Fleet safety survey report 2015
Part 1: technology

Produced by:

Brake
the road safety charity

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Introduction

Technology alone is not a panacea for road safety; safe driver behaviour and risk management policies and procedures are essential within fleets. Yet technology can form a vital part of the road risk management mix, and greatly aid safe driving, vehicles and journeys.

The results of this survey suggest that many companies could go further, and learn from good practice by others, in taking full advantage of safety technology available. An analysis of these results reveals that there is no correlation between fleet size and the level of fleet safety technology used. A smaller fleet is just as likely to have a wide array of safety technology compared to a larger fleet. Companies can access further advice on a range of road risk management topics by joining Brake Professional at brakepro.org.

SMEs can get advice using Brake's free toolkit at brakepro.org/smetoolkit.

About this report

138 fleet managers completed the survey, 131 of whom were UK-based. Respondents manage nearly 26,000 vehicles and 40,000 employees driving for work. The results cannot be generalised to the entire at-work driving fleet, but rather can be used to explore the technology used on fleets and can give an opportunity for benchmarking.

The size of the fleets varied: the smallest were single-vehicle operators; the largest had over 2,000 vehicles. The average fleet size was 186 vehicles. Most fleets contain a variety of types of vehicles. The exception, apart from the smallest fleets of only a handful of vehicles, is a few larger car-only fleets.

TECHNOLOGY ON HGVS

59 of the fleets surveyed had HGVs, from single vehicles through to hundreds of vehicles, with the total number of HGVs managed by respondents being more than 4,000.

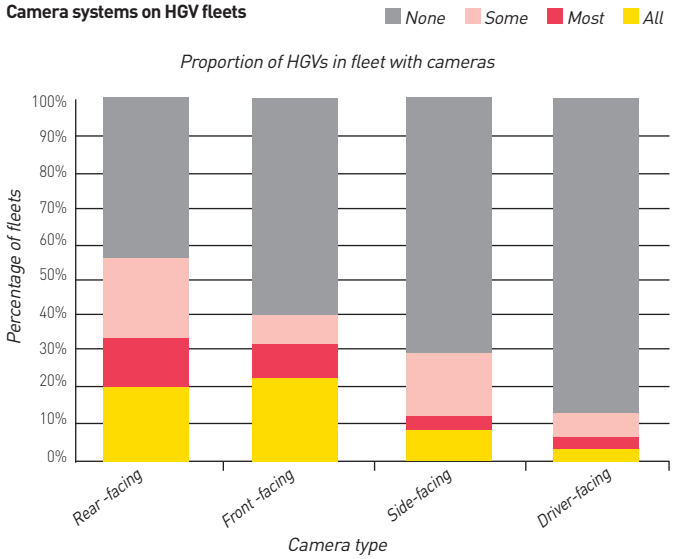
In the UK in 2013, 258 people were killed in crashes involving HGVs, and 1,354 seriously injured. A particular concern is deaths and serious injuries of vulnerable road users: HGVs make up only 5% of the vehicles on UK roads, but are involved in 23% of cyclist deaths[i].

Blind spots are a particular issue with HGVs: in 2013, of the crashes and incidents in which an HGV played a contributory factor, vehicle blind spots were the second-leading issue[ii]. Technology can play an essential role in reducing blind spots and protecting vulnerable road users.

For more on using technology to protect pedestrians and cyclists, Brake Professional members can download our guidance report on Protecting vulnerable road users from vehicle blindspots.

Camera systems

Camera systems on HGV fleets



Two-thirds of fleets (68%) now fit at least some of their HGVs with CCTV systems. However, there was variety in the placement of these cameras, indicating that they were being used for a variety of purposes. There is no correlation between fleet size and the presence of cameras on HGV vehicles.

Cameras can be used to 'see' into vehicle blind spots, or parts of the road it is difficult to see. These can help drivers spot vulnerable road users, and prevent crashes when reversing or manoeuvring. This appears to be the most common use of cameras on HGVs.

Rear-facing cameras are the most common, with 33 fleets (56%) fitting them on at least some of their vehicles, and 12 (20%) on all. Side-facing cameras were fitted on only 17 fleets (29%), and fitted on all vehicles on only five (8%). One of the uses of front-facing cameras is to help spot road users in difficult-to-see areas in front of an HGV. They are fitted on 24 fleets (41%).

