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Theme Report on Transport and Logistics



Tackling hidden fuel costs

From technical measures to tactical steering



Colophon

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Contents

PREFACE	4
1 Insufficient light shed on fuel costs	5
2 Impact of hidden fuel costs	7
3 Taking action; steering on details	13
Appendix	15
STUDY	156

Preface

For many years, fuel costs have been figuring high on hauliers' agendas; not only because of these being among the main cost items within their firms, but also because of the increasingly competitive market. Margins are under pressure and mutations in business policy, approach and methods are necessary to be able to continue growing as a company and to remain profitable over the years to come.

Therefore, DKV Euro Service Benelux and ING Sector Management Transport took the initiative of preparing a report focusing on fuel costs, for the purpose of presenting knowledge and information that add instant value to their customers' business results. Apart from intending to merely preparing a report, ING and DKV have wished to add a practical tool that provides instant insight into the possibilities that are available to each individual company. This fits within the 5 business principles applied by DKV vis-a-vis the haulage market, whereby the principle of "cost-saving" is considered a major pillar. It also matches the ambition cherished by ING to support its clientele in conducting their business by way of providing branch-specific skills and expertise.

The report that lies before you contains several interesting examples originating from practice regarding possibilities for you and your firm to save on (hidden) fuel costs. High benefit percentages may be realised, on the part of drivers and on the management side; benefits that will eventually revert to your company in the form of business result. This report is intended to make you aware of the many possibilities there are, and likewise to enable you to screen your own company on the basis of the examples from daily practice and the cases presented.

We wish to thank the authors, Ir. M.R.J. Kindt, Drs. A. van den Engel and S.J. van der Meulen of Panteia for the valuable contents of this report and the clear analyses it presents.

We wish all those involved prosperous business and, first and for all, a good degree of support provided by this report, which was prepared with much enthusiasm and with a view to your benefit as an entrepreneur.



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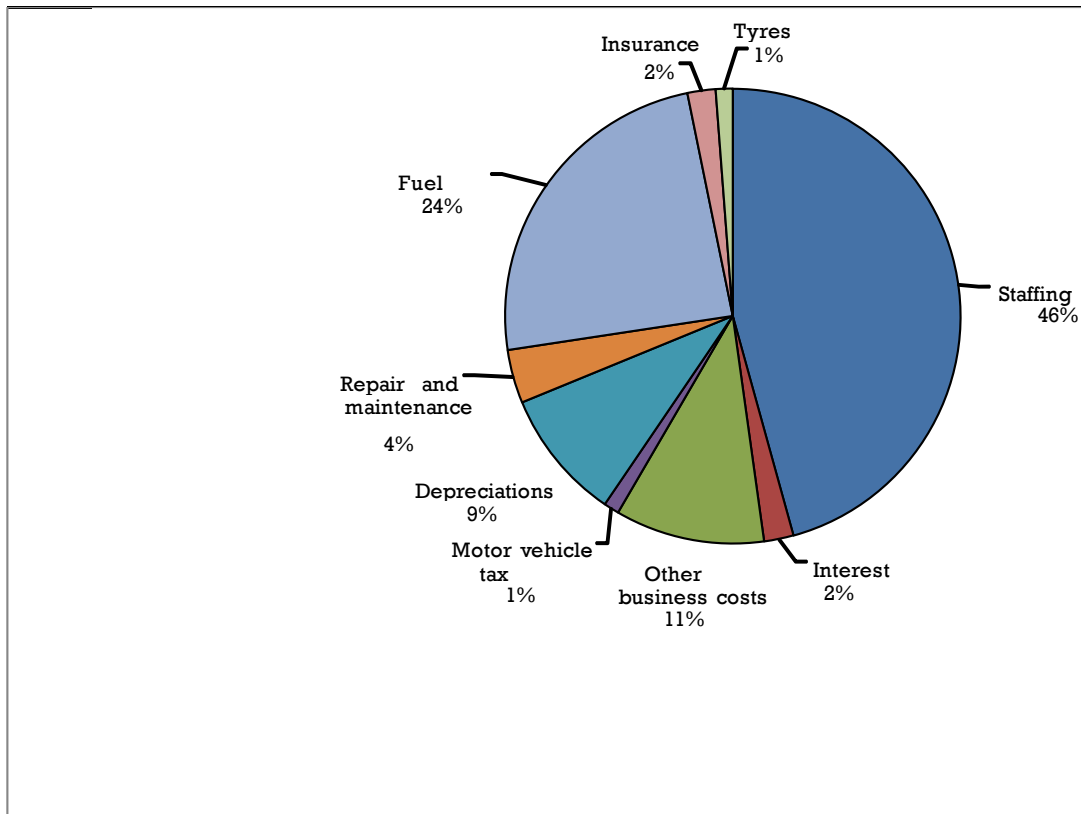


