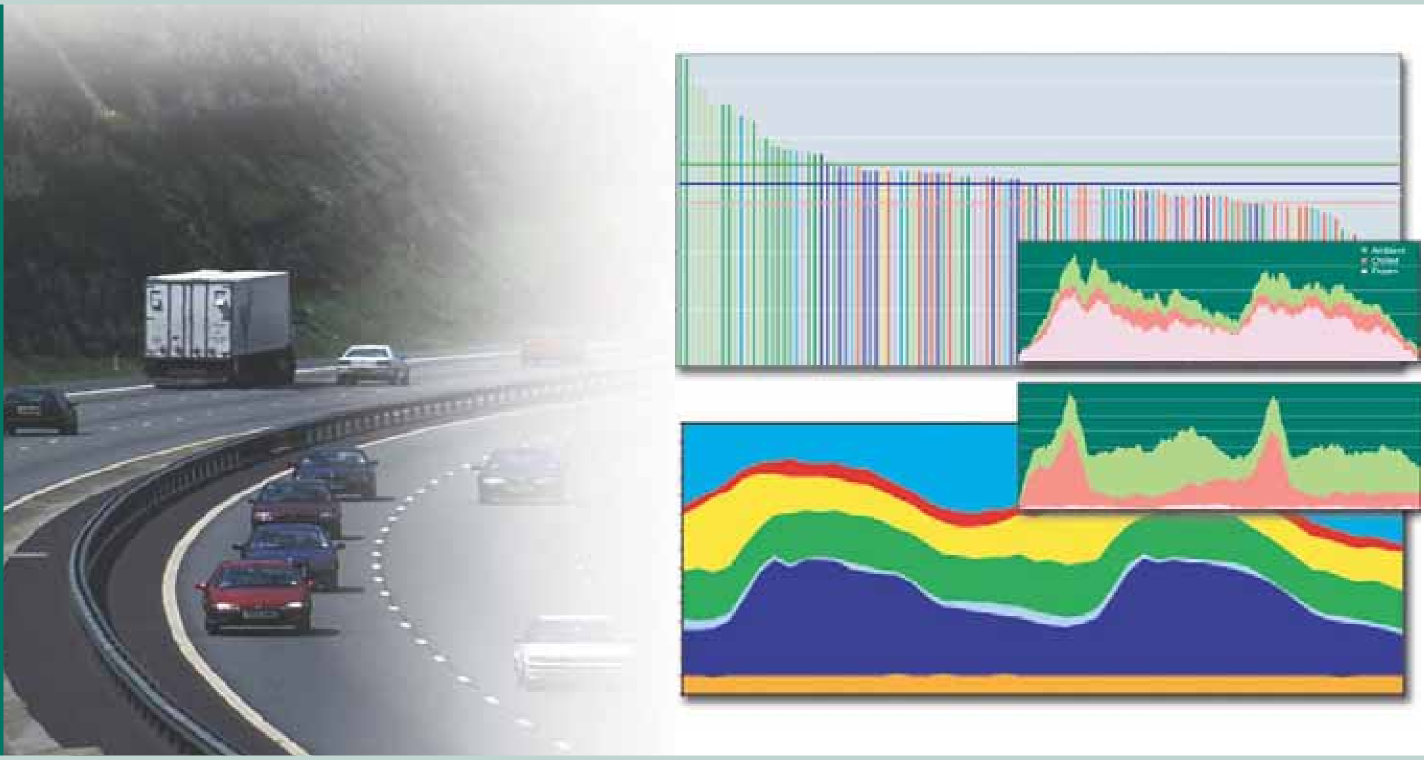
FreightBestPractice

Department for Transport

Key Performance Indicators for the Food Supply Chain

Benchmarking Guide



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Sainsburys

Somerfield

TDG

Tesco

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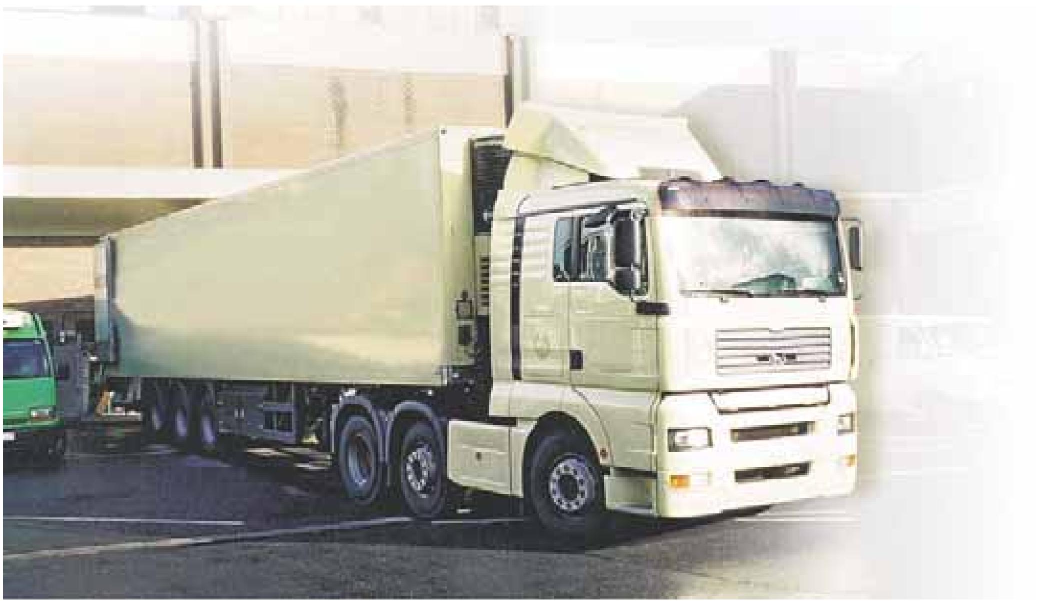
Foreword

Every successful organisation needs to manage its assets effectively and benchmark its performance against that of its direct competitors.

Over the last few years, the Department for Transport, through the Freight Best Practice programme, has supported a series of benchmarking surveys that have developed a range of Key Performance Indicators (KPIs) in a variety of industry sectors.

KPIs are essential tools for the freight industry. They provide a consistent basis for measuring transport efficiency across different fleets, comparing like with like.

This Benchmarking Guide aims to help operators identify real opportunities to maximise operational efficiency, reducing both running costs and environmental impact.



