

Chapter 6: International Comparisons

Dr. Kyriaki Noussia

Abstract

The law on autonomous vehicles has been the subject of legislation in various jurisdictions and legal systems to a different extent, with some jurisdictions and legal systems having already largely legislated on it the law, liability and insurance of autonomous vehicles and others still pending to pass such laws. This Chapter discusses the legal regime for autonomous vehicles in various jurisdictions and in doing so it is shedding light by way of comparative research and analysis as well as indicating new technologies issues and the way forward. The jurisdictions selected and analysed are: Greece, Germany, Austria, Italy, USA and South Africa.

Introduction

6.1. Progress in automated driving can hardly be clearly distinguished from advances in other areas of technology. This includes areas such as robotics and autonomics, sensor technology and advances in information and in communication technologies. Conclusions drawn from legal analyses and assessments in these fields can therefore be applied *mutatis mutandis* to the problems of autonomous vehicles and their driving. The central characteristics of the impending transformation in road transport, which entails that the latter will become part of the Internet of Things (IoT),¹ dictate the need to research, examine, discuss and analyse the way in which different jurisdictions have regulated or plan to regulate autonomous vehicles and their operation through the current or future enactment of legislation, in an effort to detect

¹ E. Hilgendorf, Automated Driving and The Law, in E. Hilgendorf, U.Siedel (Eds.), Robotics, Autonomics and the Law, Robotik und Recht, Legal Issues Arising From The AUTONOMICS for Industry 4.0 Technology Programme of the German Federal Ministry for Economic Affairs and Energy, Vol. 14, Nomos, 2017, 171-193, 171, 174-175.

common patterns in regulation and ways to better tackle the arising issues. Hence, this chapter discusses the laws in place or in preparation for autonomous vehicles and automated driving as well as, wherever the gathered research material allows us, the transformation and impact of autonomous vehicles regulation on motor insurance in the various jurisdictions, the various cyber risks and the new technologies issues and aspects in relation to autonomous vehicles. The jurisdictions researched and discussed include Greece, Germany, Austria, Italy, the US and South Africa.

Greece

6.2. In the Greek legal system, there are no specific legal provisions regulating autonomous vehicles.² In relation to liability in tort from the use of autonomous vehicles, the relevant provisions applying with regards to autonomous vehicles and liability in tort from their use are derived from other laws, i.e. constitute general laws and are the provisions: a) of the Civil Code, particularly the general provisions on tort (articles 914 – 938); b) of the Law 2251/1994³ on Consumer protection, particularly article 6 on the Liability of Producer for Product Defects (which transposed into Greek legislation the EU Directives on Product liability 85/374/EEC as amended by the Directive 1999/34/EC on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products), as well as article 5 on the sale of consumers goods and guarantees and article 7 on health and security of consumers; c) of the Joint Ministerial Decision Z3-2810/2004 (Official Journal B' 1885/2004) on the General security of products which transposed into Greek legislation the Directive 2001/95/EC of 3 December 2001 on general product safety; and d) of the Compulsory Motor Liability Insurance.

² Based on the answers provided by the Hellenic / Greek National Chapter to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

³ Which was amended by Law L. 3587/2007 (laws will be referred as L.)

6.3. With regards to insurance, to date there is no specific piece of legislation having been enacted in the Greek legal system so as to regulate the insurance of autonomous vehicles. However, the provisions of the Law 489/76 on Compulsory Motor Liability Insurance⁴, as amended, should apply also to these issues. The Law was codified by the PD no. 237/1986, and has been amended numerous times⁵. Greece has harmonized its motor insurance legislation with all EU Motor Insurance Directives. Particularly, L. 4364/2016 has harmonized the Law on Compulsory Motor Liability Insurance with the 4th Motor Insurance Directive 2009/138/EC relating to insurance against civil liability in respect of the use of motor vehicles, and the enforcement of the obligation to insure against such liability.

6.4. According to article 1a) of Law 489/7 as amended⁶: *“‘vehicle’ means any vehicle intended for travel on land, but not running on rails, and propelled by mechanical or electrical power, regardless to the number of wheels. Vehicle also includes any trailer whether or not coupled behind the main vehicle, as well as a bicycle equipped with an auxiliary motor.”* Also, according to article 2 of Law 489/7 as amended: *“an owner or holder of a vehicle which circulates on roads in Greece is obliged to have the third parties liability insurance cover, in compliance with the Law”*.

6.5. Since the definition of the term “vehicle” is broad, it provides ground for a much broader interpretation with regards to its application. However, this will be a task for the courts to provide the relevant interpretation in each specific case, as a result of the use of these vehicles on the roads in Greece and of potential legal issues and disputes that may arise. Potentially, the legislator may also assess that certain amendments or clarifications of the definition might

⁴ The law entered into force on 1 January 1978.

⁵ There have been numerous amendments of the law 489/1976, as follows: L 1569/1985, PD. 1019/1981 and 118/1985, L. 1867/1989, PD 264/1991, PD 314/1993, L. 2170/1993, L. 2367/1995, PD. 252/1996, L. 2496/1997, L. 2648/1998, L. 2741/1999, L. 2753/1999, L. 2837/2000, L. 2919/2001, PD. 10/2003, L. 3419/2005, L. 3557/2007, L. 3693/2008, L. 3746/2009, L. 3867/2010, L. 3904/2010, L. 4092/2012, L. 4141/2013, L. 4261/2014, L. 4364/2016, L. 4438/2016, and 4484/2017.

⁶ In free translation from Greek.

be needed. To date, the use of the listed types of vehicles in Greece is still very limited, hence the above definition of “vehicle” would apply to the types of vehicles used so far in Greece.

Motor Vehicle Insurance

6.6. The future of motor insurance is undoubtedly connected to the new opportunities emerging from new technologies such as automated vehicles, telematics applications, etc. Further development of new technologies and their use in Greece may in certain cases require new regulation, starting from the definition of autonomous vehicles, civil liability issues, and of the insurance regulation.

6.7. The technological revolution would require new generation of insurance products and significant changes in the existing insurance procedures. Underwriting and claims handling procedures should also be designed *ab initio* in accordance with any arising new conditions. The main issue would be to clarify whether in case of an accident the damage would be covered by the motor liability insurance and/or the product liability insurance legislation.⁷

6.8. It is anticipated that autonomous vehicles could potentially lead to a substantial reduction in motor insurance claims due to the expected reduction of motor accidents. Lower claims could result in lower premiums and tighter profit margins. The role of claims analysts and loss adjusters could also change due to the expected availability of significant data on the frequency and nature of accidents.

6.9. At present, few insurance companies in Greece have begun designing and offering new MTPL products based on telematics (e.g. black box technology GPS) which enables insurer to track the driving record and behavior of the insured in order to determine both the risk and

⁷ Based on the answers provided by the Hellenic / Greek National Chapter to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

liability entailed. At present, insurers using telematics devices in Greece incur the cost of their installation. As sensors and computers become more commonplace in vehicles, the telematics - based policies will be increased.

