DRIVERLESS CARS

Thoughts on the direction of travel for common law Civil Liability and statutory Product Liability in an increasingly automated world…

EMMA NORTHEY, TEMPLE GARDEN CHAMBERS

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- ▸ Driverless car
- ▸ Self-driving car
- ▸ Automated vehicle
- ▸ Autonomous vehicle
- ▸ CAV – connected and autonomous vehicles

WHAT IS A DRIVERLESS CAR?

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Society of Automotive Engineers (SAE) Classification (June 2018)

- ▸ **Level 0 – No Automation** The human driver does everything (includes vehicles with active safety systems)
- ▸ **Level 1 – Driver Assistance** The human driver controls most functions, but either the lateral (steering) <u>or</u> longitudinal (acceleration and braking) is done automatically
- ▸ **Level 2 – Partial Automation** Both lateral and longitudinal control are automated, meaning that the "driver is disengaged from physically operating the vehicle by having her hands off the steering wheel AND foot off the pedal at the same time"
- ▸ **Level 3 – Conditional Driving Automation (aka Yikes!!)** Drivers can completely shift "safety-critical functions" to the car, and only intervene if necessary.
- ▸ **Level 4 – High Driving Automation** The car performs all safety-critical driving functions and monitors roadway conditions within its "operational design domain" e.g. motorways
- ▸ **Level 5 – Full Driving Automation** The car's performance equals that of a human driver, in every driving scenario

WHAT IS A DRIVERLESS CAR?

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Health
- driving is typically more stressful than being a passenger

Time-saving
- passengers will be able to use journey time more productively
- the need for a parental "taxi service" will be reduced

Cost-saving
- CAV will facilitate the increase of mobility as a service, reducing the need for individuals to own cars

Land-use
- fewer vehicles (with less being owned by individuals) could be parked more efficiently

WHY?

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Congestion
- CAV will be able to travel closer together, at the optimum speed, on the optimum route

Pollution
- CAV will operate more efficiently and thus pollute less than human-driven vehicles

Safety
- 1,770 road deaths in the UK in the year ending June 2018 (DfT statistics)
- numbers have fallen dramatically since a peak of 9,169 in 1941, even as miles travelled per annum have soared, but the curve is now asymptotic…
- human error is a factor in 95% of all road accidents (ROSPA)
- could we save 1,500 lives per annum?

WHY?

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- **Automated and Electric Vehicles Act 2018**

- **DfT Future of Mobility – Call for Evidence (July 2018)**

- **Law Commission Consultation on Automated Vehicles (February 2019)**

- **DfT Consultation on a draft Automated vehicle trialling code of practice (February 2019)**

RECENT DEVELOPMENTS

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Part 1 of the Act

"*extends compulsory motor vehicle insurance to cover the use of automated vehicles in automated mode, so that victims (including the 'driver') of an accident caused by a fault in the automated vehicle itself will be covered by the compulsory insurance in place on the vehicle. The insurer would be initially liable to pay compensation to any victim, including to the driver who had legitimately handed control to the vehicle. The insurer then would have the right to recover costs from the liable party under existing common and product law.*"

AUTOMATED AND ELECTRIC VEHICLES ACT 2018

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Section 1: Listing of automated vehicles by the Secretary of State

Requires the Secretary of State to prepare, and keep up to date, a list of all motor vehicles ("automated vehicles") that:

(a) are in the Secretary of State's opinion designed or adapted to be capable, in at least some circumstances or situations, of safely driving themselves, and

(b) may lawfully be used when driving themselves, in at least some circumstances or situations, on roads or other public places in Great Britain.

Section 8: Interpretation

A vehicle is "driving itself" if it is operating in a mode in which it is not being controlled, and does not need to be monitored, by an individual.

AUTOMATED AND ELECTRIC VEHICLES ACT 2018

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House of Lords Committee Stage – 9 May 2018

Baroness Randerson

"The Government intend the Bill to apply to levels 4 and 5, but, as written, it could apply to some vehicles at level 3… After all, level 3 cars are certainly on our roads… Many level 3 cars currently available require no human attention to the road at lower speeds…"

AUTOMATED AND ELECTRIC VEHICLES ACT 2018

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Section 2: Liability of insurers etc where accident caused by automated vehicle

Where—

(a) an accident is caused by an automated vehicle when driving itself on a road or other public place in Great Britain,

(b) the vehicle is insured at the time of the accident, and

(c) an insured person or any other person suffers damage as a result of the accident, the insurer is liable for that damage.

