

DIRITTO DEL MERCATO  
ASSICURATIVO E FINANZIARIO

2, 2020



Edizioni Scientifiche Italiane

Diritto del Mercato Assicurativo e Finanziario  
Rivista semestrale

*Direzione Scientifica:* Sandro Amorosino, Marino Bin, Albina Candian, Diana Cerini, Raffaele Di Raimo, Valeria Falce, Carlo Giampaolino, Helmut Heiss, Sara Landini, Giuseppe Morbidelli, Anna Carla Nazzaro, Maddalena Semeraro, Giovanna Volpe Putzolu.

*Direzione Esecutiva:* Sara Landini, Anna Carla Nazzaro, Helmut Heiss.

*Comitato Scientifico:* Ernesto Capobianco, Sergio Carbone, Giuseppe Leonardo Carriero, Paoloefisio Corrias, Francesco Corsi, Fabrizio Di Marzio, Vincenzo Farina, Vincenzo Ferrari, Marco Frigessi di Rattalma, Aldo Frignani †, Maria Gagliardi, Enrico Galanti, Carlo Galantini, Agostino Gambino, Giorgio Grasso, Carlos Ignacio Jaramillo Jaramillo, Jérôme Kullmann, Fabio Maniori, Pierpaolo Marano, Pietro Masi, Lorenzo Mezzasoma, Paolo Montalenti, Mario Nuzzo, Pietro Perlingieri, Masaki Sakuramoto, Chiara Tenella Sillani, Fabio Padovini, Patrizia Pompei, Claudio Russo, Michele Siri, Vincenzo Troiano, Angelo Venchiarutti.

*Comitato dei Referees:* Francesco Alcaro, Consiglia Botta, Oriana Clarizia, Herman Cousy, Francesco D'Angelo, Alessio Di Amato, Giovanni Facci, Marcel Fontaine, Massimo Franzoni, Ádám Fuglinszky, Massimo Gazzara, Emanuele Indraccolo, Birgit Kuschke, Gianfranco Liace, Eugenio Llamas Pombo, Antonella Lonciari, Eduardo Mangialardi, Giuliana Martina, Salvatore Monticelli, Robert Merkin, Santa Nitti, Pedro Pais De Vasconcelos, Giacomo Pongelli, Paolo Rainelli, Iliaria Riva, Joannis Rokas, Gianluca Romagnoli, Samim Unan, Daniela Valentino, Filippo Zatti, Patrizia Ziviz.

*Comitato Editoriale:* Stefano Addabbo, Cristiana Boiti, Tommaso Febbrajo, Erika Giorgini, Giovanni Berti De Marinis, Daniela Marcello, Maria Rita Nuccio, Maria Cecilia Paglietti, Carla Pernice, Marco Rizzuti, Carmela Robustella, Serena Stacca, Lydia Velliscig, Francesco Giacomo Viterbo, Mariacristina Zarro.

*Procedura di approvazione dei contributi:* i contributi sono proposti dalla direzione e dai membri del comitato scientifico. Ai fini della pubblicazione sarà necessario ottenere il giudizio positivo di due *referees* esterni nominati dalla direzione e scelti tra i componenti del Comitato esterno di valutazione, nonché tra gli studiosi (italiani e stranieri) affiliati ad Università ed Enti o Istituti di ricerca ovvero tra alti esperti provenienti da Istituzioni di comprovata qualificazione e prestigio. Si procederà ad una terza valutazione nel caso di un giudizio positivo ed uno negativo. La procedura di revisione verrà attuata secondo il metodo a "doppio cieco".

*Contatti:* DIMAF@edizioniesi.it

Registrazione presso il Tribunale di Napoli al n. 43 del 12 ottobre 2016

Direttore responsabile Andrea Trapani

MACHINE LEARNING AND TRADITIONAL  
METHODS SYNERGY IN NON-LIFE RESERVING  
ASTIN AND AIDA WORKING PARTY ON  
AUTOMATED CARS AND INSURANCE\*

SARA LANDINI, Kyriaki Nousia and Przemysław Klusik

*Abstract*

The fourth industrial revolution (Industry 4.0) put the system of driving vehicles to the new stage in which the human factor is substantially reduced or maybe even eliminated.

Ways we direct, possess and are responsible for driving vehicles could be very different to those we are used to. The types of risk and the liability for adverse events may change so dramatically that it will need a new legal regulation and appropriate ways of risk management, including insurance.

That is why this working party is intended as a cooperation of lawyers from AIDA (International Insurance Law Association) and actuaries from ASTIN (Non-life section of International Actuarial Association). This is the first such joint working party ever.

La quarta rivoluzione industriale (Industria 4.0) ha portato il sistema di guida dei veicoli nella nuova fase in cui il fattore umano è sostanzialmente ridotto o forse addirittura eliminato.

I modi in cui dirigiamo, possediamo e siamo responsabili della guida dei veicoli potrebbero essere molto diversi da quelli a cui siamo abituati. I tipi di rischio e responsabilità per eventi avversi possono cambiare in modo così drammatico da richiedere una nuova regolamentazione legale e modalità appropriate di gestione del rischio, compresa l'assicurazione.

Questo è il motivo per cui questo gruppo di lavoro è inteso come una cooperazione tra giuristi dell'AIDA (International Insurance Law Association) e attuari dell'ASTIN (sezione non vita dell'International Actuarial Association). Questo è il primo gruppo di lavoro congiunto mai realizzato.

\* Aida Members of the ASTIN and AIDA Working Party on "Automated cars and insurance": Argentina: Carlos Estebenet; Belgium: Caroline van Schoubroeck; Brazil: Sergio Mello; Eduardo D'Amato; Chile: Ricardo Peralta; Germany: Robert Koch; Greece: Joannis Rokas; Israel: Peggy Sharon; Italy: Ilaria Garaci; Roberta Montinaro; Fabio Maniori; Japan: Fukuda Yasuo; New Zealand: Jonathan Scragg; Peru: Alonso Nuñez del Prado; Poland: Anna Rarasiuk; Singapore: Yeo Hwee; South Africa: Huneberg, Samantha; Turkey: Aysegul Bugra United Kingdom: Rob Merkin; Uruguay: Andrea Signorino; USA: Richard Traub.



SOMMARIO: 1. Background. – 2. Technology, Regulation and Insurance Contracts. Current Legal *Status Quo*. – 3. Possible Futures Scenarios. – 4. Current State of Research. – 5. Possible Future Regulations of Insurance System and their Impact. – 6. Future Directions of Research (Beyond of the Scope of this Group).

