Impact on liability & policies - connected and autonomous vehicles°

Birmingham Insurance Institute

Go further

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Introduction and background

Introduction

- Impact of developing technology on traditional liabilities
- Customer's perspective
- Claims handling and outcomes

Aims for session

- Discuss issues that may limit/extend liability
- Consider how insurance policies may change

UK approach –from Parliamentary Office of Science & Technology, September 2013

	Levels of Autonomy	Existing Examples
1 Driver only	The vehicle is entirely under human control but may have some automated systems.	Cruise control, electronic stability control, anti-lock brakes
2 Driver assistance	The steering and/or acceleration are automated but the driver must control the other functions.	Adaptive cruise control: distance to car in front maintained. Parking assistant: steering is automated, driver controls accelerator and brakes.
3 Partial autonomy	The driver does not control steering or acceleration but is expected to be attentive at all times and take back control instantaneously when required.	Adaptive cruise control with lane keeping. Traffic jam assistance.
4 High autonomy	Vehicles are able to operate autonomously for some portions of the journey. Transfer of control back to the human driver happens with some warning.	Prototype vehicles.
5 Full autonomy	The vehicle is capable of driving unaided for the entire journey with no human intervention – potentially without a human in the car.	None

Table 1: Adapted from Autonomous Road Vehicles - POSTnote 443, September 2013, Dr Chandrika Nath, Parliamentary Office of Science and Technology, Parliamentary Copyright 2013

Benefits

Self driving cars likely to lead to lower accident rate [1.24 million people a year fatalities in RTA worldwide; 2000 UK]

Wider demographic enabled to use cars (eg. elderly, disabled, blind)

Fuel efficiency and emissions reduction

Urban impact – reduce congestion, change demand for parking spaces

Infrastructure – highways will accommodate more cars

Vehicle to vehicle communication: V2V and V2I – the connected vehicle

Data collection

- vehicle users' profiles, commercial opportunities;
- vehicle telemetry re: performance;
- E-call;
- who did what, where, when and how fast;
- advanced telematics,
- better fraud detection

Challenges

Interplay between different levels of technology on same road space	Vintage cars, and other road users: trams, motorbikes, pedestrians, bicycles, horses, etc.	Technical malfunction, software/hardware, power supply (low battery), network coverage
Cost - sophisticated technology	Reputational risk to motor manufacturers. Role of tec companies - disruptors	Change in vehicle models following reduction in collisions
Uncertainties as to legal, regulatory and insurance aspects	Public perception, shift in attitudes	Reduction in individual car ownership – shared schemes, Uber plus

Cyber risks

- Large volume of data contained within the vehicle and streaming throughout the journey
- Personal data held within the autonomous also vulnerable
- V2V and V2I communications at risk
- Risks of data breach; risks of fraud
- Mobile data vulnerable to cyber attack
- Cover needed for manufacturers/logistics operators: reputational damage, data breach, injury and damage, terrorism?
- Cyber criminal: change traffic warning information / alter safe routes to hazardous routes / cause multiple pile-ups / commercial disruption

Near, medium and longer term

Near Term

- Increasing levels of ADAS in cars; consider use in industrial/farming settings
- New models of mobility/ownership emerge
- Assessment of strategic impact on car manufacturers, their suppliers, insurance industry

Medium Term

- Shift starts towards insurance based on vehicle rather than driver
- Changes to supply chain and logistics
- Changes to after sales care

Longer Term

- Major societal impact: individuals, public bodies – infrastructure, use of technology
- Safety – reduction/elimination of routine accidents

Legal Framework - US

US – in 2013, NHSTA (National Highway Traffic Safety Administration) set 4 levels of automation. Each state to decide; no federal regulatory framework yet.

US – Nevada, California, Florida, Michigan have passed laws governing testing of driverless cars on public roads. Have they resolved the legal challenges of operating on public roads?

US - 2009 RAND Corp study of legal risks.

- Questioned whether courts could be made to take benefits of driverless technology into account when claim against manufacturer for failings.
- AND limiting motorists ability to sue when driverless technology (mandated by federal law) failed to prevent an accident.

- Compare to 1929 Warsaw Convention limiting airlines' liability to passengers
- Discussion on no fault compensation scheme funded by government and manufacturers but…
- Is the US too litigious, which may inhibit development?

Legal Framework inside UK - current

The driver/user:

The Road Traffic Act 1988 regulates users of the roads – not limited to motorised vehicles but including cyclists, horse-drawn vehicles, etc. The Act sets out what road users cannot do and provides for criminal liability for breaches. Note that the Act does not state in terms that the driver must be in control.

