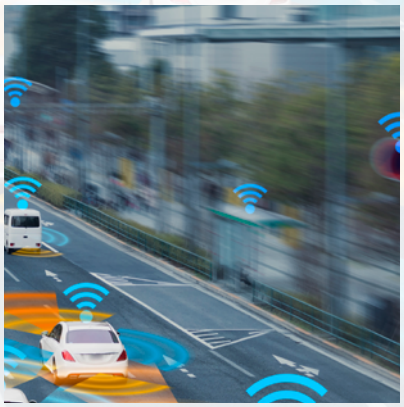
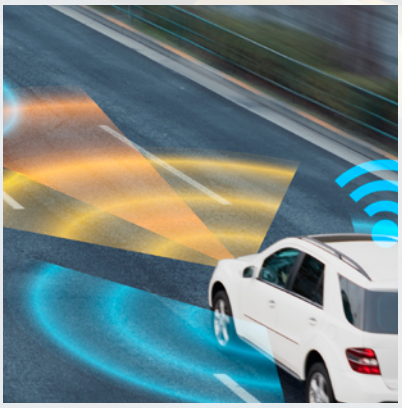
ISSUES PAPER

PREPARING QUÉBEC FOR THE ARRIVAL OF CONNECTED AND AUTOMATED VEHICLES





AUTORITÉ
DES MARCHÉS
FINANCIERS

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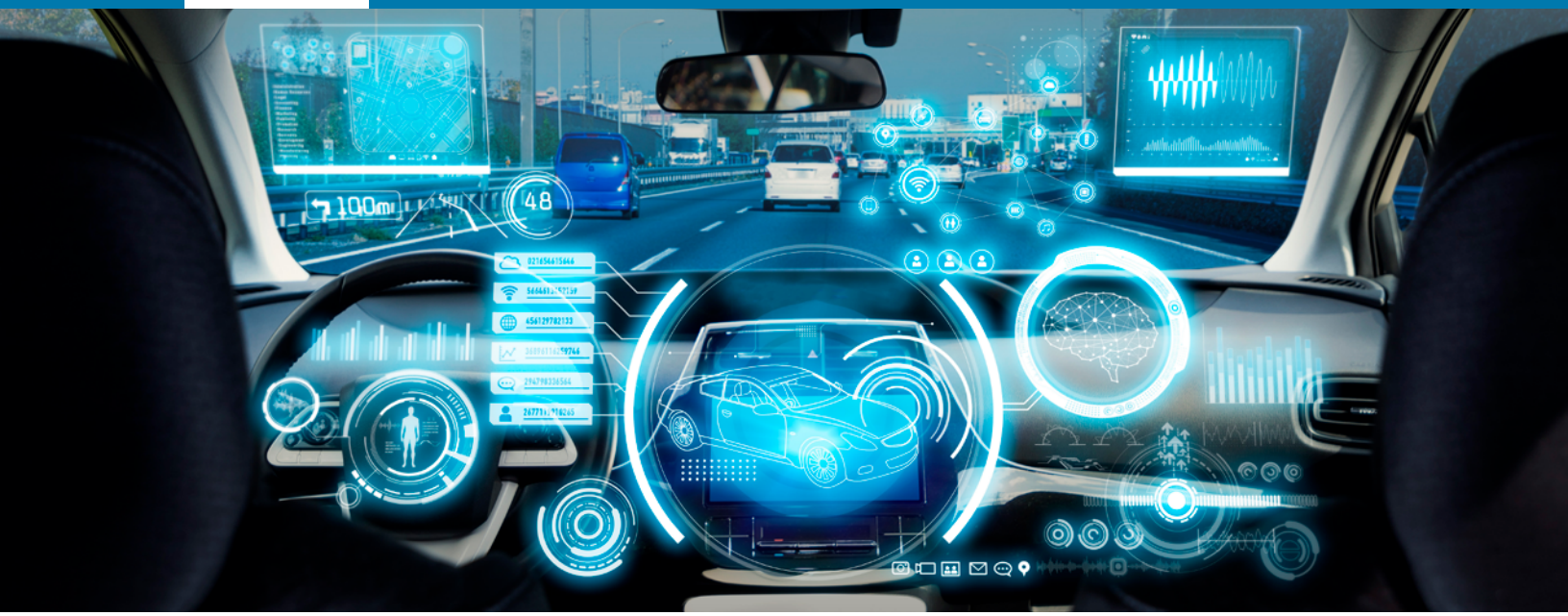

INTRODUCTION

This issues paper, intended for the various stakeholders in the development of the connected and automated vehicle ("CAV") market in Québec, has two objectives:

- To generate discussion about the risk assessment and compensation framework and approaches that should accompany the emergence of CAVs in the insurance sector; and
- To explore ideas and potential solutions for rethinking the future of mobility and smoothing the way for the development, testing and operation of CAVs in Québec.

