

Whitepaper:

The impact of driver behaviour on vehicle running costs



Table of contents

Overview	4
Background: The impact of driver behaviour on vehicle running costs	5
How is driving style linked to collisions?	6
- The difference between training and coaching	7
How does driving style affect other vehicle running costs?	7
- Tyres	7
- Fuel	8
- Maintenance	8
How can telematics data be used to target savings?	9
What is the effect of coaching interventions on driver behaviour?	10
Conclusion	11
About DriveTech	11



Overview

Due to a lack of hard data, driver coaching or training is often justified on gut feel alone or by ticking the 'Health & Safety compliance' box.

From our own day-to-day experiences, we know that the way people drive does directly affect running costs. What has been difficult to prove, beyond reasonable doubt, is what savings could be achieved by improving driver behaviour across the fleet.

This paper demonstrates that financial savings are directly linked to driver behaviour. It uses real-life driving data, often measured by telematics systems, to show that significant savings can be achieved.

It also highlights the role that driver training and coaching can play in driving down costs by changing driver behaviour for the better.

Background: The impact of driver behaviour on vehicle running costs

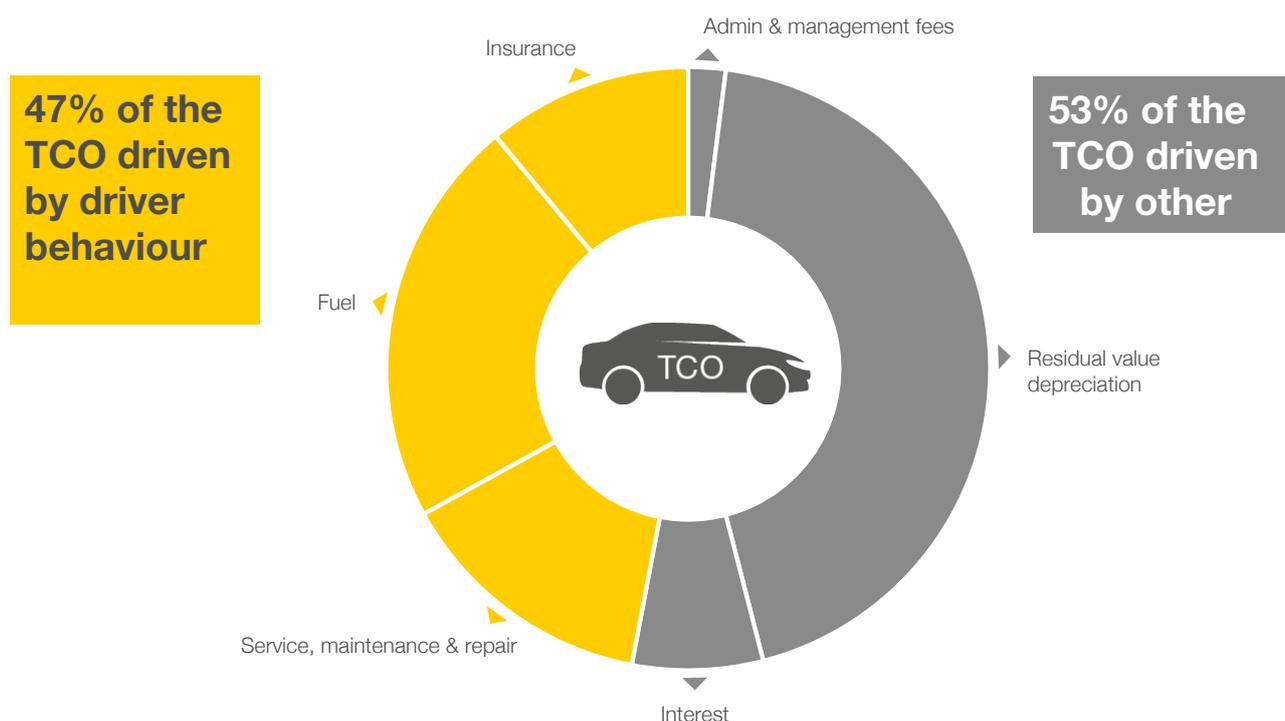
Studies generally identify six main components making up the cost of vehicle ownership. While absolute sizes and proportions can vary according to fleet composition and usage, three of these components, accounting for approximately half of total costs, are influenced by driving style and behaviour:

- Insurance
- Fuel
- Service, maintenance & repair (SMR)

It therefore follows that improving driver behaviour will favourably affect these cost components. For example, if driver behaviour can be improved so that drivers drive more smoothly, with more awareness and making better driving decisions, it could be expected that insurance premiums would remain constant or fall, fuel consumption would reduce and SMR costs would be minimised.

