

Centre for Sustainable Road Freight



www.sustainableroadfreight.org

Invitation to Industry

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July 2016



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EXECUTIVE SUMMARY

The Centre for Sustainable Road Freight is a collaboration between Cambridge and Heriot Watt Universities and the freight transport industry. It performs fundamental and applied research into low carbon road freight, including both vehicle engineering and logistical factors. Members of the Centre influence the aims and directions of research in sustainable road freight, and obtain the benefits, including exploitation of intellectual property, for relatively low cost. The make-up of the Centre ensures that the members have complementary interests and that commercial confidentiality is maintained where necessary. Membership is based on an annual subscription. The Centre was fortunate to obtain a research grant from EPSRC for £5.5m over 5 years, from December 2012. This supplements the industrial funding to ensure that the Centre is able to perform a comprehensive research programme to tackle all important avenues of potential sustainability improvements for road freight. The Centre is run by a Steering Committee consisting of members of the University research teams and representatives of each of the Industrial Consortium Members. This document is an invitation to the freight transport industry to participate in the Industrial Consortium.

1 BACKGROUND

HGV operations currently account for around 6% of all UK CO₂ emissions. The CSRFB brings together two of the UK's leading academic groups: from the Cambridge University Engineering Department and the Logistics Research Centre of Heriot Watt University; to make road freight economically, socially and environmentally sustainable. This is the first time that a team of international standing has fully addressed the complete 'triple bottom line' of sustainability in this sector. The team combines expertise in logistics, road freight vehicle engineering, human factors and sustainability. It works in partnership with key industry players, who help set the research agenda and drive the adoption of results by the road freight industry.

2 AIMS

The overall aims of the Centre are to:

- (i) perform a comprehensive programme of research on the sustainability of road freight transport: from tactical to strategic, fundamental to applied, micro and macro-level perspectives;
- (ii) develop innovative technical and operational solutions to road freight transport challenges;
- (iii) assess solutions to meet short, medium and long-term Government emissions reduction targets for the road freight sector, in particular, develop an achievable roadmap to provide an 80% reduction in CO₂ emissions due to road freight transport by 2050.

- (iv) bring together companies from across the road haulage industry in a cooperative group: to research and develop innovative solutions to minimizing fuel consumption in freight transport.

3 MEMBERSHIP

The Centre comprises University Researchers, an Industrial Consortium and an Advisory Board.

3.1 Industrial Consortium

The Industrial Consortium consists of industrial sponsors who each pay a membership subscription fee. The members are companies from each of the main industrial sectors concerned with road freight transport. These include:

- (i) Road Haulage Industry
 - Logistics service providers / consigners / 3PLs
 - Own-account operators
 - Other users of freight services
- (ii) Energy providers to road haulage
 - Oil and Gas industry
 - Bio-fuel producers
- (iii) Heavy Vehicle Industry (exclusive memberships)
 - CVDC Members¹
 - Other vehicle industry
- (iv) Software and information companies (exclusive memberships) :
 - vehicle routing,
 - transport information
 - Sat Nav providers,
 - e-commerce companies...

In Categories (i) and (ii), the memberships are 'non-exclusive'. Consequently, there may be nominally competing companies in each category... For example, two or more own-account operators and two or more logistics service providers.

Categories (iii) and (iv) have 'exclusive' memberships. This means that may not be any competing companies within each category... There may be only one tyre manufacturer for example. Consequently, these categories only contain companies with *complementary* capabilities, and care is taken to protect proprietary interests. In this way it is possible to promote open discussions and to enable co-operative implementation of the research results by the industrial members of the consortium.

¹ Members of the Cambridge Vehicle Dynamics Consortium also have an option to join the CSRF (see www.cvdc.org)

Current members (July 2016) are as follows:

General Members:	Vehicle Industry Members
Coca-Cola Enterprises	Firestone Industrial Products
Chevron	Goodyear Tires
Denby Transport Ltd (Associate)	Haldex Brake Products
DHL	Millbrook
Freight Transport Association	SDC Trailers
Hargreaves Services Ltd	Volvo Global Trucks
Laing O'Rourke	Tinsley Bridge Ltd
John Lewis / Waitrose	
Sainsbury's	Logistics Industry Members
Turners Transport	Optrak (Associate)
Warburtons	Transdek (Associate)
Wincanton	Value Chain Laboratories

All work is undertaken in strict commercial confidence.

Membership of the Centre is initially for a three-year period. The annual subscription costs are discussed in section 8 below.

3.2 Advisory Committee

The Advisory Board is a panel of experts from other interested organisations (who do not pay membership subscriptions). These include government, industry bodies, and other experts from organizations such as the UK Department for Transport, Society of Motor Manufacturers and Traders, Low-Carbon Vehicle Partnership, Chartered Institute of Logistics and Transport, Road Haulage Association as well as external academic experts in related fields. The Advisory Committee advises the Centre management on the performance and strategy of the Centre.