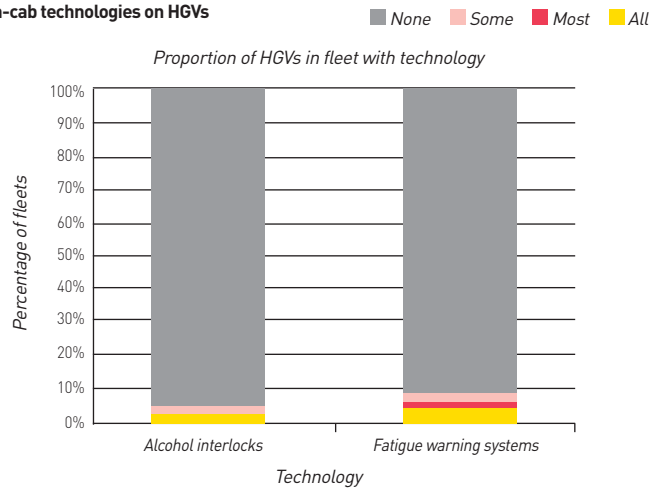
Cameras are also a powerful tool for monitoring driver behaviour. Driver-facing cameras were rare, with only seven fleets (12%) fitting them.

Expert view

Simon Marsh, of fleetscompare.com, says: "Driver-facing and front-facing cameras are powerful tools for promoting safe driver behaviour, including avoiding distractions behind the wheel. These technologies are not about punishing drivers or instituting a 'blame culture', but rather are a tool for identifying if a driver has particular issues or training needs. In the event of an incident, camera footage could protect the driver and the company."

In-cab technologies

In-cab technologies on HGVs



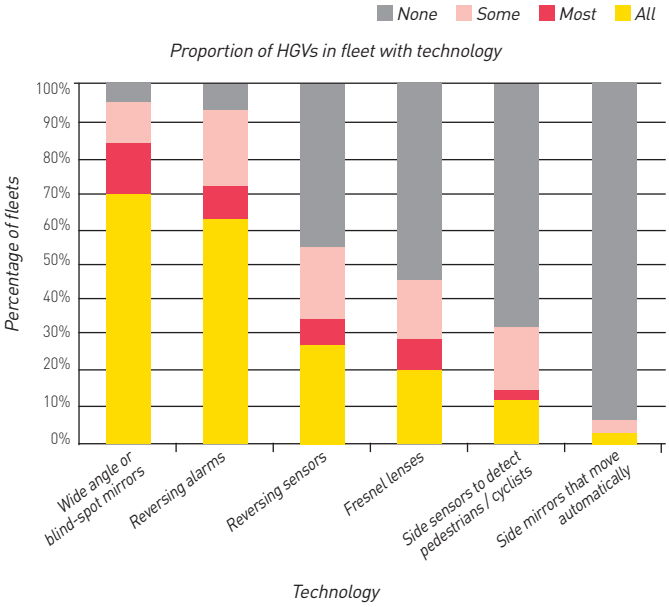
Alcohol interlocks are devices that prevent a vehicle being started if the driver has consumed alcohol. These are used in some states of the US for drivers that have been convicted of a drink-driving offence. They are to become mandatory on some vehicles in some countries, for example school buses in France[iii]. In the fleets surveyed by Brake, these are rare on HGVs – they are fitted on some vehicles of only two fleets surveyed.

Fatigue sensors are technologies that detect whether a driver is tired. At the moment, they are only fitted on five fleets we surveyed. This is an area where there is currently a lot of research into low-cost ways of detecting driver fatigue[iv] so it may become more common in the future, although Brake warns that such devices should not be relied upon: managers and companies should take steps to prevent fatigue occurring the first place.

Members of Brake Professional can use Brake's driver advice sheet on combating fatigue.

Detecting and alerting other road users

HGVs with technology for detecting and alerting other road users



Wide-angle lenses, a legal requirement for certain HGVs under European legislation, are fitted to two-thirds of fleets (67%) on all their HGVs; only 3% reported not having any. Reversing alarms are also extremely common, but in the case of four fleets they were not fitted to all HGVs.

