

# The evolution of vehicle safety

Vehicle safety has seen radical change over the last century but the industry will need to continue to adapt its safety standards in order to keep up with advances in technology. The future of transport and mobility is exciting however; technological advances could potentially increase the level of driver distraction, and so safety remains a challenge going forward. Here is a brief guide on how vehicle safety has evolved over the last 100 years.

## 1900s

### Trafficators

Flag-like arms on the side of vehicles alerting other road users to an imminent change in direction.

### Three-point seatbelt

Combined lap and shoulder straps protect vehicle occupants and remains one of the most effective car safety features ever introduced.

### Child seats

Originally designed for convenience, they are now an essential part of keeping children safe in a moving vehicle. However in many collisions, incorrect fitment and adjustment reduces the effectiveness of their protection for the child.

### Speedometers

The first time drivers had the ability to monitor their speed.

### Driver airbag

A gas-filled cushion that inflates very rapidly out of the steering wheel hub in a frontal crash, protecting the driver from the forces of a head-on collision.



### Crumple zone

Designed to absorb the force of impact in a crash by controlled deformation, reducing the injuries to vehicle occupants.

## 1930s

### Rear view mirror

Helps the driver to calculate the distance to the vehicle behind as well as giving a view of what is happening to the rear.

## 1960s

### Anti-lock braking system

Minimises the risk of skidding by stopping the brakes from locking up when drivers brake harshly.

### Padded dashboards

Designed to reduce face and chest injuries to the driver and front seat passenger.

### First seatbelt legislation

TRL research led the way regarding vehicle safety in the UK, which resulted in legislation requiring all cars to be fitted with front seatbelts.

### Seatbelts

In 1983, seatbelts became compulsory for all front seat passengers to wear in the UK, reducing fatalities by 25%.

## 1990s

### Proximity sensors and cameras

Vehicle based cameras and motion sensors alert drivers of hazards by increasing their field of view when reversing, parking or switching lanes, minimising the risk of collisions.

### Frontal airbags

Mandatory airbags using chemical and electrical based systems for the driver and front passenger of vehicles increase protection on impact.

### Seatbelts

In 1991, seatbelts became compulsory for all rear seat passengers to wear in the UK.

### Autonomous emergency braking (AEB)

Warns drivers of upcoming dangers and automatically applies braking if they fail to do so, reducing the severity of injuries. As a result, a 2015 study concluded that AEB led to a 38% reduction in rear-end collisions.

## 2010s

### HGV mirrors

Mandatory blind spot mirrors give drivers a wider field of vision than conventional mirrors, to improve visibility of motorbikes, cycles and pedestrians particularly when a vehicle is turning right.

### Electronic stability control

Building on the capability of ABS, wheel sensors can detect if a vehicle has lost control or is beginning to slide and small amounts of braking can be automatically applied to individual wheels to help regain stability, reducing the number of accidents by up to 59% since its introduction in 2014.

