

# Case Study

## Knowledge Transfer Partnership: Moog Components Group Ltd

### Key Facts

- Moog Components Group Ltd is a technology company, with operations in the UK, US and Canada, servicing the commercial, industrial, aerospace, marine and defence markets.
- Knowledge Transfer Partnerships is a government scheme to encourage the transfer of expertise between Higher Educational Institutes and research organisations, businesses, charities and other organisations.
- Moog were looking to design and develop a range of contactless devices to replace conventional contacting slip-rings for applications involving data and power transmission across a rotating shaft.
- Dr Ali Shirsavar, Senior Lecturer in Power Electronics at the University of Reading, acted as the academic supervisor on the KTP.
- The KTP utilised the expertise and skills of both the associate and the academic, took advantage of facilities at the University and culminated in a new generation of products for the company.
- The original KTP has led to another KTP and Moog are also funding a PhD student at the University.

### The Partner

Moog Components Group Ltd, with operations in UK, US and Canada, is a technology company with design and manufacturing capabilities, providing products and services to the commercial, industrial, aerospace, marine and defence markets and more recently the renewable energy sector.

Moog manufactures both standard and custom made products specialising in motion control and fibre optic components.

### The Challenge

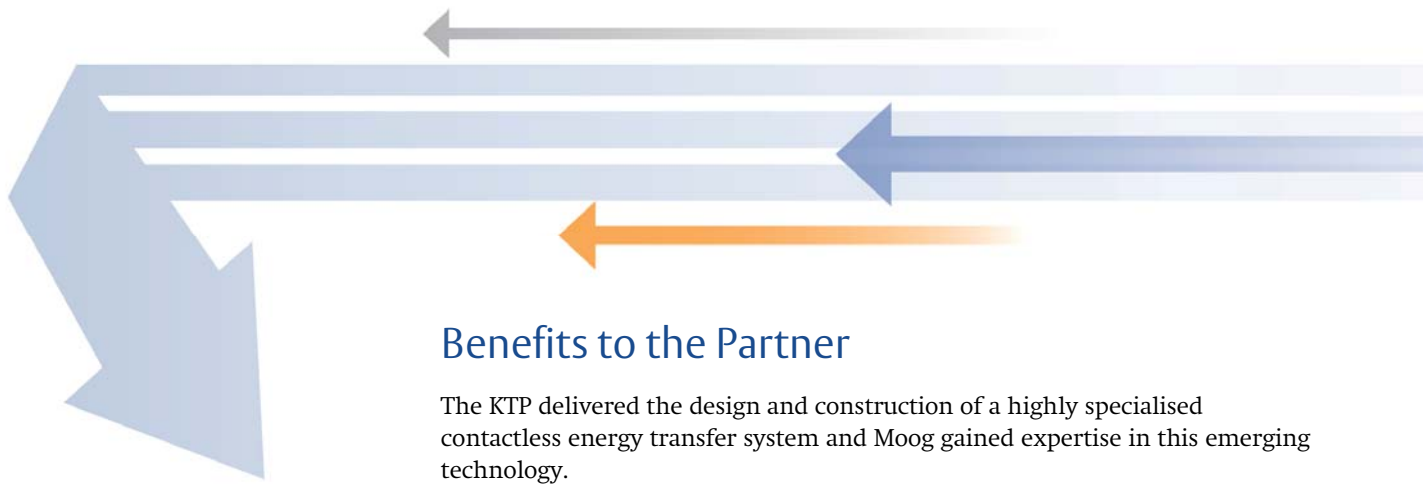
The original objective of the Knowledge Transfer Partnership (KTP) project was to design and develop a range of contactless devices to replace conventional contacting slip-rings for applications involving data and power transmission across a rotating shaft.

Typically wind turbines rely on traditional slip-ring technology to transfer electrical power from the stationary parts – the mast – to the moving parts – the rotating blades. Unfortunately this constant movement wears out the electro-mechanical device (slip-ring) which then requires replacing. To replace slip-rings engineers have to manually remove the blades from wind turbines and as wind turbines are generally located off shore and in very windy locations this procedure can be highly challenging and very expensive. Therefore a reliable device that transfers energy without contact was required.

### Solution

Knowledge Transfer Partnerships is a government scheme to encourage the transfer of expertise between Higher Educational Institutions and research organisations and businesses, charities and other organisations through employing an Associate to work on a strategic business challenge under the guidance of University experts. KTP is funded by the Technology Strategy Board along with other government funding organisations.

The Associate successfully designed and developed a fully functioning prototype of a contactless device as a potential solution to the problem. The rotating transformer (contactless device) removed the need for mechanical contact and therefore reduced the maintenance cycle.



## Benefits to the Partner

The KTP delivered the design and construction of a highly specialised contactless energy transfer system and Moog gained expertise in this emerging technology.

Moog now have strong links with the University of Reading, providing access to wider knowledge banks not previously available to the company, and access to equipment, including high value equipment shared with the University.

As a result of the success of the KTP project, Moog was able to recruit the Associate as the Research and Development Manager.

The project also allowed Moog to gain an advantage over its competitors by being first to market with this new range of products.



‘As well as helping us achieve the goals set for the project, the associate also got involved in many unrelated activities at the company. We appreciate the fresh contribution from the Associate; it has shown that modern techniques can be deployed effectively to solve previously difficult problems.’

David Norman

Managing Director, Moog Components Group Ltd

## Benefits to the University

The KTP provided an opportunity for cutting edge research which was presented at the highly respected IECON conference and a paper published in the accompanying journal.

Involvement with up to the minute industry developments has allowed academics to update their teaching practices with leading edge techniques and knowledge.

As a result of the partnership the University continues to enjoy strong links with a multinational company working in the alternative energy sector.

## Benefits to the Associate

The Associate gained in-depth knowledge in specialised energy transfer systems and honed project management skills in the development of complex products.

As a result of the success of the KTP project, the Associate was employed by the company as the Research and Development Manager.

### University of Reading

The University of Reading is a world-class research-intensive university covering a broad spectrum of disciplines across the Life and Physical Sciences, Arts and Humanities, Social Sciences and Henley Business School. Areas of particular strength include: Climate Systems Science, Preventative and Therapeutic Health Sciences, Sustainable Construction and Environments and Computational Science and Informatics.

The University works with businesses providing support for research and development, as well as access to expertise and equipment to solve business challenges. To find out how you can access the leading minds at the University of Reading please contact our Knowledge Transfer Centre.