## 1. *Background*

The fourth industrial revolution (Industry 4.0) placed the system of driving vehicles at a new stage in which the human factor is substantially reduced or maybe even eliminated<sup>1</sup>.

Subsequently, the ways in which we direct, possess and are responsible for driving vehicles could be very different to those we are used to. The types of risk and the liability for adverse events may change so dramatically that it will need a new legal regulation and novel and appropriate ways of risk management, including insurance.

It follows from the above that this working party is intended as a cooperation between 1) lawyers from AIDA (International Insurance Law Association) and 2) actuaries from ASTIN (Non-life section of International Actuarial Association). This is the first such joint working party ever.

It is relevant from the legal point of view to refer to the Convention of Vienna on Road Traffic of 8 November 1968 (64 countries), and to the Declaration of Amsterdam of 14-15 April 2016 of the European Ministers of transportation which lead to the introduction of Article 8, 5bis. In particular:

- Article 7 Every driver, pedestrian or other road user shall conduct himself in such a way as not to endanger or obstruct traffic. He shall avoid all behavior that might cause damage to persons or public or private property'

- Article 8 «Every vehicle or combination of vehicles proceeding as unit shall have a driver».

<sup>1</sup> See A Smart Move? 24 Essentials Of A SWOT Analysis Policymakers Need To Consider by Aida Joaquin Acosta; 5 Technological Factors Regulators And Policymakers Need To Know by Aida Joaquin Acosta; What Governments Across The Globe Are Doing To Seize The Benefits Of Autonomous Vehicles by Aida Joaquin Acosta; 3 Practical Tools To Help Regulators Develop Better Laws And Policies; Automated vehicles in the EU by Susanne Pilath; Market Framework and Outlook for Automated Vehicle Systems by Richard R. Mudge, Ph.D., Alain Kornhauser, Ph.D., Matt Hardison, MBA; World Health Organization, 10 facts on global road safety, (2017), [who.int/features/factfiles/roadsafety/en](http://who.int/features/factfiles/roadsafety/en); Are Cyber Risks Insurable? ASTIN – Webinar (February 6<sup>th</sup>, 2019) by Michel M. Dacorogna.

- Article 8.5 *bis* «Vehicle systems which influence the way vehicles are driven shall be deemed to be in conformity with paragraph 5 of this Article and with paragraph 1 of Article 13, when they are in conformity with the conditions of construction, fitting and utilization according to international legal instruments concerning wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles. Vehicle systems which influence the way vehicles are driven and are not in conformity with the aforementioned conditions of construction, fitting and utilization, shall be deemed to be in conformity with paragraph 5 of this Article and with paragraph 1 of Article 13, when such systems can be overridden or switched off by the driver».

With regard to the Member States of the EU, it is relevant to refer, in addition to the proceedings regarding the EU Motor Vehicle Liability Directive and EU Product liability Directive, to other ongoing research/ legislation proceedings, such as the European Commission (DG Grow) GEAR 2030 High Level Group on the Competitiveness and Sustainable growth of the Automotive Industry in the European Union – Final Report October 2017, and Cooperative, connected and automated mobility (CCAM)<sup>2</sup>.

## 2. *Technology, Regulation and Insurance Contracts. Current Legal Status Quo*

Our working party collected regulations from countries marked on map below (a-). The results are summarized on next pages.

Brazil, Uruguay, Peru, Chile, Singapore

In these countries there are no specific laws or normative regulating automated vehicles. In these countries, motor insurance doesn't contain special conditions about this subject in the General Clauses.

Japan

### b.1) Regulation for automated vehicle testing on public road

More than 20 automated car testing projects on public road are going on in Japan. There are one guideline and one criterion for testing Automated Vehicle on public road issued by National Police Agency of Japan.

Guide lines (Guidelines for Public Road Testing of Automated

<sup>2</sup> [ec.europa.eu/transport/themes/its/c-its\\_en](http://ec.europa.eu/transport/themes/its/c-its_en).

Driving Systems) published in May 2016. This is a guide lines for the test of automated vehicle and this guide line is applicable for the test of automated vehicle with the driver inside the vehicle. Any permission or report is not required as long as the implementing entity follow this guideline.

Criteria (Criteria for the permission for use of roads for public road testing of Driving Automation System with Remote Control Technology) published in June 2017. This is a criterion for the permission for the test of automated vehicle with remote control. This case driver is remote from the vehicle. Prior permission is necessary for the test.

#### b.2) Traffic law

There is no special legislation for automated vehicle Level 1 and Level 2. The Level 1 and level 2 vehicles are already driven on public road. It is considered and interpreted within a scope of current traffic law. However, level 3, 4 and 5 autonomous vehicles are considered and interpreted not covered under the current Traffic law. New legislation for Level 3 is under the draft level. National Police Agency had released draft Bill to allow Level 3 automated vehicles on public road in Japan in December 2018. Level 4 and Level 5 autonomous vehicles are not the subject of the bill. New legislation for level 4 and 5 autonomous vehicles is scheduled after 2020. The draft bill would allow drivers of level 3 cars to talk on their mobile phones or watch TV as long as they can smoothly take back control of the car. Self-driving vehicles would be banned from travelling on public roads unless they are equipped with travel data recorders. Drivers would also be required to save their driving data. Drivers would be able to use level 3 autonomous features only when their vehicles fulfill conditions set by each automaker. The condition, known as operational design domain, include weather situations, the type of roads traveled on, driving time and speed.

#### b.3) civil liability

##### Traffic accident liability laws and system in Japan

It is designed to ensure victims are compensated properly and promptly. Automobile Accident Compensation Security Act provides that the «operator of an automobile», who is defined as «any person who operates an automobile for his/her benefit and who has control over the operation of the automobile, such as the driver and the owner of the automobile, shall be liable to compensate for the death or bodily



injury caused to any other person arising from the operation of the automobile. Under the law, the burden of proof of negligence is shifted from the victim to the operator of the automobile. The person is not exempt from liability unless all of the three conditions met. 1. The driver did not fail to exercise due diligence in operating the automobile. 2. There was intent or negligence on the part of the victim or a third party other than the driver. 3. There was no structural defect or functional disorder in the automobile. Please note that property damage is treated differently so that the driver will not be liable for any damage unless there was intent or negligence on the part of the driver.

#### b.4) Autonomous vehicle study group

There were several study groups on autonomous vehicles and liability. Ministry of Land, Infrastructure and Transport formed a study group in November 2017 and discussed about liability for the traffic accidents involving autonomous cars (author was a member). The discussion was focused on Level 3 and 4 (conditional automation and high automation). The study group especially discussed on liability issues during the transitional period when cars with different level of autonomous driving technology coexist on the public road. It is expected the period of from 2020 to 2025.

