



Opportunities For Improving Transport Efficiency Through Multi-lateral Collaboration In FMCG Supply Chains

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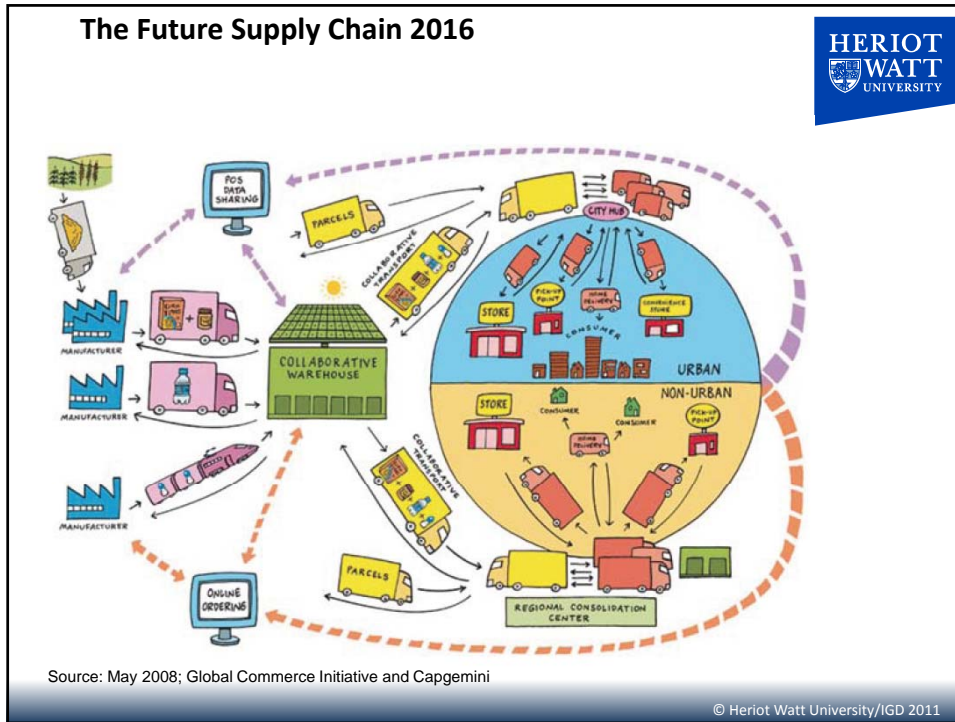
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Background to the Study




- DEFRA FISS 2006
- IGD – ECR UK
- Vehicle empty running
- Vehicle capacity utilisation
- Future Supply Chain 2016

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Methodology


- **Supply chain network design model**
- **Data Requirements**
 - UK production/supply locations to depot facilities
 - Inter depot movements
 - Depots to customer/store locations
 - Return movements (stock, waste, pallets, etc.)
 - All depot facilities
 - All vehicles used
- **Base case validation process**



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Company
Booker Group Plc
Kraft Foods
Nestle UK Ltd
Pepsico Food & Beverages Europe
Sainsbury's
Arla Foods
ASDA Stores Ltd
Bacardi Brown-Foreman Brands
Brakes
Coca-Cola Enterprises Ltd
Colgate Palmolive (UK) Ltd
Diageo Great Britain Limited
Gerber Juice Company Ltd
H J Heinz
Kellogg Marketing & Sales Co
Kimberley Clark
L'Oreal UK and Ireland
Marks & Spencer plc
Mars
Molson Coors Brewing Company
Musgrave
Palmer & Harvey McLane Ltd
Procter & Gamble
Tesco
Unilever UK
United Biscuits
Waitrose