Cyber Risks

6.10. Under Greek law, the main pieces of legislation relevant to cyber risk are:

- Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data which was transposed to the Greek legal order by the Law 2472/1997;
- Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, repealing Directive 95/46/EC (General Data Protection Regulation), applies from 25 May 2018.
- Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications) which was transposed into Greek legislation by the law 3471/2006⁸, while the amendments to the Directive i.e. Directive 2006/24/EC of 15 March 2006 on the retention of data generated or processed in connection with the provision of publicly available electronic communications services or of public communications networks and amending Directive 2002/58/EC were transposed by the law 3917/2011⁹.
- NIS Directive, Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information

⁸ L. 3471/2006 Protection of personal data and private life in the electronic communication sector and amendments of the L. 2472/1997.

⁹ L. 3917/2011 on the retention of data generated or processed in connection with the provision of publicly available electronic communications services or of public communications networks, use of use of surveillance systems by taking or recording audio or video in public places and other relevant provisions.

systems across the Union. The Member States should by 9 May 2018 adopt laws and regulations to comply with this Directive and shall start its application from 10 May 2018.

6.11. Greece is currently in the process of preparing a cyber security strategy in compliance with the above EU legislation.

6.12. Property policies in Greek insurance market exclude losses from cyber risks¹⁰ and cyber risks insurance is mainly offered as a stand-alone insurance product.¹¹

New Technologies

6.13. New technologies are affecting the way in which insurance policies are placed. Direct business/sales/ channels (internet based ones) offer a straight link to end customer, reduce significantly issuance time and offer to the company customer data for coverage- premium and behavioural analysis. Additionally, the use of portals and services by sales agents to place/ issue policies, results to more efficient delivery of the end product to customer and the usage of technologies by the customers and sales agents (i.e. web page, mobile applications, etc.) reduces the company's administrative costs. New technologies are also applied to the agents' and brokers' training (e.g. e-learning).

6.14. The means of providing information to policyholders are changing already. Customers are directed to websites, mobile applications personalized webpages, and are receiving emails & SMS regarding their policies. Traditional channels take advantage of new technologies to eliminate the time intervals and administrative costs. However, the use of new

¹⁰ They cover material/ physical damage (e.g. property software) to the property arising out of covered perils (e.g. fire, lightning, explosion etc), but exclude any loss, damage, destruction, distortion, erasure, corruption or alteration of data from any cause (including computer virus, computer malicious act/ computer malware/ human error/ system failure on insured's computer systems, cyber extortion etc).

¹¹ But in some cases in some cases general liability policies (professional indemnity policies) and property policies may include a cyber-extension.

technologies has to follow the insurance legislation and therefore written documents have not been vastly replaced (i.e. according to the existing legislation insurance policies should still be issued and sent to the insured in print).

Germany

6.15. The German Road Traffic Act (RTA; *Straßenverkehrsgesetz, StVG*) ensures that both the driver and the so-called keeper (*Halter*) – who is the registered holder of the car who decides on its use and who bears the running expenses, and who will often but not necessarily be its owner at the same time –¹² of a motor vehicle are liable for damages caused by the use of the vehicle.¹³

6.16. In 2017 the RTA was amended in order to include rules for automated driving. The liability of the driver is regulated in Sect. 18 RTA. According to that provision the driver has to compensate any third party for damages and financial losses that were negligently caused by the driver during the use of the vehicle on public roads. There is a legal presumption of negligence,¹⁴ which however leaves the driver the possibility to prove that there was no negligence.¹⁵ Sect. 7 RTA states that the keeper of a vehicle is liable for any damage inflicted in relation to its use, regardless of whether or not the keeper was driving the car. Hence, Sect. 7 RTA disposes a strict liability of the keeper since liability does not require any kind of negligent action of the keeper or the driver.¹⁶

¹² *Bundesgerichtshof (BGH)* (10 July 2007) in [2007] *Neue Juristische Wochenschrift (NJW)*, 3120 marginal no. 7; this section is produced based on the answers provided by the German National Chapter (Prof. Ch. Armbruster of the Freie Universität Berlin) to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

¹³ Sect. 7 para. 1, 18 para. 1 RTA.

¹⁴ Sect. 18 para. 1 s. 2 RTA.

¹⁵ Sect. 12 para. 1 nos. 1 and 2 RTA.

¹⁶ *Bundesgerichtshof (BGH)* (26 April 2005) in [2005] *Neue Juristische Wochenschrift (NJW)*, 2081 et seq.

6.17. The liability system of the RTA is based on two pillars: fault-based liability of the driver with a presumption of negligence, and strict liability of the keeper.

6.18. The German legislator recently addressed the need to alter the law to respond to the use of highly or fully automated vehicles on public roads and hence on 21 June 2017 a number of new sections entered into force, in particular a new Sect. 1a and 1b of the RTA. Sect. 1a RTA states that highly or fully automatized vehicles may be used on public roads under the condition that the automated functions are working properly. The legislator left the abovementioned liability system untouched in its essence.¹⁷

6.19. Sect. 1a para. 2 RTA only defines which vehicles are categorized as highly or fully automated in the sense of the wording of the RTA, i.e. a vehicle which has technical equipment which can control the respective motor vehicle after activation in order to cope with the driving task, including longitudinal and transverse guidance; which is able to comply with the traffic regulations relating to vehicle guidance during the highly automatic or fully automated vehicle control; which can be manually overridden or deactivated at any time by the vehicle operator; which can detect the necessity of the vehicle's own control by the vehicle driver; which can indicate visually, acoustically, tactilely or otherwise perceptibly to the vehicle operator the requirement of the vehicle control unit with sufficient time before the vehicle control is handed over to the driver; which refers the driver to a use contrary to the system description.

6.20. The car manufacturers are obliged to explicitly confirm the compliance of their vehicles with the above-mentioned requirements in the system description.¹⁸ Furthermore the legislator

¹⁷ Ch. Armbrüster, *Automatisiertes Fahren - Paradigmenwechsel im Straßenverkehrsrecht*, Zeitschrift für Rechtspolitik (ZRP), 2017, pp. 83 et seq.

¹⁸ Sect. 1a para. 2 sent. 2 RTA.

has expressly pointed out that the use of one or more driver assistance systems leaves the classification of the person enabling these systems as driver of the vehicle unaffected.¹⁹

6.21. The recent amendments of the RTA establish some important obligations of the driver when using driver assistance systems in a highly or fully automated vehicle. According to Sect. 1b RTA the driver is not allowed to turn his attention completely away from the traffic. This means that the driver must not rely entirely on the automated driving system. In case the driver notices or has to notice because of obvious circumstances that the preconditions for the use of the highly or fully automated mode are no longer met, he is obliged to take back control over the car. The same is true if the vehicle itself advises the driver to switch off the assistance system.²⁰ Taking into account the fact that the danger automated cars bring along cannot be fully estimated yet, the legislator decided to double the maximum liability for personal damage from EUR 5 to to 10 Mio.²¹ The RTA does not impose any special obligations on the keeper of the vehicle when he allows third parties to use the highly or fully automated vehicle. As the general principles of Sect. 7 RTA prevail, the keeper is still responsible for any damage caused by the use of the highly or fully automated vehicle.

