IATSS International symposium (project 2022A)
2023.2.24

Transcript

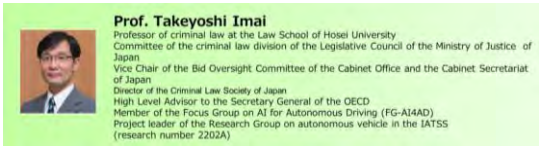
T. Imai: Good evening for every one who are joining us from Japan and good afternoon to our colleagues in Germany and in the UK. It is now 6 PM in Tokyo and we shall begin the international symposium organized by the IATSS. I am Takeyoshi Imai and the project leader of the research group for the various problems related to the automated vehicle that is supposed to run in the level 4 mode. In the IATSS we have been studying many matters related to automated vehicles over more than 7 years. The depth of our study has deepened with the development of the national and international system for automated vehicle or AV. Firstly we study the problems related to level 3 and now we have been engaged in the studies of the various matters related to level 4. In Japan, level 4 is due to be permitted as early as the 1st of April this year. That is why I believe that our studies, including this symposium are opportune. To understand this problem from an international perspective, we have invited today our distinguished speakers, each specialists in this very field.

So let me introduce them briefly one by one.
Firstly, Dr. Mirja Feldmann from Germany.
She is now a regional Court judge as well as a university lecturer in criminal law. She studied law and related matter in Spain and in Japan, so, she can speak not only German, English, Spanish but also Japanese. Her working or research field is quite wide. For example, last year she came to Japan as the OCDE WG lead examiner to represent Germany.

Secondly, Ms. Jessica Uguccioni from the UK.

She is the senior member of the Law Commission of England and Wales. In the LC, she is the lead lawyer for the review of the relevant legal matters for the autonomous vehicle review. She is also a member for the WP1, so she is a key person to construct a new legal framework for the automated vehicle in the UK as well as in the UN.

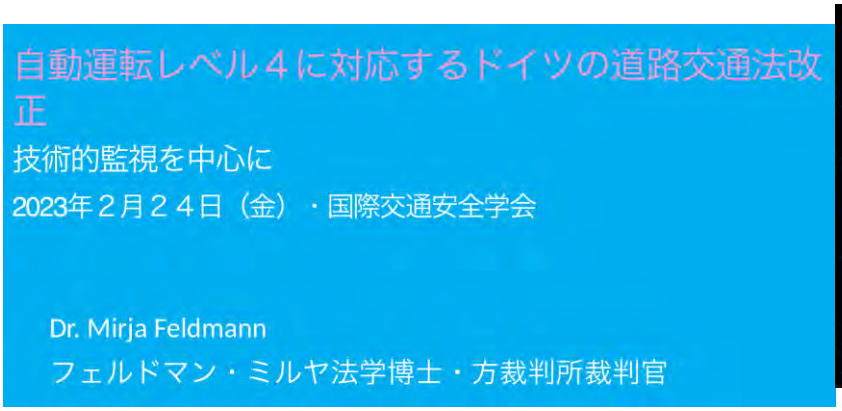
Thirdly, Professor Mark Watson Gandhi from the UK. He is a barrister at Three Stone Chamber and also a distinguished professor at the University of Westminster and the Université de Lorraine.In addition, he serves very important roles in the UK Home Office and other key departments within the UK government. He is deeply versed in international civil law and the ethical principles in many business areas.

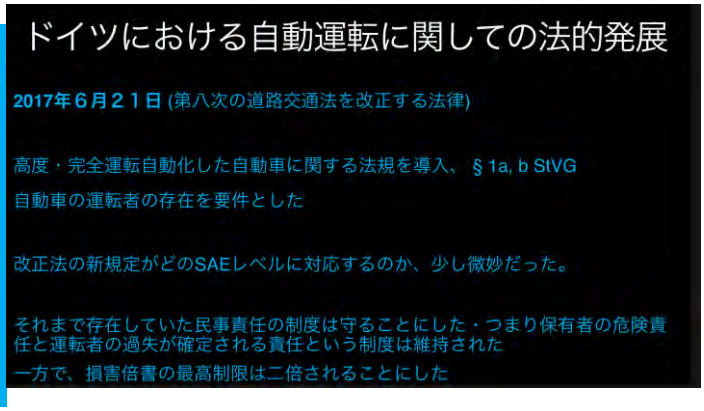


Lastly, again, I am the professor of criminal law at Hosei University. My short CV is written in the poster so if you are interested in it, please take a look at it.

Right, let us begin the presentation part.
Dr Feldmann, please take you turn.

