



Supply Chain Packaging Product Cost & CO₂ Study

Q4-2009

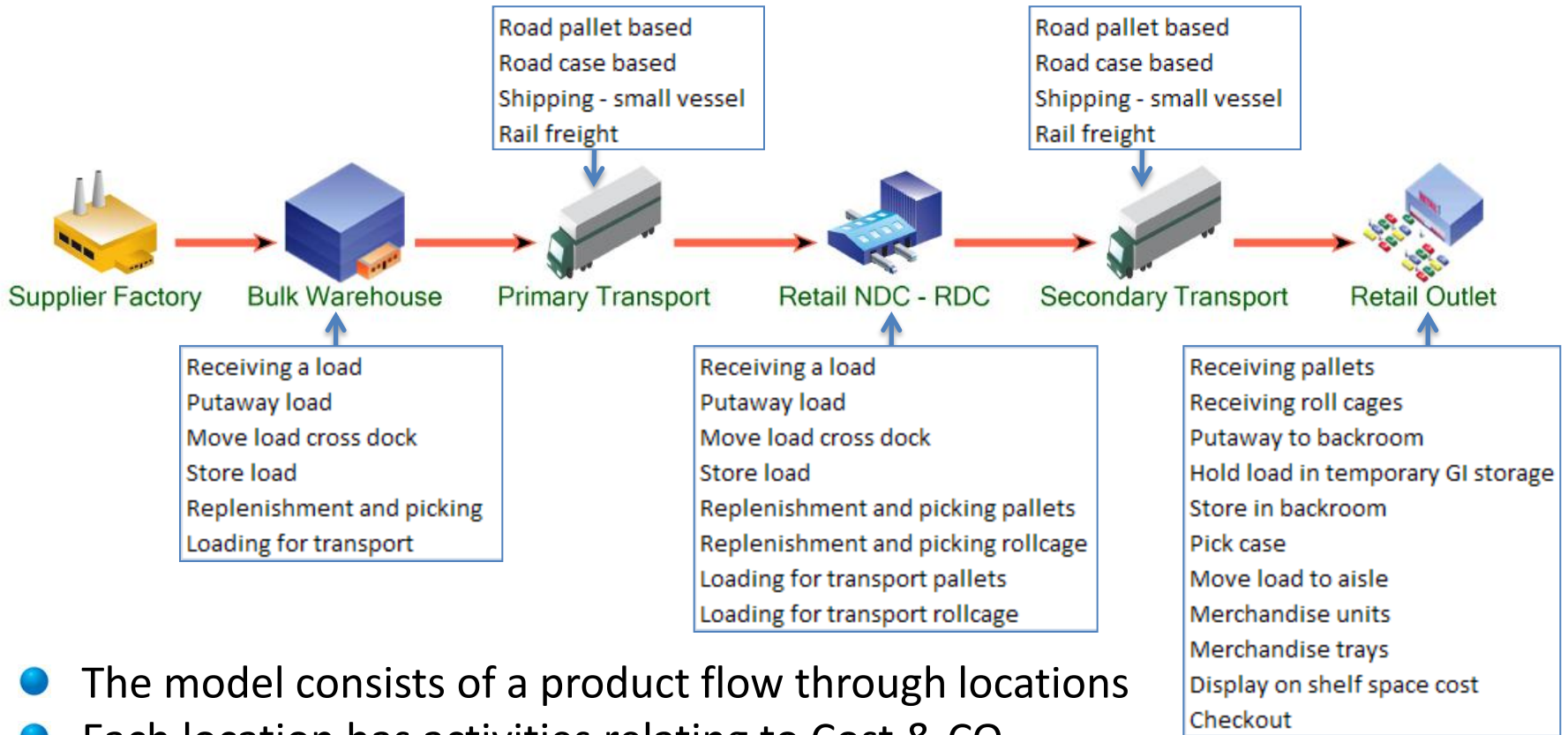
Undertaken by Incept with a Top 5 UK Multiple



Study overview

- Previous Can Makers studies have focussed on either cost or CO₂ analysis
- Current economic conditions in the UK are driving a simultaneous focus on reducing both
- Light-weighting programmes are beginning to yield diminishing returns & the focus is shifting to supply chains
- This study was undertaken to support the understanding of packaging type impacts on supply chain cost & CO₂ emissions
- The study was conducted using 2009 volumes with a UK top five Multiple on a model reflecting their end to end supply chain
- The Supplier cost figures are based on a mix of industry standard & actual aggregated data