6.22. If an accident solely resulted from the malfunction of a driver assistance system the keeper of the car may be able to take recourse against its producer. Currently, there are no specific rules for product liability with regard to highly or fully automatized vehicles and as per the Product Liability Act (Sect. 1 para. 1, PLA; *Produkthaftungsgesetz, ProdHaftG*), which transposed the EU Product Liability Directive²² into German law, when a defective product causes a person's death, bodily injury or health damage, or damage to property, the producer

¹⁹ This section is produced based on the answers provided by the German National Chapter (Prof. Ch. Armbruster of the Freie Universitaet Berlin) to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

²⁰ Sect. 1b para. 2 RTA.

²¹ Sect. 12 para. 1

²² Directive 85/374/EEC.

has to compensate the damage. Under certain circumstances however, which have to be proven by the producer, he will escape strict liability.²³

Motor Vehicle Insurance

6.23. In accordance with the relevant EU directives, German law requires the keeper of a car to obtain liability insurance cover (Sect. 1 Compulsory Insurance Act [CIA, *Pflichtversicherungsgesetz, PflVG*]). This applies for highly or fully automated vehicles as well. The insurance cover has to include damages caused by an unauthorized driver. Furthermore, the CIA establishes minimum standards with regard to the insurance sum and the obligations the insurance contract may contain. Clauses that deviate from the compulsory provisions are void. In contrast, other car related insurance contracts, i.e. property insurance which covers damages suffered by the policyholder himself in case of an accident, are not mandatory under EU or German law. However, in practice car insurance products are often sold as combining third party liability insurance and property insurance in Germany.

6.24. It is estimated that the increasing use of digitalization in vehicles will change i.e. augment the relevance of product liability insurance but will not diminish the role of motor insurance.^{24, 25}

²³ E.g. the liability of a producer is excluded if the state of scientific and technical knowledge at the time when the product was put into circulation was not such as to enable the defect to be discovered; this section is produced based on the answers provided by the German National Chapter (Prof. Ch. Armbruster of the Freie Universitaet Berlin) to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

²⁴J. Müller, *Wie das autonome Fahren die Kfz-Versicherung verändern wird*, https://www.allianzdeutschland.de/wie-das-autonome-fahren-die-kfz-versicherung-veraendern-wird/id_79691618/index

²⁵ This section is produced based on the answers provided by the German National Chapter (Prof. Ch. Armbruster of the Freie Universitaet Berlin) to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

Cyber Risks

6.25. In June 2015 the German legislator enacted the IT Security Act (*IT-Sicherheitsgesetz*), which mainly aims to improve the IT security of companies.

6.26. As per Sect. 8a para. 1 of the Federal Office for Information Security (*Bundesamt für Sicherheit in der Informationstechnik, BSI*) Act operators of critical infrastructure must provide reasonable organizational and technical precautions to prevent disruption of the availability, integrity, authenticity and confidentiality of their information technology systems, components or processes.

6.27. Apart from the development of a high IT security level, members of critical infrastructures are obliged to notify security breaches to the BSI (Sect. 8b para. 4 BSI Act). In order to meet legislative targets, the IT Security Act strengthens the position of the BSI, particularly by extending duties and powers. Moreover, the German legislator and the competent administrative authorities have enacted further specific rules on cyber security in different acts.²⁶

6.28. In July 2016, the EU Directive on Security of Network and Information Systems (NIS Directive) passed the European Parliament.²⁷

6.29. Apart from the development of a high IT security level, members of critical infrastructures are obliged to notify security breaches to the BSI (Sect. 8b para. 4 BSI Act). In order to meet legislative targets, the IT Security Act strengthens the position of the BSI, particularly by extending duties and powers. Moreover, the German legislator and the competent

²⁶ Sect. 109 Telecommunication Act (*TKG*), sect. 13 Telemedia Act (*TMG*), Sect. 25a Banking Act (*KWG*), Sect. 33 Securities Trading Act (*WpHG*), Sect. 44 Atomic Energy Act (*AtomG*), Sect. 11 Energy Economic Act (*EnWG*).

²⁷ <https://deutschland.taylorwessing.com/de/the-german-it-security-law-fact-sheet>

administrative authorities have enacted further specific rules on cyber security in different acts.²⁸

6.30. EU and German Data Protection law also contains IT security requirements to protect personal data, however not with a particular focus on cyber threats. Part B Sect. 32 to 34 EU General Data Protection Regulation (*Datenschutzgrundverordnung, DSGVO*) draws up provisions regarding security of personal data.²⁹

6.31. Many damages relating to cyber risks are already covered by standard indemnity and property insurance policies.³⁰ The German Insurance Industry Association (*Gesamtverband der deutschen Versicherungswirtschaft, GDV*) has developed specific model terms and conditions of cyber risk insurance,³¹ which have been published as noncommittal recommendations for the industry. This cyber risk insurance covers financial losses caused by an information security breach.³²

New Technologies

6.32. New technologies are hardly mentioned in the German Federal Constitution (GG) at least as far as the actual wording is concerned. The right to conduct research (art. 5(3) GG) includes the right to develop new vehicle technologies. As per the jurisprudence of the German Constitutional Court (*Bundesverfassungsgericht*) fundamental rights form an objective value system aiding in interpretation but also containing obligation for the State. The State is obliged

²⁸ Sect. 109 Telecommunication Act (*TKG*), sect. 13 Telemedia Act (*TMG*), Sect. 25a Banking Act (*KWG*), Sect. 33 Securities Trading Act (*WpHG*), Sect. 44 Atomic Energy Act (*AtomG*), Sect. 11 Energy Economic Act (*EnWG*).

²⁹ Sect. 83 EU General Data Protection Regulation.

³⁰ <https://www.lexology.com/library/detail.aspx?g=54176adb-7f80-43cf-8552-a5a63e018c72>

³¹ General terms and conditions of cyber risk insurance (T&Cs Cyber) provided by the GDV, http://www.gdv.de/wp-content/uploads/2017/04/AVB_Cyber_April_2017.pdf.

³² This section is produced based on the answers provided by the German National Chapter (Prof. C. Armbruster of the Freie Universitaet Berlin) to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

to protect the physical integrity and lives of its citizens and as such has the obligation to promote such technologies that contribute to the protection of constitutionally protected legal rights or interests.

6.33. Freedom of movement on the road enjoys also constitutional protection as a fundamental right and automated vehicles do not hinder this right especially since their introduction is done on a step by step basis.³³

6.34. New technologies have already begun to disrupt the traditional distribution of insurance products by agents and brokers. The effects and influences of new technologies on the traditional use of agents and brokers are immense and of a vast variety. Broker apps, which have flooded the German distribution sector in recent years, have triggered a lot of controversy and brought up a number of legal issues.³⁴ In general, those apps are frequently structured as a kind of “digital insurance folder”, which allows not only to conclude new contracts through the app, but also to digitalize existing policies. These new technologies business models therefore significantly depend on the IT infrastructure of the individual insurance company.

6.35. A key issue with broker apps is the proper transmission of information to the costumers. Big data models and analysis methods, as well as new data sources, have enabled insurers and distributors to gather information concerning the individual risk on a large scale. Any

³³ E. Hilgendorf, Automated Driving and The Law, in E. Hilgendorf, U.Siedel (Eds.), Robotics, Autonomics and the Law, Robotik und Recht, Legal Issues Arising From The AUTONOMICS for Industry 4.0 Technology Programme of the German Federal Ministry for Economic Affairs and Energy, Vol. 14, Nomos, 2017, 171-193, 176-177.