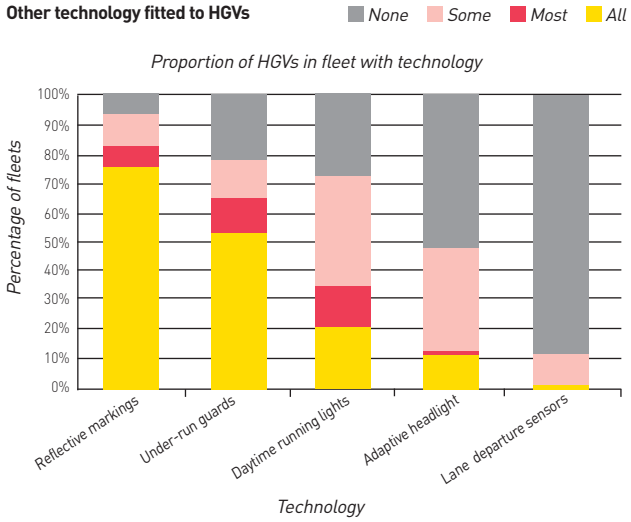
Reversing sensors were less common, and were fitted on all or most vehicles of a third of fleets. Other technology for protecting vulnerable road users, such as side mirrors that move automatically while going around corners (5% of fleets), side sensors for detecting pedestrians and cyclists (32% of fleets), and Fresnel lenses (44% of fleets) are far rarer. This indicates that having a technology required by law is a major impetus for having it fitted on all vehicles; only those technologies that were required by legislation came close to being fitted on all vehicles.

ADVICE: PROTECTING VULNERABLE ROAD USERS

- All vehicles have blind spots, but they are larger and therefore may pose a particular risk to vulnerable road users on larger trucks and buses. Fleet managers should ensure appropriate safety kit is fitted to all vehicles.
- Awareness-raising, such as displaying posters and including safety information in staff briefings, can help to remind drivers of the importance of protecting vulnerable road users.
- Fleet managers should complete risk assessments to determine which of their vehicles are most affected by blind spot risk, based on vehicle size and types of routes they are driven on.
- All crashes, scrapes and near misses should be recorded, as even minor incidents such as scraped sides or clipped wing mirrors may indicate a need for driver training on safe manoeuvres or other interventions such as improved policies or site design improvements.
- Drivers should be educated on the importance of safe manoeuvring and checking blind spots, and trained on how to avoid risky manoeuvres, manoeuvre safely when necessary, and how to use any blind spot devices fitted to vehicles, with refresher training provided on a regular basis.
- As much as possible, journeys should be routed to avoid areas with more vulnerable road users, or where risky manoeuvres might be more likely, such as town centres and residential areas.
- Wide-angle and blind spot mirrors, CCTV, rear, front and side sensors, automatic side mirrors, and reversing alarms are available for various types of vehicle. Fleet operators should implement devices suitable to their vehicle types.
- Fleet operators should be aware of and comply with laws to help protect vulnerable road users. Under EU law, trucks weighing more than 3.5 tonnes are legally required to have some safety devices fitted, including extra mirrors and under-run guards. Similar requirements exist in many other jurisdictions worldwide.
- Where safety devices are not legally required, fleet managers should still consider fitting them to ensure their vehicles are as safe as possible.
- When selecting vehicles to lease or buy, or advising employees who use their own vehicles for work, fleet managers should select vehicles with smaller blind spots or blind spot-minimising technology fitted, and features designed to minimise the harm to vulnerable road users in a collision.
- Fleet managers should keep up-to-date with the latest technology in this fast-moving area, and implement new technologies where available and appropriate. Information on the latest research and developments is available through Brake's fortnightly Target Zero email newsletter to members, and in Brake's research library.

Other technology

Other technology fitted to HGVs

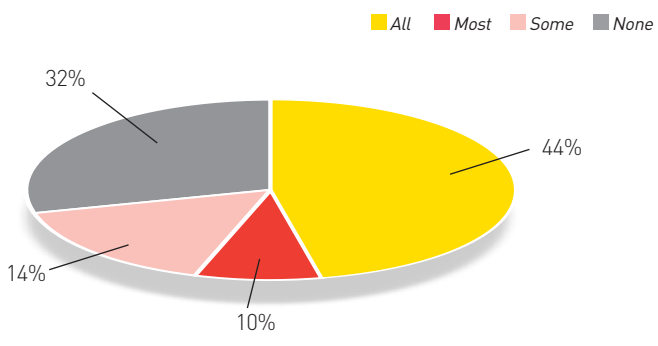


Under-run protection is required by EU law for trucks over 3.5 tonnes. In our survey responses, it is present on all HGVs in 80% of fleets. Reflective markings were also common, being on all vehicles in 92% of fleets.