Health and Safety at Work Act 1974 Section 2 – employees; Section 3 – others affected by company's acts – increasing relevance where driver not in control

Insurer concerned – impact?

The condition of the vehicle:

Construction and Use Regulations – within the provisions of RTA - affecting commercial vehicles particularly. Criminal liabilities

Consumer Protection Act 1987 – defect within the car (safety is not such as persons are generally entitled to expect); liability on producer; state of art defence

Corporate Manslaughter - more prosecutions where risk transferred to manufacturer?

Legal Framework – Europe

The Vienna Convention 1968: note Article 8: "*every driver shall at all times be able to control his vehicle or to guide his animals".*

Amendment March 2016- allows a car to drive itself as long as the system can be overridden or switched off by the driver. On that basis, the driver is still therefore present and in control.

- As long as there is some mechanism of control or override in place for the driver, then liability will remain with the driver in the traditional way.
- Amendment was promoted by Germany, France and Italy.
- Note that US, Japan and China are not signatories to the Vienna Convention. UK has not ratified it – but note Geneva Convention 1949 may apply.

Legal Framework– product regulation

United Nations Economic Commission for Europe ("UNECE") Working Party on Brakes and Running Gear :

- proposals covering semi-automated driving functions:
  - lane monitoring systems
  - autopilot systems in traffic jams and at high speeds on highways
  - self parking
- review policies and guidance, consider regulatory provisions
- outcomes awaited

Product Regulation: will require alteration for example:

ECE-R 79 – steering equipment

ECE-R-48 - lighting

Challenge for manufacturers - differing approaches until international standards are amended

Legal Framework - future

Regulatory framework and common law – develops to adapt to technology.

Will fully automated vehicles require new regulations? eg. requirement that all new cars to have E-call from 2018; AEB mandatory?

Cross border agreements? Difficulties for manufacturers operating in different regulatory environments.

Future regulation of V2V and V2I communication: shared architecture and use of data.

UK Government – Pathway to Driverless Cars and Code of Practice

Road Traffic Act 1988 regulates vehicles' use of the road - the UK is uniquely positioned to allow testing of increased automation on public roads.

2014 provision of funding to 4 cities (Bristol, Milton Keynes, Coventry and London Greenwich) to pilot autonomous cars. 2015 Further funding support - £200 million for intelligent mobility. 2016 connected corridor London-Dover & "platoon" truck testing

The Government's stated aim is to ensure that the UK is at the forefront of testing and development of the technology by providing a supportive legal and regulatory framework.

UK Government - proposals

A Code of Practice July 2015 set out guidance on testing of driverless technologies on public roads:

- use qualified authorised test drivers
- make data available

Modern Transport Bill – May 2016
Announced in Queen's Speech:

- Consultation summer 2016 to include insurance provision, data/cyber risks.

By Summer 2017, the Government will review the issues of control, the regulatory and legal framework for use of autonomous cars, insurance, allocation of liability, MoT and driving licence requirements and a revamped Highway Code.

By end 2018, intends to engage with the EU and UN regarding type approval and technical standards generally; to have considered the regulatory aspects of protection from cyber threats; and in addition, governance of vehicle control software – the decision tree.

Consideration of insurance position

At present

determining liability for a collision starts with the driver.

As technology matures

liability may follow the transfer of risk. Risk based on the characteristics of the driver moving to the characteristics of the vehicle.

After this…

At that stage, one turns to consider the implications for product liability policies at a point where the driver's involvement in decision making/driving is either removed or limited. Also consider the interplay with other policies.

Consider the following:

2015, Volvo announces it will accept full liability for its vehicles when in autonomous mode. DriveMe trials in London 2017. Fully autonomous car to be on road 2018.

June 2016, Adrian Flux announces the first policy for "driverless cars" to include cover if car is hacked or override operated.

ABI working group – key issues

- Who could be held liable after an accident – drivers, manufacturers, system developers, car dealers, car maintenance firms or a combination?
- How to cope with vehicles at different levels of automation
- How data from individual vehicles will be recorded and used to improve safety and clarify liability
- Whether there need to be changes to existing road traffic laws and what those changes might be.

