

Can the UK deliver and benefit from the low carbon shift?

The UK's strategic capability to deliver future low carbon automotive technologies

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#LowCVP16



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The UK's strategic capabilities

Delivering a future of low carbon technology

Ian Constance

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Olympic Park, London

30th June 2016

“Turning low carbon propulsion technology into products developed in the UK”

What mark do we leave on the world?



Global car industry



Air pollution



Climate change

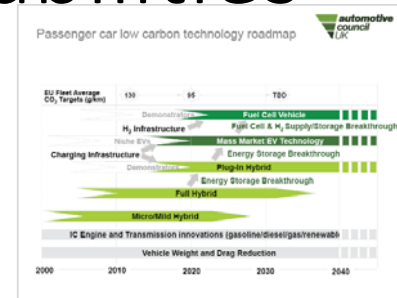


Large scale oil drilling





Strategic opportunities and capabilities



Industry consensus



Representing organisations of greatly differing size:

Micro Small Medium Large

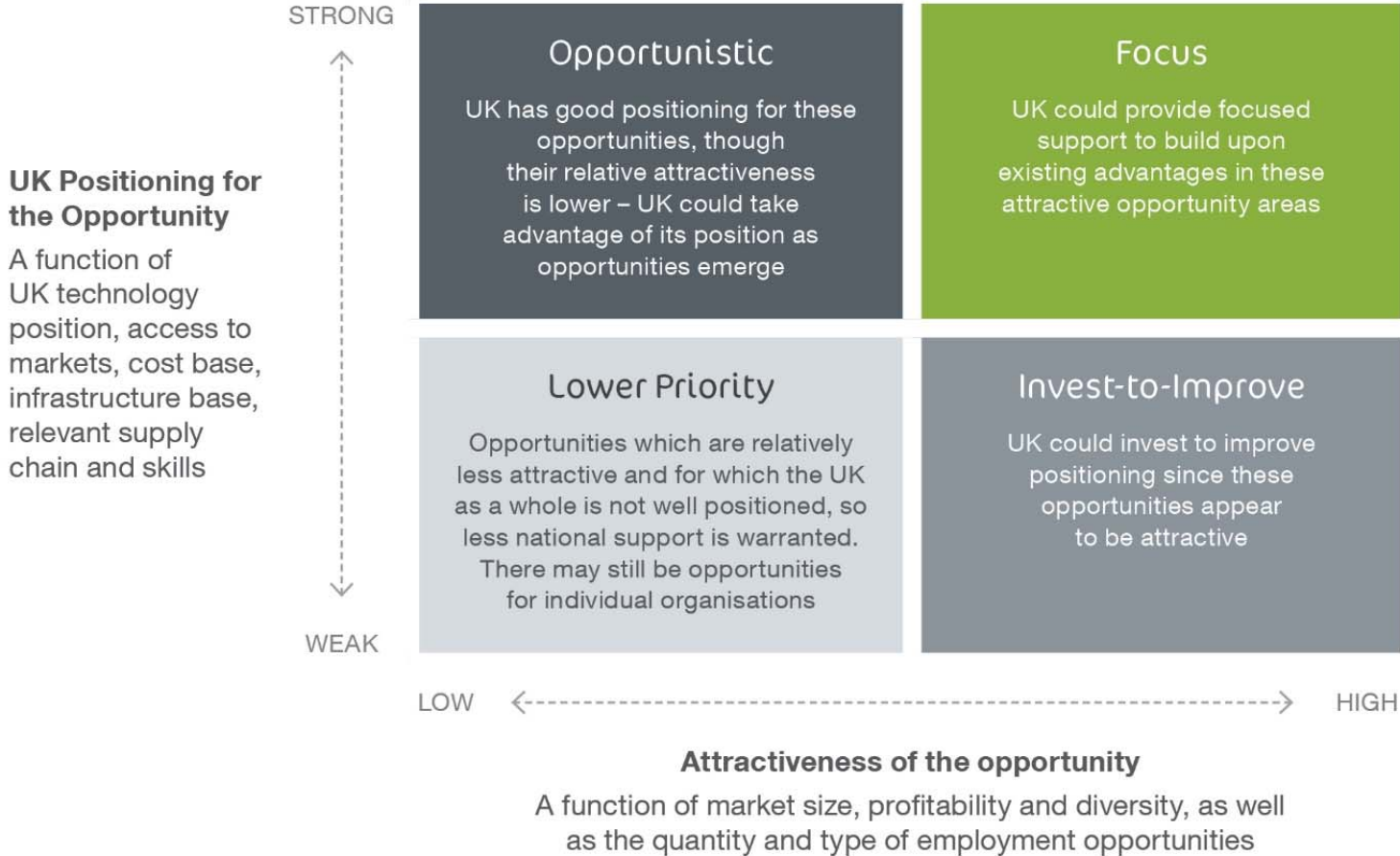


And a variety of different supply chain positions:

OEM Supplier Technology Developer Consultancy Research Other



Defining priorities



Platform for dialogue

Department for Business Innovation & Skills

automotive council UK

Low Carbon Automotive Propulsion Technologies

The UK's capability to capitalise upon future technology led research-to-manufacture supply chain opportunities

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E4tech

Produced by the Low Carbon Propulsion Centre in collaboration with Research and Innovation in Vehicle Propulsion (RIVP)

152 organisations contributed to the study

US online surveys completed

Representing approximately 60% of the US market

78 stakeholders interviewed

Representing approximately 60% of the UK market

Add a variety of different supply chain types

- Service Manufacturer
- Supplier
- System Integrator
- Engineering Service Provider
- Researcher

Data collection

The industry survey aimed to collect data and insight from vehicle manufacturers, suppliers, technology developers and engineering service providers, new entrants and others. The survey was open to all participants. It was provided via the Advanced Propulsion Centre's communication channels and a handbook of targeted individuals sent to businesses with UK operations. Key areas of academic and early stage industrial activity were supported via data provided by the principal funding agencies including EPSRC and Innovate UK. In-depth stakeholder interviews were conducted on an invitation basis with organisations both with and without UK operations, who were selected to provide a representative cross section of the research-to-manufacture supply chain and provide a mutual international perspective.

The study employed a validated technology identifier to enable comparison of data originating from multiple sources. The classification built upon the Strategic Technologies for the UK Automotive Industry which are the themes identified by the Automotive Council in 2010 as offering the greatest opportunity.

Prioritisation

The UK is not able to prioritise everything, so the study sought to focus on opportunities where the market appears attractive and the UK has a basis to be competitive. A framework was developed to

UK Prioritisation of the Opportunity

A function of UK technology position, access to markets, and those infrastructure issues relevant supply chain and skills

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Potential opportunities for the UK

The drive to dramatically reduce emissions and the recent development of the vehicle powertrain to disrupting incumbent supply chains and providing opportunity for organisations willing to embrace change. This study has identified a number of potentially viable areas that align with strong capability and good potential in organisations operating in the UK. These provide

UK should provide focused support to build upon existing in these attractive opportunity areas

Theme	Opportunity
Alternative Power	Provision of vehicle system integration services to high and low volume vehicle manufacturers and Tier 1 suppliers
Alternative Power	Research, development and manufacture of advanced internal combustion engines with improved efficiency and reduced that are adapted to hybridisation for low and high volume
Alternative Power	Development of improved vehicle aftertreatment and Tier 2 supply of high value aftertreatment sub-systems including catalytic converters for Tier 1 and Tier 2 suppliers
Alternative Power	Development and supply of alternative fuel engine solution for medium and heavy duty commercial vehicles for both original equipment and retrofit applications
Alternative Power	Application and systems engineering expertise for next generation electric drive traction and regional power electronics technology, including the research and development of high voltage power electronics
Alternative Power	Development and supply of lower cost, shorter cycle time, lightweight components, focusing at least initially on the mid volume requirements of domestic UK vehicle manufacturer
Alternative Power	Provision of research and development services to lower volume vehicle manufacturers, integrating advanced test process techniques to deliver affordable lightweighting and
Alternative Power	High volume manufacturing of battery battery packs (aided by vehicle manufacturers and/or Tier 1 suppliers) primarily demand for Tier 2 supply of materials and components
Alternative Power	Research, development and low volume manufacturing of bearing of next and next + 1 generation battery cell and