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1 Insufficient light shed on fuel costs

Increasingly fierce competition and ensuing pressure put on profit margins have made it indispensable for hauliers to steer with a sharp focus on added value. In a constricted market, however, an increase in sales is hard to realise. It is because of this, that sales improvement must go hand-in-hand with a very keen focus on cost reduction. Saving on mobility costs, fuel costs primarily, is very interesting since these costs come within the main cost category in the haulage business, second to staffing costs. In cross-border transport and traffic, nearly a quarter of overall costs relate to fuel (see figure 1.1).

figure 1.1 Shares of cost categories in cross-border transport and traffic (2014)



Source: Panteia

Another main motivation for saving fuel is found in the sustainability concept, from the viewpoint of forcing back CO₂-emissions and linking up with political and social objectives.

Ever since the beginning of the economic crisis - over 6 years by now - hauliers have been taking many measures in order to reduce their fuel costs. Not only during this period, but also in the years preceding the economic crisis, saving fuel had been a prominent point on the agenda. After all, each euro saved brings instant benefit to business returns. Many measures can be identified for hauliers to rely on in order to reduce their fuel usage, like:

1. Measures regarding vehicles
2. Measures involving drivers
3. ICT & fuel management

1. Measures regarding vehicles

Fuel-saving measures regarding vehicles include reduction of rolling resistance by using other tyres or by using aerodynamic applications reducing air resistance. Another measure in this category is setting the vehicle's speed limit at 50 mph (80 km/h) for instance. Although using alternative fuels does not directly imply a reduction in fuel consumption, it does indeed reduce air pollution and CO₂-emissions.

2. Measures involving drivers

'Het Nieuwe Rijden' (New Driving), a Dutch programme introduced several years ago, aims to stimulate drivers towards improved awareness of their fuel consumption with a view to reducing it. By now, truck manufacturers are also introducing training programmes to instil even greater energy-consciousness in drivers' attitudes and behaviour. A central aspect of these training programmes is engine management. Another possible measure involving drivers is a driver coach confronting the driver with his behaviour when this driver has left his truck engine idling for unnecessarily long periods.

3. ICT & fuel management

Monitoring fuel consumption and taking appropriate action will reduce fuel consumption. Other options are: installing smart meters in the vehicle, giving feedback to the driver regarding his driving performance during trips, or meticulously checking tyre pressure.

Did you know that:

- prevention-and-training programmes may help reduce fuel consumption by up to 20% and restrict damage by up to 30%;
- a truck in top condition (undergoing regular maintenance) may result in reduced fuel consumption by as much as 10%;
- using specially-developed spoilers, fenders and side skirting may realise fuel savings up to 10%;
- using tyres optimized for fuel reduction, so-called low-rolling-resistance tyres, may deliver up to 4% fuel saving without any additional investment being required;
- a majority of drivers allow their tyre pressure to be too low. Using the correct tyre pressure may result in up to 3% fuel saving, while extending the life of a tyre by as much as 25%;
- about 20% of trailers on the road has incorrect tyre alignment. Properly aligned trailers may bring up to 10% fuel savings while extending the life of a tyre by up to 20%;
- lowering the ceiling of the speed limiter (to 50 mph/80 kmh) may bring 7% reduction in fuel consumption.

