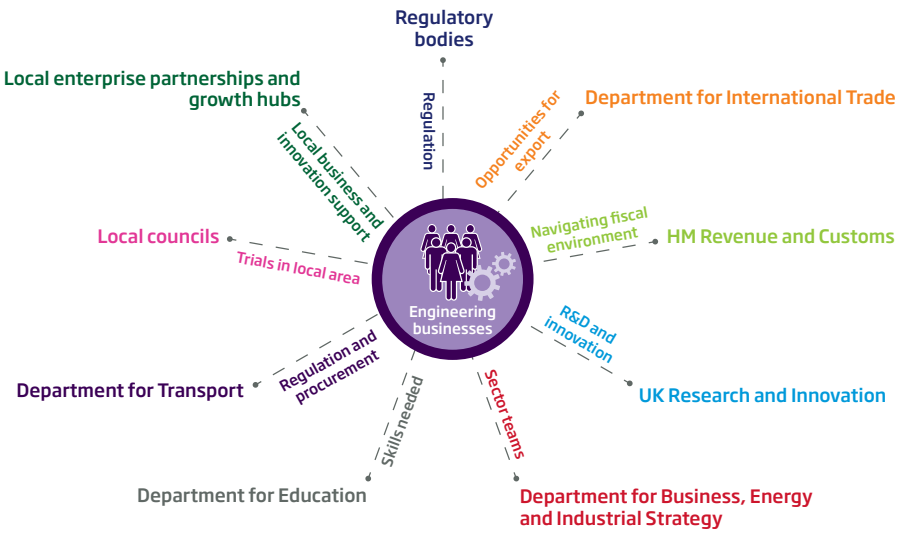
Each of these interactions has the potential to facilitate or inhibit businesses in delivering their strategy, with knock-on effects for innovation and R&D investment.

To create a supportive environment for engineering business R&D and innovation, all government organisations must share a clearly defined vision of success and be well coordinated. This will provide a long-term stable backdrop for business decisions and investment.

"There is much that businesses and academia need to do to help all sectors of government, not just BEIS, to understand how their work can support innovation in industry."

Nigel Whitehead CBE FREng, Chief Technology Officer, BAE Systems

Examples of interactions between businesses and government



The challenge

Many companies interviewed find engagement with the UK government frustrating, fragmented and less joined-up than competitor countries. This creates barriers for businesses to successfully innovate and makes the UK less attractive for businesses' R&D investments. The problem exists across government organisations, although the challenge presents differently across companies and sectors.

Small companies can find UK innovation support disjointed and hard to navigate, coming from UKRI, other government agencies and local organisations.

Furthermore, the support available does not cover some parts of the innovation pathway, with a particular gap in late-stage development. This delays innovation and growth as companies need to seek external finance to plug these gaps.

See ***Late-stage development and demonstrators***.

Large companies can find that the ambition for business innovation is not shared across government departments. The enthusiasm and drive for R&D investment and innovation demonstrated by one government organisation may not be matched by another. This can lead to delays in decision making or delivery of initiatives, unhelpful procurement practices and potentially conflicting priorities.

The multiple layers of coordinated and complementary support offered in countries like Germany and Singapore is very attractive to companies, including those currently located in the UK. **In this highly competitive and international environment, the role of government in providing an assertive, effective and long-term commitment to innovation is more important than ever**.

"The government support we have received has felt staccato. It has been valuable but would have had greater impact if it were more joined-up and strategic."

Alex Freeman, Project Lead, GreenSpur Renewables Ltd

Strategic support to key sectors

In the past, government has encouraged rapid investment in R&D and subsequent long-term growth in UK engineering sectors by providing a coherent and sustained strategy that aligned support across regulation, funding and government's convening power. The aerospace and automotive industries provide excellent current examples of what can be achieved with this approach.