27 Companies Taking Part in the Project



Base case statistics for one year

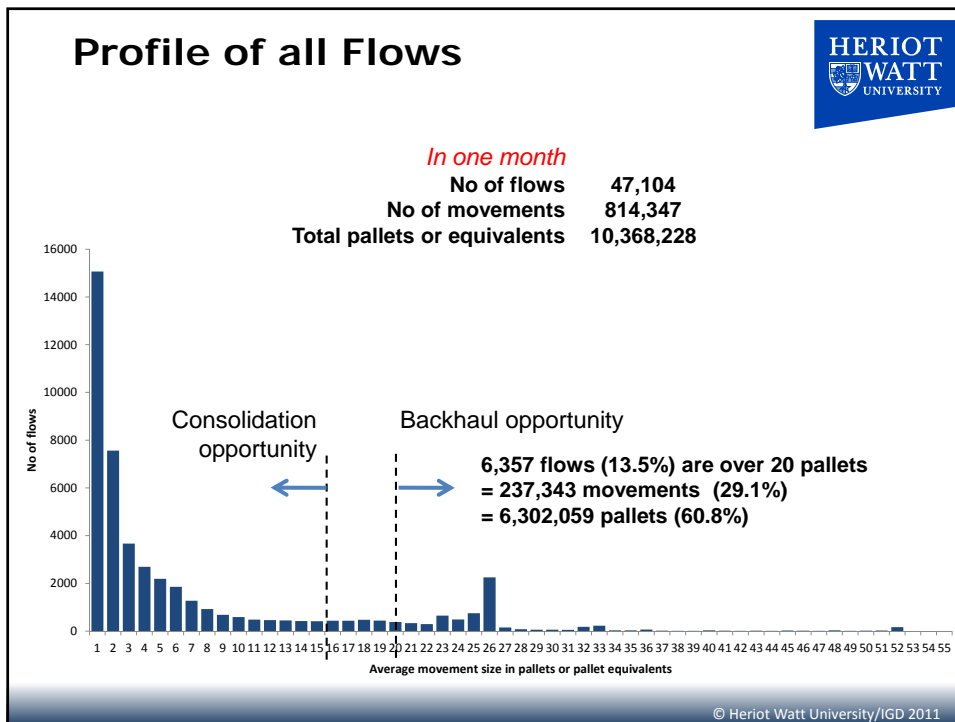
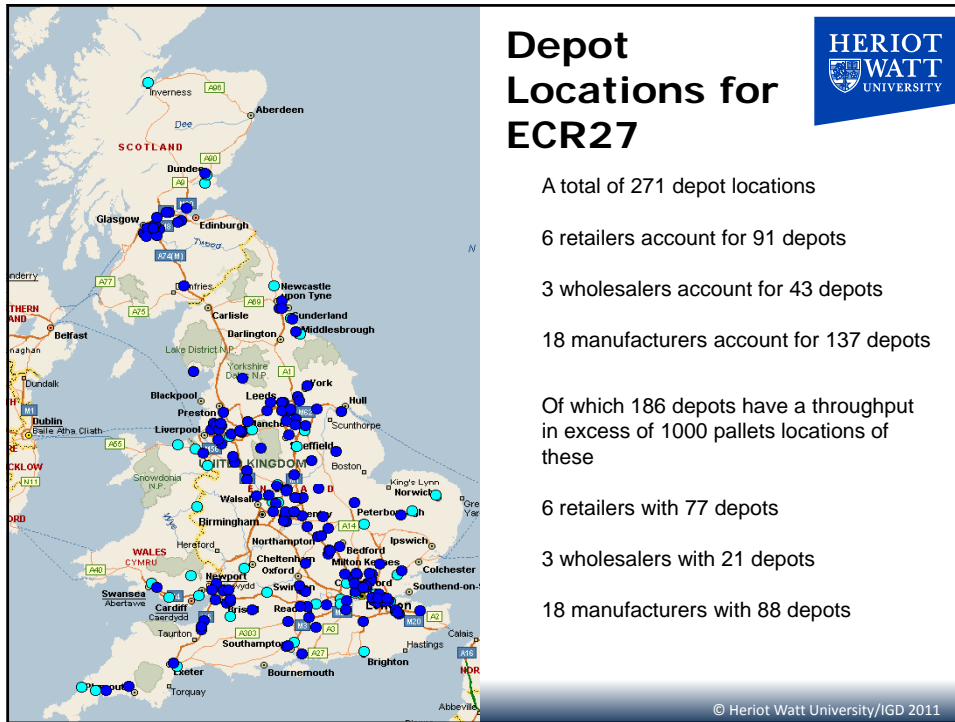
No of Flows	No of Movements /Year	No. of Pallets or Pall Equiv Moved/Year	Annual km (millions)	No of Depots	No. of Vehicles or Full Veh Equiv's	Annual Tpt CO2 Emissions (tonnes)
47,104	9,772,164	126,681,239	1,184.982	271	6,765	1,120,200