The issues discussed include:

- Legal framework governing the automobile insurance regime, especially the civil liability rules that should be applied in Québec;
- Modernization of current mechanisms, such as the application of the Direct Compensation Agreement (DCA) and the future scope of the *Fichier central des sinistres automobiles* (automobile claims database or the "FCSA"); and
- Information privacy and cybersecurity issues related to the development and use of CAVs.

TERMINOLOGY

The concepts of semi autonomous, autonomous, driverless and self-driving vehicle are encompassed by the term "connected and automated vehicle" in this issues paper. Transport Canada[1] defines an automated vehicle as a vehicle that:

- Uses a combination of sensors, controllers and on board computers, along with sophisticated software; and
- Allows the vehicle to control at least some driving features, instead of a human driver (for example, steering, braking and acceleration, and checking and monitoring the driving environment).

The levels of driving automation used in this issues paper are based on the world's most widely used standard, SAE international standard J3016 (SAE J3016™).[2] For SAE levels 0, 1, 2 and 3, the person in the driver's seat is in control of the vehicle and must be prepared to intervene in the driving environment at any time, whereas, for levels 4 and 5, the person does not have to be in control of the vehicle or attentive to the driving environment.

Depending on its installed features, a "connected vehicle" may, for example, be able to communicate with:

- Its occupants through their mobile devices;
- With other vehicles and road users; and
- With the surrounding transportation infrastructure, such as roadways and traffic lights.

WHY IS THE AMF RELEASING THIS ISSUES PAPER?

The development of CAVs could significantly impact insurers and the overall operation of the automobile insurance system. Current legislation will then have to be adapted to this new technology, which is challenging current notions about what constitutes a driver and reopening the debate regarding the way accident liability is determined.

Regulating the insurance industry

Compensation for bodily injury caused by the use of a motor vehicle in Québec is assumed by the government under a no fault insurance system. Compensation for all other types of damage is left to private insurers, which supply the public with the compulsory civil liability coverage provided for under the *Automobile Insurance Act*[3] (AIA), along with other optional protections for damage to the vehicle.

Private insurers, which are regulated and supervised by the *Autorité des marchés financiers* (the "AMF" or the "Authority"), cover the risks under a standard automobile insurance policy. Pursuant to section 71 of the *Insurers Act*,[4] the form and terms of insurance policies relating to the ownership or use of motor vehicles must be approved by the Authority.

1 Transports Canada, "Automated and connected vehicles," https://tc.canada.ca/en/road-transportation/innovative-technologies/connected-automated-vehicles.

2 See Appendix A for more details.

3 CQLR, c. A-25.

4 CQLR, c. A-32.1.

The change in paradigm currently underway could see liability for automobile accidents shift to the auto manufacturer or software vendor, among others, requiring modifications to automobile insurance policies.

Furthermore, no matter how far along pilot projects are or the degree to which emerging mobility solutions are adopted, legislation and automobile insurance policies must be amended to reflect new technologies in order to meet the challenges associated with self-driving traffic, user safety and CAV cyber security.

Because of its role as regulator responsible for approving the form and terms of automobile insurance policies and its mission to adequately protect consumers of financial products and services, the AMF is a key player in the CAV ecosystem in Québec and intends to act upstream to:

- Overcome certain barriers in insurance to the introduction of CAVs; and
- Continue to proactively meet the needs of financial consumers.

Adapting to technological innovations

A few years ago, the AMF established a Fintech Working Group to monitor fintech innovations, participate in regulatory work to maintain a framework adapted to the reality of the markets, and help innovative firms comply with the laws the AMF administers.

Big data, smart objects and artificial intelligence—technologies on which the development of CAVs rely—are being studied within the Fintech Working Group.

From this perspective, the AMF has to clearly understand how these new technologies will change the automobile insurance market, so that it can then modify the automobile insurance policies accordingly.

Encouraging dialogue and collaboration

Owing to value chain developments in the transportation industry and the complexity of the issues involved, the mobility ecosystem of the future requires a high degree of cooperation. To further inform these discussions, it is the AMF's opinion that the time is ripe to initiate a conversation about CAVs with all stakeholders in order to reflect on a number of matters of interest, some of which are raised in this paper, and to gather views from across the industry on certain key themes.