As an example, assuming each vehicle's TCO is around £700 per month and a driver population of 1,000, that means a spend on your fleet of £8.4 million per annum of which £3.9 million is affected by driver behaviour.

Breakdown of Total Cost of Ownership (TCO)



How is driving style linked to collisions?

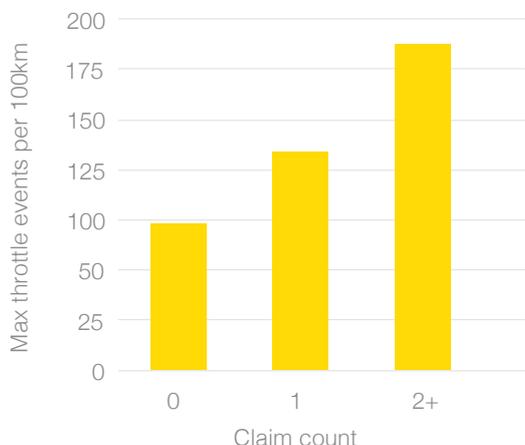
Until the recent widespread use of telematics to track vehicle driving dynamics, it was hard to describe, and therefore measure, 'driving style'. In addition, the link between driving style and costs was hard to determine unless crash statistics were analysed. Most often someone's driving style was judged on personal experience or anecdotal evidence. Today, telematics can provide metrics that determine driving style and allow for benchmarking between drivers.

As an example, the AA, which runs one of the UK's largest commercial vehicle fleets, set up a project in 2014 using a telematics system to understand and manage its own fleet running costs more effectively. Conducted over two years, and covering nearly 2,200 vehicles, the results show a number of direct links between driver behaviour and real world operating costs.

The first insight is that the more maximum throttle events, the more claims are made (Fig 1).

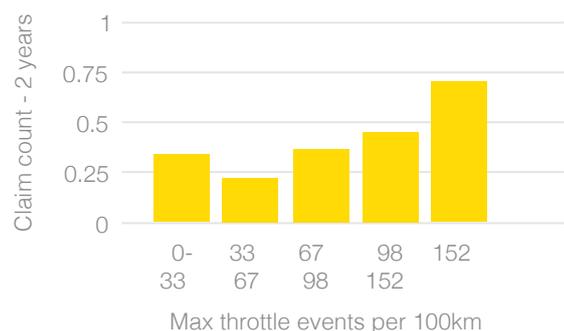
More max throttle events, more claims

Fig 1



Connection between heavy accelerating and claims

Fig 2



Secondly, when ranking the driver population between good driving behaviour and poor, the research (Fig 2) shows that more 'maximum throttle' events during each 100km of driving can increase the average claim count from 0.32 to 0.69 per driver over two years - **or twice as many** - while alongside this the average claim cost (Fig 3) increases from £384 to £1,074 which is **2.8 times**.

The conclusion is that drivers who flatten the accelerator more often will have more crashes, more claims and larger claims. This is perhaps not a surprising result in itself, but the telematics system that identified this relationship is also the key to making improvements. This is because the system can identify driver behaviour that will be costly to the organisation from week 1, even before the behaviour itself translates into actual collisions and costs, **thus allowing targeted preventative interventions to be made**.

This is where tailored driver education comes in. It can change behaviours of those drivers that are most likely to be costing the business a lot, and therefore make savings... and the telematics system can help monitor results and track progress.

Fig 3



Source: 2,167 AA vans, 2014-2016

The difference between training and coaching

It's widely recognised that 95% of all crashes are due to human error, not mechanical failure or acts of God. Some of these crashes are caused by drivers who have not fully mastered the skills of driving and controlling a vehicle and reacting to other road users (their 'competence to drive'), but with experienced and professional drivers, crashes are more often caused by making poor driving decisions because the driver's attitude to driving, and behaviour while driving, need changing. At DriveTech, we believe that driving safely involves three components, **Attitude, Behaviour and Competence (ABC)**.