Annual Tonne km (billions)	Average length of haul (km)
10.63	124.2

Represents

- £200 billion of UK turnover
- 8% of all UK road freight movements
- 6.3% of road freight kilometres travelled
- 2.5% of movements classified as backhaul

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Initiatives Considered



Validation

1. Individual company
 - a. Base case
 - b. CofG depots within existing boundaries
 - c. Optimum boundaries for existing depots
 - d. CofG depots within optimum boundaries

Collaborative

2. Backhaul opportunities
3. Consolidation of small deliveries
4. Regional consolidation centres
5. Freight village concept
6. Use of urban consolidation centres
7. Identify inter regional multi modal opportunities

Company Specific

8. Using larger vehicles
9. Out of hours

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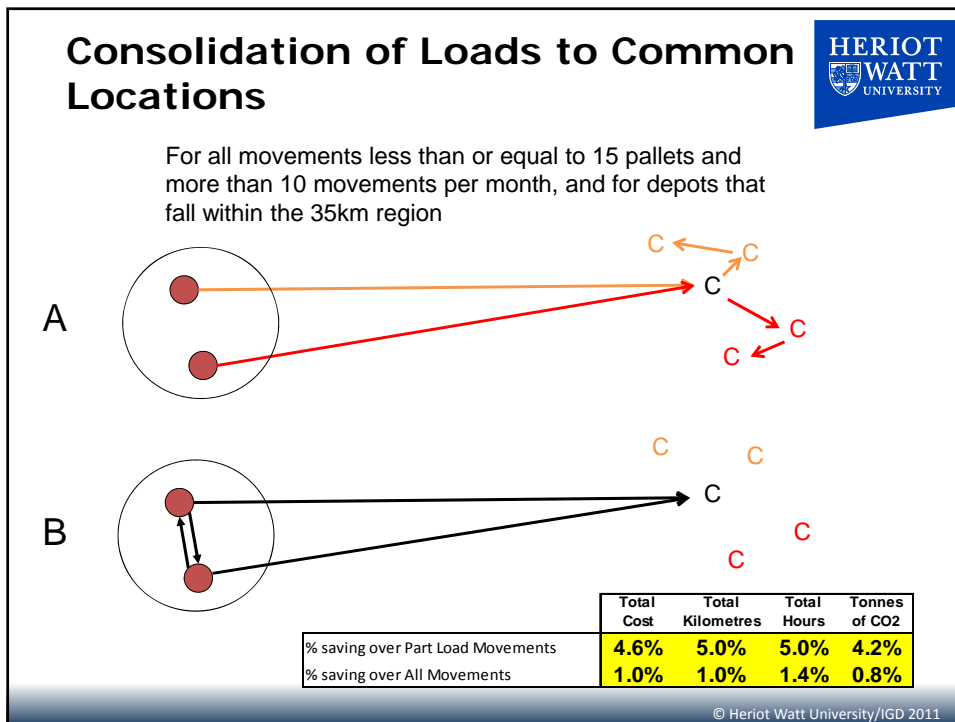
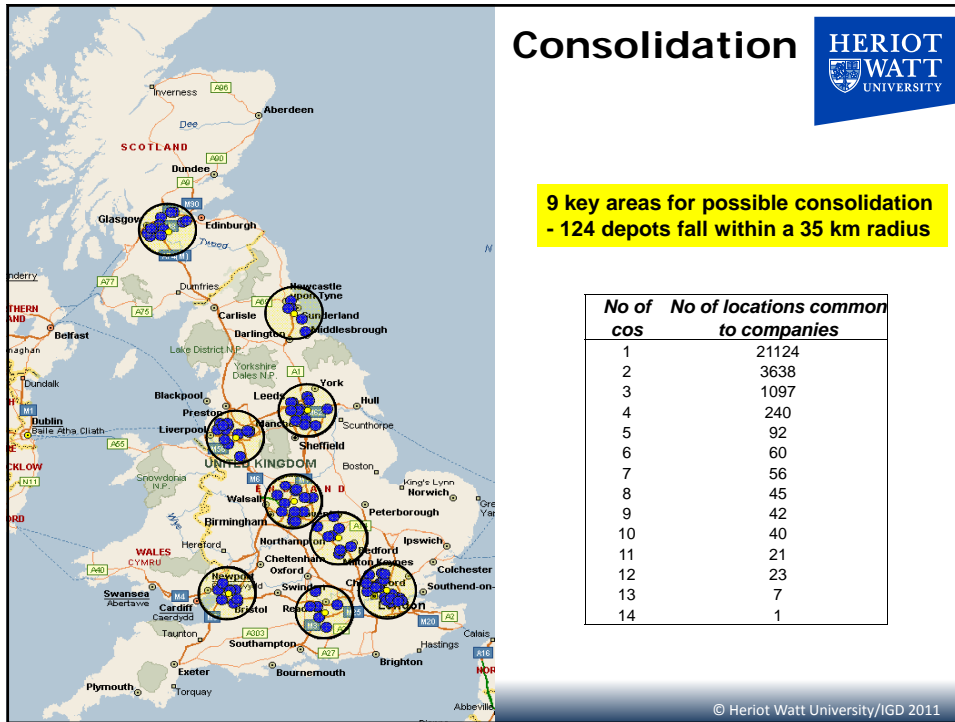
Backhauling