1 Introduction

Over a two-day period in October 1998, the activities of approximately 2,300 vehicles carrying food products were closely monitored. Their operational efficiency was measured against a standard set of Key Performance Indicators (KPIs). This was the first major survey of its kind in the world. It allowed the participating companies to benchmark the efficiency of their transport operations, while providing aggregate estimates of potential reductions in operating costs, energy consumption and vehicle emissions. In a follow-up, the companies indicated that the exercise had yielded practical benefits and expressed a desire to take part in a future survey.

The survey was repeated in the food sector in May and October 2002 with a much larger and more diverse sample of fleets. This Benchmarking Guide briefly describes how the survey was performed, the KPIs measured and gives a detailed analysis of the results.

The aggregate results reported here cannot be directly compared with those of the 1998 survey, since the sample of companies and fleets surveyed in 2002 was significantly different. For example, local distribution from wholesale depots to catering outlets was much more strongly represented in the 2002 survey. This increased the proportion of multiple collection and delivery rounds in the database. This resulted in a more even distribution of trips across different levels in the supply chain. Even at the sub-sectoral level, one must exercise caution in comparing average values for 1998 and 2002 given differences in the sampling frame. However, individual companies participating in both surveys have been able to compare their KPI results and assess changes in performance over the past four years.

The Cold Storage and Distribution Federation managed the study on behalf of Freight Best Practice and recruited participants from the industry. The Logistics Research Centre (LRC) at Heriot-Watt University performed the survey. The analysis was undertaken by Professor Alan McKinnon, Dr. Yongli Ge and Mr. Duncan Leuchars of the LRC.

The main objectives of the survey were to:

- Enable companies to benchmark the efficiency of their road transport operations
- Estimate average levels of efficiency at both sectoral and sub-sectoral levels
- Assess the potential for improving the efficiency of delivery operations

To achieve these objectives it was essential that companies measure efficiency on a consistent basis. They did this by collecting data over the same 48 hour period and recording it in specially constructed Excel work books. Companies were issued with manuals that defined the survey parameters and explained in detail how the data was to be collected. Several workshops were held with staff responsible for compiling the data to provide additional advice and encouragement.

Since 1998, the data collection process had been upgraded in several ways. The software had been completely revised to:

- Facilitate the downloading of data from companies' internal computer systems
- Undertake more rigorous consistency checks during data entry and prior to analysis
- Allow companies to calculate their own KPI values in-house
- Offer more flexible means of returning data to the LRC for benchmarking e.g. by email

As in the 1998 survey, companies were asked to provide three types of information:

- General information about the vehicle fleet
- Data on all trips performed by sample vehicles during the 48 hour period
- Hourly audit of vehicle activity during this period

The survey focused on the activities of rigid vehicles and semi-trailers.

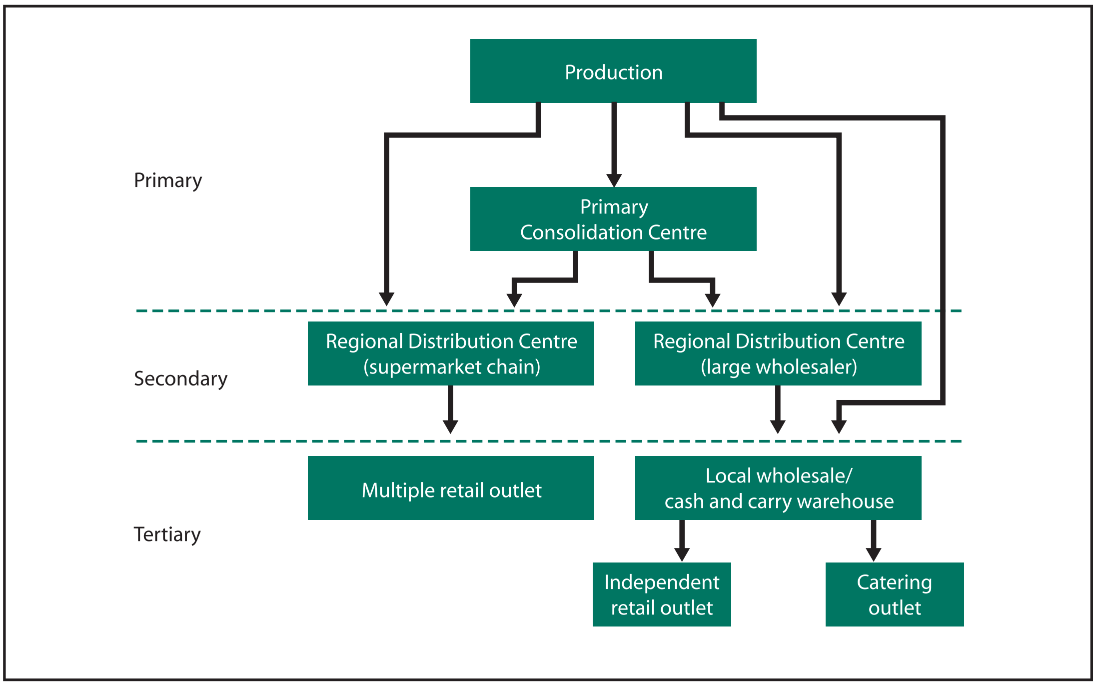
2 The Key Performance Indicators

The KPIs monitored in the 2002 survey were identical to those used in 1998, allowing companies taking part in both surveys to compare their performance in these two years. The KPIs fell into five categories:

- **Vehicle fill** - this was measured by payload weight, pallet numbers and average pallet height. The vast majority of loads were unitised either on wooden pallets or in roll cages. Where products were carried in non-unitised form, conversion factors were used to translate the load data into a pallet-equivalent measure
- **Empty running** - the distance the vehicle travelled empty. This excluded the return movement of empty handling equipment, packaging and unsold product where this prevented the collection of a backload. Such movements of 'returns' were separately recorded
- **Time utilisation** - this was classified into seven activities: running on the road, being loaded/unloaded, pre-loaded awaiting departure, awaiting loading/unloading, undergoing maintenance/repair, driver daily rest period and idle (i.e. empty and stationary)
- **Deviations from schedule** - Delays were attributed to various causes, including problems at supplier and customer premises, internal company actions, traffic congestion and vehicle breakdowns. This KPI was included because instability in transport schedules can affect vehicle utilisation. It is more difficult for companies to plan backhauls and more complex multiple collection/delivery rounds if they cannot predict schedules
- **Fuel consumption** - for both motive power and refrigeration equipment

The survey covered the primary distribution of food from factories to regional distribution centres (RDCs), either directly or via primary consolidation centres (PCCs), secondary distribution trips from RDCs to shops and tertiary distribution from wholesale depots to independent retailers and catering outlets (Figure1).