As a result, DriveTech's coaching approach is about changing hearts and minds, not instructional training. It's not about telling someone how to change gear more effectively, it's about coaching them to use their experience to the full and consider different reactions and approaches to everyday experiences, whether that is stress at home, a demanding boss or worrying about being late for a meeting. Coaching is not a 'one size fits all' approach to education, it needs to be tailored to the specific needs and experiences of the driver so they themselves make the decision, after reflection, to make different choices that can affect their state of mind and driving behaviour, and ultimately drive more safely.



How does driving style affect other vehicle running costs?

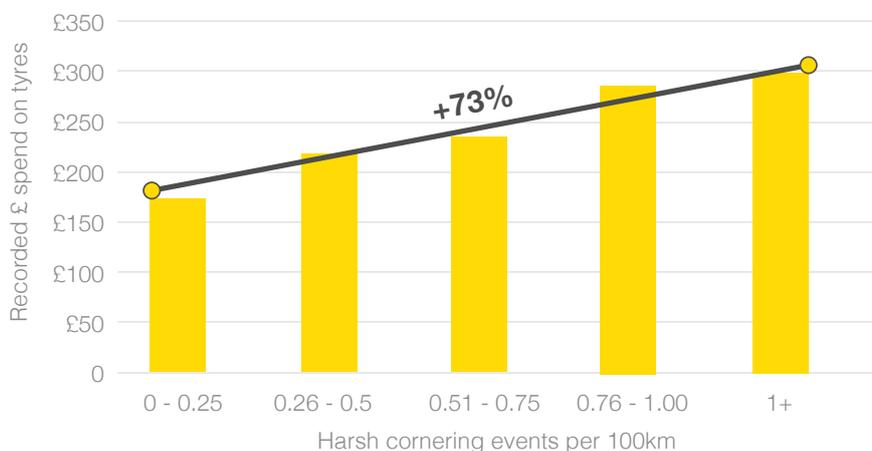
The research project carried out by the AA on their own "yellow" roadside patrol fleet between 2014-2016 also examined correlations between driving styles and other operating cost areas:

Tyres

Fig 4 shows the link between harsh cornering and tyre costs. In this research, drivers who never braked harshly or only occasionally, incurred tyre costs averaging £172 per annum whereas the costs of tyres for more persistent harsh braking was around £283 per annum, an increase of £111 or 73% in costs. Harsh acceleration and deceleration costs also directly impacted tyre spend negatively.

Driver behaviour and tyres

Fig 4



Source: 2,167 AA vans, 2014-2016

Fuel

Likewise, when fuel cost per mile is correlated to excessive revving (Fig 5) and maximum throttle (foot to the floor) events (Fig 6), significant increases in fuel costs are observed as revving and throttle usage increases.

Driver behaviour and fuel

Fig 5

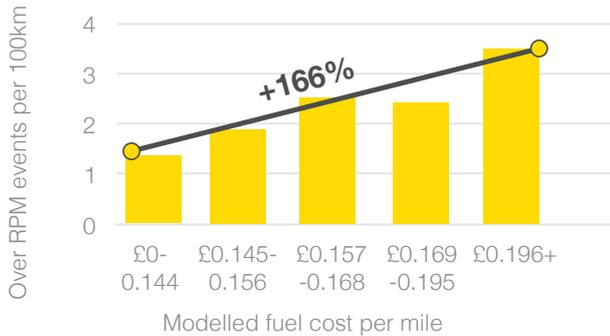
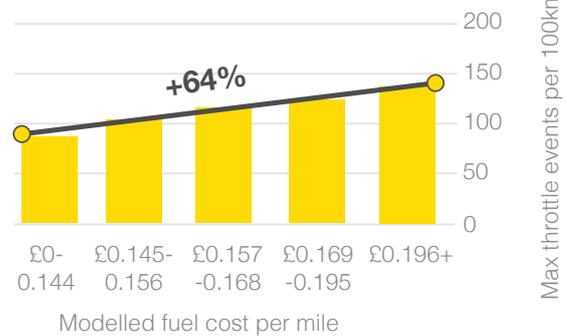


Fig 6



Source: 2,167 AA vans, 2014-2016

Maintenance

In Fig 7, the total two-year maintenance spend was found to increase significantly (up to 160%) dependent on the number of maximum throttle 'floor to the floor' events. This increase is seen in all aspects of maintenance including routine service (Fig 8), brakes (Fig 9) and general services (Fig 10).