The discussions generated by this issues paper will focus on identifying, as part of a multidisciplinary, concerted approach, the solutions that will need to be put in place to address the challenges and issues that will be faced by present and future decision makers. Under the powers granted to it under the law, the AMF wants to be part of the solution by publicizing its observations and recommendations regarding the future development of the Québec automobile insurance market upon completion of the process.

PUBLICATIONS

CAV-related reforms are underway in a number of countries.[5] In Québec, a number of stakeholders in the CAV ecosystem have already made recommendations, taken positions or defined strategies for rethinking the mobility of tomorrow.

With questions to be asked about the current road accident civil liability rules, guidelines to be established for the sharing of certain types of data, information privacy concerns to be addressed and pilot project testing to be promoted, the insurance industry is well-placed to propose interesting solutions.

Insurance Bureau of Canada ("IBC")

In its policy paper,[6] the IBC anticipates that the rollout of CAVs will affect all automobile insurance policies and supporting legislation in four ways:

- There will be fewer collisions, but the technology in CAVs will make repair and replacement more expensive;
- CAV use will have new risks, such as software and network failure, programming choices, hacking and cybercrime, and failure to install or update software;
- Vehicles will record significant amounts of data, which will require measures to protect the confidentiality and security of data associated with personal information and privacy; and
- Liability for collisions will gradually shift from the driver to the vehicle manufacturers and technology providers.

Chamber of Commerce of Metropolitan Montreal and Propulsion Québec

On May 9, 2019, the Chamber of Commerce of Metropolitan Montreal and Propulsion Québec published a joint study entitled *Positioning Quebec and Montréal as leaders in electric and smart transportation* (in French only).[7] This study diagnoses Québec's regulatory framework, identifies international best practices, outlines factors in the success of these practices and makes recommendations grouped under three strategic themes:

- Increase the offering of electric and smart mobility products and services developed in Québec;
- Strengthen demand for electric and smart transportation; and
- Ensure the growth of the Québec transportation industry by optimizing and coordinating government strategies.

Among other things, the study stresses the importance of implementing a legislative and regulatory framework in anticipation of emerging CAVs.

5 A non-exhaustive list of these reforms provided in Appendix B.

6 Source: Insurance Bureau of Canada, *Auto Insurance for Automated Vehicles: Preparing for the Future of Mobility*, May 2018.

7 Chamber of Commerce of Metropolitan Montreal and Propulsion Québec, *Positioning Quebec and Montréal as leaders in electric and smart transportation*, May 2019.

Sustainable Mobility Policy – 2030 (Québec)

The Government of Québec includes updating the legislative and regulatory framework for road transportation as one of the challenges to be met as part of the *Action Plan 2018-2023* for its *Sustainable Mobility Policy – 2030*.

The Canadian Council of Insurance Regulators (CCIR)

Lastly, in early 2021, the CCIR released an issues paper for consultation entitled *Connected and automated vehicles and their impact on the automobile insurance market*. This issues paper was intended to, among other things, outline a common understanding of the legal and regulatory actions to be taken for the implementation of CAVs. As a member of the CCIR, the AMF was actively involved in drafting this document.

SITUATION OF CAVS IN QUÉBEC

In Québec, the AIA does not include any provisions pertaining to the determination of liability in an accident involving a CAV. However, the automobile insurance contracts contain certain provisions governing how automobile liability insurance policies are to be applied with respect to the owner and the driver, in accordance with the AIA.

In April 2018, the *Highway Safety Code*[8] ("HSC") was amended to include the following definition:

> ""autonomous vehicle" means a road vehicle equipped with an automated driving system that can operate a vehicle at driving automation level 3, 4 or 5 of the SAE International's Standard J3016."

Moreover, a new section was added to the HSC to prohibit autonomous vehicles from being put into operation on Québec's public roads. However, this new section does not apply to vehicles at driving automation level 3 whose sale is allowed in Canada.

Amendments were also made to allow for the implementation of CAV pilot projects to study, test or innovate in respect of the operation of CAVs. As regards such pilot projects, the government may provide for an exemption from the insurance contribution associated with the authorization to operate a vehicle and set the minimum required amount of liability insurance guaranteeing compensation for property damage caused by a CAV.

In August 2018, the Autonomous Bus and Minibus Pilot Project was established.

8 CQLR, c. C-24.2.

1 PUBLIC INSURANCE PLAN

The AIA differentiates between property damage and bodily injury caused by an accident involving a motor vehicle when it comes to their treatment. It also lays down the framework the various parties involved must work within.

Compensation for bodily injury caused by the use of an automobile is assumed by the government through the *Société de l'assurance automobile du Québec* (SAAQ).