From technics to tactics

Substantial fuel savings may be realised by applying the above (technical) measures. Many hauliers are familiar with most of these measures, and they consequently apply them actively. However, there are always measures to be defined that are less known among the public at large, but which have a huge impact. These measures relate to so-called "**hidden fuel costs**". In this case it is not just the actual fuel savings, but rather **restriction** of fuel **costs** that counts. A haulier who puts in all his effort saving fuel while losing sight of fuel costs will not get the most out of his effort, as, after all, he is just realizing smaller returns from his activities. This theme report will focus on this subject - more or less ignored as it has been so far - on the basis of various cases.

2 Impact of hidden fuel costs

What are hidden fuel costs?

As referred to in the previous chapter, cost control is essential to be able to gain a profit in a constricted market. A frequently ignored aspect of cost control is 'hidden costs'.

Hidden costs are costs that are not accounted for in (management) decisions, and costs sustained with the haulage firm being unaware of them, or categorically underestimating them. **Hauliers who are aware of hidden costs find it easier to identify and realise cost savings within their own organisation.**

Hidden fuel costs

Hidden fuel costs comprise the hidden costs that occur during use, consumption and purchasing of fuel, or as a result of external factors.

Fuel use covers the driver's performance. A driver who allows the truck to idle for unnecessarily long periods is using fuel without any accompanying useful activities to compensate for this. In these cases it boils down to accustomed behaviour and being aware of certain forms of behaviour.

Example of hidden fuel costs; optimum fuel storage

Did you know that each unnecessary kilogramme conveyed in a truck during inland transport of loads costs about €10,- extra?¹

If, at the end of each day, a driver tops up his tank completely (600-litre tank capacity) while using only half of this capacity each day, the effort (dragging along the surplus weight in diesel fuel) will cost the haulage company about € 2,500.- per vehicle each year.² This amounts to nearly 2% of the overall vehicle costs.

So: just calculate and establish your optimum tank capacity. As the above example demonstrates, it is not always more profitable to completely fill up during trips, in view of the additional weight to be carried and the possibly higher fuel price. Follow the example set by Formula-1 racing, where cars by definition are not 'filled to the brim', but only the optimum fuel quantity is stored.

Fuel consumption relates to the performance of the vehicle. Trucks that are generally considered economical will more than once appear less economical as presumed, for instance when being used under adverse conditions. As a result, the haulage company is forced to spend more on fuel than initially estimated. Another positive effect on fuel consumption comes from adequate maintenance, for instance in the form of closely monitoring oil levels and timely oil changes.

Increasingly we find electronic equipment like navigating systems used in trucks. Although systems like these frequently prove their worth – certainly if they restrict vehicle hours lost – more than once people tend to forget that each active piece of equipment results in higher fuel costs. Similar effects occur when using climate control and a telephone charging unit. Conscious use of systems like these will reduce costs.