Figure 1 Structure of food distribution channels



2.1 Survey Statistics

A total of 27 companies participated in the 2002 survey. They operated (or contracted) 53 separate vehicle fleets, comprising 3,088 trailers, 1,446 tractor units and 546 rigid vehicles. All consignments were converted into industry standard pallet-loads (1000mm x 1200mm) to establish a common denominator for the analysis of vehicle utilisation. The equivalent of just under a quarter of a million pallet-loads were distributed by the vehicles in the sample over the 48 hour period. During this time, the vehicles travelled almost 1.5 million kilometres. Only journeys that started and finished during the survey period were monitored. The statistics of both the 1998 and 2002 studies are compared in Table 1. The results presented here are anonymised. Individual companies are only told which is their data in each figure.

Table 1 Survey Statistics

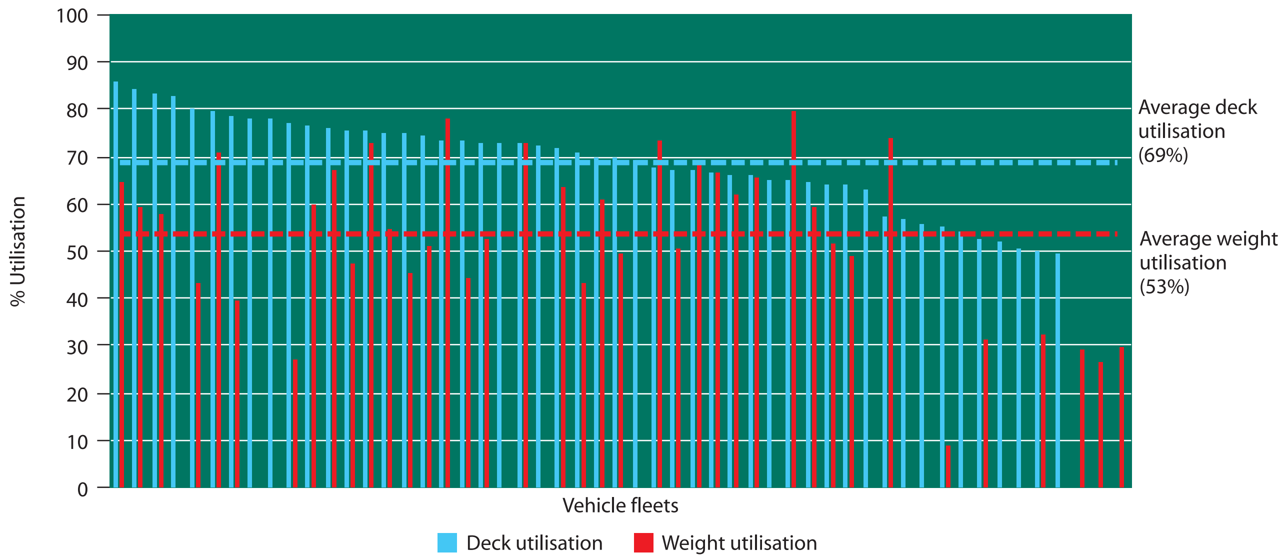
Survey Statistics			
	1998	2002	% increase
No. of fleets	36	53	47
Tractor units	1,393	1,446	4
Trailers	1,952	3,088	58
Rigid vehicles	182	546	200
Journeys	4,024	6,068	51
Journey legs	11,873	24,443	106
Pallets delivered	206,202	220,657	7
Kilometres travelled	1,161,911	1,454,221	25

2.2 Vehicle Fill

Vehicle fill was measured primarily in terms of pallet numbers. The actual number of pallets carried was expressed as a percentage of the maximum number that could have been carried. This pallet-load measure indicated the proportion of vehicle deck area used. On loaded trips, an average of 69% of the available pallet positions were occupied. The variation in this KPI across the 53 fleets, of which deck area utilisation data was provided for 50, is shown in Figure 2. Values were spread fairly evenly across the range 32%-82%. The highest utilisation was achieved in articulated vehicles engaged in the primary distribution of bulk loads or single-drop secondary distribution from RDCs to supermarkets. The lowest values were recorded for rigid vehicles on multiple drop rounds.

The survey also collected data on the average height of pallet loads (Figure 3). Goods were stacked to an average height of 1.5-1.7 metres on 67% of the loaded journey legs. This corresponds to the typical slot height in warehouse racking across the food supply chain. On 9% of the loaded trips, average heights fell below 0.8 metres. Across the full sample of loaded trips, approximately 76% of the available height was actually used. In this calculation, allowance was made for empty space required at the top of refrigerated vehicles for the circulation of cold air. Multiplying the average height used (76%) by the average deck area coverage (69%) gives an estimate of 52% for the average volume (cube) utilisation of vehicles on loaded trips.

Figure 2 Percentage vehicle utilisation across 53 fleets (ranked by deck utilisation)



The average weight-based load factor was only 53% across the sample of 39 fleets that supplied weight data. In the food industry, weight-based measures of vehicle utilisation are generally lower than volumetric measures because most loads of grocery products have a relatively low density and so 'cube out' before they 'weigh out'. Weight-based utilisation values displayed much greater variability than deck are autilisation values. This partly reflects the wide variations in the density of food products. As in the1998 survey, there was little correlation between the levels of volume and weight utilisation.

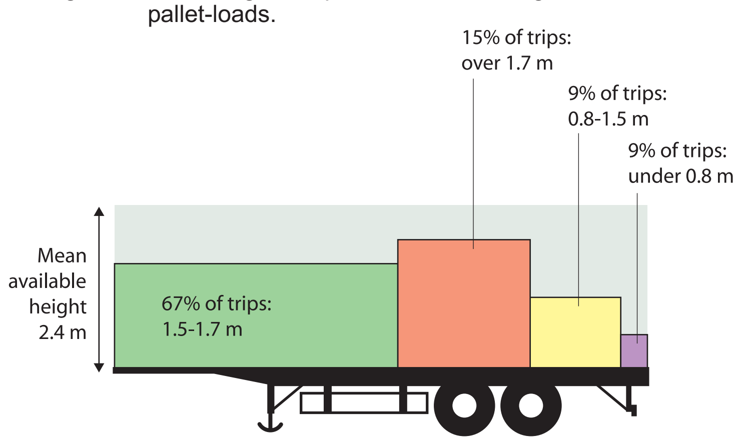
On 41% of loaded journey legs, and for 27% of the total distance travelled laden, vehicles were less than half full when measured by deck area utilisation (Table2). Although this level of utilisation may seem low, it should be remembered that many of the legs were part of multiple drop rounds. In these cases payload diminishes with every delivery and later legs are inevitably lightly loaded. At the other end of the spectrum, for 37% of the distance travelled, vehicles had over 90% of their available deck area filled. This occurred mainly on primary distribution legs and outbound deliveries from RDCs to supermarkets. For example, 60% of the distance travelled by refrigerated vehicles engaged in primary distribution had at least 90% of the deck area covered by a load.