The study group released a report in March 2018 and concluded that the current liability system is good enough and should be maintained. The operator of an automobile continues to benefit from the operation of the autonomous vehicles and therefore should be continuing to be held liable for bodily injury and death caused by such operation.

There are several issues and suggestion by the group:

1. Bodily injury caused by hacked cars should be compensated by the pool funded by Compulsory Automobile Insurance premiums (as same as that of uninsured and hit-and run cases). The operator (especially the owner) should be liable if the car gets hacked due to a failure to update software/programs.

2. New duties of operators such as updating software/programs and repairing the vehicles as required by the autonomous driving should be discussed.

3. Autonomous vehicles should be able to drive or stop safely even when outside systems or networks go down.

4. Liability after the transnational period, especially the liability of Level 5 will need to be discussed in the near future. Discussion should

take into account technological advancements, penetration of autonomous vehicles, and dialogue on similar topics abroad.

b. 5) The government council on investments for the future

The council also released the guidelines for autonomous vehicle in March 2018. The guideline covers up to the level 3. As same as that of Ministry of Land, Infrastructure and Transport study group discussion concerning level 4 and 5 will take place in the near future.

In addition, the guideline contains the same information with that of the study group report above. Special notes are 1. Automaker will be responsible if there is a clear flaw in the vehicle's system. 2. In order to clarify the cause of the accidents, autonomous vehicles will be required to equip devices that record information such as location, steering and so on.

b.6) Insurance

Several Insurance companies are selling policy for autonomous vehicle testing projects. In addition, several insurance companies are selling as an option to regular policy that covers collisions between autonomous vehicles and pedestrians. If the accident was resulting from automated driving vehicles, optional policies will work when the payment from a compulsory automobile liability insurance proves not sufficient to compensate accident victims and their families. In addition to the personal injury damages, optional policy will cover property damages that is not covered by compulsory automobile liability insurance.

Germany

In this Country there are only statutes dealing with the liability of the driver who is driving in the autopilot modus: s/he must be ready to take over the car whenever the systems requires her/him to do so or s/he realises that there is something wrong with the autopilot. Motor insurance policies do not have clauses specifically addressing cars equipped with autopilot and/or accidents caused by a failure of the autopilot or the driver.

Poland

In Poland there are no legal provisions referring to common use of automated vehicles. There are only new regulations on testing of such vehicles. According to article 65k of the Law on Road Traffic



«automated vehicle» means equipped with a system of control over the vehicle and enabling for the participation of the vehicle in the traffic without an interference of the driver, with the possibility of taking over the control over the vehicle by the driver in any time. Article 65l of the Law on Road Traffic requires the permission of the public body managing the road in order to perform tests of an automated vehicle. One of the conditions to have the permission issued is to conclude compulsory liability insurance contract covering the responsibility of the organizer of tests. Although the said insurance was indicated as «compulsory» by the Polish lawmaker, there are no further regulations in the scope of insurance and possible exclusions. It shall be noted that such insurance should be separate from the compulsory liability insurance of the possessor of the vehicle for damages related to participation of the vehicle in the traffic (compulsory MTPL insurance), so they shall have different scopes of cover provided.

## USA

### e.1) Regulation

There is both federal and individual state regulation when it comes to automated vehicles. Since 2012, at least forty-one states and the District of Columbia, have considered legislation related to autonomous vehicles. Twenty-nine states including Alabama, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maine, Michigan, Mississippi, Nebraska, New York, Nevada, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Vermont, Washington and Wisconsin —and Washington D.C. have enacted legislation related to autonomous vehicles. In other states some governors have issued executive orders.

At the Federal level the House of Senates passed on September 6, 2017 the Safely Ensuring Lives Future Deployment and Research in Vehicle Evolution Act or the SELF DRIVE Act. This bill establishes the federal role in ensuring the safety of highly automated vehicles by encouraging the testing and deployment of such vehicles. A «highly automated vehicle» is a motor vehicle, other than a commercial motor vehicle, that is equipped with an automated driving system capable of performing the entire dynamic driving task on a sustained basis. The bill pre-empts states from enacting laws regarding the design, construction, or performance of highly automated vehicles or automated driving systems unless such laws enact standards identical to federal standards.

The Department of Transportation (DOT) must require safety assessment certifications for the development of a highly automated vehicle or an automated driving system. Manufacturers of highly automated vehicles must develop written cybersecurity and privacy plans for such vehicles prior to offering them for sale. The bill applies certain safety exemptions and testing standards to highly automated vehicles. Accordingly, the DOT must: (1) inform prospective buyers of highly automated vehicles of the capabilities and limitations of such vehicles; (2) establish the Highly Automated Vehicle Advisory Council to, among other things, develop guidance regarding mobility access for the disabled, elderly, and underserved populations; (3) require all new passenger motor vehicles less than 10,000 £ to be equipped with a rear seat occupant alert system; and (4) research updated safety standards for motor vehicle headlamps.

The National Highway and Transportation Safety Administration (NHTSA) has released new federal guidelines for Automated Driving Systems (ADS). A Vision for Safety 2.0, the latest guidance for automated driving systems to industry and the states, and categorizes vehicles based on automation levels. The Society of Automotive Engineers (SAE) has designated six levels of automation for automobiles, numbered 0 through 5. Level 0 AVs have no automation; level 5 AVs require no input from the operator except entering the destination. Level 3 AVs are just arriving on the market, with Audi and Cadillac introducing vehicles in some areas with advanced autopilot functions that allow hands-free operation under certain conditions, albeit with constant human monitoring of the function. Level 4 vehicles will offer the option of full automation or human control; Level 5 vehicles will be driven only by the autopilot.

#### e.2) Insurance

Regarding insurance policies that maintain or have special conditions such as exclusions or limitations relating to the risk of automated vehicles the answer is not as clear. It seems that with the move toward automated vehicles, it is possible that the liability insurance mechanism will shift from personal automobile to products liability. A possible compromise between traditional auto liability and products liability would be to treat the autopilot as an insured driver under the owner's liability policy, or under a separate policy issued by the automaker on the vehicle. Along these lines, Mercedes, Volvo and Google's affli-

ate Waymo have reportedly agreed to accept full liability for vehicle accidents while their vehicles are using automated technology. Tesla is taking things a step further by extending an insurance program to purchasers of Tesla vehicles. The scope of these automaker's acceptance of liability is unclear. It is also unclear if these companies intend this acceptance of liability to provide a permanent solution to AV liability.