One of the cornerstones of Québec's automobile insurance system is no fault coverage. This victim compensation principle does not take responsibility into account. It is at the core of the right to be compensated in the event of injury or death caused by an accident regardless of the circumstances of the accident.

The arrival of CAVs has made issues related to the apportionment of accident liability a key are of focus.

Discussion points

Pilot project

As specified in the HSC, the government may, in respect of a pilot project, require the manufacturer, distributor or promoter to reimburse the SAAQ for compensation it will be required to pay in the event of bodily injury caused by an automobile accident.

1. Should the manufacturer, distributor or promoter be able to purchase adequate insurance to cover this risk?

2. If so, what kind of insurance product should be used to pay the SAAQ's requests for reimbursement?

Arbitration

Considering that some auto manufacturers have already raised the possibility of assuming liability for accidents involving their CAVs:

3. Could the SAAQ play an intermediary role between the accident victim and the auto manufacturer?

No fault insurance regime

The IBC declared its support for the approach used in the United Kingdom[9] by recommending the use of a single insurance policy covering driver negligence, automated technology malfunctions and cyber breaches.[10]

4. Could a similar solution be considered for Québec with respect to the no fault automobile insurance regime?

5. Since CAVs and conventional cars will be sharing the road for some years to come, should the no fault system apply to all vehicles?

9 A non comprehensive list of the various frameworks is set out in Appendix B.

10 Source: Insurance Bureau of Canada, *Auto Insurance for Automated Vehicles: Preparing for the Future of Mobility*, May 2018.

2 PRIVATE INSURANCE REGIME

Under the AIA, the owner of a motor vehicle is liable for the property damage caused by the vehicle, subject to certain specific exceptions. Automobile owners must therefore have a liability insurance policy guaranteeing compensation for property damage caused by their vehicles.

In the vast majority of cases, driver error is currently the main cause of traffic collisions. As automobiles become increasingly more automated, many are expecting[11] the frequency of accidents caused by driver error to fall significantly.

In the coming years, one of the challenges the insurance industry may face will be how to determine collision liability, particularly while the following types of vehicles are sharing the road:

- Traditional vehicles;
- Semi autonomous vehicles; and
- Autonomous vehicles.

The issue of accountability is very complex. In their analyses, particularly in claims adjustment investigations, insurers may have to consider factors such as potential computer, operating or algorithm programming errors and system failure. This line of inquiry is already being followed today, as many vehicles are equipped with connected technologies and advanced driver assistance systems.[12]

In addition, depending on the level of vehicle automation, some or all of the vehicle owner's liability could shift to a third party, resulting in a potential move away from individual policies and toward policies and coverages for auto manufacturers, software designers or other technology providers.

Moreover, the DCA, established in accordance with the AIA, applies to collisions in Québec between two or more vehicles where the vehicle owners are identified. The main purpose of the DCA is to simplify the claim settlement process and control costs by avoiding litigation. For example, it includes accident scenarios to help determine the apportionment of liability between the respective owners of the vehicles involved in the collision.

Discussion points

Liability regime

Generally, automobile insurance policies are based on the insured person's civil liability resulting from his or her owning, driving or using the vehicle.

6. Can liability be shifted without too much difficulty from the individual to the CAV manufacturers under the liability regime set out in Québec legislation?

7. What changes need to be made to insurance policies to adapt the concept of "using" a vehicle?

8. Is there a need to adapt the concept of "driver"?

9. There are questions about how CAVs will interact with traditional vehicles. How would liability for bodily injury and property damage be apportioned in an accident involving both driver error and a system failure?

10. Should auto manufacturers and software providers be required to disclose data about each accident involving one of their vehicles (e.g., to insurers, the SAAQ and the police)?

11 KPMG LLP, *Automobile insurance in the era of autonomous vehicles*. In addition, according to Soumaya Cherkaoui, a professor at Université de Sherbrooke, a proportion of just 10%–20% of CAVs would be sufficient to have a significant impact on safety.

12 For instance, obstacle detection, lane change assist, road sign recognition, reversing assistance or adaptive speed control.

Fichier central des sinistres automobiles (automobile claims database)

The FCSA allows insurers to access information on all automobile losses involving Québec drivers for which an insurance claim has been filed. The FCSA therefore contains people's claims histories. The information disclosed is mainly used to set automobile insurance premiums.

11. What methods should be used to assess the premium for a CAV?

12. Should information specific to CAV loss experience be added to the data already collected by the FCSA?

13. In the case of CAVs, is driver information still relevant for the FCSA?

14. Does the FCSA as it currently exists allow insurers to determine fairer rates based on the actual degree to which a person was liable and the driving mode the vehicle involved was in? If not, what changes should be made to the FCSA?