2.3 Empty Running

Of the 1.45 million kilometres travelled by the sample vehicles over the 48 hour period, 280,000 kilometres were run empty - approximately 19% of the total. This level of empty running was significantly below the average for the UK truck fleet as a whole in 2001(26.4%)1. This is only slightly lower than the Government estimate of empty running by vehicles involved in the distribution of foodstuffs (22.7%)[1]. There were, nevertheless, wide variations (Figure 4).

Average figures for empty running are particularly sensitive to the mix of trip types in the sample. If the data contains a large proportion of multiple drop trips,

Figure 3 Percentage of trips with different heights of pallet-loads.



the average figure for empty running tends to be lower. On these trips the vehicle is usually only empty on the final leg in the journey, over a small proportion of the total distance travelled. This partly explains the wide variation in the proportion of empty running across the 53 fleets surveyed.

Even fleets engaged in a similar pattern of delivery, however, can have markedly different levels of empty running. In some cases, this can be explained by differences in the types of handling equipment used and how it is returned. The return of roll cages from supermarkets, for instance, was classed as 'running with returns' rather than empty running, as it represented an essential stage in the distribution process and limited the opportunity to pick up a backload. A vehicle carrying only its usual complement of wooden pallets, on the other hand, was classed as empty, since it could be used to carry a backload. In some cases, empty running is virtually eliminated since these vehicles are handling heavy flows of returns.

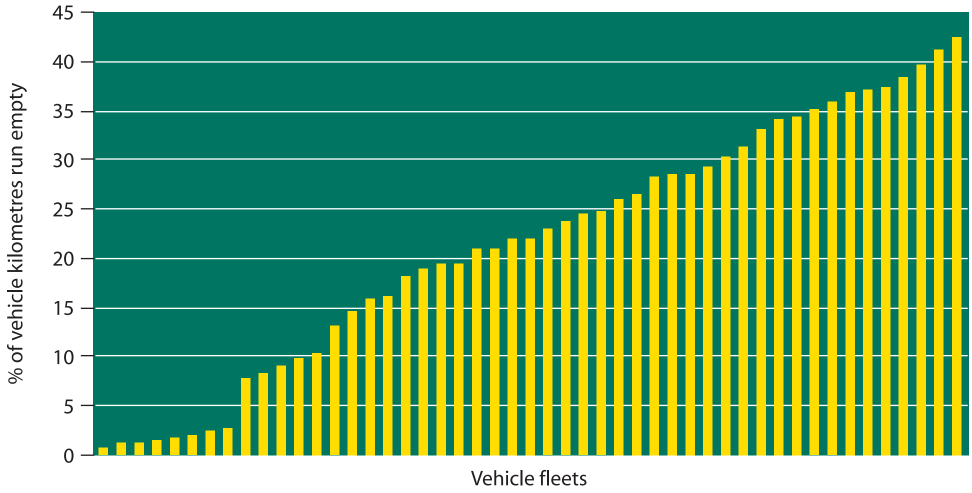
Despite these operational differences, significant variations in the level of empty running remain. This suggests that some companies could do more to find backloads. This survey, like the previous one in1998, revealed that some companies could release more vehicle capacity for supplier collections by consolidating return loads of empty handling equipment on fewer trips.

Table 2 Low and High Vehicle Utilisation

	Under 50% of available capacity used		Over 90% of available capacity used	
	by deck area	by weight	by deck area	by weight
% journey legs	41	51	22	14
% distance travelled	27	36	37	20

1 'Transport of Goods by Road in Great Britain 2001' Transport Statistics Bulletin, Department for Transport, Local Government and the Regions (2002)

Figure 4 Percentage of vehicle kilometres run empty

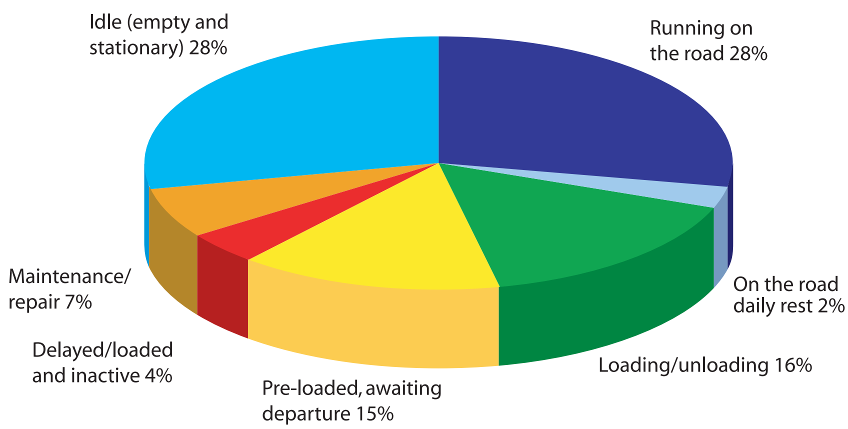


2.4 Time Utilisation

On average, rigid vehicles and trailers spent only 28% of their time running on the road (Figure 5). They spent a similar amount of time empty and stationary. Of the 3,128 vehicles included in the hourly audit, an average of 877 were idle during any given hour. This represents a substantial under-utilisation of expensive vehicle assets. The average vehicle also spent around a fifth of the survey period waiting to be loaded, to depart from the collection point or to be unloaded at its destination. Three-quarters of this waiting time occurred at the collection point, where the vehicles were on average preloaded three and a half hours before their departure. In the case of temperature-controlled distribution, this practice significantly increases energy consumption, since it is much less efficient to refrigerate products in a vehicle than in a cold store.

Companies were asked to indicate the dominant activity of vehicles for each hour of the survey period. This data was used to construct a time utilisation profile for the full sample of vehicles over 48 hours (Figure 6). The pattern of vehicle usage was very similar over the two days of the survey. The proportion of vehicles running on the road rose steeply after 05:00 hours, reaching a peak of roughly 50% around 08:00. This section of the profile is almost identical to that observed in 1998. Half of the time the vehicles spent running on the road occurred during a nine-hour period between 06:00 and 15:00. An average of 40% of the fleet was on the road at any given time during this period. In contrast, over the 12 hours between 17:00 and 05:00 only 23% of the fleet was running on the road.