In fact, maximum throttle usage explains £287 more maintenance spend per vehicle per year. That's £933 minus £359 divided by 2.

In summary, driving style was shown to significantly increase collision, tyre, fuel and maintenance spend in this study in cost areas accounting for approximately half the total cost of vehicle ownership.

Driver behaviour and maintenance

Fig 7

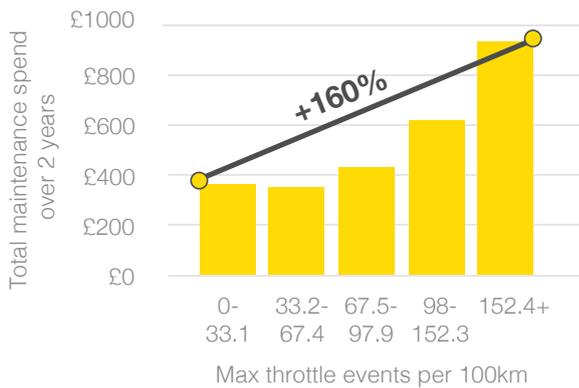


Fig 8

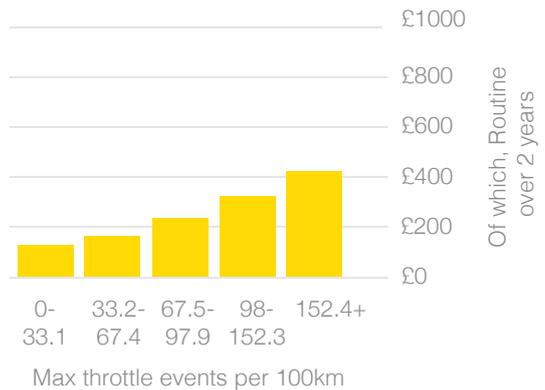


Fig 9

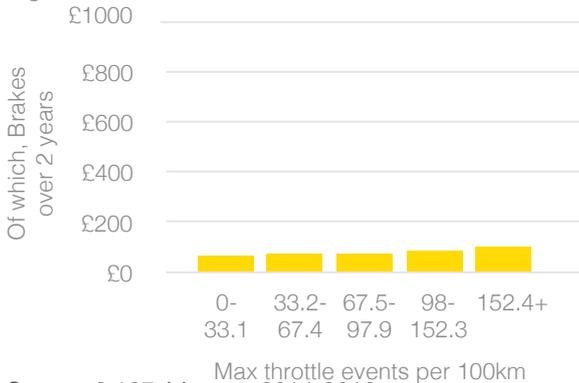
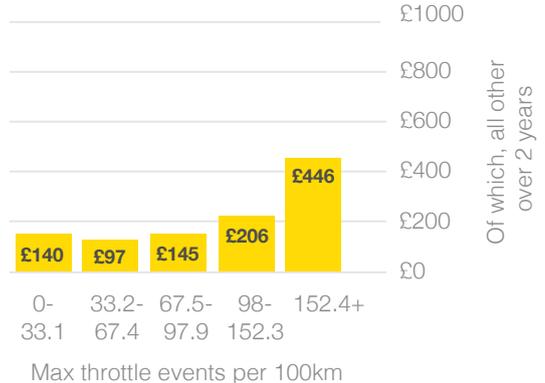


Fig 10



Source: 2,167 AA vans, 2014-2016

How can telematics data be used to target savings?