Direct Compensation Agreement

The DCA stipulates that the insured is indemnified by his own insurer to the extent of the liability of the operator of the other vehicle. However, in the DCA, subrogation is allowed against a third person at fault, with automobile insurers waiving subrogation only against each other. Auto manufacturers could choose to retain ownership of the CAVs they produce and offer them for use only. In such a situation, the DCA may not apply because it excludes collisions involving only vehicles belonging to the same owner.

15. How should the DCA apply when the vehicle of the third party involved in the collision is used in semi automated or automated mode?

16. Should changes be made to the DCA to provide for this type of situation?

17. To what extent would allowing subrogation against manufacturers, software providers, programmers and so forth run counter to the raison d'être of the DCA and increase the cost of claims and the number of court actions?

18. Where auto manufacturers retain ownership of their vehicles, could they claim compensation from users for damage to the vehicles? If so, what would the consequences be for the users of such vehicles?

19. In a context where CAVs will become increasingly commonplace, is the DCA still relevant and why?

3 NEW BUSINESS MODELS

The emergence of CAVs is situated within the broader context of the search for personalized mobility solutions, in which carshare vehicles,[13] developed in opposition to the private vehicle ownership and use model, are growing in popularity.

A number of studies show that the arrival of CAVs would result in a shift in vehicle ownership. For example, companies might maintain fleets of vehicles that would be made available to individuals on demand.

Some auto manufacturers might consider insuring their vehicles themselves or partnering with well established tech firms to offer insurance. This would lead many industries, including the automobile insurance sector, to change their business models.

As a result, the development of CAVs requires a better understanding of future changes and the legal and ethical implications of having roads that are shared with algorithm-controlled vehicles.

Discussion points

Developing standards

Talking about a vehicle's autonomy means talking about its decision-making ability. In view of this:

20. Will universal standards need to be adopted to smooth CAV development? Which authority would be empowered to enact such standards? On what bases?

New models, new plan

In a not-too-distant future, conventional insureds would gradually move from being owners or drivers who "control" vehicles to being vehicle passengers, which means a legal presumption of liability for any property damage caused during an accident would potentially no longer apply to them.

21. Should a legal presumption of liability apply to manufacturers or software providers and, if so, should manufacturers and software providers be able to contest the liability attributed to them?

22. In such a context, in what order should the possible insurance policies at play when there is a loss respond (vehicle owner, vehicle driver, auto manufacturer, software providers, etc.)? Should such an order be set out in regulations and in the automobile insurance policies?

13 Car sharing is a system of vehicles used in succession for a limited amount of time by multiple users in consideration of payment (subscription, package). There may be one or more owners who share use of the vehicle, and the owner can be a company. There are three types of car sharing arrangements:

- car sharing between individuals who are friends, neighbours or family members;
- car sharing services that exist mainly in the downtown core of large urban centres (self serve car fleets); and
- car rental between individuals through digital platforms.

Paradigm shift

23. How would insurers assess risk in the specific situations where little in the way of decision-making is left to chance and the outcome is preprogrammed? Is the role of the insurer going to gradually become one of simply damage appraiser?

24. For "traditional" insurers, what would be the impact of auto manufacturers or web titans like Google, Apple, Facebook and Amazon (GAFA) entering the insurance market?

4 CYBERSECURITY AND PROTECTION OF PERSONAL INFORMATION

The arrival of CAVs raises a number of cybersecurity, personal information protection, privacy and data confidentiality concerns.

In a report entitled *Driving Change: Technology and the future of the automated vehicle*, the Standing Senate Committee on Transport and Communications[14] recommends that the Government of Canada table legislation to empower the Office of the Privacy Commissioner to proactively investigate and enforce the automotive industry's compliance with the (federal) *Personal Information Protection and Electronic Documents Act*.[15]

Since CAVs depend essentially on connected devices, their exposure to cyberattacks is an additional risk factor to consider.

Insurance needs could therefore expand to include manufacturer liability, liability for the acts of things, cybersecurity and personal information protection.

Discussion points

Personal information protection[16]

With respect to the protection of personal information, consumers are exposed to greater risk as a result of the presence of connected objects like CAVs.

25. Who will be tasked with "managing" personal data and information? Would such management depend on the use and purpose of the information that is collected and analyzed? The SAAQ for CAV registration and victim compensation? Insurance companies for setting premiums and assigning fault in the event of an accident? The manufacturer and/or dealer for software updates and vehicle servicing?

26. In terms of governance and supervision, what authority in Québec should be intervene with respect to the protection of CAV-related personal information and what means should be put into place?