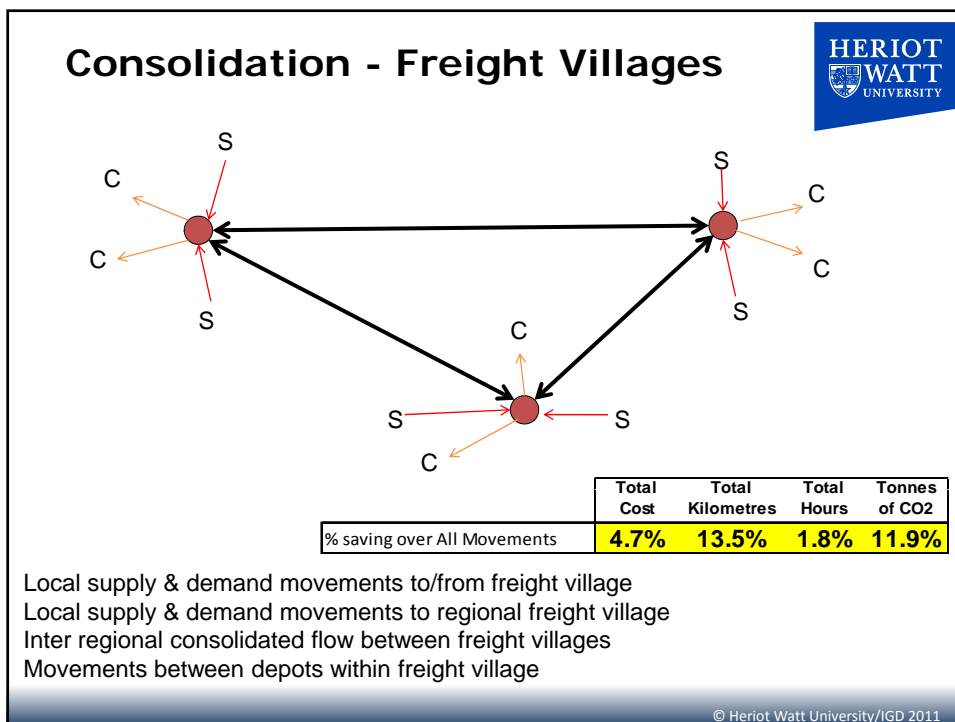
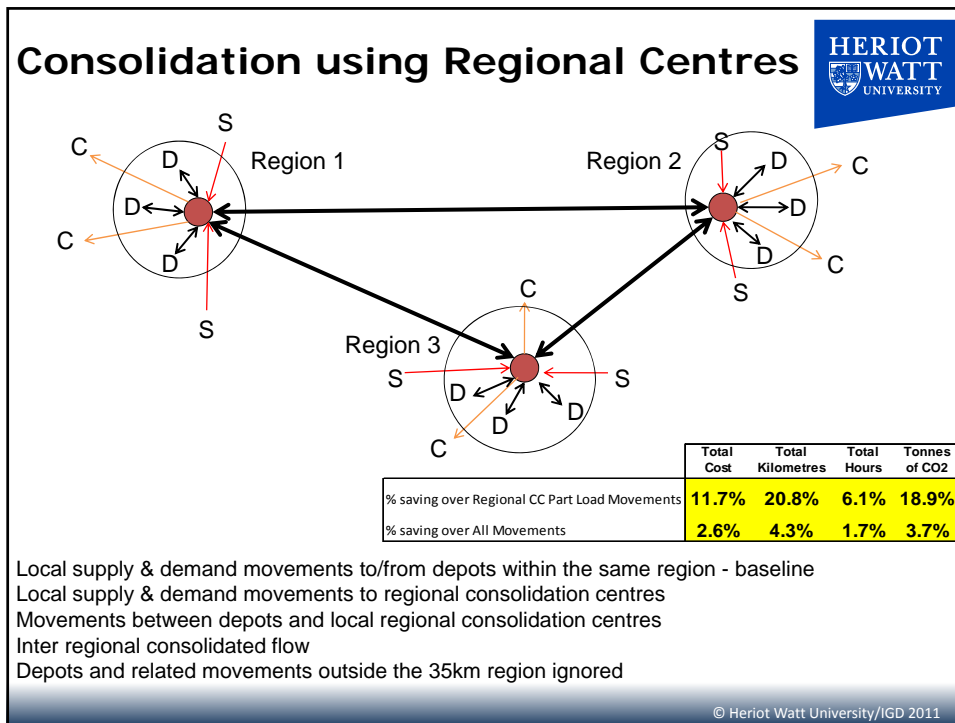