Figure 5 Summary of typical use of rigid and trailer



The number of vehicles engaged in other activities remained fairly stable over the 48 hours, with the exception of 'preloaded awaiting departure'. Roughly twice as many vehicles fell into this category between 01:00 and 05:00 as at other times of the day. This corresponds to companies pre-loading vehicles during the night in advance of the main wave of deliveries departing after 05:00.

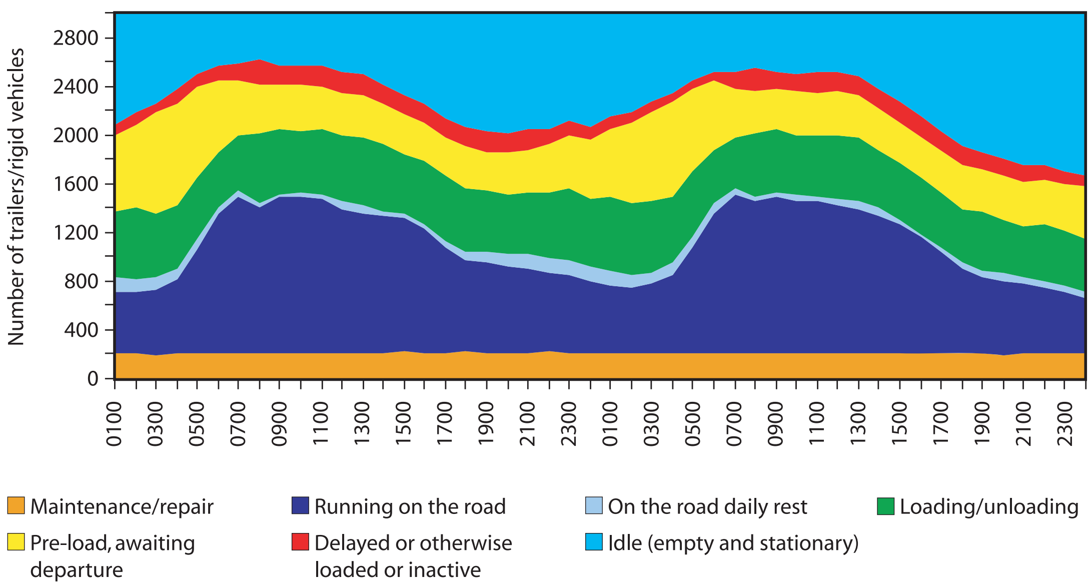
Using the trip audit data, it is possible to analyse fluctuations in the number of pallets in the delivery system over the 48 hour period. The results for both the primary and secondary levels of the supply chain are shown in Figure 7. The relative proportions of ambient, chilled and frozen product delivered in each level reflect the composition of the sample. They are not representative of the actual mix of products in the UK food supply chain. For example, the majority of the movements measured at the primary level in this study consisted of frozen products. The interesting aspect of this delivery volume data is its variation over the period of the survey.

At the secondary level (between RDC and supermarket), the number of pallets in the system peaked between 06:00 and 08:00, particularly for chilled product. Ambient product movements into retail outlets between 09:00 and 22:00 displayed a reasonably steady flow. A significant amount of secondary delivery to supermarkets was recorded in the early hours of the morning. This was much greater than in 1998. This difference is partly due to the sharp increase over the past four years of the number of supermarkets open 24 hours and able to receive deliveries during the night.

Peaks in primary flows (from factories to RDCs) were less pronounced, but again occurred between 06:00 and 09:00. The coincidence of these delivery peaks at secondary and primary levels during the morning rush hour was also observed in the 1998 survey. ECG76 commented that 'while secondary distribution to retail outlets is largely constrained by shop opening hours, there may be less justification for concentrating primary deliveries in the morning peak period. By altering daily delivery cycles, particularly for the movement of supplies into RDCs, it would be possible to integrate primary and secondary operations more effectively to raise vehicle load factors'.

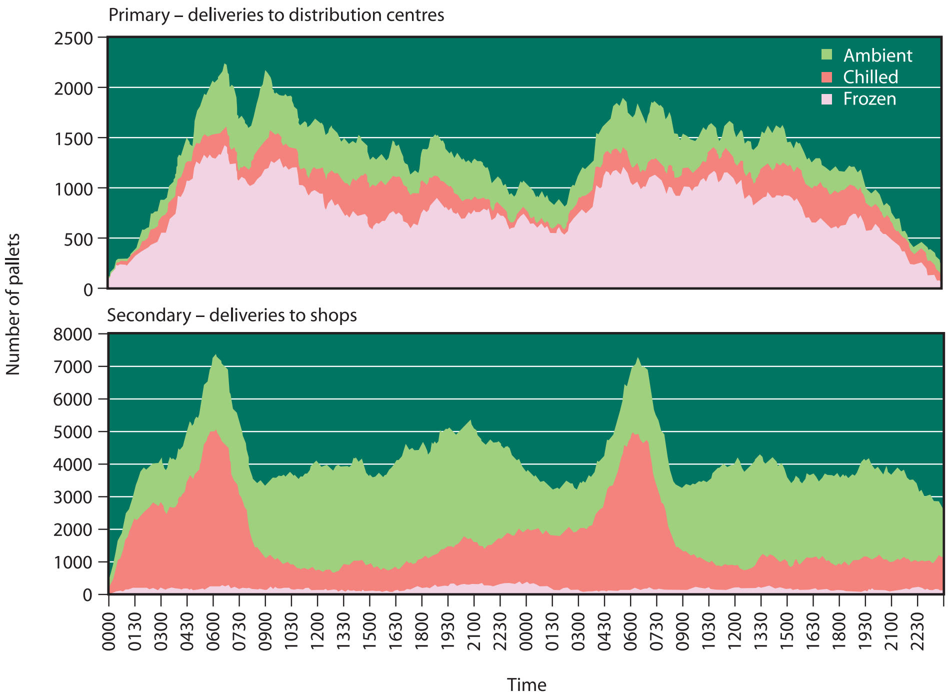
This is again one of the main messages to emerge from the 2002 study. The potential benefits of re-scheduling primary deliveries to off-peak periods would be even greater today since the level of traffic congestion during the morning peak has markedly increased since 1998[2].

