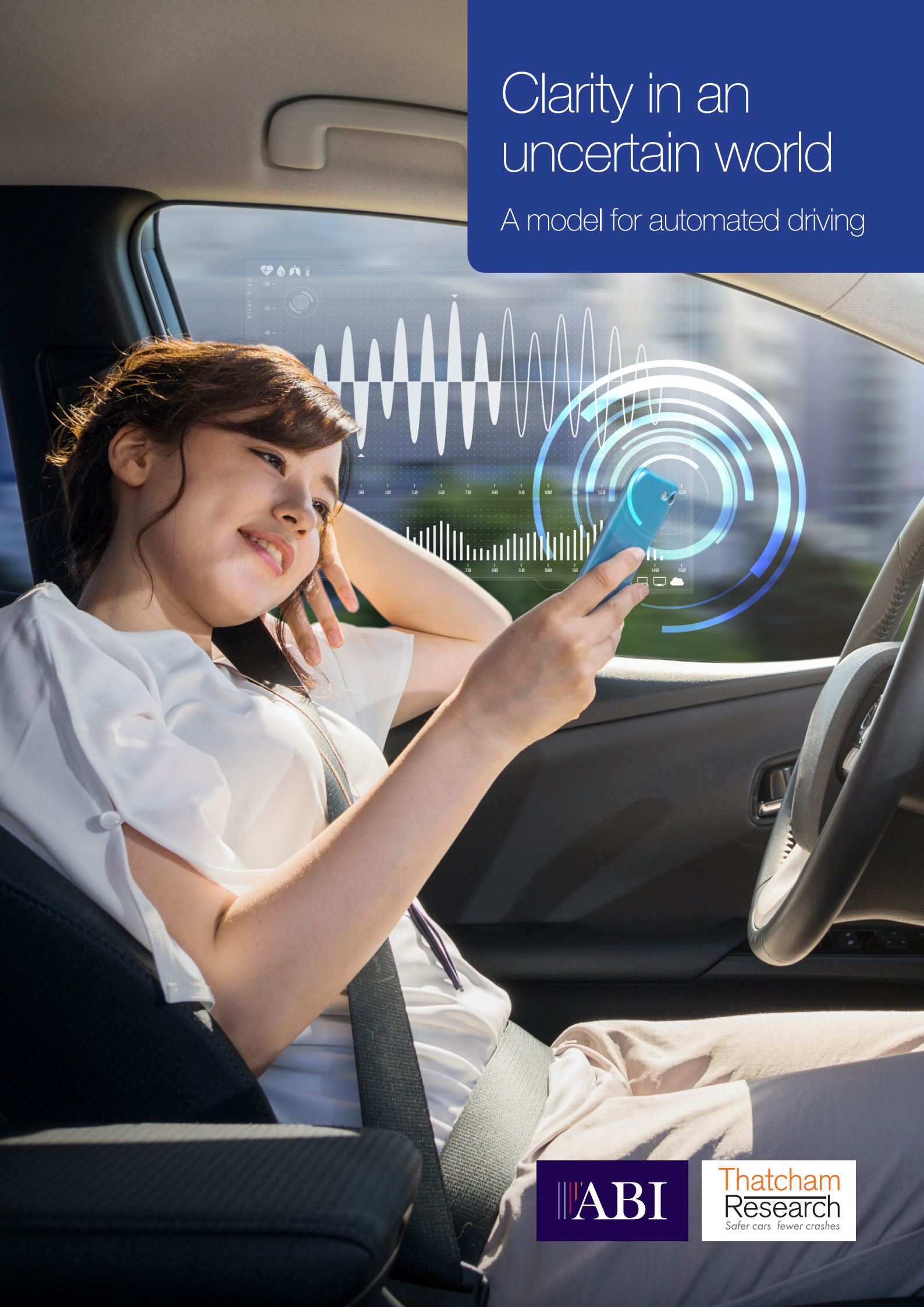


# Clarity in an uncertain world

A model for automated driving



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The insurance industry strongly supports the development of automated driving technology to reduce the number of deaths and injuries on UK roads. A major step in making this a reality has been close involvement in the development of the UK's Automated and Electric Vehicles Bill.

This legislation will keep the process of buying insurance and making claims as straightforward as possible for consumers. It will also ensure that anyone using an automated vehicle will not be unfairly blamed for an accident they could not be expected to prevent.

As the reality of automated vehicles on UK roads draws nearer, there are four key issues that will influence the approach the insurance industry takes to this technology:

**Greater clarity around the definition of Automated Driving**

**Creation of a dynamic list that captures automated capabilities when added (or removed) from the vehicle**

**Emphasis on the safety of the automation - from its design to its operation**

**Access to data to identify who was driving at the time of an accident - the vehicle or driver**

The proposals in this document set out how insurers would like to see these challenges addressed by policymakers.