Today, many companies interviewed feel that the UK is failing to offer long-term strategic support for innovation in their sector, making it less attractive to invest in R&D compared to other countries. Several competitor countries have adopted a joined-up approach to promote growth in priority sectors, like renewable energy generation or green transport, to help them become world leaders in these key industries.

The government's Industrial Strategy, Grand Challenges, and sector deals send a positive message about government's support for innovation. Industry still finds the range of interventions and the connections between them unclear and action is needed to better align approaches across government.

"Coherent government support for the development of a hydrogen refuelling infrastructure serving fuel cell electric vehicles (FCEV), and the convening power of government has built confidence in the UK hydrogen mobility sector. Thanks to the Office for Low Emission Vehicles Hydrogen Transport Programme, several public stations are now operating (where hydrogen is produced by electrolysis and dispensed to FCEVs on demand). This has placed the UK firmly on the international map of early adopters of hydrogen vehicles."

Dr Marcus Newborough FREng, Development Director, ITM Power plc

Focus on outcomes

Government policies such as the Industrial Strategy Grand Challenges and missions should focus on the outcomes to be achieved (such as cleaner transport or improved health outcomes) not the technology to achieve it. This allows companies to participate irrespective of their preferred approach, incentivising R&D investment and innovation across a wider range of businesses and allowing the market to 'pick winners'.

Informed by industry

Industry has a deep, practical understanding of the technological and business challenges in its sector and user design is essential for effective policymaking. Companies feel that UK innovation policy is overinfluenced by academia and does not go far enough in capturing views from business.

Other countries appear to have greater porosity and interaction between government and industry. This helps to ensure that government support is relevant to industry's challenges and has the maximum impact on innovation and economic growth. The appointment of Industrial Strategy Challenge Directors with significant industrial experience and standing is positive, and this approach should be expanded to other innovation initiatives.

Agile delivery

Speed and agility are vital for companies working in fast-moving sectors. Compared to competitor countries, particularly in Asia, decision-making and delivery of innovation support are slow in the UK. Accountability and agility must be balanced to ensure R&D investments do not move to countries where R&D projects can be initiated more quickly, particularly in the case of large multinational companies.

"Historically, strategic UK government support for the space sector has been very successful, generating significant returns on investment in terms of economic growth."

Professor Sir Martin Sweeting OBE FREng FRS, Executive Chairman, Surrey Satellite Technology Ltd

Case study

Advanced Propulsion Centre

The Advanced Propulsion Centre (APC) has played a significant role in the growth of the UK's low carbon vehicle industry through a strategic, joined-up approach to innovation support.

It is a joint venture between the UK government and automotive industry, that aims to make the UK a centre of excellence for the research, development, and production of low carbon vehicles.

With funding from both government and industry, it offers R&D grants, mentoring support for SMEs, and networks for the UK's emerging low carbon vehicle industry.

Established in 2013, the APC has been successful. It has supported 39 projects involving 147 organisations, creating or saving over 22,000 jobs and saving 37.2 million tonnes of CO_2[1].

This success is partly due to the strategic nature of the support offered, based on clear analysis of UK sector needs, and shaped by input from both government and senior industry figures.

To increase business R&D investment:

- ⇢ Ensure that the vision for the UK as a leading nation for innovation, outlined in the Industrial Strategy, is shared across the whole of government. This will require the full support and coordination of all central government departments and agencies, devolved governments and local institutions.
- ⇢ Develop multiple routes for innovation support to cover the diversity of activities along the innovation pathway, designed to work together. Such a joined up approach does not necessarily depend on a single governmental innovation body and must involve alignment at the local, regional and national level.
- ⇢ Internationally promote an ambitious, bold, global vision for the UK, underpinned with an effective, coherent and long-term commitment to innovation to attract inward investment and international talent.
- ⇢ Increase opportunities for industry to inform policy design, building on the success of examples such as the automotive 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 Power of Collaboration. Advanced Propulsion Centre UK.. https://www.apcuk.co.uk/the-power-of-collaboration/ Accessed September 2018.