Sensors that alert the driver when they have moved out-of-lane are rare, and only six (10%) HGV fleets surveyed have them fitted on any vehicles. Adaptive headlight systems were present in only 47% of fleets, but daytime running lights are more common, used by 71% of HGV fleets on at least some vehicles.

A concern is the presence of hands-free kits in HGVs. Driving with a hands-free kit can be compared to drink driving in the way it lengthens reaction times and increases crash risk[5]. While using a hand-held mobile behind the wheel is illegal in the UK, using a hands-free kit is not, despite the dangers. Worryingly, many fleets allow or enable their HGV drivers to use a hands-free mobile behind the wheel: 26 HGV fleets (44%) have hands-free kits in all their HGVS, and 24% have them in most or some.

Fleets with HGVs with hands-free kits

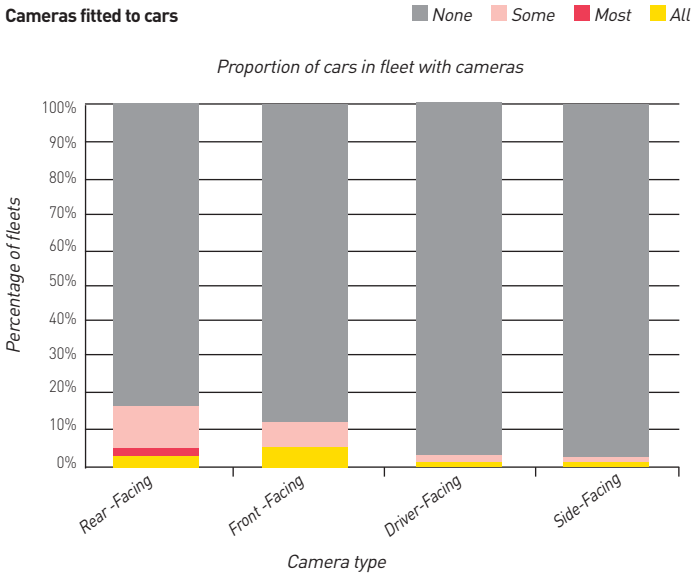


TECHNOLOGY ON CARS

112 fleets surveyed contain at least one car. These range from single vehicles to fleets with more than 1,000 cars. The average number of cars in a car fleet was 83.

Cameras

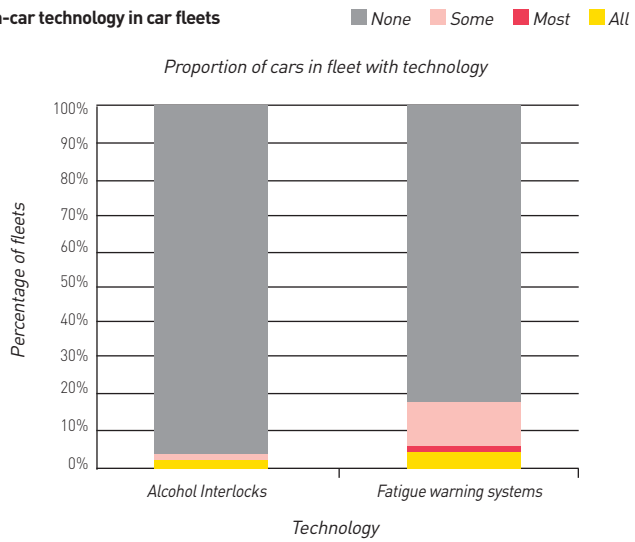
Cameras fitted to cars



Few car fleets surveyed have cameras fitted. Reversing cameras are the most common, and are present on vehicles in 18 fleets (16%); front-facing cameras in 13 (12%), side-facing in three (3%), and driver-facing in three (3%).