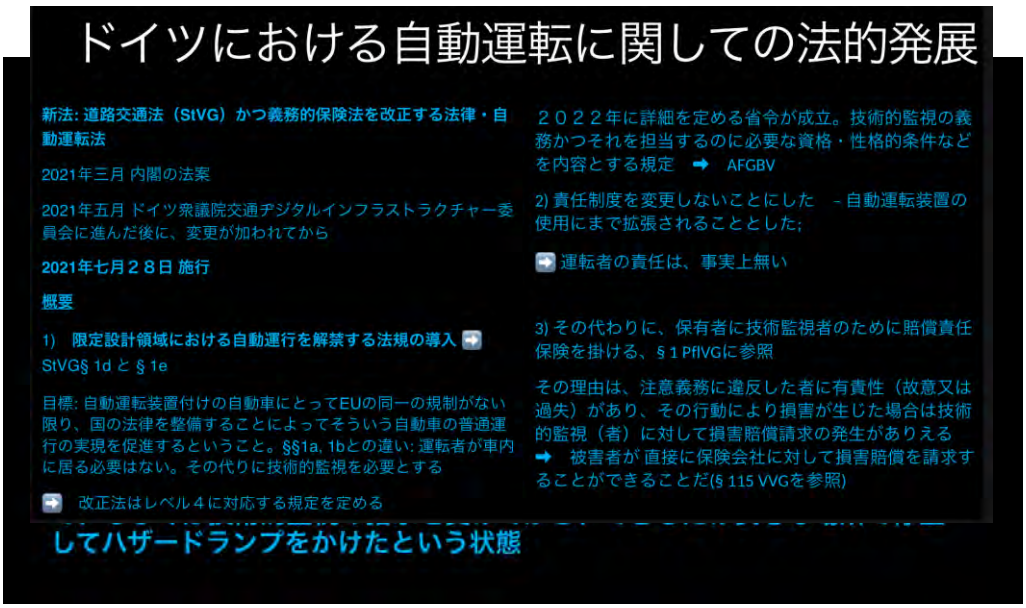
M. Feldmann:
Prof. Imai, everybody good evening. In Tokyo it is “good evening”. I am Mirja Feldmann. I am deeply honoured and glad to be able to present here and today about automated driving.
From this point on, I will have my presentation slides





in Japanese but I will speak in English.

So, now I will talk, as I said, in English, but you have the slides in Japanese. I will tell you a little bit about the latest evolution in Germany on the legislation on autonomous vehicles, but I will skip the first slide, because that is kind of a repetition as what I said 3 years ago in the same symposium. But you can have a look at the slides if you want to repeat it.

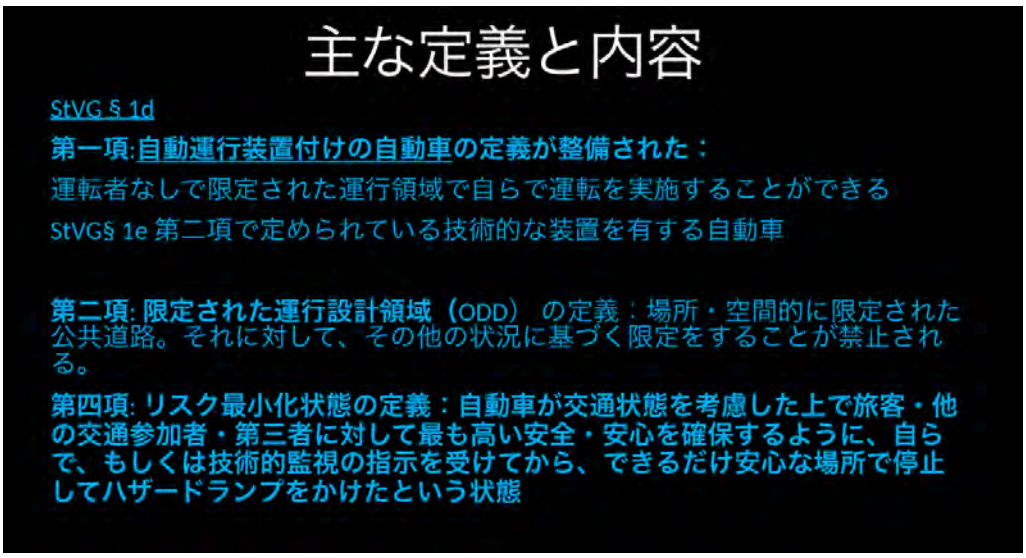


Today, I would like to provide you with a follow-up on the latest legal amendments that were made in Germany since the Road Traffic Act reform that has taken place in 2017, which I talked about at the last symposium 3 years ago. In July 2021, new provisions on the operation of vehicles with an autonomous driving function came into force. The idea behind was the following: although the German government is conscious that at some point in the future, there will be an EU regulation on these matters, they didn't want to wait for their creation, but wanted to facilitate the commercialization and regular operations of level 4 vehicles by establishing national law in the meantime. So, sections 1e) and 1d) and some other sections of the German Road Traffic Act were set out to tackle SAE level 4 autonomous or automated driving. It is noteworthy here, that these provisions do not aim at individual use but rather at public transportation, transport of goods and employees, etc.