³⁴ Ch. Armbrüster/S. Pfeiffer, *Rechtsfragen rund um Versicherungs-Apps*, Zeitschrift für Versicherungswesen (ZfV), 2016, pp. 277 et seq.

processing of personal data³⁵ needs to be justified either by consent or by statutory provision.³⁶

Special provisions apply to so-called special categories of data.³⁷

6.36. Furthermore, data protection law limits big data analysis methods and the required gathering of large amounts of data by stating that personal data shall be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (principle of data minimization).³⁸

6.37. The gathering of enormous amounts of personal data just for the purpose of accidentally finding links between them is therefore forbidden under EU and German data protection law. In addition, even when big data analysis methods comply with the principle of data minimization, the aggregation of data for the purposes of profiling is further limited and restricted by Art. 22 of the EU General Data Protection Regulation (*GDPR*)³⁹. German law does not prohibit the transmission of pre-contractual information via the internet. The only requirement that must be met is that all pre-contractual information has to be communicated to the customer on a durable medium.^{40, 41}

³⁵ Personal data is defined as any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person (Art. 4 para. 1 GDPR).

³⁶ Art. 83 para. 5 GDPR.

³⁷ If the personal data processed are classified as such special categories of personal data (such as data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and genetic data, biometric data, data concerning health or data concerning a natural person's sex life or sexual orientation) (Art. 9 GDPR) the permissiveness of processing such data for the purpose of risk assessment – at least in the ordinary course of events – depends on the consent of the data subject (applicant).

³⁸ Art. 5 para. 1 lit. c GDPR.

³⁹ Regulation (EU) 2016/679.

⁴⁰ Sect. 7 para. 1 sent. 1, 61 para. 1 VVG and Art. 25 IDD.

⁴¹ This section is produced based on the answers provided by the German National Chapter (Prof. Ch. Armbruster of the Freie Universität Berlin) to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

Austria

6.38. The new automated driving ordinance (ordinance of the federal ministry of transport, innovation and technology on the framework for automated driving) stipulating the prerequisites for the testing of vehicles with assistance systems as well as vehicles with automated or connected drive systems entered force on 19 December 2016; such systems are still not allowed to be operated in the normal course of traffic.

6.39. Before each test drive the responsible ministry of transport must inter alia be provided with the following information:

- Information on the application or system being tested
- Name of the testing facility
- The total number of real, virtual and experimentally driven test kilometres completed by the system being tested
- License plate number for the test vehicle to be used in test runs
- Information on the test vehicle driver for the test runs
- Written confirmation from the motor vehicle liability insurer that insurance coverage is provided for the test runs in accordance with the provisions of the Motor Vehicle Liability Insurance Act 1994

6.40. A legal obligation to obtain a motor-vehicle liability insurance exists. Said insurance provides coverage for claims with respect to property, personal or any other pecuniary damages due to caused traffic accidents. The amount of the insurance coverage is dependent on the horsepower and the age of the vehicle. A confirmation regarding the existence of a liability motor-vehicle insurance must be provided to the ministry of transport prior to the first entry service of the vehicle.

6.41. The testing of vehicles, according to § 1 Abs. 3 Ziff. 1 of the above mentioned ordinance, in public traffic is only allowed if during the test drive(s) insurance coverage is guaranteed by a liability insurer and the motor-vehicle liability insurer confirms in writing that insurance coverage in accordance with the provisions of the Motor Vehicle Liability Insurance Act 1994 (KHVG 1994) is provided for the applied test drive(s)

Motor Vehicle Insurance

6.42. With respect to the future of motor vehicle insurance as this will be changed / reshaped due to autonomous vehicles, there are currently no actions and / or initiatives taken by the insurance industry with respect to this topic. Only the use of “Big Data” is already commonplace in Austria and used to improve the claim settlement and optimize the classification of the car and its potential risk (e.g. theft risk).

Cyber Risks

6.43. Several paragraphs were added to the Austrian Criminal Code:

- Unlawful access to a computer system (paragraph 118a)
- Abusive/unlawful interception of data (paragraph 119a)
- Data corruption (paragraph 126a)
- Disruption of the functioning of computer systems (paragraph 126b)
- Abuse of access data (paragraph 126c)

6.44. Cyber risks are generally excluded from coverage. Only a specific cyber insurance is providing self-damage coverage (business interruption loss, crisis management, extortion costs, data restoration costs, credit monitoring costs, defense costs, forensic costs, notification costs, public relations costs, contractual penalties of PCI companies) and liability coverage.

Although there are currently 11 different products offered on the market, it must be emphasized that the provided coverage of said products can differ significantly. Most insurance concepts/products don't cover risks associated with the use of cloud services, cyber terrorism, operating errors and financial loss because of cyber fraud. In addition, deductibles are always part of the existing insurance concepts/products and several insurers are stipulating sub limits for individual insurance components (e.g. credit monitoring costs, contractual penalties of PCI companies).

New Technologies

6.45. Brokers are maintaining online presences, however mainly by focusing on client information. Nevertheless, different online-brokers have entered the marketplace and are currently facing the challenge to comply with their legal obligations to provide advice to their clients according to the local broker law and as a result they are frequently sued by their competitors under the Austrian Federal Act against unfair competition.

6.46. Big data is especially relevant in the area of motor-vehicle insurances (e.g. regarding the risk classification or computation of replacement value). In principle, all Austrian insurers maintain online-portals. Those portals enable the insurers to offer direct sales on their online-portals. Some portals also provide additional features such as online damage tracking (e.g. Zurich Connect). Such online-portals are not only designed for direct insurance customers, but, in addition, brokers are usually also directed to those portals for the insurance application/calculation. In short, it is obvious that most insurance companies are emphasizing the improvement of their online presence. While this digital trend has manifested itself, certain elements, such as the policy documents, are still submitted to the policy holder by post although it is permitted by law since 2012 to provide such documents electronically.

6.47. The risks for critical infrastructures (electricity supply, water supply, public transport,

hospitals, airports, banks) were recognized and hence the EU issued in 2016 the Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 (the NIS Directive) concerning measures for a high common level of security of network and information systems across the Union.⁴²

Italy

6.48. Vehicles are primarily regulated at the state level by way of Legislative Decree No. 285/1992, as modified ("Traffic Code"). Legislative Decree No. 422/1997 provides Italian regions and provinces with the authority to identify specific rules in relation to public transport. Italy has not issued any regulation specifically related to driverless vehicles. However, on 12 February 2014, the Italian Ministry for Infrastructures and Transportation issued the National Plan of Action for the Smart Systems of Transportation with the aim to promote improvement in the regulatory, organizational, technological, and financial conditions within the sector of intelligent transportation systems ("ITS"). This plan, however, does not specifically take into account autonomous vehicles.⁴³

6.49. Current laws do not permit autonomous vehicles to use public roads unless a human driver has proper control of the vehicle. However, in theory, states and territories have road traffic exemption powers to allow testing of autonomous vehicles on public roads, even if these tests would more likely take place on tracks closed to the general public.