27. The IBC has recommended that a data sharing agreement be established between insurers and auto manufacturers to facilitate determination of the cause of an accident. Is this option possible and feasible?

If so, what rules and limitations should imposed on such sharing?

If not, are other solutions possible and why?

14 Source: Standing Senate Committee on Transport and Communications, *Driving Change: Technology and the future of the automated vehicle*, January 2018.

15 S.C. 2000, c. 5.

16 In Québec, two statutes govern the protection of personal information: the *Act respecting Access to documents held by public bodies and the Protection of personal information*, CQLR, c A-2.1, which applies to the public sector, and the *Act respecting the protection of personal information in the private sector*, CQLR, c. P-39.1, which applies to the private sector.

28. How will all the relevant legal obligations pertaining to data security, consent and liability be conveyed throughout the data sharing process?[17]

29. Still within the context of a data sharing agreement, how do you see the concept of data ownership and should there be a legal framework for it?

Cybersecurity

In the past, auto manufacturers generally supported the international regulation and standardization of certain parts, ensuring industry-wide safety standards (e.g. seat belts, airbags and headrests) and thereby reducing the risk of there being a race to the bottom in terms of safety.

30. Should the cybersecurity standards applicable to CAVs and in the automotive industry be different from those in other industries, and if so, how?

31. How should cybersecurity standards be set in the automotive industry and who should set them?

32. When there is a cyberattack on a vehicle's critical features that potentially endangers the life of a passenger, whould the SAAQ be responsible for compensating the victims of the road accident? To whom should fault be assigned in the case of a cyber breach (e.g. the auto manufacturer, the technology provider, the owner of the vehicle fleet, the infrastructure owners)?

33. Should new specific insurance products be developed for cybersecurity and the protection of personal information?

17 Under section 13 of *Act respecting the protection of personal information in the private sector*, personal information may not be communicated from one private entity to another unless the person concerned consents thereto. In addition, under section 14 of the same Act, consent must be manifest, free and enlightened and must be given for specific purposes for the length of time needed to achieve the purposes for which it was requested.

APPENDIX A

SAE International has developed levels of driving automation, ranging from driver assistance to full automation.

	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
	No Automation: the driver is in complete control of the vehicle at all times.	**Driver Assistance:** the vehicles can assist the driver or take control of either the vehicles speed, through cruise control, or its lane position, through lane guidance.	**Occasional Self-driving:** the vehicle can take control of both the vehicles speed and lane position in some situations, for example on limited access freeways.	**Limited Self-driving:** the vehicles is in full control in some situations, monitors the road and traffic, and will inform the driver when he or she must take control.	**Full Self-driving Under Certain Conditions:** the vehicle is on full control for the entire trip in these conditions, such as urban ridesharing.	**Full Self-driving Under All Conditions:** the vehicle can operate without a human driver or occupants.
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged - even if your feet are off the pedals and you are not steering.			You **are not** driving when these automated driving features are engaged - even if you are seated in "the driver's seat".		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety.			When the feature requests, you must drive.	These automated driving features will not require you to take over driving.	
	These are driver support features			**These are automated driving features**		
What does these features do?	Provide warnings and momentary assistance driver.	Provide steering OR brake/ acceleration support to driver.	Provide steering AND brake/ acceleration support to driver.	Can drive the vehicle under limited conditions and will not operate unless all required conditions are met.		Can drive the vehicle under all conditions.
Examples	Automatic Emergency Breaking, Blind Spot Warning, Lane Departure Warning	Lane Centering OR Adaptive Cruise Control	Lane Centering AND Adaptive Cruise Control	Traffic Jam Chauffeur	Local Driver-less Taxi (Pedals steering wheel may not be installed)	Same as 4 but features can drive everywhere in all conditions

APPENDIX B

A non comprehensive list[18] of the CAV frameworks and reforms proposed in Europe

A number of countries around the world are implementing or amending their legislation to encourage the development of CAVs. However, some countries are still reluctant to allow the use of such vehicles on public roads, deeming these technologies to be immature. Certain countries such as the United Kingdom, Germany, South Korea, Singapore and China are more advanced in their CAV regulatory development efforts.

In April 2016, the transport ministers of the 28 Member States of the European Union[19] ("EU") signed the Amsterdam Declaration on CAVs, laying down agreements on the steps necessary for the development of connected, autonomous driving technology in the EU. With this declaration, Member States, the European Commission and the private sector have agreed on common objectives and actions to facilitate the introduction of connected, autonomous driving on European roads. Accordingly, harmonized legislation and policies will facilitate CAV cross border mobility.