Bringing together all the lessons that the AA has learnt from its research over the two-year period, the AA was able to set itself the following targets:

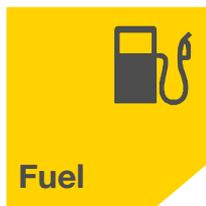
By focusing on the ‘worst performing’ drivers and transforming them into ‘average’ drivers, the company has calculated it can save £360 per annum per vehicle over the next three years. Interestingly, **the anticipated biggest savings are in crash costs, closely followed by fuel savings.**



Harsh cornering events today (worst tenth)	1.8 per 100 km
Harsh cornering events today (best half)	0.1 per 100 km
Potential cost saving per vehicle	£ 26 p.a.



Max throttle events today (worst fifth)	122.9 per 100 km
Max throttle events today (best fifth)	10.2 per 100 km
Potential cost saving per vehicle	£ 87 p.a.



Over RPM events today (worst fifth)	7.8 per 100 km
Over RPM events today (best fifth)	0.1 per 100 km
Potential cost saving per vehicle	£ 111 p.a.



Max throttle events today (worst fifth)	122.9 per 100 km
Max throttle events today (best fifth)	10.2 per 100 km
Potential cost saving per vehicle	£ 136 p.a.

“£360 potential savings per driver, per year”

Clearly analysis of telematics data can only indicate where the opportunity areas are for cost saving from driver behaviour. Actual interventions are required to make meaningful changes in driver behaviour and hence cost outcomes.



What is the effect of coaching interventions on driver behaviour?

The table below shows the effect of DriveTech's on-road coaching for a high risk set of drivers on different aspects of driving behaviour as well as claims. It shows pre-coaching results for high risk drivers and post-coaching outcomes compared to the entire driver population. For example, harsh acceleration incidents per 100km for high risk drivers before coaching was 13.6, after coaching was 3.1 which was significantly better than the norm of 9.1.

	Pre-training	Post-training	All drivers	
 Behaviour	Excessive speed time per driving hour	0.009	0.006	0.005
	ecoN Driver Behaviour score	59%	79%	71%
	Harsh acceleration per 100km	13.6	3.1	9.1
	Harsh deceleration per 100km	2.4	1.6	2.1
	Over RPM per 100km	8.0	3.7	3.4
	Max throttle per 100 km	119	115*	51
 Claims	At fault cost per 100km	£3.20	£1.91	£2.30
	At fault cost per 100 driving hours	£125	£77	£105
	All collision count per 100km	0.0049	0.0034	0.0042
	All collision cost per 100km	£4.19	£2.66*	£3.32

*Small statistical sample

In all performance areas, coaching affected the driver's behaviour positively and, in many cases, the resulting behaviour was better than the fleet average. Claims costs were also positively affected.

Conclusion

We have shown that through a programme of on-road driver coaching, we can improve driver behaviour which will, in turn, favourably affect cost components such as insurance, fuel and service repairs. It's not surprising that drivers who flatten the accelerator more often will have more crashes, more claims and larger claims.

DriveTech's coaching approach is about changing hearts and minds, not just instructional training. It's not about telling someone how to change gear more effectively, it's about coaching drivers to use their experience to the full and consider different reactions and approaches to everyday driving experiences.

In all performance areas, coaching affects driver behaviours positively and, in many cases, the resulting behaviour is better than fleet average.

This paper clearly shows that the total cost of ownership of a vehicle can be reduced if drivers make better driving decisions, after training or coaching. It also shows that telematics can not only help identify driving styles but can also be used to measure the effectiveness and costs savings that a comprehensive fleet risk and safety management can deliver.

Driver training works – and it can save the business money.

About DriveTech

DriveTech is the world leader in fleet risk and safety management, and driver training. It is also the UK's largest provider of driver offender retraining courses.

With a track record built over the last 25 years, DriveTech now delivers fleet consultancy, driver assessment and training services in over 95 countries, in more than 30 languages through 50 partners.

Our fleet solutions improve driver safety, reduce fleet running costs and ensure compliance with legal and duty of care responsibilities.

Our customers range from companies with small fleets through to large corporate customers where driver training is a core activity, an understanding of their sector required and a clear return on investment is demanded.

DriveTech is part of the AA.

Contact us

DriveTech

Fanum House, Basing View,
Basingstoke, Hampshire, RG21 4EA, UK
T +44 1256 610907
E tellmemore@drivetech.co.uk

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