We also suggest that automated vehicle owner/operators will need cyber-insurance because data protection will become important in the hacking of a vehicle or other cyber-security threats. There will be a need for insurance coverage to protect drivers, passengers and third-parties from property damage and bodily injury resulting from the hacking of an automated vehicle. The insurance industry, however, has sought to avoid insuring property damage or bodily injury arising from cyber-risks. Many if not most cyber-insurance policies specifically exclude coverage for bodily injury and property damage. Many standard general liability insurance policies bar coverage for property damage or bodily injury that result from the loss of use of or corruption of electronic data – which we can anticipate will be argued by insurers as bars coverage for a hacking losses.

### Italy

At the moment, there is no legislation enacted that can generally regulate the different aspects related to the circulation of automated cars.

However, with a view to introducing the self-driving car system, on 28 February 2018 a ministerial decree was issued (the so-called Smart Roads Decree) authorising and regulating the testing of self-driving cars and, to this end, providing for consequent insurance coverage.

With the aim of ensuring the full safety of the operations of testing, the Smart Roads Decree, among other things:

- provides for the technological and digital adaptation of the road network and infrastructure in order to make them smart (thus regulating the technical specifications and functions that will have to be installed to ensure road connectivity);
- provides for a series of conditions and requirements for implementing the trial;
- defines the characteristics of automatic steering systems for the purposes of admission to public road testing;
- identifies the obligations of the holder of the authorisation for testing;

- provides for a special content for compulsory third-party liability insurance, identifying a special (high) ceiling.

Hereinafter the aspects that emerge in relation to the circulation of the driverless cars and on which our working group is working, in order to rethink the current discipline of the sector, which will in any case have to be included in a framework of common rules at European level:

- Identification of the types of risks to be covered: accidents based on human error and therefore cases of liability due to the fault of the driver are reduced, but new risks emerge: those related to product defects, those related to electronic technologies (e.g. software reliability, danger of unlawful practices of tampering or hacking by third parties, dangers related to the protection of personal data) and so-called spatial risks;

- The emergence of new actors: the manufacturer, the software developer, the operators of satellite networks;

- Identification of distribution strategies and business models for risk attribution: the current system of civil liability for road traffic, which attributes the risk to the driver and subordinately to the owner of the vehicle, is considered unsuitable. The product liability model is evaluated, which will have to take into account the new IT and space risks.

#### United Kingdom

On 8<sup>th</sup> November 2018 the English and Scottish Law Commissions have this very morning published a hugely detailed analysis of remote vehicles<sup>3</sup>.

Moreover, here below are some previous useful and related information:

The Automated and Electric Vehicles Act 2018 (AEVA 2018) is perhaps the first piece of major legislation in the European Union on the insurance consequences of remote vehicles. The measure is not yet in force, and it will be implemented whenever the need arises. It supplements the compulsory insurance regime in the Road Traffic Act 1988.

The broad effect of the 2018 Act is to impose strict liability on the insurers of a remote vehicle for loss suffered as the result of any accident

<sup>3</sup> This should provide a significant amount of information for your project. Link follows: [s3-eu-west-2.amazonaws.com/lawcom-prod-storage-11jxou24uy7q/uploads/2018/11/6.5066\\_LC\\_AV-Consultation-Paper-5-November\\_061118\\_WEB-1.pdf](https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-11jxou24uy7q/uploads/2018/11/6.5066_LC_AV-Consultation-Paper-5-November_061118_WEB-1.pdf).



involving the remote vehicle. There is no human defendant, and so the claim is to be brought directly against the insurers. In the UK, the relevant cause of action is under the European Communities (Rights against Insurers) Regulations 2002. It is anticipated that the full introduction of remote vehicles will reduce the exposure of insurers. At the moment something in excess of 90% of accidents are the result of human error, and with that possibility eliminated in the long term then insurance will become of less relevance. However, the removal of human operation will be replaced with a series of new risks arising from the manufacture and guidance of remote vehicles, and coverage for them is required. Remote vehicles raise a series of other issues unrelated to insurance including: security of data of users; and the moral algorithm, whereby moral decisions may have to be made by a remote vehicle if an accident of one or other type is inevitable.

There is no fixed definition of «automated vehicle» as such. Instead, AEVA 2018, s 1(1) requires the Secretary of State to «prepare, and keep up to date, a list of all motor 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. The list may identify vehicles by type, in accordance with registration rules to be made in due course or in some other way» (AEVA 2018, s 1(2)). This vague approach confers the flexibility to extend the measure to such vehicles as the Government thinks fit, depending upon how the technology develops. The list is to be published and then, where necessary, updated and republished (AEVA 2018, s 1(3)).

The key element in the definition is that the vehicle must, «at least in some circumstances or situations be capable of «safely driving itself». A vehicle is «driving itself» within section 8(1) «if it is operating in a mode in which it is not being controlled, and does not need to be monitored, by an individual». This suggests that a vehicle can be listed if just limited parts of its functions are self-driven. That means that a vehicle in cruise control, or self-parking, is «remote» for the potentially short period of the operation of that function. A vehicle can therefore be both remote and non-remote at different times, and that means that there may be different liability and insurance provisions in place for different accidents involving the same vehicle.

It is apparent that there will be some uncertainty as to the operation of these provisions. Accordingly, AEVA 2018, s 7 requires that,

within two years after the publication of the first list under section 1, the Secretary of State must prepare a report assessing the operation of the legislation.

It may be that the practical difficulties facing remote vehicles will prevent progress in the near future. In populated areas, the risk of unpredictable behavior by pedestrians or cyclists may mean that programming will have to be very sensitive to all sorts of movement. That will inhibit technology in two ways: it will have to be very sensitive, so as to be able to respond quickly; and it has to be capable of distinguishing between human movement and, e.g., a newspaper blowing across the road. Further, even when the stage is reached at which Level 4 and 5 vehicles are available, there is unlikely to be universal take up and so there may be a scenario where there are vehicles of several levels on the same road at the same time. One solution to these problems may be to set aside specific roads for the exclusive use of remote vehicles.

About Insurance Contracts a policy issued under the 1988 Act must provide for the insurer's obligations under the 2018 Act under new RTA 1988, s 145(3A). The alternative open to motorists to provide security in lieu of holding a policy does not apply to remote vehicles.

AEVA 2018, s 2(1) contains the basic principle that, where an accident is caused by an automated vehicle when driving itself on a road or other public place in Great Britain, the vehicle is insured at the time of the accident, and an insured person or any other person suffers damage as a result of the accident, the insurer is liable for that damage. A number of points are to be noted here.