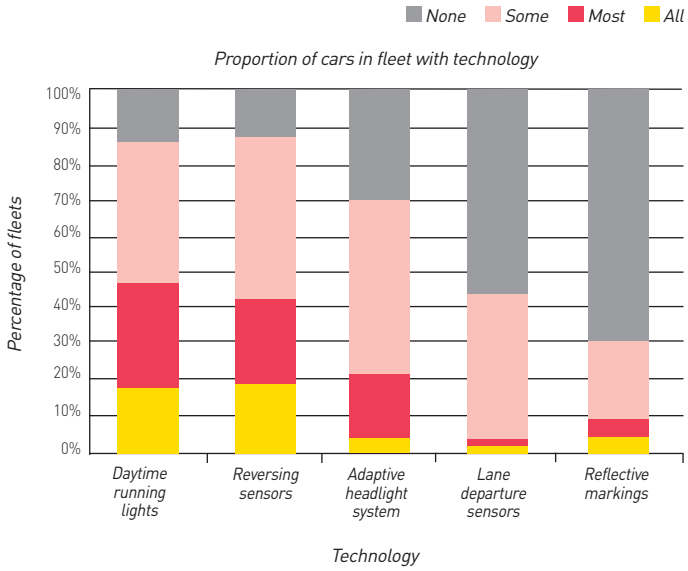
In-car technology

In-car technology in car fleets



Alcohol interlocks are present in very few fleets, and only two (2%) had them on any vehicles. Fatigue sensors are present on 20 fleets (18%).

Other tech

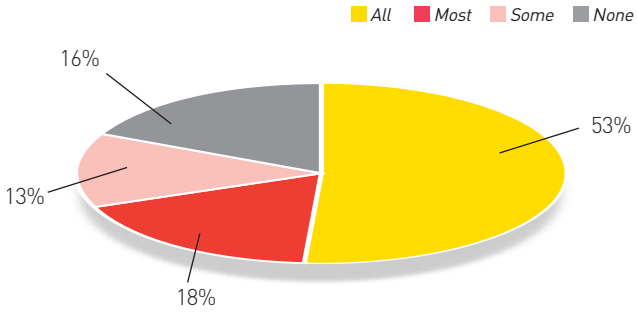


There was a lot of variation in the presence of different types of technology on car fleets. The majority have daytime running lights (88%), reversing sensors (86%) and/or adaptive headlight systems (70%) on at least some of their cars, although mostly not on all their cars.

Lane departure sensors were less common, but more likely to be found on cars than HGVs in a fleet. Reflective markings were present in only 30% of car fleets.

As with HGVs, a worrying proportion of fleets have hands-free kits in their cars. More than half of fleets (51%) do so across all their cars, with just 17% saying these aren't fitted to any of their cars.

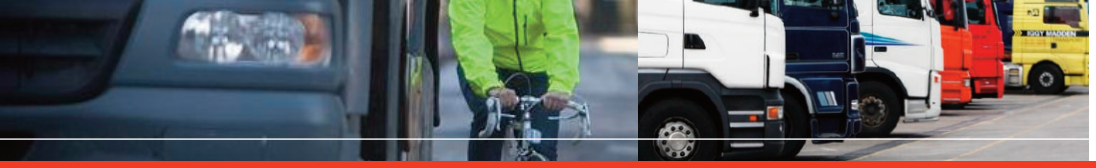
Fleets that have hands-free kits in their cars



Proportion of cars in fleet with hands-free kits

FACTS: TECHNOLOGY AND DISTRACTIONS

- A study of in-vehicle video footage estimated that 22% of crashes could be caused, at least in part, by driver distraction. It also showed that drivers who perform a secondary task at the wheel are two to three times more likely to crash[vi].
- Other studies have found that more complex secondary tasks, like talking on a mobile phone or texting, increase crash risk even more. Talking on a phone (hands-free or hand-held) has been shown to make drivers four times more likely to be in a serious crash, texting far more still[vii].
- Many drivers allow themselves to be distracted because they believe they are in control, and do not believe distraction poses a significant risk[viii]. However, research shows drivers are not able to correctly estimate how distracted they are[ix] and 98% are not able to divide their attention without a significant deterioration in driving performance[x].
- There is some evidence that using a sat-nav can increase driver speed and reduce observation[xi]. However, research also found that voice-based in-vehicle navigation is safer than using a visual display or paper map, as it allows the driver to navigate without looking away from the road[xii].
- Several studies into driver distraction have found that operating a stereo while driving leads to slower reaction times and more errors such as lane departure[xiii].
- Voice-operated controls to allow the driver to complete tasks such as operating the radio are intended to reduce distraction. However, research has found that these devices harm drivers' ability to concentrate[xiv], and some speech-to-text systems can be even more distracting than a phone call[xv].