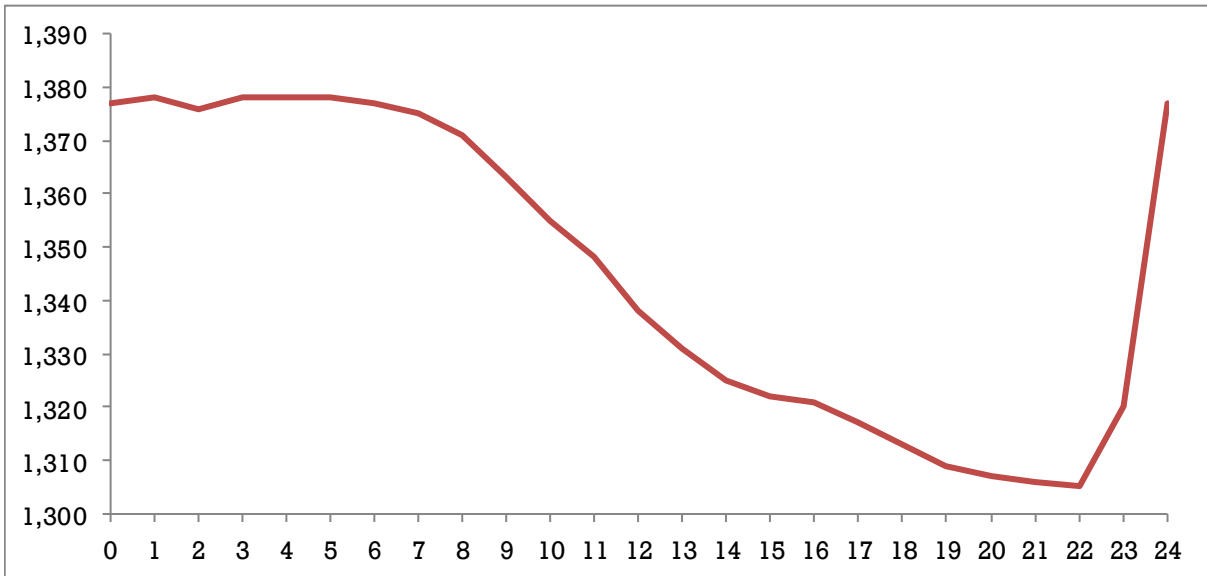
Did you know that continuous use of climate control costs about € 2,500.- each year?³

Fuel purchasing relates, for instance, to tactical choice, overdue or wrong delivery resulting in disturbed processes, accounting costs, surpluses and extra costs for delivery. Answering the following questions will yield **tactical** insight, enabling you to account for these hidden fuel costs already when purchasing:

- When is the ideal fuel purchasing moment?
- What is the optimum fuel purchasing quantity, so that the benefits of purchasing large volumes (discounts) will outweigh the disadvantages (fuel storage and loss of interest)?

- What is the optimum refuelling moment? (see figure 2.1)

figure 2.1 Fuel price development across the day in Germany



Source: DKV

- What is the optimum fuel quantity; filling 'up to the brim' at all times, or refuelling according to requirement?
- Does the effort involved in obtaining fuel discounts and savings correspond to actual consumption?
- Does the network of the fuel provider sufficiently cover the routes taken by the haulage company?
- What is the duration required for refuelling (waiting time, high-speed pumps)?
- Who (driver, planner or haulage company) determines the refuelling location?
- What are the motives of the driver (low costs, well-located, nice cash desk attendant) for fuelling at the pump in question?
- Which country allows the best purchasing conditions for cross-border traffic? (see example from practice 1)

Example from practice 1: Comparison between fuelling in Luxembourg and fuelling in Belgium

Many drivers refuel in Luxembourg because of the nice, seemingly low fuel prices applied in that country. However, when drawing a full comparison that also accounts for the possibility of discounts and having one's VAT and diesel duties refunded, will Luxembourg still remain the best fuelling country as opposed to Belgium?

	Belgium	Difference	Luxembourg
List price including VAT	€ 1.2970	€ -0.2060	€ 1.0910
Fuel price per litre excluding VAT	€ 1.0761	€ -0.1343	€ 0.9418
Fuel price per litre including discount	€ 0.9561	€ -0.0443	€ 0.9118
Net price per litre (including diesel duty advantage)	€ 0.8798	€ 0.0320	€ 0.9118

This example from practice serves to demonstrate that, in the end, refuelling in Belgium will turn out cheaper than refuelling in Luxembourg!*

* This example from practice works on the basis of realistic discounts, in accordance with market conditions. Either computation is on the basis of refuelling along motorways. Either country applies an official list price methodology. As possible waiting times (especially along motorways in Luxembourg) have not been accounted for, the difference might turn out even bigger.