## How to define automated driving

There is much confusion around what defines an automated vehicle. The reality is that, whilst technology allows vehicles to increasingly drive themselves with less and less human intervention, a large majority will be limited in their sphere of operation or specific road conditions.

The insurance industry welcomes the UK Government's commitment in the Automated and Electric Vehicles Bill to create a list of Automated Vehicles. It is crucial, therefore, that there is a clear definition of what constitutes an Automated Vehicle. Regulators and insurers require this to classify and insure vehicles appropriately, while consumers need to understand the functionality and capability of the vehicle and their own responsibilities.

The Bill defines an Automated Vehicle as: "A vehicle that is designed or adapted to be capable, in at least some circumstances or situations, of safely driving itself, i.e. that it is operating in a mode in which it is not being controlled, and does not need to be monitored, by an individual". To meet this definition, the vehicle must meet minimum criteria for its automated systems, and these are set out in Figure 1.

Consequently, a system that requires the driver to control or monitor the vehicle in any way cannot be classified as automated.

Therefore UK insurers believe that there is a need for more specific descriptors as in Figure 1 to describe and categorise vehicle automation rather than the current SAE J3016 "Levels of Automation". By taking this approach, it will mean that rather than focusing on Level 3 or Level 4, attention is focused on the safety performance and capability of a vehicle/automated system.

Figure 1.

# What defines an automated vehicle?

Features and performance criteria



## ACCIDENT DATA

Record and report what systems were in use at the time of an accident

#10

#1

## NAMING

Clearly describes automated capability

## BACK-UP SYSTEMS

Safeguards step in if any systems fail

#9

#2

## LAW ABIDING

Complies with UK traffic laws and the Highway Code

## EMERGENCY INTERVENTION

Vehicle can avoid or prevent an accident by responding to an emergency

#8

#3

## LOCATION SPECIFIC

Functionality is limited to specific types of roads or areas via geo-fencing

## SAFE STOP

Vehicle executes an appropriate 'safe stop' if unable to continue or the driver does not take back control

#7

#4

## CLEAR HANDOVER

Transfer of driving control follows a clear 'offer and confirm' process

## UNANTICIPATED HANDOVER

Adequate and appropriate notice must be given if the vehicle needs to unexpectedly hand back driving control

#6

#5

## SAFE DRIVING

Vehicle can manage all reasonably expected situations by itself



Figure 2.



## Automated design domain definitions

A vehicle should be controlled in a manner that safely navigates the specified design domain and abides by governing rules