6.50. Also, according to Presidential Decree No. 474/2001, which regulates tests on vehicles circulation, the obligation to have a vehicle registration and a license plate does not apply

⁴² This section is produced based on the answers provided by the Austrian National Chapter to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

⁴³ Backer McKenzie, Global Driverless Vehicle Survey 2018, 112-118,112.

when the Ministry for Infrastructures and Transportation issues a specific authorization to the circulation for technical, experimental, or manufacturing tests.

6.51. In general terms, vehicles (including autonomous vehicles) have to meet the standards set out in the applicable EU Directives and Regulations and the Traffic Code. Having said that, in the lack of a specific regulation on autonomous vehicles, in order for the later to be used or tested, they must successfully undergo an approval process. This process is likely to take several months, in order to obtain authorizations from both the ministerial and local administrative levels.⁴⁴

6.52. No specific laws or law proposals exist, in relation to liability in tort for injuries inflicted by the use of autonomous vehicles and vessels and no law specific relating to compulsory insurance coverage for injuries inflicted by the use of autonomous vehicles. However, the use of motor vehicle will change for sure in the coming years in terms of insurance requirements. It will be necessary to cover the risks to property and the product liability, and not the responsibility of the owner/driver.⁴⁵

6.53. In the lack of a specific regulation concerning autonomous vehicles, the general rules on the circulation of vehicles apply, as set forth in section 2054 of the Italian Civil Code. Pursuant to this provision, the driver is liable for any damages caused by the circulation of the vehicle, unless the driver is able to prove that he/she has done everything he/she could to prevent any damages. Moreover, if a car accident happens, all drivers involved in the accident are deemed jointly responsible for having caused the damage, unless proven otherwise.

6.54. It will be interesting to see how case law will interpret the above-mentioned rule

⁴⁴ Backer McKenzie, *Global Driverless Vehicle Survey 2018*, 129.

⁴⁵ This section is produced based on the answers provided by the Italian National Chapter to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

considering that autonomous cars would not have a driver inside the car who can be held liable for the accident. In this respect, it will certainly be necessary to provide autonomous cars with technological systems that help establish whether the autonomous car is liable in any way of the accident. In the affirmative, depending on the cause of the accident (e.g., an inherent defect of the car or an error in programming the route by the owner), the manufacturer or the owner could be held liable. In this respect, pursuant to section 1.184 of Law No. 124/2017, the Italian Government will also have to issue in 2018, one or more legislative decrees aimed at regulating the installation on vehicles of the so-called "black boxes" or other similar electronic systems, in order to create technological platforms for an integrated urban development scheme.⁴⁶

Cyber Risks

6.55. In Italy there are, at the moment, no specific laws on cyber risks. In relation to cyber risks, insurance policies cover three types of damages.

- Direct and indirect material damages: these are damages to pc, server etc. caused by natural events such as fire and earthquakes. They can be covered by an 'all risks' insurance, and it is unnecessary to have a specific policy about cyber risks.
- Direct and indirect immaterial damages: they need a specific cyber risks policy. They are immaterial damages, such as a virus to a server which delete a database.
- Insurance for legal expenses and legal assistance: if a service company is damaged by a cyber attack which stops the service to the clients, the clients could claim for damages. This type of damages need a specific cyber risks policy. Insurance policies sometimes contain restrictions, such as the contract condition which says that the policy does not cover loss caused by the use of computer system 'as a means of inflicting harm'.

⁴⁶ Backer McKenzie, Global Driverless Vehicle Survey 2018, 112-118,114.

New Technologies

6.56. In Italy, new technologies already affect the placement of insurance policies via the use of roboadvisors and the use of social media in brokerage. New technologies affect underwriting as well and will reshape it. Insurance companies use big data to create an algorithm able to check a client, the object of the insurance and the risk. Insurance companies have a new role, not preventing risk informing people about risks, but influencing the habits of the clients. In this way the risks are reduced and not only checked. This phenomenon is called 'InsurTech' and it allows the companies to understand the needs of clients and found the best risks covered. But this phenomenon has the disadvantage of cyber risks for the client's privacy. The means of providing information to policy holders depends and has to comply with the Italian Insurance Regulator's (IVASS) Regulation 8/2015 which serves the purpose of simplifying contractual relationships between insurance companies, intermediaries and client, using technological, electronic, and web systems. Both the Italian insurance companies and the intermediaries are obliged to have a certified e-mail, and they have to indicate in all their correspondence, and on their web site. They have to sign the insurances with an electronic signature, and if so then the policies could be in electronic form. Insurance companies and intermediaries need also observe the various laws on privacy and to have in place on line and free payment systems. It is essential that prior to the conclusion of the contract the insurer and the intermediaries receive from the prospective assured the consent to send the related insurance documents through the web at a specific pre-contractual or contractual moment. The consent can be given with regards to a specific / current or future contract.

6.57. New technologies have also affected the insurance industry in Italy in that "green cars" gain a reduction of the motor insurance premium and also in that in Italy some insurance companies offer eco-driving policies as well as providing systems to valuate eco-driving habits of their customers in order to determine annual premium. It is possible to control eco-driving

habits through a black box installed in the car and through car inspection via various techniques. Hence, such techniques are registered by black boxes which can control and influence the eco-driver habits, however they entail potential issues regarding the protection of the privacy of the driver and of the occupants. At the moment, the use of black boxes is generally permitted only for a reconstruction of an accident dynamic.⁴⁷

USA

6.58. In the US, federal law does not yet expressly regulate driverless vehicles. However, both the House of Representatives and the Senate have proposed legislation which regulate certain aspects of highly automated vehicles.

6.59. On 6 September 2017, the House of Representatives passed the *Safely Ensuring Lives Future Deployment and Research in Vehicle Evolution Act* ("*SELF DRIVE Act*"), which regulates certain aspects of autonomous vehicles and expressly pre-empts state laws that conflict with performance and design standards of autonomous vehicles set by the federal government. On 28 September 2017, the Senate introduced the *American Vision for Safer Transportation through Advancement of Revolutionary Technologies Act* ("*AV START Act*"), which also regulates certain aspects of autonomous vehicles and expressly pre-empts state laws that conflict with performance and design standards of driverless vehicles set by the federal government.⁴⁸ On 12 September 2017, the Trump Administration released a new policy document titled '*Automated Driving Systems 2.0: A Vision for Safety*' that updated the *Federal Automated Vehicle Policy*' which had been released by the National Highway Traffic Safety Administration ("NHTSA") in September 2016.⁴⁹

⁴⁷ This section is produced based on the answers provided by the Italian National Chapter to the AIDA Questionnaire on New Technologies, to be used in a report to be presented by the author of this chapter at the New Technologies Plenary Session at the XV AIDA World Congress in Rio, Brazil (October 2018).

⁴⁸ To become law, however, the House of Representatives and the Senate must reconcile the proposed bills and the President must sign the final legislation.

⁴⁹ [https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/document s/13069a-ads2.0_090617_v9a_tag.pdf](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/document%20s/13069a-ads2.0_090617_v9a_tag.pdf).