Andrew Jones, Minister for Transport stated in May 2016:

- Data currently used for pricing becomes obsolete
- New data on driver risk and vehicle behaviour
- Vehicle at fault - compulsory motor insurance retained but extended to include product liability; insurer to obtain contribution/indemnity from manufacturer

Changing risk profile – ref motor/personal liability

adapted from Thatcham model Feb 2015

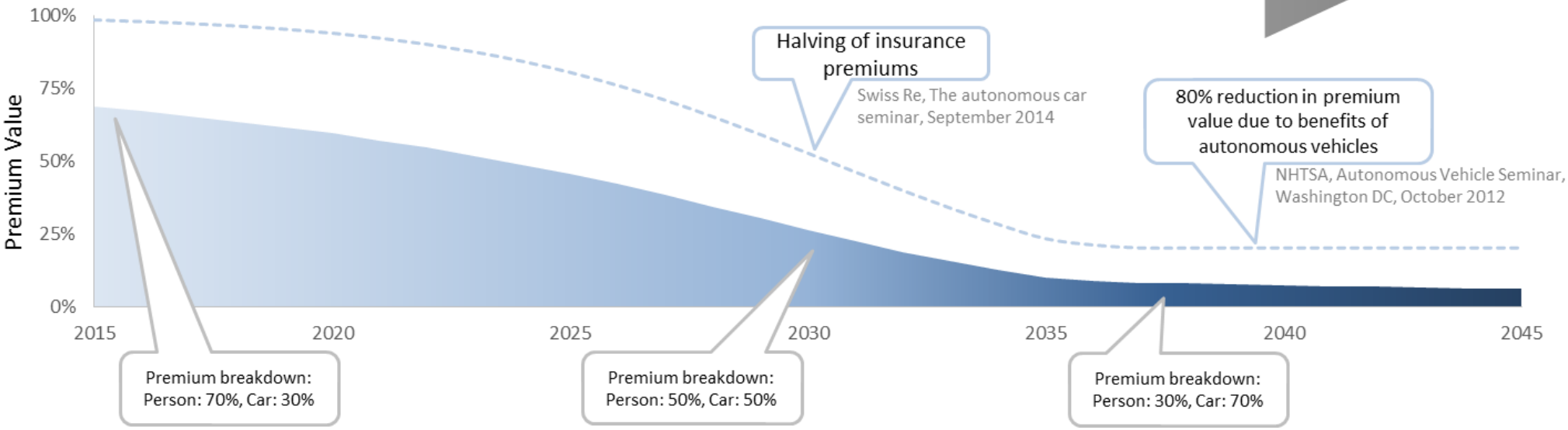
1. Risk reduction: Reduction in frequency, claims severity and losses due to ADAS effect.

2. Risk slicing: Sharing of the risk between vehicle insurers and ADAS stakeholders.

3. Risk shifting: Change from personal liability to product liability. Insurance is bundled with the purchase of the vehicle.

4. Risk elimination Autonomy benefit results in negligible risk. 'Manual' driving risk still covered.

Adapted from: PricewaterhouseCoopers, The autonomous car seminar, September 2014



Transfer of risk – moving to product liability

adapted from Thatcham model Feb 2015

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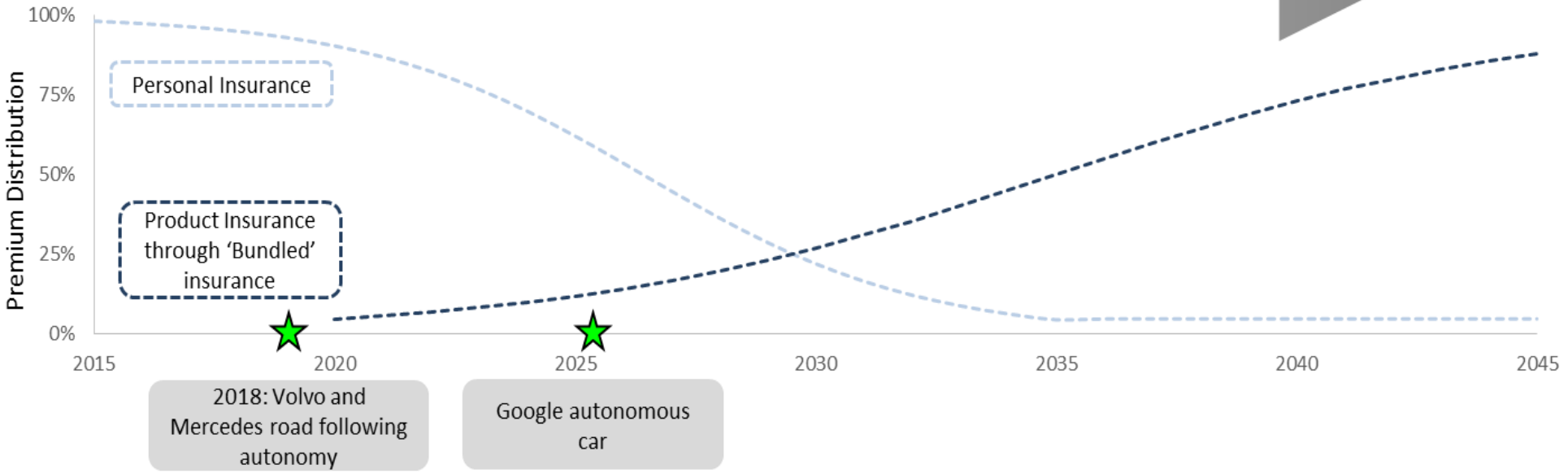