Figure 6 Time utilisation profile for sample vehicles over the 48 hour survey period



[2] Trafficmaster (2002) 'Journey Time Index: Winter 2002' Cranfield

Figure 7 Number of pallets in the delivery system by product type



2.5 Deviations from Schedule

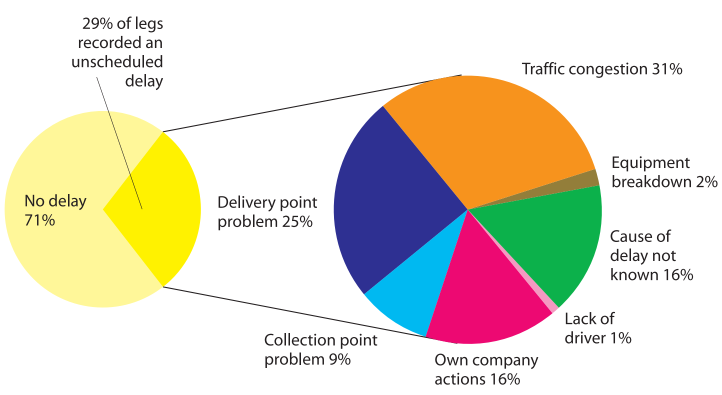
In the 1998 study, 25% of journey legs were subject to an unscheduled delay. In the sample of 15,252 legs measured in 2002 where sufficient scheduling data was provided, the corresponding figure was 29%. This does not mean that the frequency of delays has significantly increased over the past four years. As mentioned previously, the differences in trip lengths and proportion of multiple drop/collection rounds, prevent direct comparison of the 1998 and 2002 figures.

Overall, 31% of delays were attributed mainly to traffic congestion (Figure 8). This figure was significantly higher than the corresponding estimate in 1998 (23%), though, as explained above, some of the change maybe due to differences in average leg length and trip structure. It should also be noted that many companies would already have allowed for congestion-related delays in their standard delivery schedules, possibly hiding the true operational impacts of congestion.

As in the 1998 survey, most of the deviations from schedule were due to factors within the logistical system rather than due to external delays on the road network. In 16% of cases, the company running the vehicles took responsibility for the delay. Just over a third of the delays occurred at the collection and delivery points and are likely to be the responsibility of suppliers or customers. Congestion at the reception bays of distribution centres, factories and shops disrupted delivery schedules more than traffic congestion. These delays cause companies to build extra slack into their delivery systems, making it more difficult for them to arrange backloads. This can reduce the efficiency of their transport operation and increase its environmental impact.

The average vehicle spent 43 minutes per day delayed at loading and unloading points. Given average vehicle standing charges[3], daily trip rates and annual activity levels, this unscheduled time would be worth approximately £1,280 per vehicle per annum. This figure excludes any allowance for losses in operating efficiency due to unreliability.

Figure 8 Frequency of delays by main cause



[3] Motor Transport Cost Tables (May 2002)

2.6 Fuel Consumption

Consultation with companies indicated that it would not be practical to collect data on the actual amounts of fuel consumed by the vehicles over the period of the survey. Fuel consumption data was therefore obtained from company records for the previous year. This resulted in average fuel consumption figures (expressed in kilometres per litre) for seven classes of vehicle (Table3). These figures are broadly in line with those from the Government's Continuing Survey of Road Goods Transport[1].

As in the 1998 survey, the average fuel consumption varied much more widely across the rigid vehicle fleet than for articulated vehicles (Figure 9). This can be partly attributed to the wider range of delivery work they undertake. Analysis of the benchmark fuel consumption data at sub-sectoral and individual company levels, however, indicates that this provides only a partial explanation. Some operators could do more to run their rigid fleets more fuel efficiently. 85% of fleets containing articulated vehicles with gross weights of 38 tonnes or more had an average fuel efficiency within the range 2.8-3.5 kilometres per litre. The difference between the highest and lowest fuel consumption values recorded for this class of vehicle was 1.5 kilometres per litre. For a typical articulated vehicle of this type, running around 100,000 kms per annum, this difference in fuel consumption corresponds to an extra 19,800 litres of diesel used annually. This is worth approximately £12,400 at current prices (excluding VAT).

However, companies that achieve low fuel consumption figures do not necessarily have the most energy efficient distribution operations. Low fuel consumption can be offset by poor utilisation of vehicle capacity. A better measure of energy efficiency is energy intensity, given by a composite index that expresses fuel consumption on a pallet kilometre rather than vehicle kilometre basis. Across the 46 fleets that could be included in this calculation, energy intensity values ranged from 8ml to 61ml of fuel used per loaded pallet kilometre. These energy intensity calculations excluded fuel consumed by refrigeration units. Much of this large variation can be attributed to differences in the size and type of vehicle used, the nature of the distribution operation and geography of the delivery area.

To help standardise the comparison, the fleets were divided into five categories (Figure 10):

- Primary distribution of temperature-controlled products (all articulated vehicles) (P1)
- Primary distribution of ambient temperature products (all articulated vehicles) (P2)
- Secondary distribution to supermarkets and superstores (mainly articulated vehicles) (S)
- Tertiary distribution to small shops and catering outlets (mainly rigid vehicles) (T)
- Mixed distribution to large and small outlets (involving both articulated and rigid vehicles) (M)

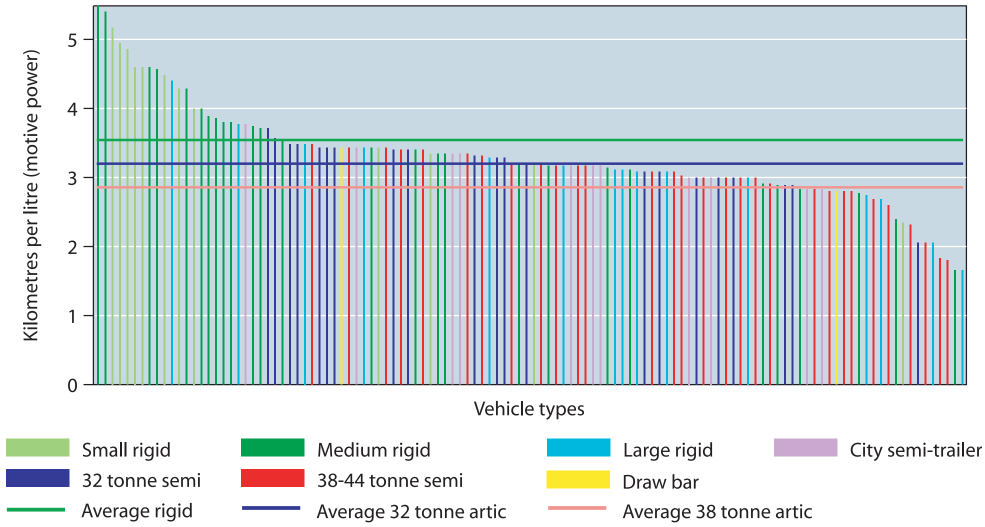
The variations in energy intensity are largely associated with differences in the nature of the distribution operation. The mean energy intensity varies from 12.2 ml per pallet-km for primary trunking of ambient product (P2) to 37.3 ml per pallet-km for local deliveries to small outlets (T). Even within these more homogeneous sub-sectors, energy intensity values for individual fleets can still vary by a significant amount. The greatest variability was found in tertiary distribution.