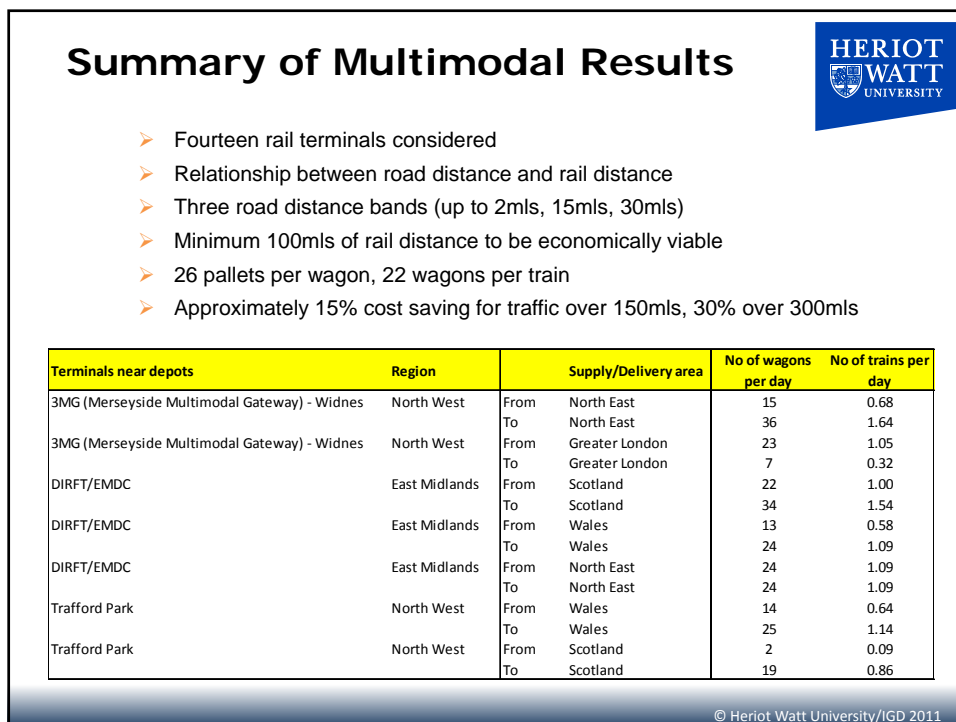
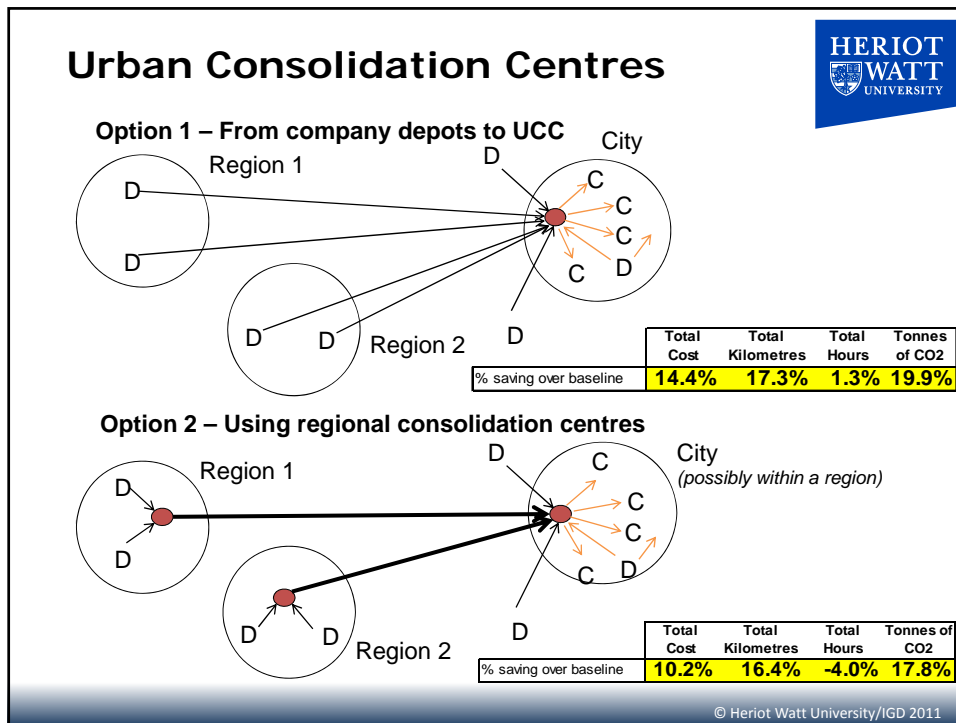
- Keep within the company if possible
- Characteristics of product (height, weight, crushability/stackable)
- Compatible vehicle type
- Loads of 20 pallets or more
- At least 10 movements per month
- Not currently classified as a backhaul (though 3PL, if used, may already do this)
- Cost justified based on a maximum diversion of up to 100km in total extra distance, or 50% of outward journey distance
- At least 15km journey
- Shift time available