On September 22, 2020, the Parliamentary Assembly of the Council of Europe ("CoE") adopted a resolution on the legal aspects of "autonomous" vehicles, which stems from the work of the Committee on Legal Affairs and Human Rights.[20]

In this resolution, the CoE highlights the growing development of automated vehicles on the brink of a new era of fully autonomous vehicles and addresses some legal issues, including:

- Civil liability, criminal liability and product liability;
- The obligations of manufacturers and insurers;
- The future regulation of road transportation; and
- Ethical and privacy concerns.

Germany

The German government, through its Federal Ministry of Transport and Digital Infrastructure, is committed to creating an optimal regulatory framework for the implementation of connected and automated driving systems. It established the "Automated Driving" Round Table to enable a close exchange of ideas and experience among stakeholders from industry, academia and public administration with the objective of building a societal consensus in all relevant aspects relevant of CAV driving.

18 This section was drafted using information from a host of sources. While we have taken the necessary steps to ensure the accuracy of this information, developments in this area are fast paced and manifold, and there can be no assurance that the information presented will be accurate and complete at the time of reading this document.

19 The EU Member States are as follows: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom (at the time of signing).

20 Source: CoE Resolution 2356 (2020) and the Committee on Legal Affairs and Human Rights.

Based on the recommendations of this round table, the German government published the *Strategy for Automated and Connected Driving*, the implementation of which triggered a series of work in various areas, including:

- The deployment of a high performance digital network infrastructure, specifically designed to allow real time car to car and car to infrastructure connections;
- The development of a legal framework with the basic principle that the use of a CAV does not constitute a breach of the driver's duty to exercise due diligence; and
- The digitization of mobility and the corresponding increase in data volume are creating new requirements for cybersecurity and data protection. Clear and internationally applicable cybersecurity standards and data protection requirements are being developed.

Other initiatives resulting from this round table include the creation of a working group to establish a commission on the ethics that will need to be implemented for autonomous vehicles at automation levels 4 and 5. Germany is one of the few countries in the world that has led work on the ethics of CAV use.

In June 2017, an act amending the German *Road Traffic Act* came into force. Automated driving systems have been allowed, but the driver is required to remain attentive and vigilant to react to malfunctions or other situations that cannot be handled by the automated driving function. Level 5 vehicles are not allowed on the roads.

Liability is currently largely governed by the general liability rules of the *Highway Code*. No specific rules for CAVs are in place. However, in the event of an accident and provided the driver (who is still a driver within the meaning of the law even if the automated driving function takes over) has fulfilled their obligations, the driver cannot be held liable.

The vehicle owner is subject to strict liability according to existing general rules, subject to sharing liability with the manufacturer and system providers. The 2017 act amending the *Road Traffic Act* also doubled the maximum strict liability for fully automated driving functions. Civil and criminal liability for negligence applies according to the general regulations.

The manufacturer's liability is subject to strict liability for product defects resulting in death, personal injury or property damage under the existing general rules. CAV system providers may be subject to civil and criminal liability for negligence for damage caused under the existing general rules.

France

The French government has published its public action strategy for the development of autonomous vehicles. The strategy includes measures for road testing, autonomous vehicle technologies and components, road infrastructure, liability and insurance constraints, driver education and cybersecurity. France seeks to have a favourable legal framework in place to offer supervised autonomous public transport services and authorize the driving of level 3 and 4 autonomous vehicles by 2022.

In terms of civil liability, French legislation does not set out specific provisions regarding accidents involving CAVs. As a result, the general legislation applicable to traditional vehicles applies to CAVs.[21] Similarly, the general rules applicable to product liability or vehicle insurance obligations may apply to CAVs.

French law has a no fault liability system allowing for certain and timely compensation of traffic accident victims, covering both bodily injury and property damage. Vehicle owners are each required to have liability insurance to cover damages for any injuries caused by them or anyone using the vehicle. After compensation, a case by case examination is carried out to determine the division of liability between the persons involved in the accident, potentially including third parties (manufacturers, equipment suppliers, software suppliers, other vehicles, infrastructure, etc.).