Product liability – issues arising

A shift from consideration of a motor policy to a product liability policy as the risk transfers from the driver to the vehicle. Possibility of “bundling” of insurance policy with sale of vehicle.

Issues for original equipment manufacturers include:

- Warnings to drivers/users – handbooks, instructions
- Misrepresentation to driver as to what car can/cannot do and level of intervention required by driver
- Training of drivers/users
- After sale care/servicing - opportunities
- Post sale modifications, recalls. Exacerbated by software development – when is the fix fully tested, when is the recall announced? Minimise cyber risks.
- Vehicle to vehicle (V2V) communication – collaboration, regulation?
- Insurers’ considerations: assessing characteristic of the car. Restricted data available as technology develops.

Policy implications

A standard condition in a personal **motor policy**

- requires that the policyholder must do all they reasonably can to prevent loss or damage to the car and maintain it in a roadworthy condition.

Consider:

- would this cover the failure by the driver to upgrade an operating system?
- automatic updates?

Personal accident cover

- may need to extend the age range, include cyber risks and using a vehicle whilst under the influence of drugs or alcohol.

Liability on part of **fleet operator**?

- “operator” of the vehicle that has failed (rather than the actions of the driver). Issues as to maintenance, adequacy of vehicle for purpose.

Consideration of insurance policies – Public Liability and Products

Following the move towards issues of product liability, consider the level of cover required for

- original equipment manufacturers
- tiers 1, 2 component manufacturers
- repairers/maintenance companies
- technology suppliers/software suppliers/installers

What extensions or exclusions will be relevant?

- repair and replacement excluded
- is the software installed covered?
- Cyber Liabilities
- extensions for financial loss and product recall
- adequacy of ICOW and BI cover

Scenarios – case study 1

- Failure to update software overnight by driver/user of car with lane control assistance programme.
- Car travelled into middle lane into path of car coming up behind on motorway as a result.
- Driver/user had been sent an alert that a software upgrade was necessary as a patch to solve problem, however, the driver had not received this.

Scenarios – case study 2

- 2 vehicle crash – vehicle 1 is fully automated; vehicle 2 has partial automation – ADAS +.
- Just prior to accident, sudden subsidence in road creates a hole as a result of drain collapse. Automated vehicle 1 did not move at last minute and was travelling straight over hole, causing it to veer off onto wrong side.
- Partial automation vehicle 2 – driver overreacted and overrode the auto system which if left in control would have averted the crash.

Consider liabilities for the following:

The drivers/users of vehicles 1 and 2

The car manufacturer

Highway authority

Utilities company

The software developer of the automation programme in vehicle 1

Scenarios – case study 3

Take scenario 2 and reference vehicle 1, fully automated.

The car had just been serviced which included updating the navigation information.

The navigation equipment's latest intel was that the route was potentially hazardous due to risk of subsidence.

The upgrade was not completed properly as the repair garage did not have the latest equipment from the manufacturer to complete the service.

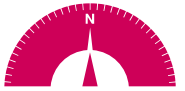
Manufacturer's fault –v- repair garage?

Conclusions

Increased use of automation may mean a decrease in accidents:

- ✓ Less accidents but each claim may be more costly (repair, replacement car)
- ✓ Effect on motor policies?
- ✓ Motor insurance still required – at least for forseeable future
- ✓ Increased data on driver's behaviour allows for more accurate risk estimation
- ✓ Reduction in associated businesses – repair garages, car hire?
- ✓ Impact of shared ownership – more cars on the road? Reduction in individual ownership likely
- ✓ Transfer of risk from driver to car
- ✓ Increased cyber risks
- ✓ Increased reputational risk to manufacturers

Conclusions



Impact on insurance, moving towards a product liability issue.

Regulatory and legal framework - ongoing development.

Impact of intelligent mobility systems – infrastructure, urban v. open road.

Connected vehicles: use of data collected – risks but also commercial opportunities.

No overnight “big bang” but...

In the medium term, difficulties with different technologies occupying the same road space reflected in.

Who will react to change the quickest?

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