AUTOMATED AND ELECTRIC VEHICLES ACT 2018

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Section 3: Contributory negligence etc.

Applies contributory negligence principles to the apportioning of liability in relation to accidents involving automated vehicles, where the injured party to some extent caused the accident or the damage resulting from it.

Section 4: Accident resulting from unauthorised alterations or failure to update software

Allows insurers to exclude or limit their liability to the insured person for accidents caused by the vehicle's software being altered in breach of the insurance policy, or by safety-critical software updates not being applied. This applies subject to various conditions regarding the level of knowledge of the insured person or policyholder about the need for updates or about related insurance policy requirements.

AUTOMATED AND ELECTRIC VEHICLES ACT 2018

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Section 5: Right of insurer etc to claim against person responsible for accident

Establishes that any other person liable to an injured party in respect of an accident is under the same liability to the insurer.

The right of action that an insurer has by virtue of this section accrues when the claim between the injured party and the insurer is settled (by a judgment, an arbitration, or an enforceable agreement).

AUTOMATED AND ELECTRIC VEHICLES ACT 2018

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- 2015 - the Government published *The Pathway to Driverless Cars: A Code of Practice for Testing*
- the Government, through the Centre for Connected and Autonomous Vehicles (CCAV) is investing £150m in research and development of AV technologies, match-funded by industry across more than 70 projects
- it is also investing a further £100m in testbed ecosystem facilities
- any trial activity that was possible under the 2015 Code remains possible
- new guidance has been added to improve clarity and ensure safe and responsible trials
- the changes to the Code involve:
    - structural changes to improve clarity;
    - improving safety guidance;
    - increasing levels of stakeholder engagement; and
    - ensuring a greater level of transparency of trials.

DFT CONSULTATION ON A DRAFT AUTOMATED VEHICLE TRIALLING CODE OF PRACTICE

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- A review of the legal framework for automated vehicles, and their use as part of public transport networks and on-demand passenger services.
- Running from March 2018 to March 2021.
- Preliminary consultation closed on 18 February 2019.
- In 2019 there will be a further consultation on the regulation of automated vehicles in public transport and mobility as a service.
- Final recommendations are due by March 2021.

LAW COMMISSION CONSULTATION ON AUTOMATED VEHICLES

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- Chapter 1: Introduction
- Chapter 2: Introducing Key Concepts
- Chapter 3: Human Factors
- Chapter 4: Regulating Vehicle Standards Pre-Placement
- Chapter 5: Regulating Safety on the Roads
- Chapter 6: Civil Liability
- Chapter 7: Criminal Liability
- Chapter 8: Interfering with Automated Vehicles
- Chapter 9: Machine Factors – Adapting Road Rules for Artificial Intelligence Decision-Making

LAW COMMISSION CONSULTATION ON AUTOMATED VEHICLES

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- Draws a fundamental distinction between driver assistance technology and automated driving systems
- Recognises that driver assistance technology may present problems of its own
- Focus of the consultation is on road-based vehicles, capable of driving themselves for at least part of a journey (SAE Level 4 or 5)
- Proposes a new role of "user in charge"
- Assumes that automated vehicles will operate on Britain's existing road network, rather than new dedicated roads
- Notes the value of connectivity (either with other vehicles or the road infrastructure) for reducing congestion and improving safety

CHAPTER 1: INTRODUCTION

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- SAE Levels
- "minimal risk condition"
- "dynamic driving task" – strategic, tactical, operational
- "operational design domain"
- OECD Paths to full automation – Path 1 and Path 2
- UNECE
- The Vienna Convention

CHAPTER 2: INTRODUCING KEY CONCEPTS

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- In what circumstances should automated vehicles be required to have a human user, who is qualified and fit to drive (a "user-in-charge")?
- When should humans in the driving seat be permitted to engage in non-driving activities?
- Lessons from "human factors" research in aviation:
    (1) People often find passive monitoring of a task more difficult than active engagement in it. The less people are called on to do, the more likely they are to lose concentration and become drowsy, inattentive or distracted.
    (2) Passive monitoring is particularly difficult if people do not know what they are looking out for. The effects of monitoring fatigue can be partially offset by training about the purpose of the monitoring task.
    (3) After using machines for a while without incident, people tend to become overconfident. They will then rely on automation even if they are told that it is not safe to do so.
    (4) Conversely, if a machine generates too many false alarms, people will lose confidence in it. They may then fail to use it at all.
- Concept of "blame time"
- Active attention management

CHAPTER 3: HUMAN FACTORS

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- ▸ Type approval
- ▸ A new safety assurance scheme for automated vehicles
- ▸ Self-certification versus third-party accreditation
- ▸ Testing artificial intelligence systems v "throwing metal at walls"

CHAPTER 4: REGULATING VEHICLE STANDARDS PRE-PLACEMENT

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- ▸ consumer information and marketing – ASA and Trading Standards
- ▸ market surveillance and recalls - DVSA
- ▸ roadworthiness tests – DVSA (even though we still say MOT test)
- ▸ driver training
  - ▸ a new licence category for automated vehicles?
  - ▸ remote driving – akin to drone piloting?