First, the accident must be «caused by an automated vehicle when driving itself». The vehicle itself must therefore be one of the causes of the incident. There may be others partly to blame, including the driver, the manufacturer of the vehicle, the provider of software, the supplier of satellite services or indeed Government in its provision of infrastructure, but liability is imposed upon the insurer if any part of the cause was the vehicle itself. The right to sue insurers is, by virtue of AEVA 2018, s 2(7), without prejudice to the right of an injured person to sue any other person who is liable for the accident, and – as will be seen below – an insurer is permitted to exercise rights of recourse against any other such person.

Secondly, the word «caused» is defined by AEVA 2018, s 8(3)(b) as including a reference to an accident that is partly caused by an automated vehicle. The effect is that even if the automated vehicle is only a

partial cause of the accident, the insurer has to pick up the entire bill. It is then up to the insurer to seek to recover what it can from others also partially responsible for the loss.

Thirdly, «damage» is defined by AEVA 2018, s 2(3) as death or personal injury and property damage. As regards death or personal injury, the insured person is included. By AEVA 2018, s 8(2), the «insured person» is «any person whose use of the vehicle is covered by the policy in question», so this could be the owner or a person authorized by the policy to drive the vehicle (typically, a person driving with the owner's consent). This looks like an important extension from existing motor insurance law, where the insured person is required to be covered by compulsory insurance only where that person is a passenger and not the driver. However, because the «culprit» is the vehicle itself, an insured person is by definition only a passenger – even if that person is otherwise at the controls when the vehicle is not in automated form – and so to that extent it could be said that this is a natural consequence of the extension of insurance coverage to remote vehicles. In addition, the exclusion in RTA 1988, s 145(4)(a) of persons injured in the course of employment – who are to be covered instead under compulsory employers liability insurance – is removed in the case of death or injury caused to an employee in the course of employment by a remote vehicle.

As for property damage, that covers any damage to property other than the vehicle itself. That is consistent with the existing regime, where third party property only is covered. Other forms of excluded property damage replicate those in existing law: goods carried for hire or reward in or on that vehicle or in or on any trailer (whether or not coupled) drawn by it; and property in the custody, or under the control, of the insured person. By AEVA 2018, s 2(4), liability is capped at £1 million for liability arising out of «any one accident». The wording is borrowed from the existing legislation, where the term «accident» is undefined. This creates an aggregation problem: if a vehicle goes out of control and collides with five others, then for the purposes of the cap on liability is there one accident or are there five accidents and thus five limits of indemnity? AEVA 2018, s 8(3)(a), unlike the RTA 1988, states that «a reference to an accident includes a reference to two or more causally related accidents». This suggests that collisions are to be aggregated under one limit of indemnity, but it is perfectly possible to think of two causally related accidents each of which gives rise to multiple losses and so the point is not clear.

Fourthly, if the vehicle is not insured at the time of the accident, and insurance is not required by reason of any of the exceptions to insurance coverage in RTA 1988, s 144 (public service vehicle), then by AEVA 2018, s 2(2) liability is imposed upon the owner.

Particular exclusions of coverage are included in the contract. By AEVA 2018, s 2(6), the only limits on insurance coverage are those permitted by AEVA 2018 s 4(1). That section permits a policy to exclude liability for damage suffered by an insured person – and not by any third party – where the insured’s person’s injuries are the «direct result» of: (a) software alterations made by the insured person, or with the insured person’s knowledge, that are prohibited under the policy, or (b) a failure to install safety-critical software updates that the insured person knows, or ought reasonably to know, are safety-critical (i.e., render the vehicle unsafe – AEVA 2018, s 4(6)(b)). It was noted above that an «insured person» is any person who is covered to drive the vehicle. Such a person may not be the policy holder, and accordingly section 4(2) modifies point (a) above by preventing the insurer from relying upon a software exclusion in respect of injury to a person who is not the policy holder but is permitted to drive the vehicle under the policy and that person was not aware that software modifications were prohibited by the policy.

It is possible to contemplate hacking into a vehicle’s systems so that it can be controlled by the hackers. An insurer is not permitted to exclude liability for such «cyber risks» under AEVA 2018.

Two different situations are provided for by the legislation where the victim is at fault: injuries suffered by any victim; and injuries suffered by a victim who was the person in charge of the vehicle.

First, AEVA 2018, s. 3 provides for a reduction of the insurer’s liability where the injuries suffered by the injured party were partly that party’s own fault. By AEVA 2018, s 3(1), where an insurer is liable to an injured party and the accident or damage was to any extent caused by the injured party, there is to be a proportional reduction in liability to reflect that fact. This reflects the application of the Law Reform (Contributory Negligence) Act 1945 to claims for injuries where an human actor is at fault. AEVA 2018, 6(3) goes on to confirm that where liability is to be allocated by reference to fault, the liability of an insurer under AEVA 2018 is to be treated as if it were by reason of the insurer’s fault: this is a technical adjustment, rendered necessary by the fact that the insurer’s liability is strict and does not rest upon fault.



Secondly, by AEVA 2018, s 3(2), the insurer is not liable at all for damage suffered by the person in charge of the vehicle where the accident was wholly caused by the person's negligence in allowing the vehicle to begin driving itself when it was not appropriate to do so. This does not apply to any other person who suffers injury, and it is a bar only to recovery by the person in control.

AEVA 2018 imposes liability upon insurers, but permits insurers to recoup its payments from others who may have been responsible for the damage. There are no changes to tort law in AEVA 2018, so that the liability of the suppliers of hardware and software remains governed by existing principles of product liability. Again, there is no extension of the compulsory insurance regime to product liability, so that the practical ability of a motor insurer to recoup its losses from a third party is not a matter for legal regulation. Doubtless motor and software manufacturers will put in place mechanisms for paying claims – whether by insurance, the use of captives or self-insurance – but there is no obligation for them to do so.

As noted earlier, if the responsibility is fully or partly that of the victim, then there can be a deduction of up to 100% for contributory negligence. If the liability is the fault of a third party, AEVA 2018 sets out two different mechanisms whereby insurers can recoup their loss.

First, by AEVA 2018, ss. 4(3) and 4(4), an insurer is given the right to specify in the policy recovery rights for payments made to third parties in respect of software issues. The right arises where an insurer is required to pay for damage to a third party in respect of an accident which is the «direct result» of: (a) software alterations made by or with the knowledge of an insured person; or (b) failure to install safety-critical software updates that an insured person knew, or ought reasonably to have known, were safety-critical. In that situation, policy may say that the amount payable by the insurer is recoverable from the insured person in question. However, there is the equivalent saving in AEVA 2018, s 4(5) from liability under point (a) for an insured person who is not the holder of the policy and who was unaware that the software alterations were not permitted by the policy.