Model flows & activities



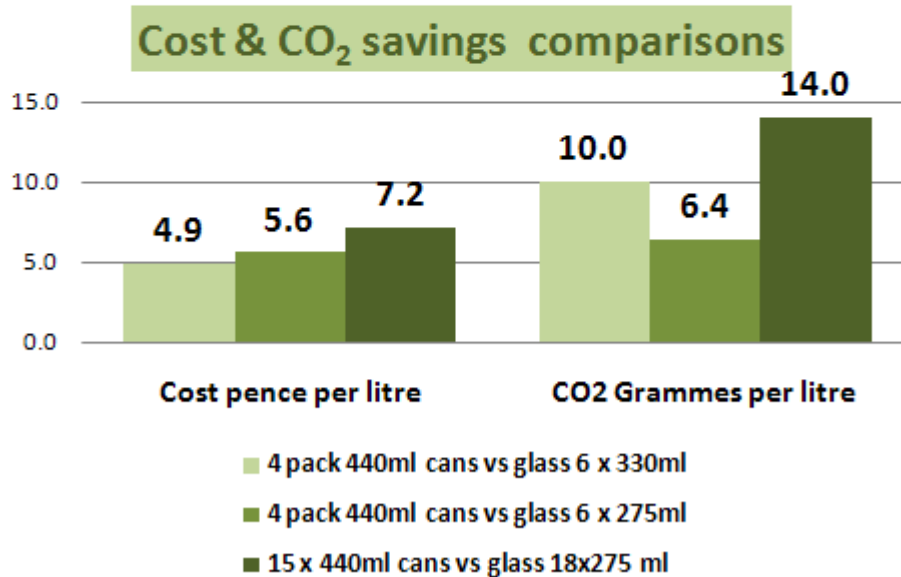
- The model consists of a product flow through locations
- Each location has activities relating to Cost & CO₂
- The calculations are sensitive to pallet loading, stock levels, weight, distance, vehicle utilisation, case configuration and more
- The boxes show the cost & CO₂ activities covered by location

Products under study

- A range of the most popular Beer product packs were selected from the retailer database and these results are a subset
- Average products were created from all SKU's of that type using operational product data
- So the products are not a specific manufacturer's but an average of all similar SKU's based on a total range of >1,500
- Normal distribution activity was used rather than seasonal or high demand flows to avoid distortions in the results
- Glass product cases typically have a low pallet utilisation resulting in high costs per unit as Cans fit up to 4x more cases per pallet
- So results are driven by the cube efficiency of the product to case converting into higher pallet loading

Beer packs Cost & CO₂ comparison

Top 5 UK Multiple key pack comparisons		
Product & savings	Cost pence per litre	CO ₂ Grammes per litre
4 pack 440ml cans vs glass 6 x 330ml	4.9	10.0
4 pack 440ml cans vs glass 6 x 275ml	5.6	6.4
15 x 440ml cans vs glass 18x275 ml	7.2	14.0



- Costs range from 4.9 to 7.2 pence per litre lower than equivalent glass packs
- Total chain savings on a case of 15x440ml cans could be 47.52p
- With typical retail distribution costs of 80p to £1 this is significant
- CO₂ performance per litre is good
- With transport CO₂ ranging from 6.4 to 14 grammes per litre lower
- The potential emissions savings are significant

Conclusions

- The performance differences between Cans and other packaging formats offer considerable potential to lower costs & transport CO₂ emissions
- The advantage of the cube efficiency and weight of cans impacts all the way along the supply chain on both costs & CO₂ for many pack configurations

Potential savings	Total cost savings	Tonnes of CO ₂
Total potential 50% volume switch	£ 17,612,553	3,032
Total potential 10% volume switch	£ 3,522,511	606
Equivalent cars removed at 50% volume switch		815
Equivalent cars removed at 10% volume switch		163

Average car emissions for 12,000 miles = 3.72 tonnes per annum¹

- While the £ savings are self evident
- **The transport CO₂ reduction for a 10% market shift is the equivalent of taking 163 cars off the road¹**