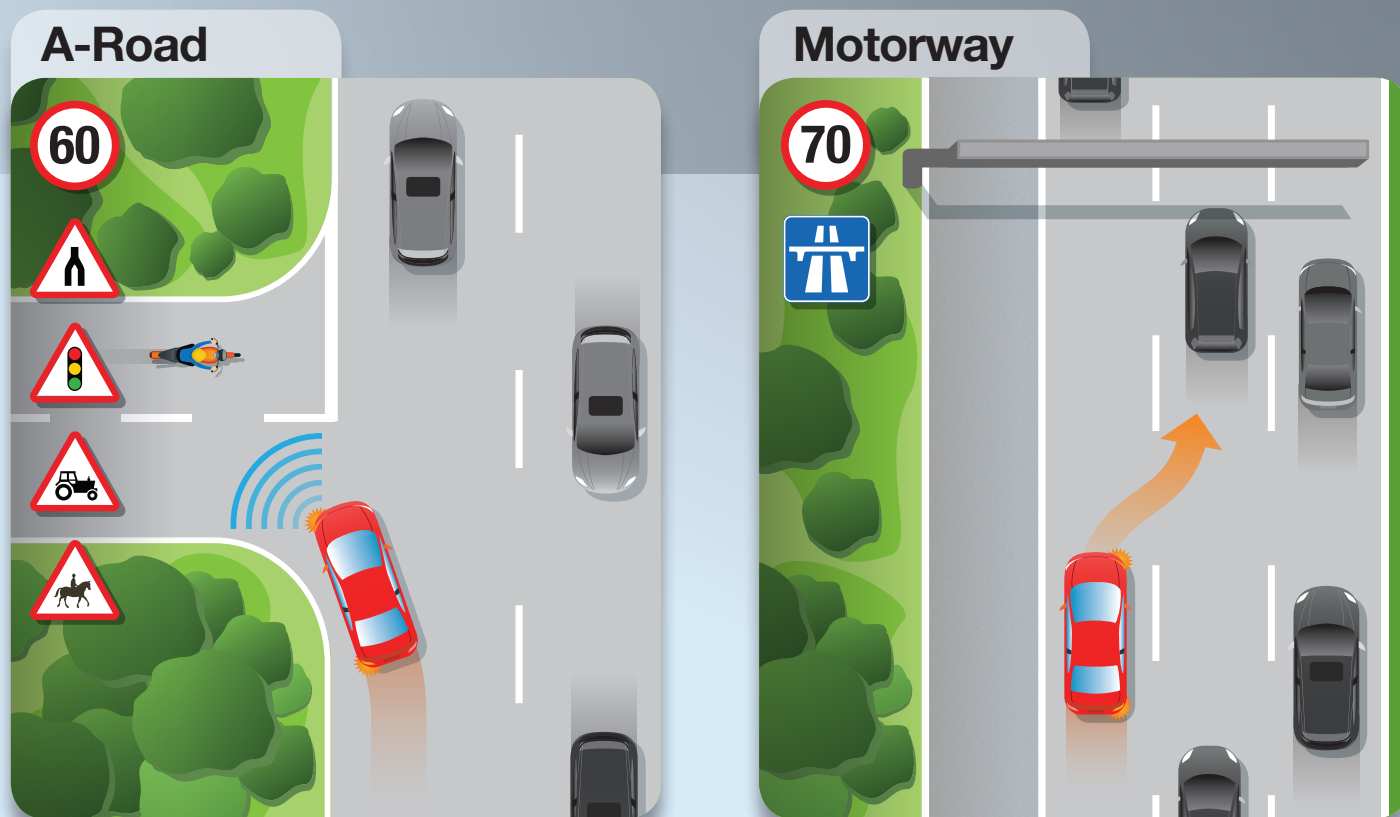
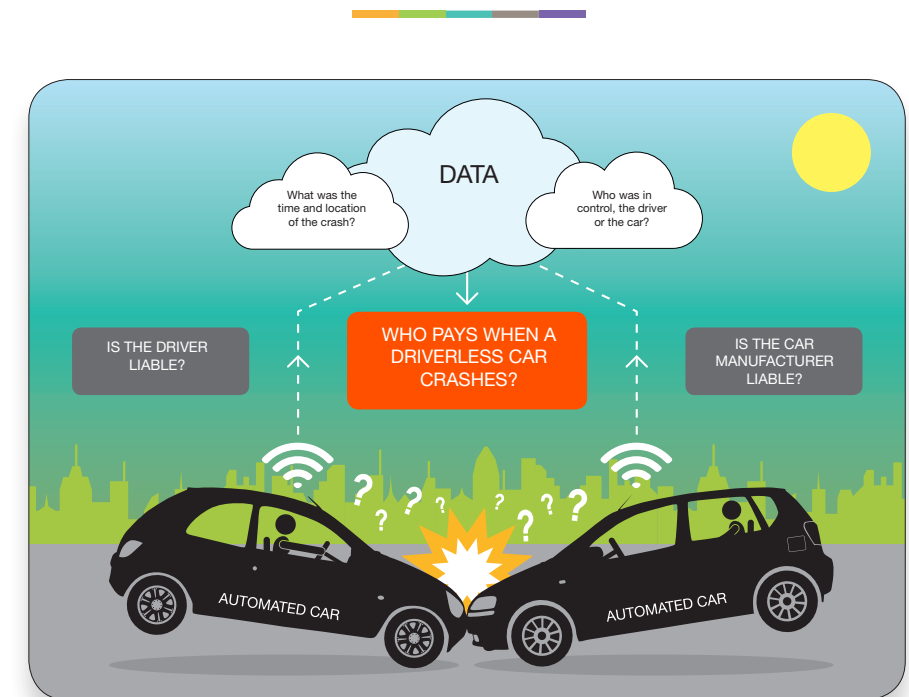


Figure 3.



### Vehicle level data

The Automated and Electric Vehicles Bill will set out a list of vehicles that qualify as automated and will be updated regularly. Insurers will actively engage in the consultation process to determine criteria used to create the list, and believe data about the automated functionality of a vehicle must be:

- available at each individual vehicle level and identifiable via the Vehicle Identification Number (VIN)
- capable of being updated, and cater for potential future 'over the air' updates

By recording these changes at VIN level, insurers, rental and lease companies, fleet operators as well as law enforcement agencies would be made aware of any change to the automation status of a vehicle. This might include adding or removing automated capability.

### Immediate access to data

The Automated and Electric Vehicles Bill allows drivers to make an insurance claim if, when in automated mode, their vehicle was 'at-fault' in an accident. Where there is a fault or failure in the Automated Driving system, the legislation allows insurers to recover these costs from the vehicle manufacturer, and for drivers to receive the compensation they are entitled to for accidents they could not be expected to prevent. This means drivers do not have to engage directly in potentially complex legal disputes with a vehicle manufacturer.

To settle such claims efficiently, both the insurer and the vehicle manufacturer will need to have immediate access to sufficient data from the vehicle to determine whether the vehicle or driver was in control when the accident occurred.



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