Secondly, by AEVA 2018, s 5, an insurer who pays for damage caused by an accident has a right to seek reimbursement from the person responsible for the accident. This takes the place of a contribution claim under the Civil Liability (Contribution) Act 1978 (AEVA 2018, s 6(5)). The condition for recovery in AEVA 2018, s 5(1)-(2) is that

the amount of the insurer's liability has been ascertained by judgment, arbitration award or settlement. If the amount recovered by the insurer exceeds the amount of the liability to the victim, the insurer must account to the victim for the surplus (AEVA 2018, s 5(3)), but the insurer cannot recover more than the amount of that other person's liability to the injured party (AEVA 2018, s 5(4)). Although the point is unlikely to arise in practice, if the victim recovers compensation from any other person, then that person would presumably have a contribution claim from the insurer: that scenario is exceptional, in that a claim against the insurer is far more straightforward than seeking to establish the liability in tort of a manufacturer or supplier of software or services.

A number of possibilities arise here with regard to the limitation of liability:

First, where the claim is brought against the insurer, section 11B(1) of the Limitation Act 1980 as added by AEVA 2018 disappplies all limitation periods for damages and replaces them with a new regime. By s 11B(2) of the Limitation Act 1980, an action for property damage under AEVA 2018, s 2 must be brought within three years from the date of the accident. However, in the case of a claim consisting of or including personal injury, by s 11B(3)-(4) of the Limitation Act 1980 the claim must be brought either within three years from either the date of the accident or the date of the knowledge of the person injured (if later). This replicates s 11 of the Limitation Act 1980 with regard to all other personal injury claims. As with s 11 of the 1980 Act, s 11B(5) of that Act deals with the situation where the victim has died, in which case the limitation period is three years from the date of death or the date of the personal representative's knowledge (if later). The date of knowledge is defined consistently with that for other personal injury claims, in new s 14(1B) of the Limitation Act 1980. The relevant date is that on which the person first had knowledge of the following facts: (a) that the injury in question was significant; (b) that the injury was attributable in whole or in part to an accident caused by an automated vehicle when driving itself; and (c) the identity of the insurer of the vehicle.

Secondly, s 5A of the Limitation Act 1980, which applies to a separate action against the insurer for late payment under the policy under s 13A of the Insurance Act 2015), lays down a one year limitation period from the date on which the claim has been paid. That section is extended to claims against the insurer under AEVA 2018 (s 11B(1) of the Limitation Act 1980).

Thirdly, where the claim is brought by the insurer under AEVA 2018, s 5 for contribution or indemnity from another person who is liable for the loss, the limitation period is set out in a new s 10A(1) in the Limitation Act 1980. The limitation period is two years from the date on which the cause of action accrued. A cause of action accrues for this purpose on the date of the judgment or arbitration award against the insurer, or in the case of a settlement, at the time of the settlement (AEVA 2018, s 5(a)). This replicates the time limit applicable to actions for contribution under the Civil Liability (Contribution) Act 1978, so the two regimes are intended to operate in the same way.

By AEVA 2018, s 10(2), the limitation period: can be extended by reason of fraud, concealment or mistake (s 32 of the Limitation Act 1980); extended in the discretion of the court in personal injury cases only (s 33 of the Limitation Act 1980; is restricted to eight weeks following failed mediation (s 33A of the Limitation Act 1980); and applies in the event of a new claim in the same proceedings (s 35 of the Limitation Act 1980).

### Turkey

The current legislative instruments in place in Turkey do not contain any provisions specifically drafted to cover automated vehicles. Similarly, the general conditions (standard form contracts) applicable to motor insurance are, at the moment, free from special conditions relating to the risk of road traffic arising from the use of automated vehicles.

### South Africa

In South Africa, there are no current laws or proposals for laws that regulate the circulation of automated vehicles.

The definition of motor vehicle needs to be considered for this. Currently, there is no indication as to where automated vehicles will fit in, as the definition of «vehicle» in the Road Accident Benefit Scheme Bill means «a vehicle designed or adapted for propulsion or haulage on a road by means of fuel, gas or electricity, including a trailer, caravan, agricultural or other implement designed to be drawn by such a vehicle». It is therefore submitted that the Bill, once a statute, should either be amended to specifically provide for autonomous vehicles or should specifically exclude these.

In South Africa, there is no legislation or law that governs this position. However, depending on the insurer, they may include exclusions in their policies but due to the fact that these vehicles are not implemented on South African roads presently or in the near future, there

does not appear to be a need to include special conditions relating to the risk of traffic in automated vehicles.

j) Israel

In Israel, at present there are no specific laws that regulate the circulation of automated vehicles. However, a regulatory change could be closer than ever, as several AV pilot programs are scheduled to launch in Israel starting 2019.

In May 2018 the first regulatory change concerning automated cars has been made in order to prepare a «regulatory ground» for the AV testing:

Regulation 16a was added to the Israeli Road Traffic Regulations and provides that the National Road Traffic Inspector may, in order to conduct an experiment, decide to exempt the experimenter from one or more traffic regulations. In making such decision, the inspector will consider the possible influences of the experiment on the traffic, including:

(1) Safekeeping of the users of the road during the experiment, and of the participants therein.

(2) Limiting the disturbance of the traffic flow which may be caused by the experiment.

(3) Responding to emergency events which may occur during the experiment.

«Experiment» in this regulation, is defined as the use of new technology, or new use of existing technology with the object of checking its functioning in the road.

New Zealand

None specific laws regulating automated vehicles in New Zealand as automated vehicles are not yet commercially available in New Zealand, nor is it clear if and when they will be. The legality of automated vehicles has been described as a «grey area» although they are not specifically prohibited by law. Unlike some countries, New Zealand law does not stipulate that a car must have a driver. Therefore New Zealand's laws are not necessarily compatible with them, either<sup>4</sup>.

No vehicle can be registered for use on public roads in New Zealand unless it is certified by NZ Transport Agency (NZTA) – approved certifiers as complying with New Zealand's Land Transport Rules (a

<sup>4</sup> *noted.co.nz/currently/innovation/the-ethical-and-legal-implications-of-driver-less-cars-are-bigger-than-you-think.*



form of delegated legislation) unless explicitly exempted. Additionally, the Police have broad powers under The Land Transport Act 1988 (LTA) to ensure safety under section 113, which allows them to stop any activity that they perceive as unsafe, taking place on or near a public road, until it is established that the activity is safe.

Section 7 of the LTA contains several other general provisions including, for example, section 7(1) which states that a person may not cause a vehicle to be driven recklessly and section 7(2) which states that a person may not cause a vehicle to be driven «in a manner which, having regard to all the circumstances, is or might be dangerous to the public or to a person». Of course, it might be debated whether an automated vehicle is «driven» at all.