3.3 Academic Staff

Twelve academic staff from the two universities are involved in supervising research projects in the centre. The Centre has six full time research associates who are experts in appropriate fields such as heavy vehicle engineering, informatics, human factors and logistics. It will also have five PhD students. The research associates and research students will be located at the two universities in approximately equal numbers.

4 MANAGEMENT

4.1 Management Structure

The Industrial Consortium has a Steering Committee consisting of members academic staff of the two universities and one representative of each of the industrial sponsors.

The Centre Director and Principal Investigator for Cambridge University is David Cebon, who is Professor of Mechanical Engineering in Cambridge University. The Principal Investigator for Heriot Watt University is Dr Philip Greening. The Chairman of the Steering Committee is Mark Sutcliffe, Group Transport Manager, Warburtons.

The Steering Committee meets twice yearly (or more often as required), at the universities or at the offices of the industrial members. It reviews the core research programme, the products of

the research and the centre management annually. It recommends research directions and vets project submissions from its members. It also helps promote the centre and recruit new members. Project teams, consisting of groups of researchers and industry representatives meet regularly to work on specific projects within the core research programme.

The Advisory Board meets twice yearly, to review research results and advise on research directions and strategy.

The Centre Director publishes an Annual Report covering research achievements and a summary of finances.

A full time Research Manager is employed to manage the engagement with industry, ensure the effective co-ordination of resources and to build the Centre into an economically sustainable unit capable of generating income streams from research, exploiting IP and identifying and providing services as appropriate.

4.2 Consortium Agreement

A detailed Consortium Agreement has been signed by the founding members of the consortium. It includes articles under the following main headings: (i) objectives, (ii) management and progress reviews, (iii) sponsorship arrangements, (iv) funding, (v) the core research programme, (vi) intellectual property (and exploitation by the industrial sponsors or third party licensees), (vii) confidentiality and publications, (viii) termination, (ix) arbitration, and (x) liability. Further companies can join the Consortium by signing-up to this same agreement.

5 RESEARCH PROGRAMME

The research of the Centre runs under a number of ‘themes’ (see Figure) that coordinate the contributing disciplines, spanning the stakeholders and beneficiaries. This thematic structure provides direction to the work, driving engagement and strategy for future development. A set of initial research projects has been defined to run during the first two or three years. Further projects that fit within the thematic structure will continue in subsequent years, but their content is not described here.

Theme One: Core Activities: - , development and implementation, governance of the research portfolio to maximise quality and impact; planning for dissemination and exploitation of IP; roadmapping the road freight sector’s path to meeting Government’s emissions targets.

Theme Two: Data Management, Scenario Analysis and Decision Support Tools: - the creation of integrated databases assembling data on: logistics systems, freight traffic flows and related costs and externalities; development of decision-support tools for companies and policy-makers; use of the databases and tools for scenario building.

Theme Three: Optimising Long Haul Transport: - Research and applications to optimise the efficiency of long haul vehicles, their management and the logistics infrastructure within which they operate.

Theme Four: Sustainable Urban Freight: - Research and applications to optimise the efficiency of urban delivery vehicles, their management and the city logistics systems within which they operate.

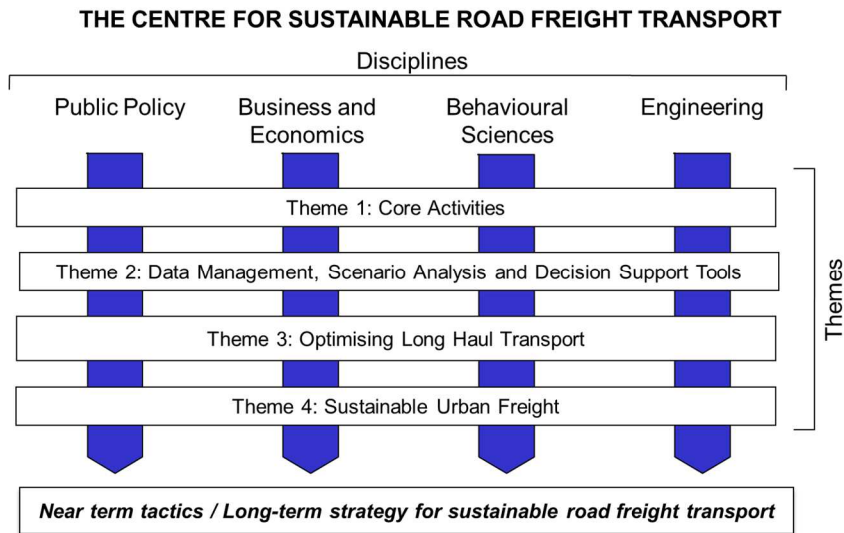


Fig. 1 The scope and breadth of the Centre's research

The core research topics are proposed by the university researchers and the industrial sponsors on an annual basis. They are vetted and approved by the Industrial Consortium. This mechanism ensures that the research is sufficiently fundamental, while still meeting some medium-term R&D needs of the member companies.

