

# Partnerships

The relationships, networks and collaborations that enable access to skills, infrastructure, investment and customers, reducing the burden placed on a single company through sharing resources and expertise with others



Which resource gaps could be addressed through a partnership?  
How can successful partnerships form?

**Schemes and funding incentives** to drive partnerships and collaboration

**Networking support** to identify and incentivise partnership building, including through R&D infrastructures

**Knowledge exchange** across industry and academia

Partnerships take many different forms with partners drawn from businesses of different sizes, universities, regulators, R&D infrastructures and government. Partnerships are a means to manage and share risk by bringing together resources where a single organisation would not be able to go ahead alone<sup>60,61,62</sup>.

Partnerships are often the way businesses interact and access people, infrastructure and investment. Partnerships can enable and facilitate R&D in a range of different ways, for example:

- **Shared R&D infrastructures** reduce the financial burden of conducting R&D and provide access to specialist expertise with technicians, such as the services provided by the Catapult Centres.
- **Access to specialised skills** provided by working with one or more organisations, with expertise across the supply or production chain.
- **Sharing investment** reduces the financial burden on each individual organisation.
- **Working with customers** provides a mechanism to customise, test new products and their market

potential, while increasing the likelihood customers will invest and take up the product, process or service. For example, Qinetiq ran live exercises with the British Army to gather feedback and test solutions in real time in the field.

- **Engagement with regulators** can improve understanding of regulatory frameworks and reduce the time to regulatory approval, for example ITM Power worked closely with regulators to develop a code of practice for deploying new hydrogen fuelling stations.  
▶ [ITM Power](#)
- **Collaboration across supply chains** supports the development of the sector and increases confidence in successfully delivering a new product to market, as with project ESCAPE developing an end-to-end supply chain for automotive power electronics.  
▶ [Project ESCAPE](#)
- **Pre-competitive collaborations** support capability building across and within sectors by working together towards solving the greater challenges.

## Partnerships



### Where can the UK government play a role?

Partnerships can provide game-changing opportunities for businesses that lead to long-term growth in R&D investment in the UK.

Government has a key role in building partnerships, particularly through public R&D infrastructures; their key role in building networks should be valued and incentivised by their KPIs. Government-initiated but industry-led activities and organisations, like the APC and ATI, support strategic R&D partnerships, reaching out across supply chains to innovate and respond to challenges.

Government itself has a key role as a partner. When relevant government decision-makers have a deep understanding of the innovation system and businesses' experiences of interacting with it, better policy and programme design follows.

**Government and industry should co-design new industry-led programmes to accelerate R&D in internationally competitive sectors and technologies that are vital to the delivery of national priorities such as net zero and infrastructure. These should draw on the successes of the Aerospace Technology Initiative (ATI) and Advanced Propulsion Centre (APC), which take a strategic approach to support based on a clear analysis of the UK's sectors' needs.**

### CASE STUDY

#### DARKTRACE: CUSTOMERS WITH AN APPETITE FOR INNOVATION TO DEMONSTRATE NEW AI PRODUCTS



Photo © Jonathan Browning

Darktrace has developed pioneering, autonomous machine learning software designed to detect and defend against cybersecurity threats. One recent product, Antigena Email, was developed over 18 months by a team of 20: prototyping the algorithms and then engineering a robust, secure and scalable product packaged in a well-designed user interface. Darktrace has a cohort of 'early adopter' customers central to the development of its products. These customers are willing to provide a real-world environment for Darktrace to roll out its products, try out the solutions that have been developed and fix emerging problems. The R&D costs at Darktrace amount predominantly to staff salaries and are financed through revenue, R&D tax credits and external investors.

### GOVERNMENT: AN INNOVATION PARTNER AND CUSTOMER

Government, local authorities and public organisations are key partners in late-stage R&D for innovative companies. Whether trialling a new AI company in a local area ► [Vivacity Labs](#), testing autonomous vehicles with the British Army [Qinetiq], grants and loans from central government [investment], access to publicly funded infrastructure or the NHS participating in clinical trials, none of this development would be possible without a partnership between government and businesses.

Government is also a potential customer of innovation, from improved public services to innovative energy infrastructure or rapid manufacturing of medical devices in an emergency ► [Ventilator Challenge UK](#). **The UK public sector spent £292 billion on procurement in 2019<sup>63</sup>.** Now is the time to take down the barriers to government procuring innovation and providing the pull to deliver the innovation most needed to solve everyday challenges.