6.60. Prior to that, the National Highway Traffic Safety Administration (NHTSA) had released its Preliminary Statement of Policy Concerning Automated Vehicles in May 30, 2013. In January 14, 2016, U.S. Transportation Secretary Anthony Foxx announced the President's fiscal year 2017 budget proposal and policy guidance that updates the Preliminary Statement. The update was issued in September 2016. In February 4, 2016, the NHTSA responded to a request from Google, Inc. to interpret several provisions in the Federal Motor Vehicle Safety Standards as they apply to Google's described design for vehicles Google is developing and testing. In September 20, 2016, the U.S. Department of Transportation issued its federal policy for automated vehicles.⁵⁰

6.61. The 2016 NHTSA policy update had four parts: vehicle performance guidelines, model state policy, NHTSA's current regulatory tools and possible new regulatory actions NHTSA believed could be helpful in ensuring the safe deployment of autonomous vehicles. For potential autonomous vehicle manufacturers, the policy included a set of 15 best practices regarding the safe pre-deployment design as well as development and testing of autonomous vehicles prior to commercial sale or operation on public roads.

6.62. The four US states of California, the District of Columbia, Florida and Nevada, were among the first to have passed laws allowing and setting the conditions for the testing of automated and highly autonomous vehicles. In addition, the US has often been cited as having dealt foremost with the issue of legalizing autonomous cars. In June 2011, the Nevada Legislature passed a law to authorize the use of autonomous cars. Nevada thus became the first jurisdiction in the world where autonomous vehicles could be legally operated on public roads.⁵¹

⁵⁰ http://cyberlaw.stanford.edu/wiki/index.php/Automated_Driving:_Legislative_and_Regulatory_Action

⁵¹ Nowadays, most of the U.S. states deal with the basic legal status of autonomous vehicles.

6.63. To date, twenty-one States and the District of Columbia have enacted laws related to autonomous vehicles: Alabama, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Illinois, Louisiana, Michigan, Nevada, New York, North Carolina, North Dakota, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, and Vermont. State laws generally (i) legalize the deployment and operation of highly automated vehicles in their jurisdiction (e.g., Colorado), (ii) create a framework for testing highly automated vehicles (e.g., New York), (iii) authorize platooning of highly automated vehicles (e.g., South Carolina), or (iv) merely create committees tasked with conducting studies related to driverless vehicles (e.g., Alabama). In other states, such as Arizona, executive orders have been issued by the state governor permitting the testing of highly automated vehicles (rather than by enacting new laws through the state legislature).⁵²

6.64. September 2016 was a turning point in terms of the state legislature as well: California transportation authorities made two major changes in their policy on autonomous vehicles. The first change, a new bill signed into law, gives the Contra Costa Transportation Authority permission to test a pilot project on public roads without having a driver behind the wheel. Prior to this, the state only allowed public road testing if a human driver was in the driver's seat and "capable of taking immediate manual control of the vehicle in the event of an autonomous technology failure or other emergency." The bill requires the autonomous vehicles to be insured for \$5 million, for the self-driving automobiles to not exceed 35 miles per hour on the road, and for testing data to be shared with the government and while placing geographic restrictions. Testing can only take place at two locations: at a former Concord Naval Weapons Station and current AV testing facility, and at the San Ramon Bishop Ranch office park. The second change, revised draft regulations released by California's department of motor vehicles, can potentially change how all self-driving vehicles are tested in the state by rolling out the privileges given to the aforementioned pilot program. If the law were pass (it

⁵² Backer McKenzie, Global Driverless Vehicle Survey 2018, 229-241, 229-230.

is still under legislative procedure) it will allow car manufacturers to test vehicles deemed safe by the federal government on public roads without licensed drivers. Instead of having a driver in the vehicle, the newly proposed regulations require that a test driver has two-way communication with a vehicle.⁵³

6.65. On 12 September 2017, the Secretary of Transportation released an updated policy that overrides the Federal Automated Vehicles Policy previously released in September 2016. The 2017 Guidance (*Automated Driving Systems 2.0: A Vision for Safety*) clarified that NHTSA is not contemplating a new regulatory regime specific to driverless vehicles. NHTSA will instead use its current regulatory powers, such as enforcing compliance with federal performance and design standards, in order to regulate autonomous vehicles. The 2017 Guidance also reaffirmed that safety assessment letters are purely voluntary, i.e., an entity does not need to submit a safety assessment letter to NHTSA prior to testing its driverless vehicle in the US.

6.66. Importantly, the 2017 Guidance may conflict with certain provisions of the *SELF DRIVE Act*, which reference the 2016 version of NHTSA Federal Automated Vehicles Policy. For instance, safety assessment letters are voluntary under the 2017 Guidance, but would become mandatory if the *SELF DRIVE Act* is signed into law in its current form. In addition, the 2017 Guidance strongly encourages States to refrain from enacting performance and design standards applicable to autonomous vehicles. Under the *SELF DRIVE Act*, such standards would be expressly pre-empted by federal law to the extent a conflict exists between the a federal and State standard.⁵⁴

6.67. On 6 September 2017, the House of Representatives passed the *SELF DRIVE Act*. The

⁵³"California Revises Draft Regulations for Autonomous Vehicles," available at: <https://www.omm.com/resources/alerts-and-publications/alerts/california-revises-draft-regulations-for-autonomous-vehicles/>; V. Ilková, A. Ilka, (2017) "Legal Aspects of Autonomous Vehicles – an Overview". Proceedings of the 2017 21st International Conference on Process Control (PC), Štrbské Pleso, Slovakia, June 6 – 9, pp. 428-433, 430.

⁵⁴ Backer McKenzie, Global Driverless Vehicle Survey 2018, 229-241, 240.

SELF DRIVE Act creates significant responsibilities for the United States Department of Transportation ("USDOT") with respect to regulation of autonomous vehicles, automated driving systems and components of automated driving systems. If enacted, the most significant feature to manufacturers will be the dramatic increase in exemptions that NHTSA may grant to entities for the purpose of testing autonomous vehicles. The USDOT will be required to create a publicly available electronic database of vehicles exempt from federally mandated design and performance standards.

6.68. Pursuant to the *SELF DRIVE Act*, the Secretary of Transportation will develop a safety assessment certification process that requires entities developing autonomous vehicles to address the safety of their respective driverless vehicles, including fail safe features. Prior to promulgation of this safety assessment certification process, entities will be required to submit safety assessment letters as contemplated by the 2016 version of the *Federal Automated Vehicles Policy*. The Secretary of Transportation must also develop a safety priority plan that will identify components of autonomous vehicles that may require performance standards, including human machine interfaces, sensors and actuators, and headlamps. Pursuant to the safety priority plan, NHTSA is responsible for identifying "procedure standards" related to software and cybersecurity in driverless vehicles.⁵⁵

6.69. The *SELF DRIVE Act* prohibits manufacturers from selling any highly automated vehicle unless the manufacturer has developed a privacy plan to that includes descriptions of certain practices regarding the collection, use, sharing, and storage of information about vehicle owners or occupants. The *SELF DRIVE Act* provides the Federal Trade Commission with enforcement authority. To promote uniformity, the *SELF DRIVE Act* federally pre-empts any state or local laws that conflict with federal laws related to motor vehicle safety standards, design, construction, and performance of driverless vehicles. The *SELF DRIVE Act* also

⁵⁵ Backer McKenzie, Global Driverless Vehicle Survey 2018, 229-241, 237-239.

requires that the Secretary of Transportation to create a methodology for describing the capabilities of autonomous vehicles or partially automated vehicles for the purpose of informing consumers. Manufacturers will be required to inform consumers of their respective autonomous vehicles' capabilities in accordance with the methodology.