	Total Cost	Total Kilometres	Total Hours	Tonnes of CO2
% saving over Full Load Movements	9.5%	14.6%	6.2%	14.5%
% saving over All Movements	5.6%	7.9%	3.5%	8.2%

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Larger Vehicles



Double Deck Trailers

Longer Semi Trailers



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Summary of Larger Vehicles Results



	Total Cost	Total Kilometres	Total Hours	Tonnes of CO2
Double Deck Vehicles				
% saving over possible movements	24.8%	35.3%	21.9%	33.5%
% saving over all movements	7.6%	9.8%	8.2%	9.8%
Longer Semi trailers				
% saving over possible movements	9.2%	13.3%	8.4%	13.4%
% saving over all movements	3.0%	4.1%	3.3%	4.4%
Longer Double Deck Vehicles				
% saving over possible movements	22.3%	33.3%	20.9%	30.9%
% saving over all movements	6.4%	8.7%	7.2%	8.5%

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Summary of Out of Hours Results



	Total Cost	Total Km	Total Hours	Tonnes of CO2
% saving with 10% extra OOH deliveries	0.35%	0.17%	0.70%	0.28%

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Conclusions



- Significant opportunities for cost reduction and CO2 reduction
- Collaborative **backhaul** offers the easiest option for saving cost and CO2
- More complex **consolidation** options need further analysis
- Knock on effect of **extra hours** from additional handlings on some options reduces cost savings from less distance travelled
- For time sensitive grocery deliveries some of the consolidation options involving multiple handlings may not be acceptable
- The use of **urban consolidation centres** shows the greatest benefit when part loads are received from depots furthest away
- Use of **larger vehicles** would be beneficial, even more so if in conjunction with backhaul and consolidation
- **Out of hours** does not save a significant amount
- **Strategic assessment** – savings shown are a maximum and likely to be less once tactical and operational considerations have been taken into account

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Conclusions - cont

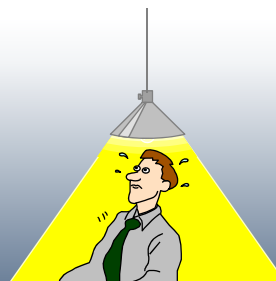


- 27 major retail, wholesale and manufacturing companies are looking for opportunities to collaborate
- We have the opportunity of talking with these companies for CO3 WP3 to understand their operations, culture, management philosophy
- We have the opportunity to help these companies implement collaborative freight activities in WP4
- We are currently talking with two retailers, a wholesaler and a manufacturer about trials – vertical collaboration

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Thank You
Questions?



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