CHAPTER 5: REGULATING SAFETY ON THE ROADS

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- ▸ accident investigation
  - ▸ gathering data
  - ▸ police and coroners, or a new equivalent to the MAIB/ RAIB/ AAIB?
  - ▸ technical expertise
  - ▸ prioritising finding out what happened over criminal/ civil proceedings
  - ▸ ensuring public confidence through transparency
  - ▸ how safe do automated vehicles need to be?

CHAPTER 5: REGULATING SAFETY ON THE ROADS

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- AEVA 2018 – does it provide a sufficient basis for compensating victims where automated vehicles cause damage?
- liability arises directly on insurers, if the vehicle is insured
  - contributory negligence by the injured party
  - misuse/ tampering/ failure to update
- a simpler route for injured parties than facing multiple defendants, who are all blaming each other
- a "black box" approach to what went wrong
- a partial cause will suffice
- where the automated vehicle is uninsured, will the MIB step in?
- what about an accident between an insured automated vehicle and an uninsured vehicle with a human driver, where the human and the automated vehicle were both at fault?

CHAPTER 6: CIVIL LIABILITY

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- secondary claims by insurers against other road users, manufacturers, component designers, servicing/ repairing garages, retailers etc
  - tort of negligence
  - PL claim under Part 1 CPA 1987
  - in contract for unsatisfactory goods/ services using CRA 2015 implied terms
- route may depend on the type of damage – death, personal injury and/or consumer property versus commercial vehicles or property
- or possibly the cause of the damage – does Part 1 CPA 1987 apply to software updates that are downloaded rather than supplied via a physical medium?
- commercial decision for insurers – simply pay claims and pass the cost back to consumers in increased premiums or engage in complex (multi-party) novel litigation?

CHAPTER 6: CIVIL LIABILITY

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- could claims arising from malfunctioning driver assistance systems be the proving ground for some of the issues that automated vehicles will raise?
  - behavioural psychology
  - engineering
  - coding
  - 5G
- will we need experts in new disciplines?
- where will the evidence come from?
- how will it be presented?
- the automated vehicle as independent witness...?

CHAPTER 6: CIVIL LIABILITY

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- some current offences may be incompatible with automated driving
- where offences arise directly from the way the vehicle is driven e.g. speeding, who is liable if the vehicle is driving itself?
- what type of investigation and sanction(s) would be appropriate where an automated vehicle drives in a way that breaches the law?
- what should be the scope and responsibilities of the proposed new "user-in-charge" role?
- are there sufficient sanctions to deal with people who maliciously interfere with automated vehicles or the supporting infrastructure?

CHAPTER 7: CRIMINAL LIABILITY

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- how will humans interact with automated vehicles?
  - standing in front of them to force them to stop or playing "chicken"
  - spraying paint over the sensors to "blind" them
  - obscuring traffic signs or road markings
  - hacking into their software to cause a crash or to steal them remotely
  - hitching unauthorised rides
- what standards and sanctions are needed to minimise such interference

CHAPTER 8: INTERFERING WITH AUTOMATED VEHICLES

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- 3 areas have generated particular public concern:
  - ethical issues aka "trolley problems"
  - avoiding bias in algorithmic decision-making
  - transparency
- when should automated vehicles be allowed (or required) to depart from road rules, by, for example:
  - mounting the pavement?
  - exceeding the speed limit?
  - edging through pedestrians?

CHAPTER 9: MACHINE FACTORS – ADAPTING ROAD RULES FOR ARTIFICIAL INTELLIGENCE DECISION-MAKING

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- how do you equip an automated vehicle to weigh the "cost" of different options?
- how do you ensure that the automated vehicle has the necessary information to do so?
- lawyers and engineers will need to learn to speak the same language – legal definitions are often purposive, engineering definitions are likely to be more determinate

**CHAPTER 9: MACHINE FACTORS –
ADAPTING ROAD RULES FOR ARTIFICIAL
INTELLIGENCE DECISION-MAKING**

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