The larger projects undertaken by the Consortium are funded by research grants from various UK Government and European sources. Such grants pay for major items of equipment as well as additional research workers. The Centre was fortunate to obtain a £5.5m grant from the Engineering and Physical Sciences Research Council (EPSRC) to contribute to the first 5 years of the programme.

A major advantage of this funding arrangement is that the Consortium members gain access to research funds that may not otherwise be available to them. It also scales-up the industrial contributions and adds significant value to the research.

The research can be trailed/adopted by the consortium partners and the results are published in reports, conferences and technical journals (subject to confidentiality constraints) and patent applications.

6 BENEFITS TO MEMBERS

6.1 Access to Research Results

- (ii) Members of the Consortium will get free-of-charge access to the Logistics database and tools for analysing the data, as applicable.
- (iii) The members have the opportunity for trial and early adoption of technology and methods developed in the research.
- (iv) Members of the Consortium receive licenses to exploit any intellectual property that results from the research, on favoured terms. These terms and arrangements for the ownership of intellectual property are broadly in line with European practice and are described in the Membership Agreement (see section 4.2).
- (v) Computer simulation programs and data analysis software that result from the work of the researchers are available for internal use by the member companies.

- (vi) Testing equipment built by the researchers and located in the universities is available for use by members of the Consortium as per section 6.3 below. The designs of such equipment are available for internal use by the member companies, should they wish to manufacture duplicate facilities.
- (vii) The researchers may perform component and system tests for the consortium companies at favourable rates.
- (viii) Finally, the members have access and exposure to other academics and research groups around the two universities. These other groups are able to address an extremely wide range of issues that may be of long or short term interest.

6.2 Industrial Secondments

It is possible for *company-specific* R&D projects to be performed by employees of the member companies who are *seconded* to the universities for periods of up to one year. These engineers work on their company's problems under the guidance of the university staff. They may attend suitable lectures, have free access to appropriate university facilities, and gain experience in the modern analytical and experimental methods used in research. They return to the member companies with this experience and the ability to implement the results of their work. A small 'bench fee' is charged by the universities to cover costs associated with these secondments.

Other consulting services are available to the member companies, on favourable terms, by separate agreement.

6.3 Use of University Facilities

Members of the Consortium can gain access to research facilities and equipment in the University at reduced rates, subject to the availability of equipment.

6.4 Student Projects

All fourth year (MEng) students in Cambridge University perform major research projects during their courses. Similar projects run within the MPhil for Sustainable Development in Cambridge and the MSc in Logistics And Supply Chain Management at Heriot Watt. These projects usually involve a piece of research or innovative design and can often yield useful company-specific results in a relatively short period of time. Suitable projects can be proposed by members of the consortium and will be supervised by the university research staff in collaboration with the companies, free of normal charges.

6.5 Additional Benefits

There are several less obvious benefits of the Consortium arrangement. Firstly it is possible for individual members to influence the aims and directions of the research without committing large resources. Secondly, the Consortium provides a mechanism that enables company engineers to stay in touch with international developments in the fields of logistics and vehicle engineering. Thirdly, close contact with the universities provides member companies with access to top quality engineering students, for future employment.

7 BENEFITS TO RESEARCHERS

There are also significant benefits in the Consortium arrangement for the university researchers. In particular, secure funding helps to maintain the current level of activity and expertise in the research groups and provides some facilities that cannot be obtained from other sources of funds. Equally important, however, are the closer contacts with industry that result from the Consortium and the benefits of obtaining an industrial perspective on research projects. Further research opportunities are continually created through discussions with the industrial partners.

8 FINANCES

8.1 Budget

The Consortium will finance the salaries of the Research Manager and Research Students and can provide 'top-ups' to Research Students on EPSRC quota awards or other scholarships. The remaining funds may be spent on equipment, consumables, laboratory and office space, travel and subsistence and university indirect costs. Major items of equipment are funded by external research grants from the EPSRC, EU or TSB, as described in section 5 above.

8.2 Membership Subscriptions

Industrial Consortium members pay consortium subscriptions of approx. £16,500k per year (increasing with the RPI.) Note that 30% R&D relief is available to UK companies to offset the subscription fees. Member companies also make contributions 'in kind', for example the provision of data or access to vehicles for testing. All member companies have equal rights in the research co-ordination and other activities of the Consortium.

Associate members pay an annual subscription of approximately £5k (or equivalent contributions 'in kind'). These companies may attend Steering Committee meetings but do not have voting rights and do not share in the automatic rights to exploitation of IPR.

9 CONCLUSION

The Centre for Sustainable Road Freight provides a unique opportunity for member companies to influence, and be directly involved in state-of-the-art research into reducing fuel consumption, without committing large resources. They can work together on medium-term research and development projects in a co-operative environment and adopt or exploit the technology arising from the partnership.

FURTHER INFORMATION

For further information see www.sustainableroadfreight.org or contact:

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