FLEET MANAGEMENT TECHNOLOGY

We have analysed use of the following management technologies across all fleet types surveyed since they can be used in the same way across different vehicles.

A quarter of fleets (25%) surveyed use vehicle check systems. Vehicle checks by drivers are an important part of ensuring that vehicles are maintained and in a fit state to drive. An app on a driver's mobile phone can aid this, by providing a check list, timing the length of checks, and enabling the easy reporting of defects. Some systems can link to a telematics system, meaning that a manager can be alerted if a driver leaves a depot without performing a check.

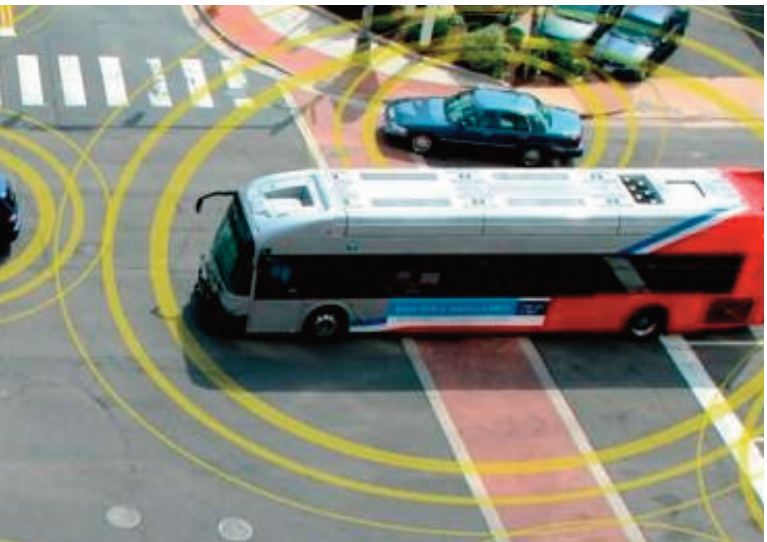
Read Brake Professional's advice on vehicle maintenance.

Only 4% of fleets surveyed make use of apps to prevent mobile use behind the wheel. Mobile phone use behind the wheel is a major cause of distractions, and apps have been developed to prevent it.

Journey or delivery planning optimisation systems are used by a third (36%) of fleets surveyed. Reducing the number and length of journeys can save a fleet money, and significantly improve safety by reducing mileage and aiding avoidance of riskier routes and areas with cyclists and pedestrians.

Three in 10 (30%) fleets surveyed make use of driver risk profiling, whereas 20% fleets make use of online driver risk assessments. Identifying drivers who may prove a higher risk gives an opportunity to target training before an incident occurs.

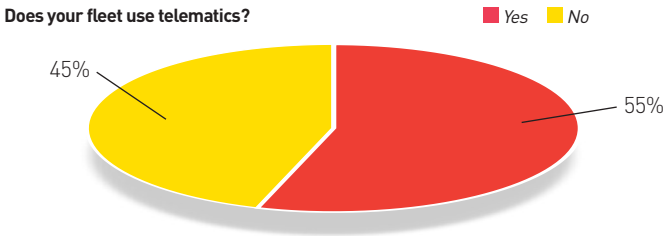
Eight in 10 (78%) fleets surveyed make use of licence checking technology. This is encouraging as licence checks are a vital risk management tool for recruitment and to use during employment. Note that Licence Bureau, a firm that provides a licence-checking service, assisted in promotion of this survey to its customers.

