Green Logistics
Green Logistics

- A four year research programme into the sustainability of logistics systems and supply chains
- A consortium of 6 UK universities
- Funded by EPSRC for 4 years
- Supported and steered by a range of organisations including the Department for Transport and Transport for London
The Research Partners

- University of Leeds, *Institute for Transport Studies*
- Cardiff University, *Logistics & Operations Management supported by Computer Science*
- Heriot-Watt University, *Logistics Research Centre*
- Lancaster University, *Management Science*
- University of Southampton, *Transportation Research Group*
- University of Westminster, *Transport Studies Group*
Project Partners

Trade Association:
Cold Storage and Distribution Federation

Professional Institute:
Chartered Institute of Logistics and Transport (UK)

Public body
Transport for London

Logistics service providers
DHL Exel

User of Logistics Services
Entertainment UK

IT / E-commerce companies
ITIS Holdings Freight-traders Ltd

Consultancy companies:
MDS Transmodal Added Value Logistics
Strengths of the Consortium

- Individual centres of excellence with expertise across all the relevant research areas
- Cohesion and a track record of successful collaboration
- Closely networked with the transport and logistics industry, professional associations and governmental organisations
- Substantial involvement in international research and collaboration with foreign academics and agencies in the field
Key Objectives

• To integrate previously uncoordinated initiatives and techniques
• To establish baseline trends against which the success of Green Logistics initiatives can be monitored
• To identify and prioritise Green Logistics measures in terms of potential environmental and economic impact
• To review the range of methodologies currently used and enhance the toolkit available for Green Logistics research
• To engage with industry and policy makers in joint Green Logistics initiatives
• To develop new analytical approaches of practical benefit to managers and policy makers
Focus on Freight Transport Operations

- As a significant generator of negative externalities and an increasingly important source of CO₂
- With large potential for economic and environmental savings
- Important changes in long term freight trends have been observed in recent years
- We need to explore trade-offs between transport and other logistical activities at different spatial scales
Green Logistics: Project and Workplan

LOGO Section
The Research Approach

• A set of individual work modules which address a wide range of important issues
• But which link together and build towards the development of an improved framework within which to conduct future research into Green Logistics
• Development of important resources to inform future research:
  – A data repository
  – A virtual centre to provide access such data and to act as a focus for dissemination activities
The 12 Work Modules (1-6)

- WM1  Review of the sustainability of freight transport in supply chains  
- WM2  Understanding and forecasting business-as-usual trends  
- WM3  Data management and data collection techniques for sustainable logistics  
- WM4  Enhanced econometric freight and commercial vehicle modelling techniques  
- WM5  Enhanced supply chain decision tools  
- WM6  Integrating vehicle routing and scheduling

Led by
Cardiff  
Heriot-Watt  
Westminster  
Leeds  
Cardiff  
Lancaster
The 12 Work Modules (7-12)

- **WM7** Scope for modal shift through fiscal, regulatory and organisational change
  - Westminster

- **WM8** Improving Vehicle Utilisation in Supply Chains
  - Heriot-Watt

- **WM9** Achieving greater sustainability in urban distribution operations
  - Westminster

- **WM10** More sustainable approaches to reverse logistics and for the collection, recycling and disposal of waste products from urban centres
  - Southampton

- **WM11** Integrating the tools of analysis and shaping the holistic evaluation framework
  - Leeds

- **WM12** Establishment of a Virtual Centre for research on green logistics
  - Heriot-Watt
Time phasing of the 12 Work Modules

Month 0  3  6  9  12  15  18  21  24  27  30  33  36  39  42  45  48

Year 1

Year 2

Year 3

Year 4
Understanding the Key Ratios

• The relationships between economic activity, freight transport activity and the consequent externalities are driven by a set of key ratios, which can be influenced by a range of technology changes and/or policy initiatives

• Our project aims to develop a full understanding of these ratios and how they can be influenced
Conceptual Framework

Value of goods produced / consumed

Weight of goods produced / consumed

Weight of goods transported by road

Road tonnes-lifted

Road tonne-kms

Total vehicle-kms

Distribution of vehicle-kms by vehicle size, weight and type

Timing of deliveries

Spatial pattern of delivery

Contribution to traffic congestion

Other externalities

Fuel consumption

Energy-related externalities

CO₂

Other noxious gases

outputs

key ratios

determinants

business transactions

emissions

Similar analyses for other modes
Research targeting key determinants of the environmental impact of freight transport
Integrated approach to Green Logistics data

• The project takes an integrated approach to identification of data needs and methods of data collection, spanning all individual work modules

• This is to ensure efficiency, consistency and transferability of data across the entire work programme

• Data, when in suitable format, will be made available to other work modules and to other researchers as appropriate
Shaping the holistic evaluation framework

• To determine (from our research in other work modules) the most appropriate methodologies and tools for research into Green Logistics
• Determine how best to integrate these into an holistic toolkit for use in future research, to improve the robustness of such research and the comparability of outputs from different studies
The challenge: to link together disparate methodologies