As regards criminal liability, in April 2021, the French legislator clarified the legal scheme that will apply in the event of an accident or offence involving a CAV.[22] Drivers will not be held criminally liable for offences resulting from any manoeuvre of a vehicle whose driving functions are delegated to an automated driving system, where this system is in dynamic control of the vehicle at the time of the offence. The auto manufacturer or its agent or mandatary is now criminally liable for unintentional injury to life or limb if a fault is established during the periods when the automated driving system exercises dynamic control of the vehicle in accordance with its operating conditions.[23]

The French *Highway Code* also stipulates that drivers are to remain in a constant state of readiness and position to respond to a take over request from the automated driving system.[24] If they fail to do so, they will be held liable.[25]

France has also set up a data recording system. This will allow the events leading up to an accident to be identified and each party's responsibility to be determined. This "black box" will indicate whether the accident was due to a potential fault in the automated system or to driver error. Investigative authorities, including the police, will be authorized to access those data. Manufacturers will be unable to invoke industrial secrecy or intellectual property to refuse to supply them.[26] Data processing and access will differ depending on the type of accident, with or without bodily injury. The legislator has also provided for an extension of the mandatory data retention period for the most serious cases, e.g. six years in the case of bodily injury and one year for accidents without bodily injury.

21 Law No. 85-677 of July 5, 1985, known as the "Badinter" Law.

22 Ordinance No. 2021-443 of April 14, 2021 relating to the criminal liability regime applicable in the event a vehicle with delegation of driving is driven and its operating conditions.

23 Article L. 123-2 of the *Highway Code*.

24 Article L. 123-1 of the *Highway Code*.

25 The law stipulates that the provisions of the first paragraph of article L. 121-1 are once again applicable:

1. As soon as the driver exercises dynamic control of the vehicle after regaining control of the vehicle;
2. Where the driver fails to regain control of the vehicle at the end of the transition period following a request from the automated driving system under the conditions set forth in Article L. 319-3;
3. To the driver who fails to comply with the summons, orders or instructions given by law enforcement or the rules of priority for giving way to priority general interest vehicles set out in this Code.

26 Article L. 123-3 of the *Highway Code*.

United Kingdom

In the UK, the *Automated and Electric Vehicles Act 2018* (the "Act") received royal assent on July 19, 2018.[27] This legislation introduces the notion that an insurer can be liable for the consequences of an accident caused by the actions of a CAV at a time when it is not under the physical control of a human being. The Act provides that an insurer will be directly liable for an accident caused by an automated vehicle where:

- An automated vehicle is driving itself[28] on a road or other public place in Great Britain;
- The vehicle is insured; and
- An insured person or any other person suffers damage as a result of the accident.[29]

The Act does not indicate at which SAE J3016 levels it would be deemed lawful or safe for a CAV to drive itself on the road. It is worth noting that the Act states that the insurer is not liable for the person's negligence in allowing the vehicle to begin driving itself when it was not appropriate to do so. The Act also allows the insurer to pursue the manufacturer or other person for any reimbursement or contribution if they can prove their liability in respect of the accident.

The policy may also exclude or limit the insurer's liability for damage suffered by an insured person arising from an accident occurring as a direct result of:

- Software alterations made by the insured person or with the insured person's knowledge that are prohibited under the policy; and
- A failure to install safety critical software updates that the insured person knows, or reasonably ought to have known, are safety critical.[30]

This Act gives people in the UK a potential route to compensation through insurance instead of via a product liability against the manufacturer. In addition, to ensure that product liability insurance works properly in the context of CAVs, the UK is considering creating new rights of action that could be brought directly against an insurer in cases in which there was not necessarily any negligence on the driver's part. For instance, if an accident occurred as a result of a vehicle defect, the driver and injured third parties would be entitled to submit a claim directly to the driver's insurer, even if the vehicle manufacturer was at fault. The insurer could then sue the party at fault.

27 Implementation is anticipated via several statutory instruments within the next few years.

28 The concept of "driving itself" is defined as "operating in a mode which is not being controlled and does not need to be monitored by an individual." The Act makes no mention of the varying levels of automation at which an automated vehicle may be driven.

29 Part 1, section 2 of the Act.

30 Part 1, section 4(1) of the Act.

Sweden

Back in 2018, Sweden conducted a public consultation to amend its regulations. The consultation proposed a number of regulatory amendments to allow the use and development of CAVs on Swedish roads. In particular, the definition of "driver" stipulates that the individual cannot be held criminally liable for tasks performed by the automated driving system while the vehicle is in automated driving mode. In other words, if the driver's monitoring or attention is not required when the vehicle is in automated driving mode, no liability should be attached to the driver. However, drivers remain responsible for actions that the automated system cannot perform or that require some monitoring or attention on their part.

Sweden has also adopted a plan to modernize its road infrastructure, the *Drive in Sweden plan*, scheduled to run from 2015 to 2030. This strategic plan includes enhancing CAV technologies, the on demand autonomous vehicle network, the 5G network and connected infrastructure. In addition, it is expected that autonomous vehicles under SAE J3016 driving automation level 4 will be approved for commercialization and use on public roads by 2022.