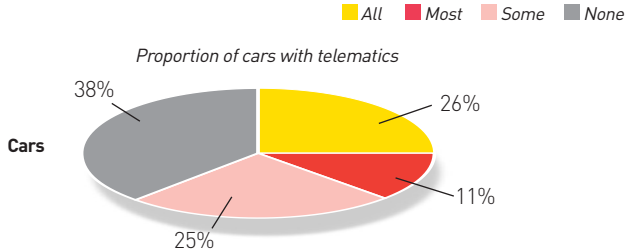


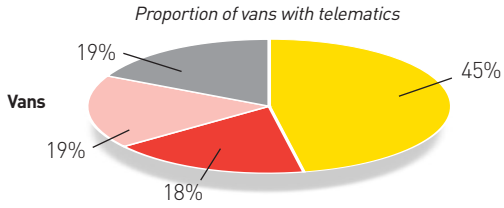
TELEMATICS

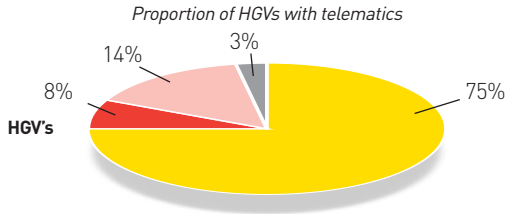
Telematics is a system that uses in-vehicle information and communication technology to collect and monitor data on vehicles and/or drivers. It can be used alongside driver training and education and risk management policies to significantly improve fleet safety. Telematics can record harsh braking, sharp cornering or speeding and can reduce safety-related incidents by up to 50%[xvi]. Although installing telematics does involve an initial investment, many organisations report recouping the initial outlay in safety-related cost savings within a year[xvii].

Of all fleets surveyed, 70 (51%) use telematics, indicating scope for much greater use of this technology to improve safety across fleets. Telematics are most commonly fitted on HGVs: seven in ten (71%) HGV fleets have telematics fitted to at least some of their HGV vehicles.
Half (50%) of van fleets fit telematics to at least some of their vans, and less than a third (30%) of car fleets have telematics fitted to at least some cars. The number of fleets with motorcycles and buses that responded was low, making it difficult to draw conclusions, but most bus fleets had some kind of telematics (79%), and telematics were used on two of the small number of motorcycle fleets that responded.

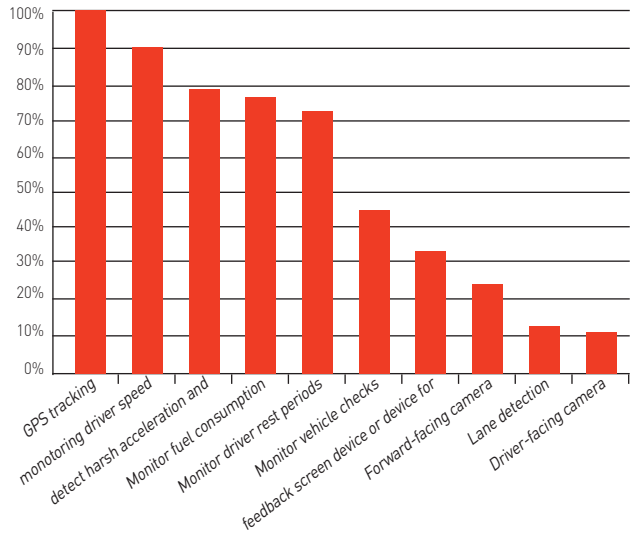






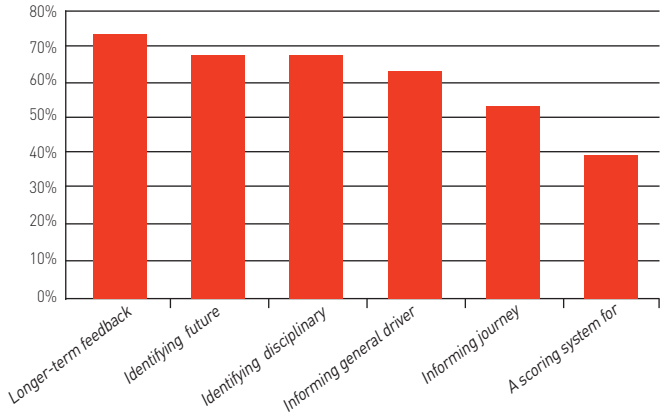


Features of telematics



GPS tracking, speed monitoring and detecting harsh acceleration and braking are all common features of telematics systems, whereas forward and driver-facing cameras, and lane detection, are rare. Two fleets noted that they were updating their telematics system to more advanced driver-monitoring systems, and another noted that their telematics system had additional features that they were not making use of.