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## CASE STUDY

## PROJECT ESCAPE: BUILDING A UK SUPPLY CHAIN FOR ELECTRIC CAR COMPONENTS TO COMPETE IN A GROWING MARKET

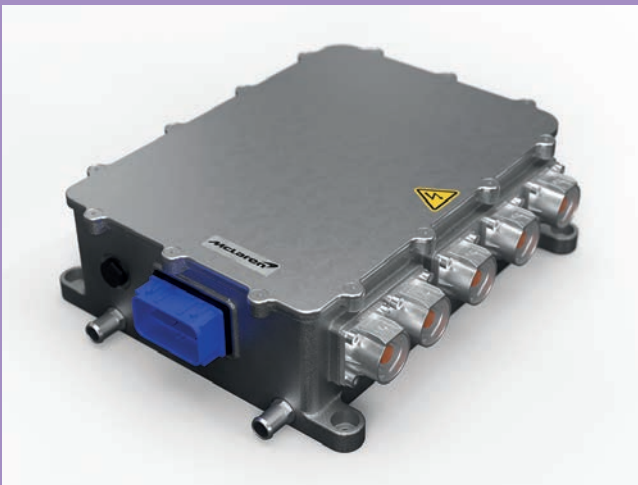


Photo used with permission from McLaren Applied Technologies

McLaren Applied are leading project ESCAPE to develop an end-to-end supply chain for automotive power electronics. The automotive sector is moving to electric cars, introducing new materials into its systems for improved performance. Silicon carbide is one such material, offering significant benefits compared to existing silicon components.

There is an opportunity to develop a UK supply chain in a globally growing market, and provide UK companies with easier access to material to their requirements. Project ESCAPE brings together organisations from semiconductor manufacturing, electronic production and packaging and McLaren as the end user to build a UK supply chain able to supply to McLaren's needs and compete globally.

McLaren has two future products based on this project, providing certainty to future resourcing. The project brings together £25 million investment, including £9.8 million in grants from the Advanced Propulsion Centre.

## CASE STUDY

## QINETIQ: TESTING AN AUTONOMOUS LAND VEHICLE IN LIVE EXERCISES WITH THE BRITISH ARMY



Photo © Ministry of Defence

QinetiQ is developing an autonomous uncrewed ground vehicle (UGV). Through a Defence and Security Accelerator programme launched in 2017, it was able to take its prototype into a live experiment with the British Army. The development team was on-hand to implement changes based on feedback coming in during the live exercises. This iterative feedback loop was described as invaluable to product development and an important part of co-creation between the users and engineers. The UGV is designed to deliver supplies across challenging terrain, working in concert with an uncrewed air system (UAS) and the controlling software, with applications in several different situations, including civil applications such as disaster relief. The Defence Science and Technology Laboratory awarded a contract to QinetiQ for its first fleet of autonomous UGVs in March 2020.

## CUSTOMERS AND LATE-STAGE R&amp;D



Bringing customers into the R&D process in the late stages can help build market demand and strengthen the business case for innovative products, as well as ensuring the product delivers to the specific needs of its future users. Customers can contribute to the financing of the project, through contracts for orders or customisation. There can be disadvantages to seeking investment from future customers, as they may introduce preferential clauses limiting sales to competitors for a defined period of time, for example.

## CASE STUDY

### UNIPART MANUFACTURING INVEST IN LATE-STAGE R&D THROUGH JOINT VENTURE WITH COVENTRY UNIVERSITY TO ACCELERATE GROWTH



Photo used with permission from Unipart Manufacturing

Unipart Manufacturing recognises the importance of investing in new skills and capabilities at the same time as investing in existing business as crucial for future growth and success. Doubling up on investment, in times of financial crisis, is an almost impossible task.

Drawing on technology roadmaps, company strengths and industry knowledge, Unipart Manufacturing approached Coventry University

with a clear vision for collaboration with industry and academia, opening up funding avenues and attracting customer interest in the latest technological innovations to strengthen its approach to late-stage R&D.

Out of this collaborative relationship, a pioneering joint venture was born: the [Institute for Advanced Manufacturing and Engineering \(AME\)](#).

Co-located on one of Unipart Manufacturing's sites, AME creates a talent pipeline of graduate engineers, provides a facility for developing new manufacturing processes and products to support the customer base. It is where new customers start their journey with Unipart Manufacturing. To make the collaboration financially viable, research projects with a customer pull or contract are prioritised and where grant funding can be secured. This funding boost leads to jobs created and further benefits the UK economy by demonstrating the UK as serious leaders in R&D technologies. The approach has driven a culture of collaboration with not just Coventry University, but with suppliers, customers, technology partners and funding bodies.

AME provides a unique blend of business and academia ensuring Unipart Manufacturing's late-stage R&D is financially viable and has resulted in £250 million in new business, including the launch of Hyperbat, a significant new entrant into the manufacture and assembly of high-voltage battery systems.

## PRE-COMPETITIVE COLLABORATION: BUILDING CAPABILITY IN AND ACROSS SECTORS

Pre-competitive R&D does not produce a competitive advantage for one company, rather it builds the capability across the sector. [The Industrial Strategy Challenge Fund \(ISCF\)](#), and industry-led joint ventures with government such as the [Advanced Propulsion Centre \(APC\)](#) and the [Aerospace Technology Institute \(ATI\)](#) provide funding and collaboration building services that bring together companies to solve a shared problem. For example, electric flight is a shared

pre-competitive challenge for the aerospace sector. The APC and ATI support and effectively match-make across the automotive and aerospace sectors, respectively, to conduct R&D for the transition to low-carbon and electric transport. Such a transition would be costly and challenging for a company to do alone, whereas this approach carries the sector together towards a common goal.