• Logistics research uses a wide range of methodologies, e.g.:
  – *Supply chain analysis / mapping*
  – *Statistical data analyses*
  – *Econometrics, e.g. forecasting*
  – *Operational research*
  – *Cost benefit analysis*
  – *Case study work*
  – *Action research / demonstration projects*

• We need to decide on the best techniques within these categories, and to determine how to interface them most effectively
Virtual Centre for Research on Green Logistics

FUNCTIONS
- compile databases
- facilitate networking
- organise workshops
- create and maintain website
- manage dissemination

DATA INPUTS
- Internal and external
- International coverage
- Multi-disciplinary
- Need for proactive approach

INTO THE FUTURE
Self-financing through:
- sponsorship
- subscriptions
- workshops

Heriot-Watt
Strategies for dissemination

- Website and Virtual Centre
- Dissemination events – halfway and final stages
- Module workshops – target audiences
- Academic and practitioner conferences
- Papers in academic and industry publications
- Exploitation of software developments where appropriate
Beneficiaries

- Industrial partners – direct benefits
- Wider industry – dissemination of best practice
- Government – policy formulation
- Future researchers – improved set of methodologies and rich seams of data
- Society – implementation of more sustainable supply chains
Project management

• Strategic direction – Consortium Director, ITS Leeds
• Supported by a Consortium Manager
• Steered by an Executive Management Group
  (Senior Researchers at each university, plus a small number of key stakeholders)
• Advisory Group
  (Academic, industry, other stakeholders)
• Work Module Review Meetings – Module Teams
Green Logistics – How Can I Get Involved?

Dr Andrew Glanfield
& Rebecca Harvey
Green Logistics Wants You
Why?

- Access to data
- Opinions (balance)
- Guidance
- Case studies
- Test beds for new business models
- Hosting of meetings
- Access to your expertise
- Advisory Group membership
- Grounding in the real world
- ..........
‘Who is Involved Currently ?’
Consortium Management

• **Director – Dr Tony Whiteing** (Leeds)

• **Executive Management Group (EMG):**
  - Professor Mike Browne (Westminster)
  - Dr Tony Fowkes (Leeds)
  - Dr Tom Cherrett (Southampton)
  - Professor Richard Eglese (Lancaster)
  - Professor Alan McKinnon (Heriot-Watt)
  - Professor Mohamed Naim (Cardiff)
  - Dr Andrew Glanfield (Cardiff)
  - Stephen Steele (TfL)
  - Roger Worth (DfT)
  - Richard Bailey (EPSRC)
  - John Hutchings (CSDF)
  - Alan Slater (CILT)
Consortium Management

Operational – Cardiff University:
- Dr Andrew Davies (!?!!) - Consortium Manager
- Rebecca Harvey - Consortium Administrator
- Diane Scott - Research Secretary
Current Partners

- Transport for London
- Department for Transport
- EPSRC
- CSDF
- CILT

Supporters of bid:
- Added Value Logistics
- DHL Exel
- Entertainment UK
- Freight Traders
- ITIS Holdings
- MDS Transmodal
- Roadtech
- Hampshire County Council
‘Why Should I Get Involved?’
What do Partners Get?

• **For companies:** Assistance with developing your CSR / Green Logistics policies.

• **For ‘organisations’:** Early access to research results, ability to influence a major UK research project.

• **For other universities:** Working together to share data, removing duplication, pooling of expertise.
• Mapping and diagnosis of your business systems and supply chains*.
• Seminars and expert technique training programme*.
• Networking events amongst “club” of like minded companies*.
• Partner conferences*.
• Secondment opportunities*.
• Early access to project outputs.
• Project reports.
• Dedicated website and resource centre.
• Newsletter.
• Joint publicity opportunities.
• Ability to help us influence future Government policy.

….there is only one EPSRC/DfT Green Logistics project.
Partnership Projects

- Will occur in years 2 to 4 of the project.
- Implementation of Green Logistics project outputs into your company or organisation*.
- First refusal on participation given to partners.
The Small Print (*)

• We may need to make modest charges for some of the activities and pieces of work, especially those involving on-site activities.

• These will be on a pay-as-you-go basis and fully agreed with you in advance depending on the nature and extent of the agreed work programme or activity.

• These are purely to meet our ‘additional costs in working with you directly’ since EPSRC are fully funding the core academic research activities.

• We may also ask for volunteer sponsors for some specific events or activities (conference dinners, best practice guides etc.).

• You can leave at any time.
I’m Interested, What Next?
• Complete the joining form in your pack:
  – Leave with us today
  – FAX
  – Email
  – Website: www.cuimrc.cf.ac.uk

• and we’ll contact you shortly.
Then What?

- Leaders of relevant Work Modules will be in touch before Christmas to discuss your involvement in heir programmes.
- First full meeting of the consortium will be held in the New Year.
‘I’m Unsure of the Benefits’
I’m Unsure of the Benefits

• If you’d like further information or to discuss the project before ‘signing up’ please call Rebecca Harvey who will put you in touch with the appropriate member of the EMG for a chat.

• 02920 879611

• CUIMRC@cardiff.ac.uk