Use of telematics



In a positive light, telematics is being used by most operators that use it to inform driver training, and to give feedback to drivers. However, only half of fleets are using telematics to inform journey planning, which suggests that there are opportunities for fleets to use telematics more effectively.

Case study: Iron Mountain

Iron Mountain is a global information management company with a fleet of 140 trucks and 290 vans based in the UK and Ireland.

Iron Mountain managers noted that drivers demonstrated safer driving when accompanied by a trainer. While the company had made good progress in reducing crashes through the use of accompanied drives and associated training, clearly it was unable to have drivers accompanied by another person all of the time. The organisation decided instead to make the vehicle itself the 'onlooker' by installing a vehicle telematics system, to complement the coaching delivered by the driver training. The company also introduced new driver training and assessment programmes.

The telematics system (provided by GreenRoad Technologies) gives employees in-cab feedback on their driving, and also allows managers and trainers to remotely monitor the driving performance of employees. The system collates data gathered on driving performance by analysing incidents such as severe acceleration, harsh braking and speeding, to build a risk profile on the driver. Driver trainers are able to access this risk profile before meeting the driver and tailor training appropriately. Drivers are subject to a minimum of one driving assessment per year, conducted by one of Iron Mountain's five dedicated driver trainers.

Drivers are required to carry out a vehicle check before each journey using a vehicle check sheet and confirming electronically on a hand held scanner. They are also required to carry out periodic checks throughout their duty. All vehicles are inspected at least once every week as part of a vehicle audit, and supervisors conduct random spot checks of company vehicles.

Incidents involving Iron Mountain vehicles reduced by 10%, falling from 262 in 2010 to 237 in 2011. Damage costs and third party claims fell by more than £100,000 between 2010 and 2011, from £590,000 to £490,000.

More case studies that show how fleets have reduced incidents, saved money and prevented casualties and serious injuries are available for members of Brake Professional.

Join Brake Professional

Brake, the road safety charity, produces guidance, research and resources for fleet and road safety professionals on a range of topics including use of safety technologies through its Brake Professional membership scheme and website. It runs a programme of events sharing best practice and research on a range of road risk topics.

Find out more and join at www.brakepro.org/join-brake/about-brake-professional.

SMEs can access a free toolkit providing an introduction to road risk management at www.brakepro.org/SMEtoolkit.

End notes

i *Reported road casualties in Great Britain 2013, Department for Transport, 2014*
ii *Reported road casualties in Great Britain 2013, Department for Transport, 2014*
iii *France: New Legislation to Tackle Alcohol as Main Cause of Road Deaths, ETSC Fact sheet, 2009*
iv *Accelerometer-based steering-wheel movement monitoring for drowsy-driving detection, Virginia Commonwealth University, 2014*
v *How dangerous is driving with a mobile phone? Benchmarking the impairment to alcohol, Transport Research Laboratory, 2002*
vi *The impact of driver inattention on near-crash/crash risk, National Highway Traffic Safety Administration, 2006*
vii *[7] Role of mobile phones in motor vehicle crashes resulting in hospital attendance: a case-crossover study, University of Western Australia, 2005*
viii *Driver distraction, RoSPA, 2007*
ix *Assessing the awareness of performance decrements in distracted drivers, Liberty Mutual Research Institute for Safety, 2008*
x *Supertaskers: Profiles in extraordinary multitasking ability, University of Utah, 2010*
xi *Can sat navs reduce drivers' performance? Royal Holloway University of London, 2012*
xii *Voice-based navigation is a safer way to get around, Virginia Tech Transportation Institute, 2011*
xiii *Driver distraction: a review of the literature, Monash University Accident Research Centre, 2003*
xiv *Listening and responding to questions harms drivers' ability to focus, University of Toronto, 2013*
xv *Speech-to-text systems distract drivers more than talking on a mobile phone, AAA Foundation for Traffic Safety, 2013*
xvi *Use of a video monitoring approach to reduce at risk driving behaviors in commercial vehicle operations, Virginia Tech Transportation Institute, 2011 and The contribution of on-board recording systems to road safety and accident analysis, Mannesmann VDOAG and VDO North America, LLC, 1998*
xvii *Telematics as a fleet safety tool: advantages, limitations and management mechanisms, Brake, 2014*

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