6.70. On 28 September 2017, the Senate introduced the AV START Act, which also regulates certain aspects of highly automated vehicles and expressly pre-empts state laws that conflict with performance and design standards of autonomous vehicles set by the federal government. The AV START Act requires the Department of Transportation to issue a report that identifies conflicts with respect to existing Federal motor vehicle safety standards and the use and testing of highly automated vehicles and proposals to resolve such conflicts. The AV START Act requires each manufacturer introducing a highly automated vehicle or automated driving system into interstate commerce to provide a safety evaluation report to the Secretary of Transportation. The safety evaluation report shall include information concerning system safety, data recording, cybersecurity, human-machine interface, crashworthiness, capabilities and limitations, post-crash behaviour, the account of applicable traffic laws, and automation function performance. Such reports will be made publically available, but manufacturers may submit trade secret or confidential information separately from the report.

6.71. To engage the industry, the AV START Act requires the Secretary of Transportation to establish a Highly Automated Vehicles Technical Committee to provide a forum for stakeholders to discuss, prioritize and make technical recommendations for highly automated vehicles and automated driving system safety. The Committee may also establish various Working Groups with industry representatives. Significantly, the AV START Act requires manufacturers of highly automated vehicles and automated driving systems to create cybersecurity plans, which must meet the requirements of the AV START Act, and must be submitted to the Secretary of Transportation for inspection. To promote uniformity, the AV START Act also federally pre-empts any state or local laws that conflict with federal laws

related to motor vehicle safety standards, design, construction, and performance of driverless vehicles.

6.72. In relation to liability in tort from the use of autonomous vehicles, under Colorado law liability for a crash involving an autonomous vehicle is determined in accordance with applicable state, federal or common law. However, there is no uniformity across the states regarding liability in the event of a collision. Some states might provide that the vehicle owner is liable, other states might provide that the person who engaged the autonomous vehicle driving system is liable, while other states might provide that autonomous vehicle driving system itself is liable.⁵⁶

New Technologies

6.73. Autonomous vehicles hold the promise of saving tens of thousands of lives each year in the US., and many more worldwide, reducing traffic, saving energy, and providing mobility to those who cannot drive conventional cars. Nonetheless, autonomous vehicles will inevitably have some accidents. On balance, autonomous vehicles are likely to prevent many more accidents than they cause, but there will be at least some accidents involving autonomous vehicles that would not have occurred with conventional vehicles.

6.74. Because of accidents involving autonomous vehicles, some of which may be catastrophic, product liability litigation is inevitable, especially in cases where conventional vehicles would not have crashed. The threat of massive product liability litigation involving autonomous vehicles is widely perceived as one of the chief obstacles to their development and sales, if not the number one threat. Some believe that product liability suits are an existential threat to autonomous driving. Crippling suits could force manufacturers to exit the

⁵⁶ Backer McKenzie, Global Driverless Vehicle Survey 2018, 229-241, 236.

market and may deter some manufacturers from entering the market because of a belief that the sales are not worth the risk. If these dire predictions come to pass, the US. and other parts of the world experiencing a flood of lawsuits may lose the use of a technology that would save many times more lives than it would endanger. If, however, the industry finds effective ways to manage the risk of product liability, it can bring to market a lifesaving technology while maintaining practices to minimize accidents and resulting liability, as well as the profitability needed to offer autonomous vehicles in the market over time.⁵⁷

6.75. We do not yet know with certainty from practice what kinds of alleged defects will likely result in litigation. Nonetheless, deriving from the history of automotive litigation, from discussions with those in the industry, and from judgments about what is likely to come, all suggest that there will be many sources of potential defects that may give rise to product liability litigation. Autonomous vehicles will share some of these sources of defects with conventional vehicles, but some of them will be unique to autonomous vehicles. The most interesting and perhaps most concerning potential defects will be those in the software used for autonomous driving.

6.76. Defendants may assert a number of defenses against a product liability case. The most common types of defenses relate to the conduct of the plaintiff. In some cases, the defendant contends that the plaintiff's negligent conduct caused or contributed to an accident. The viability of a defense based on a plaintiff's own negligence depends on state law and the type of claim, but a defendant may also use it as evidence of a superseding cause of an accident. In addition, some accidents occur because a plaintiff misused or modified a product. Finally, a plaintiff may not be able to recover all damages if he or she failed in some way to mitigate the damages. Many of these defenses may have limited application to persons driving

⁵⁷ S.S. Wu, Product Liability Issues in the U.S. and Associated Risk Management, 553-569, 553-554, in M. Maurer et al. (Eds.), *Autonomous Driving*, Springer, 2016.

autonomous vehicles in autonomous mode. If the plaintiff was not in control of the vehicle at the time of the accident, the plaintiff could not have driven carelessly. Once autonomous vehicles enter the mass market, a seller cannot realistically contend that the plaintiff assumed the risk of driving a vehicle using new and untested technology. Nonetheless, it is likely over time that some people will modify their autonomous vehicles or try to abuse the sensors or control systems for fun. In these cases, if an accident occurs, the defendant may point to this conduct as a defense. The other key defense in autonomous vehicle litigation will likely be a “state of the art” defense to a design defect claim. The basis of this defense is that the manufacturer could not have produced a safer design at the time of sale because safer designs were not technologically feasible then. Such a defense is valid in some states while not in others.

6.77. Manufacturers should manage the risk of autonomous vehicle liability, which in its turn can enable them to make safer products that are less likely to cause litigation-triggering accidents; by planning ahead ; by consider the commitment they make to product safety using a proactive approach which would entail not just meeting minimum standards; by conducting careful risk analysis on all issues in the design of autonomous vehicles; by obtaining insurance coverage to manage product liability risk and hence shift the risk of product liability to insurance carriers; by working together on industry risk management initiatives; by deploying effective records and information management skills.⁵⁸

6.78. Lawsuits in which manufacturers appear callous, placing profits over safety, face the risk of huge liabilities. In sum, the threat of crippling product liability litigation in the US poses a profound concern for manufacturers of autonomous vehicles, but starting proactive engineering design strategies for safety risk management and legal strategies to anticipate future litigation now can place manufacturers in the best position to maximize product safety

⁵⁸ S.S. Wu, Product Liability Issues in the U.S. and Associated Risk Management, 553-569, 560-568, in M. Maurer et al. (Eds.), *Autonomous Driving*, Springer, 2016.

and minimize product liability in upcoming decades.

South Africa

6.79. There is no law or regulations related to autonomous vehicles. Autonomous vehicles will fall under the meaning of 'motor vehicle' under the NRTA, and the provisions applicable to motor vehicles under the NRTA will also apply to autonomous vehicles.

6.80. Motor vehicles are primarily regulated by national legislation that is binding on all nine provinces of South Africa, the salient of which are:

- The National Road Traffic Act, No. 93 of 1996 ("NRTA");
- The Road Accident Fund Act, No. 56 of 1996 ("RAF Act"); and
- The National Regulator for Compulsory Specifications Act, No. 5 of 2008 ("NRCSA").