The New Zealand government is eager to promote New Zealand as a testing ground for automated vehicles. The NZTA details an «approved testing process» on its website which stipulates that the tester should apply for an exemption the Rules, submit a safety management plan and obtain trade plates. Even once the testing phase is complete, some law change will be required before driverless cars are commercially available in New Zealand as our laws are not yet equipped to deal with them. It is not clear, for example, who is liable if an automated vehicle causes a crash. Additionally, speed limits as currently worded apply to a «driver», so a self-driving car cannot be said to be speeding.

There are no special conditions relating to the risk of road traffic in automated vehicles. Motor insurance policies do not carve out specific conditions or exclusions for automated vehicles because they are not yet commercially available in New Zealand. However, this does not mean that a user of an automated car would have insurance cover. Most policies are drafted on the assumption that the car has a driver and this is either implicit or explicit in the wording of most provisions. If automated vehicles become widely available, the wording of motor insurance policies will need to be updated to explicitly include or exclude coverage.

### 3. *Possible Futures Scenarios*

One of the problems that automation creates is the attribution of responsibility in cases of full automation and in cases in which the damage caused to third parties is not attributable to the manufacturer or programmer. The possible scenarios therefore concern the possible intervention of the legislator who can, as the German legislator has

done, identify a responsibility of the driver and/or owner who has not maintained control of the vehicle by accepting the risk.

The European Commission's proposals for reform of the Consolidated Motor Insurance Directive, published in May 2018, do not include any recommendations for change: the Commission's evaluation demonstrated that the existing requirement for mandatory motor third-party liability insurance also applies to autonomous or semi-autonomous vehicles (i.e. any motor vehicle must have motor third party liability insurance irrespective who is the driver).

The Commission launched a public consultation on the evaluation of Directive 85/374/EEC in order to collect stakeholders' feedback on the application and performance of the Directive, including considerations on challenges raised by new technological developments.

In 2019, the Commission will issue guidance on the Product Liability Directive and a report on the broader implications for, potential gaps in and orientations for, the liability and safety frameworks for artificial intelligence, the Internet of Things and robotics.

A study commissioned by European Commission in 2012 considered potential measures for data protection, data privacy and human rights protection in the Era of IoT (internet of things). In 2015 in its resolution on the implementation of the 2011 White paper on Transport the Parliament emphasized the positive impact of digitalization in transport stressing the need of a regulatory framework. The European Road Transportation Research Advisory Council (ERTRAC) presenting its roadmap at the 12th ITS European Congress described AV one of the key technologies influencing the mobility and the quality of life. Moving from the present state of art it is important to active solution at an interdisciplinary level focusing also on aspect strictly related to transportation that can play a relevant role with regard to safety condition of AV and use of data collected from AV, like insurance industry.

Shift of risk. Now and in the future and ways of dealing with it

1. According to WHO («10 facts on global road safety») about 1.3 million people die on the world's roads and 20 – 50 million are injured every year.

Road traffic crashes are a major cause of death among all age groups and the leading cause of death for children and young adults aged 5 – 29 years.

The risk of dying in a road traffic crash is more than 3 times higher in low-income countries than in high-income countries.

Millions of lives can be saved, and injuries prevented with well-enforced road safety laws on speeding, drinking and driving, and use of seatbelts, child restraints and motorcycle helmets. Road design, improved vehicle standards and better emergency care also save many lives.

2. Nowadays the risk attached to the cars is mainly the risk of human error.

AVs can be a catalyst for improving road safety. For example, the following causes of accidents can be eliminated:

- speeding
- driving after drinking alcohol
- distractions caused by mobile phones are
- other human errors

There is also much better so called «damage control» after accident, as rapid response saves lives and reduces disability among the injured.

The World Health Organization estimates that there are 1.3 million casualties in highway accidents per year. In the US, about 30,000 people die in traffic collisions every year, and 40,000 in Europe. Human errors are believed to be responsible for over 90% of these accidents, primarily due to causes like distracted driving, speeding, reckless driving, and driving under the influence, among others.

If 90% of passenger vehicles in the US were autonomous, traffic fatalities could be reduced by nearly two-thirds.

In addition to saving lives, the reduction in traffic accidents will decrease the social costs related to accident prevention and management and related healthcare services.

3. There are 5 stages in introducing the AV's according to Automated vehicles in the EU – Briefing.

4. For the purpose of development of insurance system we will use the following classification from «Market Framework and Outlook for Automated Vehicle Systems» of the cars System Class Definition Market Status Safe. The driver is solely responsible, but technology can improve safety by giving alerts to risks or automating/improving the effectiveness of select driver actions, such as through automatic braking, electronic stability control, or blind-spot warning. These technologies largely exist today and are offered in an increasing number of new vehicles today. Many have been proven to improve safety and/or reduce damage in the event of a collision.

Self – The vehicle can assume responsibility for select driving tasks



under specific road or weather conditions, but an alert driver who is ready to take control is still required. These emerging technologies will increase penetration over the next decade. Because their performance is subject to driver intervention, their safety benefits are not yet well documented.

**Driverless** – The vehicle is responsible for all driving tasks for the entirety of a journey. No driver is required at any phase. Current deployments may have geographic or weather limitations. This technology has been implemented in low-speed applications. Waymo's deployment in Phoenix was the first widely available, public commercial application. Systems that can operate without a driver are still in development, and those that can travel «on all roads, all the time» could be more than a decade away.

5. The shift from «safe» to «self» will not change much in a structure of responsibility (driver is still responsible), but can change the amount of risk attributed to driver and to manufacturer (and providers of system). This is because the responsibility of driver is not excluded. If the accident happens during the automatic driving, then the court will blame the manufacturer, the same as so far courts blamed for any accidents due to failure function of the car not correctly designed or implemented by manufacturer.