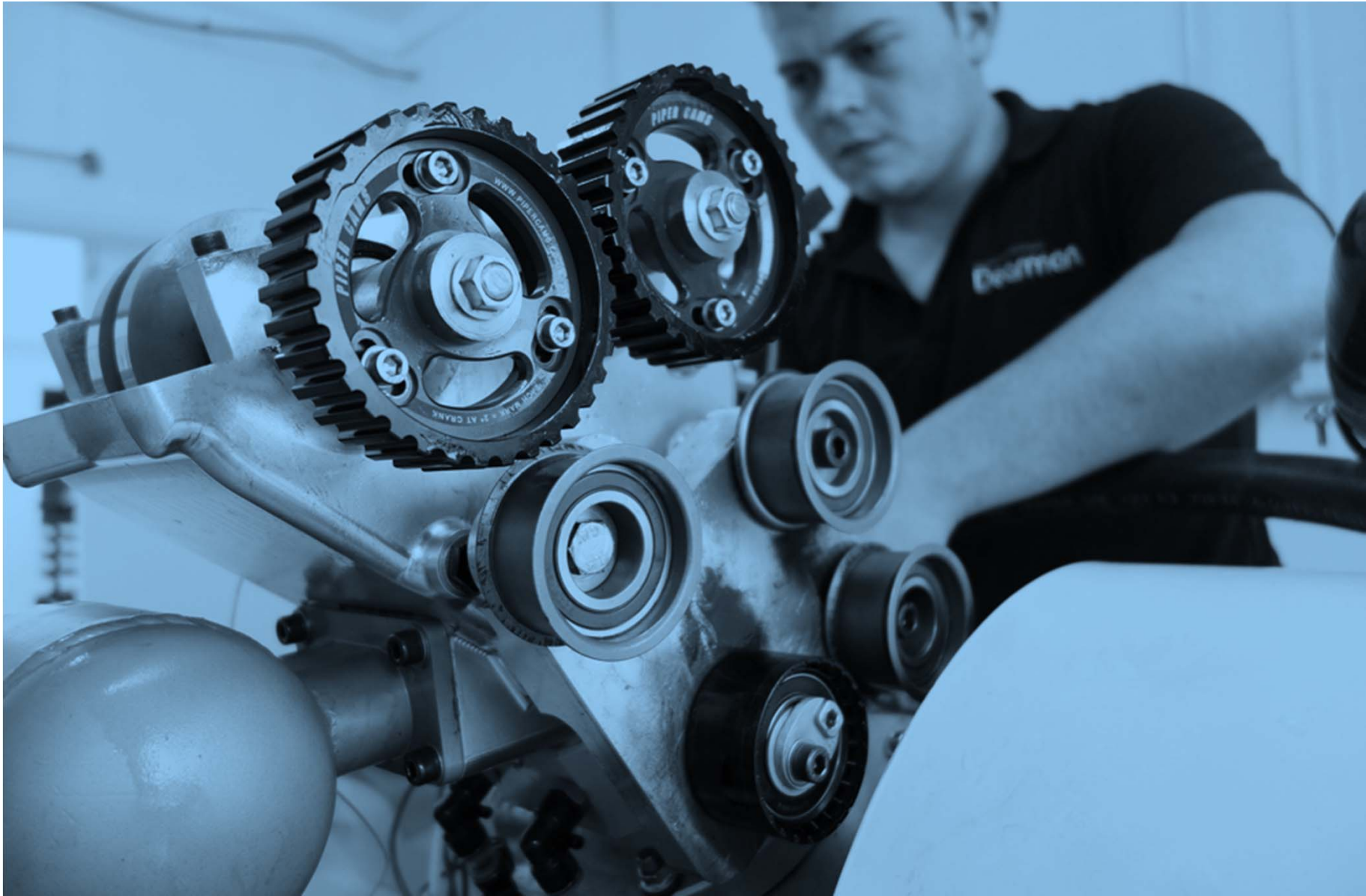
The implications for key stakeholders

Overview

The evidence base and definition of the UK's current capability and future opportunities were used to identify a series of implications and recommendations targeted toward each of the key stakeholder groups for this report: UK Government and supporting agencies, academia, industry and investors.

Approach

The study has evaluated the ready them positioning of hundreds of companies, the investment of public funds in ACV projects, the operation of thousands of patents, the submission of 230 patents and the insight of 78 influential industry stakeholders in order to determine relative aspects of UK capability, define likely future industry needs and identify potential opportunities for the UK related to low carbon propulsion technologies. This analysis has been refined through consensus building, working with 58 industry experts leading to the summary presented in this report. Contributions from organisations headquartered inside and outside the UK, with respondents located inside and outside the





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THANK YOU

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