6.81. The NRTA regulates, inter alia, (i) the registration and licencing of motor vehicles; (ii) the fitness of drivers and licensing of human beings to operate (drive) motor vehicles; (iii) the fitness of vehicles; road safety; transportation of dangerous goods; (iv) road traffic signs and general speed limits; (v) accidents and reports; and (vi) reckless and negligent driving.

6.86. The NRCSA provides the Compulsory Specifications to which every motor vehicle that is to be registered and licenced in terms of the NRTA has to comply with. The RAF Act provides for compensation to a third party for damage (limited to bodily injuries) or loss caused by or arising from the driving of a motor vehicle.

6.82. South African law does not provide for any general liability specifically linked to driverless cars. The following is, however, of significance in respect to the issue of liability for when motor vehicles are involved in collisions.

6.83. The RAF Act provides for a state-mandated insurance fund for the compensation for

third party damages, which are limited to bodily injuries, or loss caused by or arising from the driving of a motor vehicle. The regime put in place by the RAF Act is premised on income derived from a fuel levy that is to be applied to the Road Accident Fund ("RAF"), which primarily goes to the compensation of road accident victims. This is achieved by the RAF finding the wrongdoer in the motor vehicle accident, i.e., one who would have ordinarily been civilly liable under South African common law. The definition of "motor vehicle" in the RAF Act appears to be broad enough to encompass a driverless vehicle. The relevant wrongdoer would be either the person who activated the driverless system or the one who failed to take control of the vehicle when he or she ought to have done so.

6.84. With regard to damage caused by or arising from the driving of a motor vehicle that is *not* related to bodily injury (that is patrimonial loss related to, for example, the motor vehicle itself), the general principles of the law of delict (i.e., tort law) will be applied as between the "driver" of the autonomous vehicle and the driver of the other motor vehicle with outcomes being heavily dependent on the facts and circumstances of the collision.⁵⁹

Critical Comparative Assessment

6.85. Under the Greek legal system, there are no specific legal provisions regulating autonomous vehicles. Likewise, liability in tort from the use of autonomous vehicles is regulated via the provisions of other general laws. Insurance of autonomous vehicles is also not specifically regulated to date and the provisions of the Law 489/76 on Compulsory Motor Liability Insurance, as amended, applies. The definition of the term "vehicle" is broad and allows the inclusion of its application to autonomous vehicles, however it remains to be interpreted by the courts.

⁵⁹ Backer McKenzie, Global Driverless Vehicle Survey 2018, 169-176, 171-172.

6.86. The use of autonomous vehicles could potentially lead to a substantial reduction in motor insurance claims and hence lower premiums. The main pieces of legislation relevant to cyber risk under Greek law are EU Directives / Regulations on data protection, security of network and information systems. Greece is preparing a cyber security strategy in compliance with the above EU legislation. As property policies in Greek insurance market exclude losses from cyber risks, such coverage is mainly offered as a stand-alone insurance product. New technologies are affecting the way in which insurance policies are placed and the means of providing information to policyholders are changing already.

6.87. The 2017 amendment of the RTA included rules for automated driving. The liability of the driver dictates the compensation of any third party for damages and financial losses that were negligently caused by the driver during the use of the vehicle on public roads. Liability is also strict on the keeper as no negligent action is required. Hence RTA introduces fault-based liability of the driver - with a presumption of negligence - and strict liability of the keeper. The amendments of the RTA establish obligations of the driver when using driver assistance systems in a highly or fully automatized vehicle. It does not impose any special obligations on the keeper of the vehicle when he allows third parties to use the highly or fully automatized vehicle. Damages relating to cyber risks are already covered by standard indemnity and property insurance policies

6.88. In Austria a new automated driving ordinance stipulates the prerequisites for the testing of autonomous vehicles. "Big Data" is used in Austria to improve the claim settlement and optimize the classification of the car and its potential risk. Cyber risks are generally excluded from coverage.

6.89. In Italy, autonomous vehicles are regulated via the laws regulated ordinary vehicles. There are none specific laws or law proposals in relation to liability in tort for injuries inflicted by the use of autonomous vehicles and the general rules of the Italian Civil Code the circulation

of vehicles apply. Also no specific laws exist on cyber risks. New technologies are introduced via the use of roboadvisors and the use of social media in brokerage and the promotion and monitoring of eco/green cars and drivers.

6.90. In the USA there is federal and state regulation for autonomous vehicles. The SELF DRIVE Act and AV START Act regulate autonomous vehicles and numerous states have, to date, have enacted laws related to autonomous vehicles. As per the SELF DRIVE Act, the Secretary of Transportation will develop a safety assessment certification process for autonomous vehicles. The Act imposes the obligation to have a plan on data security and protection.

6.91. In relation to liability in tort from the use of autonomous vehicles, there is no uniformity across the states regarding liability in the event of a collision.

6.92. In South Africa, there is no special law or regulation related to autonomous vehicles and the law provides compensation to a third party for damage (limited to bodily injuries) or loss caused by or arising from the driving of a motor vehicle.

6.93. From the jurisdictions examined, we notice a disparity in the enactment or not of laws for the regulation of autonomous vehicles. Other countries have enacted some special laws on autonomous vehicles regulation and others not. When no special law exists, general motor and liability in tort legislation applies. Cyber risks are excluded and provided as separate insurance cover. However, in Germany, damages relating to cyber risks are already covered by indemnity and property policies. The jurisdictions examined also contain laws which provides compensation to a third party for damage or loss by the driving of an autonomous vehicle.

Conclusions

6.94. The harmonization, at international level, of laws relating to the regulation of autonomous vehicles should be of high priority and significance. Our discussion has revealed similar or different patterns in the way various legal systems have regulated, in relation to autonomous vehicles, via the enactment of legislation or plan to do so. As our discussion has shown, it appears as essential to have homogenous law through legal harmonization at an international level.

6.95. Until this happens, it is also essential to allow the development of mechanisms for autonomous vehicles to be able to adapt / switch software packages when the automated vehicle crosses national borders; because, as long as the law applicable to the driver and driving are different from country to country (and it is impossible to predict how long this will be the case), the on board computer must be programmed so that it is able upon crossing a border to apply the relevant rules of the country where the car is located at that moment in time. An example of this would be the accident prevention algorithm, as per which the software containing the driving rules would need to be exchanged or happen automatically at the point where the border was crossed. The legal issues associated with this such as e.g. simple civil liability issues to questions of international law, still have to be clearly identified, let alone be resolved. Hence, the need to examine comparative legal regimes and legislations for autonomous vehicles and seek the promotion of harmonization of laws at international level in the years to come.⁶⁰

⁶⁰ E. Hilgendorf, Automated Driving and The Law, in E. Hilgendorf, U.Siedel (Eds.), Robotics, Autonomics and the Law, Robotik und Recht, Legal Issues Arising From The AUTONOMICS for Industry 4.0 Technology Programme of the German Federal Ministry for Economic Affairs and Energy, Vol. 14, Nomos, 2017, 171-193, 191-193.