It is not a matter of answering these questions, but of raising awareness, also of the methodology applied in approaching these issues. As soon as the existence of "hidden fuel costs" is recognised, this issue may be addressed. Up to 10%¹ savings are possible.

External factors are factors that occur outside the haulier's immediate sphere of influence, but that may indeed result in additional fuel costs. An example is a compulsory detour or deviation in case of road blocks (see example from practice 2).

¹ Panteia on the basis of market consultation

Example from practice 2: Costs as a result of a compulsory deviation because of road works

Starting-points

- Work conducted on motorway exit and entrance
- Duration of the work: six months
- Compulsory detour per truck: 5 miles (8 km)
- Fleet: 50 trucks
- Haulage firm operating in inland distribution
- One daily detour per truck
- Costs per km for tractor-trailer in distribution traffic = €1.84

Introduction

Wherever there are roads, there will be the necessity of (large-scale) maintenance once in a while. Despite the delays they cause, roadworks are very common and the costs for any haulier are often limited. But what in case the main motorway entrance and exit used by a haulage firm are closed for six months due to roadworks? This will impose daily detours on all 50 trucks of this haulage firm. Will the costs remain limited in this case as well?

Calculation

Six months = 182 days. No driving on Sundays, so 156 workable days
Total detour distance in km over six months = $8 * 50 * 156 = 62,400$
Total cost = $62,400 * €1.84 = €114,816.-$

Conclusion

These roadworks involve additional costs imposed on the haulier in the amount of nearly €115,000.- over six months.

Trip level versus business level

Hidden fuel costs occur on two plains: the operational level (also called trip level) and business level. On the operational level it concerns the choices and the behaviour displayed by a driver or planner. He might for instance decide to turn on the climate control unit or to take the quickest instead of the shortest route (see example from practice 3).

Example from practice 3: Shortest versus quickest route

Starting-points

- Haulage firm operating in sea container traffic
- Costs per km for tractor-trailer chassis = €1.38. Costs per hour €57.20
- Shortest route: 65 miles (100 km), duration 90 minutes
- Quickest route: 70 miles (110 km), duration 85 minutes

Introduction

Navigating systems enable the driver to choose between the shortest and the quickest route, whereby the quickest route is preferred most often. However, is this a smart choice from a financial viewpoint?

Calculation

Cost advantage for shortest route: $(110 \text{ km} - 100 \text{ km}) * 1.38 = €13.80$

Cost advantage longest route: $(90 \text{ minutes} - 85)/60 * 57.20 = €4.77$

Conclusion

This example serves to demonstrate that in this case the shortest route is the financially soundest option.

The entrepreneur is accountable on business level. He will for instance study the impact on his company of a temporary road closure, and try to influence politics on the basis of these cost records. This also covers the tactical business choice of optimal fuel purchasing locations, like local fuelling instead of fuelling along motorways (see example from practice 4).

Example from practice 4: Fuelling along motorways or local fuelling

Starting-points

- Haulage firm operating in international transport
- Fleet consisting of 45 trucks
- Costs per hour for tractor-trailer = €69.97
- Fuelling along motorways 3.5 cents more expensive
- Extra time required for off-motorway fuelling: 45 minutes
- 83 fuel intakes per vehicle per year
- Average tank capacity 900 litres

Introduction

Most of the time, international haulage companies will consciously refuel their vehicles locally in Luxembourg, as this country offers the lowest fuel price per litre. However, leaving the motorway and fuelling locally will take time. What would be the possible annual savings for a haulage firm if it opts for more expensive fuelling along motorways?

Calculation

Cost-saving in case of local fuelling = $45 \text{ minutes}/60 * 69.97 = €52.48$

Cost advantage in case of local fuelling = $3.5 \text{ cents} * 900 \text{ litres} = €31.50$

Additional costs involved in local fuelling per instance = €20.98

Total extra annual costs incurred on fleet = $€20.98 * 83 * 45 = €78,360$

This amounts to roughly **2.5% savings** as compared to net diesel prices in Luxembourg.