6. In ultimate scenario (i.e. «driverless cars») accidents will be usually the result of system risk, i.e. the risk for which

- a. The hardware risk (sensors and controllers)
- b. The infrastructure risk (roads, data transmission, etc.).
- c. The cyber risk of in regard of privacy and data security

Concerns about privacy of personal data and data security in AVs are generally two-fold. The first relates to potential government access to information about vehicle records, which could be seen as a way to monitor or surveil citizens. For instance, regulations that allow governmental access to AV data may enable law enforcement to track lawbreakers' locations. This new capacity, and its potential for abuse, raises questions about the role of the state, surveillance powers, and civil liberties. The second concern relates to the commercial use of data. For instance, AV systems could be designed to follow routes that pass by certain businesses, compromising the control of the driver or passengers using the AV. AVs could record a user's visits to psychiatry clinics, doctors, or liquor stores. AVs will store location information, external information from cameras and sensors, biometric information



for user recognition systems, as well as troves of data from inside the vehicle through microphones or cameras. Who owns this data, who has access to it, and how it is accessed are all critical questions about privacy for AV users, as well as insurance companies, employers, and many other parties who could use this information.

d. Software errors [wrong design, wrong implementation or other types of artificial intelligence errors]

e. The cyberterrorism risk

AVs also present new types of vulnerabilities and technical uncertainties. First, as objects connected to the Internet of Things, AVs will be connected to a network and thus more exposed to cybersecurity threats—such as vehicular systems hacking— resulting in safety vulnerabilities. In 2015 and 2016, two hackers remotely hijacked a Jeep Cherokee, showing how the systems can be remotely hacked over the Internet.

In November of 2017, the UNECE's group on AVs identified 86 threats to cybersecurity that could affect the safe operation of AVs, data integrity, and software updates. The threats include transmission of false data to other vehicles, malicious remote instructions and control of the system, the use of vehicle-vehicle communication to compromise other vehicle systems, the use of vehicle-infrastructure communications to attack infrastructure systems, or interception of sensitive information. The UN has realized that the digitalization of transportation requires additional safety requirements to continue protecting the rights and liberties of citizens and transport users.

f. Other risks including the unavoidable, in which the cause the responsibility/liability cannot be assigned, for example accidents made by natural catastrophies or those of Trolley Problem style.

Actuarial tools to be used for risk pricing would be similar to those used for risks in regard to big software-hardware systems, which is usually not sophisticated loss model using Bernoulli or Poisson distribution for frequency and Pareto for severity backed up with underwriting multipliers.

#### 4. *Current State of Research*

From a legal point of view, we highlight the necessary points that need to be raised:

- the need to revise the Motor Insurance Directive to include new risks in case of damage caused by an automated vehicle itself;

- the need to revise the Product Liability Directive considering a wider concept of Defective Product including also programming
- the need to innovate and enrich the wording of motor insurance contracts and the insurance products so as to cover new risks emerging with regard to automation.

##### *5. Possible Future Regulations of Insurance System and their Impact*

The regulation of insurance products must take into account the new risks concerning automated driving: it is no longer the risk of accidents, but rather the cyberrisk that needs to be covered if one also takes into account the flow of data that originates from automated vehicles.

Proposals on Motor Insurance at European Law level stress on the needing to ensure that victims of motor vehicle accidents receive the full compensation they are due, even when the insurer is insolvent. The revamped rules will also ensure that those who have a previous claims history in another EU Member State are treated equally to domestic policyholders, and potentially benefit from better insurance conditions

Valdis Dombrovskis, Vice-President responsible for Financial Stability, Financial Services and Capital Markets Union said:

«With today's proposals, we are ensuring that victims of motor vehicle accidents will be better protected in future. In addition, when people move across borders and purchase a motor insurance policy in another EU Member State, their claims history will be treated in the same way as those of domestic consumers. This is good news for those who move across the EU and for all of us as EU citizens».

Jyrki Katainen, Vice-President responsible for Jobs, Growth, Investment and Competitiveness said:

«The Motor Insurance Directive underpins a smooth functioning of the single market for motor insurance for the benefit of drivers and potential victims of motor vehicle accidents. We facilitate mobility across the EU through portability of the claims history. Furthermore, we improve access to compensation of victims of motor accidents in case of insolvency of an insurer and reinforce combat against uninsured driving».

The proposal to amend the Motor Insurance Directive will also make it easier for authorities to combat uninsured driving. It aligns the minimum levels of cover by motor insurance across the EU. Finally, it clarifies the scope of the Motor Insurance Directive following recent

rulings of the Court of Justice of the European Union. See Consumer Financial Services Action Plan of March 2017.

The Commission proposes the following changes:

**Insolvency of an insurer:** If the insurer of the vehicle responsible for an accident is insolvent, victims will be rapidly and fully compensated in their Member State of residence. In cross-border situations, this will ensure that the ultimate financial responsibility is borne by the insurance sector of the home Member State of the insurer, while allowing for quick compensation to victims.

**Claims history statements:** Insurers will have to treat claims history statements issued by an insurer in a different Member State equally to those issued domestically. This should ensure that citizens purchasing insurance abroad can benefit from more advantageous insurance premiums, on the same level as domestic consumers.

**Uninsured driving:** Member States' powers to combat uninsured driving will be reinforced. This should help to tackle uninsured driving which increases premiums for honest motorists.

**Minimum amounts of cover:** EU citizens will benefit from the same level of minimum protection when travelling in the EU. The proposal sets out harmonized minimum protection levels for personal injury and material damage across the EU, as current minimum levels differ slightly between Member States.

**Scope:** To enhance legal certainty, the proposal incorporates recent case-law of the Court of Justice of the European Union into the Directive. In particular, the rules now clarify that accidents caused during the normal use of a vehicle for the purpose of transportation, including its use on private properties, are covered.

## 6. *Future Directions of Research (Beyond of the Scope of this Group)*

There is a need to map new risks to be covered and to collect new data so as to manage them.

Regarding the identification of distribution strategies and business models for risk attribution: the current system of civil liability for road traffic attributes the risk to the driver and to the owner of the vehicle, even in case of manufacturing defect and lack of maintenance of the vehicle. The indication of these subjects is also required to obtain the authorization for testing self-driving cars provided by Smart Road Decree. In the perspective of evaluate whether this system could be

considered suitable or not, especially in consideration of the insurance coverage, it is necessary to analyze two aspects:

– the role of the person under whose responsibility the vehicle circulates: if he had an effective possibility to control the vehicle in case of malfunction of the automatic drive system, he would be considered as a driver; if he had not, he would be considered liable for the custody of the vehicle (art. 2051 c.c.). In both cases the insurer may be permitted to exercise rights of recourse against these persons;

– the responsibility for malfunction of the automatic drive system: if it could be considered as a manufacturing or design defect of the vehicle, the owner would be liable for it. In this case, the legal insurance «RCA» will have to cover also this kind of risk.

It is necessary to analyze implications of data protection in digitized traffic systems in relation to automated and connected cars, regarding:

- cars users' personal data collected without their consent;
- third person's privacy protection against videorecording system and dashboard cameras;
- processing operation, storage and anonymization of those data;
- data protection against cyber-attacks.

The aim of this analysis is to suggest profiles of insurance coverage for material or non-material damage resulting by infringements of GDPR system, pursuant to art. 82.