Table 3 Average fuel efficiency estimates by vehicle class (kilometres per litre)

Vehicle class	KPI 1998 survey	KPI 2002 survey	CSRGT 2001 survey
Small rigid (2 axles) <7.5 tonnes	–	4.0	4.1
Medium rigid (2 axles) 7.5-18 tonnes	3.7	3.6	3.7 (7.5-14t) 3.3 (14-17t)
Large rigid (>2 axles) >18 tonnes	3.7	3.1	2.9 (17-25t) 2.7 (>25t)
Drawbar combination	–	3.1	–
City semi-trailer (3 axle)	3.2	3.2	–
32 tonne articulated vehicle (4 axles)	3.1	3.2	3.2 (<33t)
38-44 tonne articulated vehicle (>4 axles)	2.9	2.9	2.9 (>33t)

1 'Transport of Goods by Road in Great Britain 2001' Transport Statistics Bulletin, Department for Transport, Local Government and the Regions (2002)

Figure 9 Average fuel consumption by vehicle type



Differences in average energy intensity values within sub-sectors often occur for good reason. The classification of fleets is, after all, fairly crude and even within sub-sectors there is seldom an exact match of distribution operations. Particular circumstances can justifiably cause a company's energy intensity value to vary from the average of its benchmark group.

As in the 1998 survey, there is only a weak correlation between average fuel consumption (measured in kilometres per litre) and average energy intensity (measured in ml of fuel per pallet kilometre). This variation is illustrated by the fairly random scatter of points shown in Figure 11. Each point represents a particular fleet differentiated by vehicle type.

Companies operating the same type of vehicle with a similar level of fuel consumption can require widely varying amounts of energy to move a pallet load one kilometre. Total energy intensity also depends on the amount of vehicle carrying capacity used.

The data was also used to estimate by how much energy consumption could be reduced if those companies whose energy intensity was above the average for their sub-sector, could reduce it to this mean value (column 1 in Table 4). This would cut the average fuel consumption by 5%, reducing annual fuel costs for the average vehicle by £1,115 and annual emissions of CO_2 by 3.9 tonnes per vehicle. If companies could reduce their energy intensity to that of the average of the top third operators (i.e. those

Figure 10 Fleet energy intensity values differentiated by sub-sector

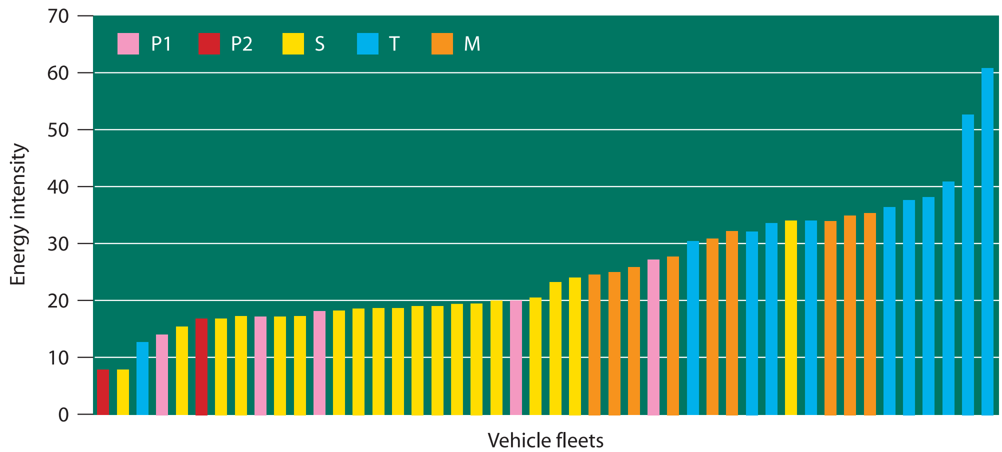


Table 4 Opportunity to reduce annual fuel consumption, emissions and costs

TABLE 4 Opportunity to reduce annual fuel consumption, emissions and costs			
		Reduced to average value	Reduced to average value of top third
Fuel savings (motive)	litres	3,407,811	11,787,934
% Fuel savings	%	5	19
Reduction in CO_2 emissions	tonnes	9,065	31,356
Total fuel cost savings	£	2,593,344	8,970,618
Fuel cost savings per vehicle	£	1,115	2,231

Note: based on UK average diesel fuel price in December 2002: 76.1 pence/litre (including VAT), see text for explanation.

with the lowest values of ml of fuel used per pallet kilometre) fuel consumption could be cut by 19%. However, these figures must be interpreted carefully. As explained above, some of the variation in energy intensity will reflect justifiable differences in the type of distribution operation and in the composition of the vehicle fleet within each sub-sector.

The impact of fleet composition of fuel use can be observed by comparing the average payload weight, fuel consumption and energy intensity values for the main classes of vehicle (Table 5). For example, heavy articulated vehicles (38 tonnes gross weight and above) use half as much energy to move a pallet one kilometre as a medium sized rigid vehicle (7.5-18 tonnes gross weight). While the analysis of fuel consumption at a sub-sectoral level controls much of the variation by fleet composition, some differences remain. For example, particular classes of vehicle within particular subsectors, still display quite wide differences in energy intensity, especially among rigid vehicles (Figure 12). When interpreting these types of benchmark results, participating companies must determine whether these variations exist for good reason or are evidence of inefficiency.

Figure 11 Relationship between fuel consumption (kilometres per litre) and energy intensity (ml of fuel per pallet kilometre) by vehicle type.