Conclusion

By not going for the lowest price but for the most efficient fuelling option, the haulier has realised annual savings in the amount of €78.360,-.

Huge impact of hidden fuel costs on business returns

Although a cost advantage of a few tens of euros won by taking the right choice at an operating level, like choosing the shortest instead of the quickest route, might appear limited, this relatively limited cost-saving amount might just make the difference when considering the fact that the daily return yielded by a truck must be around €600.- in order to differentiate between profitable or unprofitable trips. In this case, the frequency of such a situation is what counts. **In the case of large fleets and activities moreover on a daily basis, this cost advantage is soon to accumulate.**

'Hidden fuel costs' will be playing a role in case of the following choices:

- Fuelling in Luxembourg or fuelling in another country (duties, discounts, gross price)?
- Fuelling along motorways, or elsewhere?
- Taking detours for fuelling, or not?
- Fuelling at favourite station with accompanying extra waiting times, or elsewhere?
- Early-morning fuelling in Germany, or at a later stage elsewhere?
- Filling up to the brim or choosing other quantities?
- Which country to fuel in, considering the possibility of diesel duty refunding?
- Taking the quickest or the shortest route?
- Hitting the queues, or taking a detour?
- Conducting the vehicle home or park somewhere along the way?
- Does the fuel brand match the routes of transport?
- Does the fuel provider's coverage suffice per region or per country?
- What provider would be initially interested in joint lowering of fuel costs?

Panteia has developed a calculation tool that may give insight in hidden fuel costs for individual companies in specific cases. This tool is available at www.dkv-benelux.com on the DKV blog. See also the appendix on page 15.

Also on a business level, events like a road closure near the home basis causing many trucks to take detours on a daily basis, may have a major impact on the company. In today's circumstances, with the accompanying limited profit margins, increased cost burdens of over 100,000 due to roadworks just cannot be earned back at very short notice. **For hauliers it is important to realise that these 'hidden costs' have a great impact on their companies' returns.** It is, after all, possible to save up to 10% on fuel costs ^[1].

3 Taking action; steering on details

The challenges imposed on entrepreneurship have increased as a result of innovation and advancing professionalism. Current economic conditions have only worked towards worsening this situation. This requires hauliers to develop optimal insight in the measures that may contribute to improvement in returns. Merely steering on daily operations, like optimised trip planning and capacity utilization rates has long since ceased to be sufficient. After all, we must not forget the hidden costs that may have a considerable impact on a company's returns. This requires companies to be **'closer at the ball'** and to be aware of **the details**.

Roughly 85% of hauliers is not aware of the hidden fuel costs!⁶

Despite the fact that many companies already are very occupied reducing their fuel consumption, more and more money remains to be saved by actively focusing on restriction of (hidden) fuel costs.

Not even 10% of hauliers are truly occupied with reducing their hidden fuel costs.⁶

Data management required!

Haulage companies that fail to sufficiently identify the signals surrounding hidden (fuel) costs, will also fail to notice the impact these costs have on their business returns. These companies will therefore need to receive these signals as well. This will not instantly require new investments however. Present-day hauliers have access to far more information than their colleagues a decade or so ago. In this digital era, so many data are being recorded and filed already, that the records required are likely to have been registered for a long time. What it boils down to is to find adequate records and to distil from these the information required. Support in this respect may come from a well laid-out dashboard indicating fuel consumption per kilometre, fuel costs per kilometre and fuel costs per turnover item.



Brandstofkosten per kilometer

Fuel costs per kilometre



Brandstofverbruik per kilometer

Fuel consumption per kilometre



Brandstofkosten per omzet

Fuel costs per turnover item

Making proper tactical choices

Knowing the details makes it easier to make proper tactical choices. Without insight in the details, hauliers may soon find themselves tempted by initial cost advantage that will, however, often appear wanting later on. Cheap fuelling for instance need not always be profitable in the end. The initial cost advantage will soon be eliminated if this requires long detours or additional waiting times.

Did you know that 1% fuel saving instantly produces 0.25 percentage point in improved returns?

To a haulage firm with a 10-vehicle fleet this implies an average improvement of its business returns in the amount of roughly 3,600 euros; in the case of a 50-vehicle fleet this is as much as 18,000 euros.

Focusing on hidden fuel costs will pay back!

Focusing on hidden fuel costs, for instance by smart fuelling, may result in instant cost-saving. What is only required from hauliers is that they know what is on, and how much it will cost to actively address the issue. A haulier who spends much time and money on (technical) fuel-saving measures, yet fails to make proper tactical choices in order to limit his overall fuel costs, will be scattering money along the road.

Hauliers may save up to 10% in fuel costs by actively addressing this issue.⁷

Matching purchases with driving behaviour

Many hauliers are actively involved in forcing back their fuel costs by sharply focusing on their fuel purchases. Much time and energy is devoted, for instance, on lowering their purchase price by one tenth of a cent. Although hauliers surely must not stop doing so, it will be hard to reconcile this if the advantage is eliminated by wrong choices on the part of drivers or squandering driving behaviour. Smart purchasing alone will not bring you there!

Unexpected developments that involve additional (hidden) costs are often considered an entrepreneurial risk. Deepening by way of content and active steering may mitigate this risk however.

In conclusion

We may derive from this theme report that there is still undiscovered territory where profit is to be gained. Improved business returns are possible by knowing and actively focusing on fuel cost details. Besides, all these aspects will extend further than mere financial gain, since our environment and entire society will also profit this way. Which will in turn have a positive effect on the company's image!

² Panteia on the basis of market consultation

Appendix 1 Fuel Calculation Model

Panteia has developed a calculation tool that may give insight in hidden fuel costs for individual companies in specific cases. This tool is available at www.dkv-benelux.com on the DKV blog. Below an image of the start menu.

Menu	
Motorway fuelling or leaving the motorway and fuelling locally	<p>Motorway fuelling or leaving the motorway and fuelling locally</p> <p>It happens to all drivers from time to time: while on a relaxed motorway trip you suddenly notice your fuel meter indicating light coming up. You know that fuelling along motorways is a relatively costly affair. On the other hand, there is the extra time involved in leaving the motorway and fuelling locally. What is the best option from the view of finance?</p>
Fuelling at preferred fuel station or elsewhere	<p>Fuelling at preferred fuel station or elsewhere</p> <p>Many drivers fill up at their preferred station for the sake of economy and its low fuel prices. But as a result there are long queues at any time of day. Are you also taking a special detour, and if so, will the original advantage remain in the case of long waiting times?</p>
Joining the queue or making a detour	<p>Joining the queue or making a detour</p> <p>Congestions count as one of the main sources of irritation to any driver. If there are any options of avoiding queues by taking detours, many drivers will be inclined to use them. But is this always a good decision from the view of finance?</p>
Shortest versus quickest route	<p>Shortest versus quickest route</p> <p>Navigation systems give you the option of the shortest or the quickest route. Everybody will be inclined to think that the shortest route is bound to be the cheapest considering the distance to be covered. However, is this belief always justified? The benefit of the quickest route, namely, is the time won by driving it, which also counts as a cost advantage.</p>
Back home or (overnight) parking	<p>Back home or (overnight) parking</p> <p>Drivers whose working-day is almost over will be expected to choose between driving back to their home base (location) or to a (guarded) truck park nearby. The advantage implied by truck parking is the possible gain in distance, as driving back to the more remote home base is not required in that case. The disadvantage is the need for the driver to return home from the truck park and the possible parking charges involved.</p>
Costs due to road closures	<p>Costs due to road closures</p> <p>Everybody will agree that compulsory detours as a result of closed roads will cost you. However, what are the extra costs involved for hauliers in the case of prolonged road closures as a result of - for instance - a new roundabout under construction close to their yard?</p>

STUDY

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