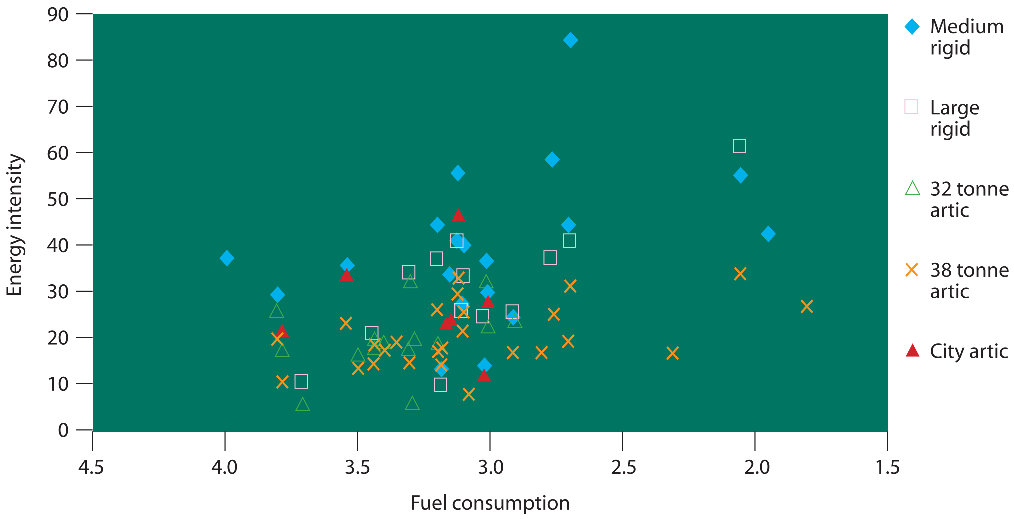
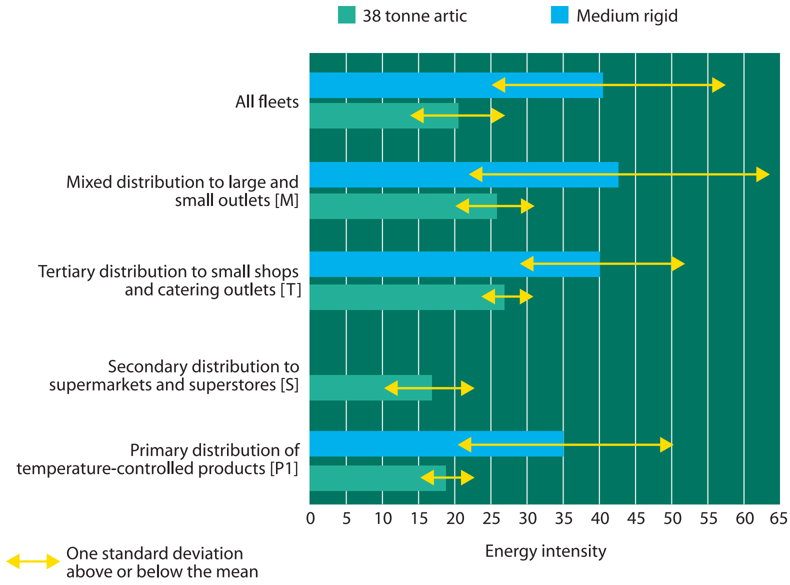


Table 5 Average fuel consumption and energy intensity by vehicle type

	Fuel consumption (motive)		Average volume load	Average payload	Energy intensity
	(km/litre)	(mpg)	(pallets)	(tonnes)	(ml/pallet km)
Medium rigid	3.87	10.94	5.78	2.25	32.99
Large rigid	2.91	8.21	8.69	7.41	31.79
City artic	3.14	8.87	11.24	6.57	21.38
32 tonne artic	3.35	9.48	14.38	10.37	19.11
38 tonne artic	2.79	7.88	17.11	11.83	17.96

Figure 12 Variations in energy intensity by sub-sector for two vehicle types



3 Summary

This second larger synchronised audit of vehicle utilisation in the food supply chain has revealed wide variations in vehicle utilisation, delivery reliability and energy efficiency. Some of this variation is due to differences in the nature of the product and pattern of delivery. More detailed analysis of the data at a sub-sectoral level, and within individual company operations, suggests that some of the variation is due to differences in operating efficiency. The purpose of the benchmarking exercise is to highlight these differences. This gives managers an incentive to raise operating performance to that of the most efficient fleets in their particular sub-sector, i.e. the best in class. This will not only cut distribution costs by reducing vehicle kilometres and energy consumption but will also yield wider environmental benefits.

One limitation of this exercise, like most benchmarking surveys, is that it sheds little light on the causes of the differences in KPI values recorded. Apparent under-performance on some transport KPIs, may be the result of a deliberate and perfectly rational trade-off against greater efficiency in warehousing or in-store handling.

However, analysis of the available KPI data suggests that there are several ways in which distribution efficiency can be improved:

- While the average deck area utilisation of 69% is relatively high for the mixed delivery operations surveyed, some companies fall well short of this figure and could do more to consolidate loads
- The average level of empty running is low by comparison with other sectors, though, again,some companies perform poorly against this KPI and could probably put more effort into finding backloads
- There could be greater consolidation of returns in fewer trips, releasing vehicles to collect orders from suppliers, for example
- By spreading the number of deliveries more evenly over the daily cycle and reducing the proportion of vehicle kilometres run during the morning peak (particularly in primary distribution),companies could reduce fleet size, transport costs, vehicle emissions and transit time variability
- Where collection and delivery are within the control of the operation, greater adherence to schedules would improve the utilisation of vehicle assets and establish a more stable environment for route planning and backloading
- The widespread practice of preloading refrigerated vehicles well ahead of the departure time needs to be reassessed in the light of current concerns about fuel efficiency and emissions
- Energy intensity should be more widely adopted as a distribution KPI since it makes companies more aware of the combined effects of fuel consumption and vehicle loading on energy efficiency

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Saving Fuel

Fuel Management Guide

This is the definitive guide to improving the fuel performance of your fleet. It gives step-by-step explanations of the key elements of fuel management, how to measure performance and how to implement an effective improvement programme.

Developing Skills

SAFED for Vans: A Guide to Safe and Fuel Efficient Driving for Vans

This guide outlines the elements of the Safe and Fuel Efficient Driving (SAFED) scheme and explains the content of the one-day SAFED training course for Vans.

Equipment and Systems

Buyers' Guide to Refrigerated Transport Equipment

This guide explores the different systems available and their suitability for particular operations.

Operational Efficiency

Working Together to Improve the Operational Efficiency of Regional Distribution Centres (RDCs)

This guide shows how RDC operators and their partners can improve efficiency, meet their customer service obligations and minimise environmental impact.

Performance Management

Introduction to Job Costing for Road Freight Operators

This guide explains how to better understand operational cost.

Public Sector

Freight Quality Partnership Guide

This guide provides step-by-step guidance on how to set up and run an effective Freight Quality Partnership.

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Performance Management