Now, what is the main difference with the provisions included in the sections 1a) and b), 6 years ago? When it comes to level 4 driving, in contrast to the earlier provisions, the presence of a driver within the car is not required anymore. Making use of the power to use statutory instruments the new provision conferred to the government, last year the federal ministry for digital and transport issued the so-called "Regulation on the Authorization and Operation of Autonomous Vehicles", and this regulation contains, among others, detailed provisions regarding the so-called technical supervision, its qualifications and liability, etc.

Getting back to the content of the new provisions, the legislator did not alter the existing liability regime, which basically provides for the car holder's liability. And this liability of the car holder does not require any fault. And also, there is a driver's liability where fault is presumed but the driver can prove the contrary, that no fault was involved on his side.

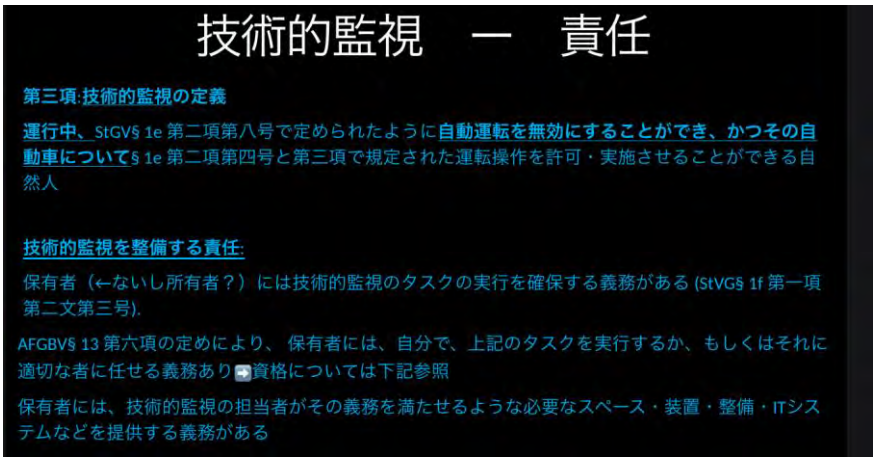
Now, obviously, there won't be a new driver's liability in the context of driverless, autonomous driving. So, the person injured or damaged could only raise a claim with the car holder. To make up for this the legislator introduced a provision according to which the car holder has to cover the so-called technical supervision by a liability insurance, so when damage claims arise against the technical supervision because they have caused damages by infringing one of their duties and negligence or intent can be proven, the claimant, then can not only raise a claim with the technical supervision itself, but he can directly raise a claim with the insurance company, which is way better because of their financial means.



Now I would like to go a little bit further into the details of the new legislation, of the amendments. As I said the legislator introduced section 1d) in the road traffic act. This provision contains some definitions, some important definitions.
In its first paragraph, the "vehicle with the autonomous driving function" is defined. The law says that it has to be able to realise the driving task without a driving person, in an autonomous way, within a so-called - well, in English you would say - "ODD", but the German legislator says: "a determined operational area". Then, the vehicle has to possess a technical equipment in accordance to what is set out in section 1e) paragraph 2 of the Road traffic act.

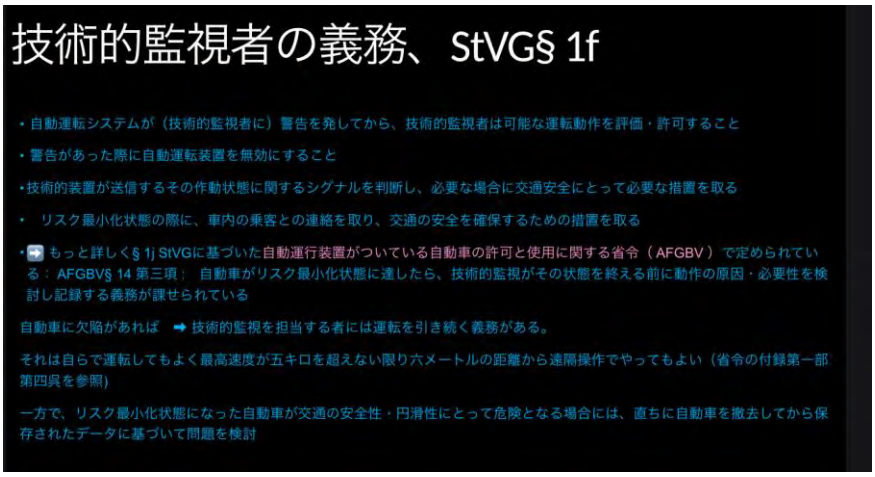
The next definition that is contained in section 1d) is the definition of the "ODD". The ODD can only be determined in terms of location and space. That was a decision that the legislator took. So, what does it mean? It means the ODD cannot be defined or determined by using other restrictions such as weather conditions or else, so it is only limited to space and location.

The next definition in its paragraph 4 is the definition of the so-called "minimal risk condition". That is, according to the legal wording "a condition the vehicle brings itself to, by its own initiative or that of the vehicle's technical supervision", and it involves standing or being stopped in a place as safe as possible and activating the hazard flashes in order to provide the utmost safety for the vehicle passengers, other road users and third parties.

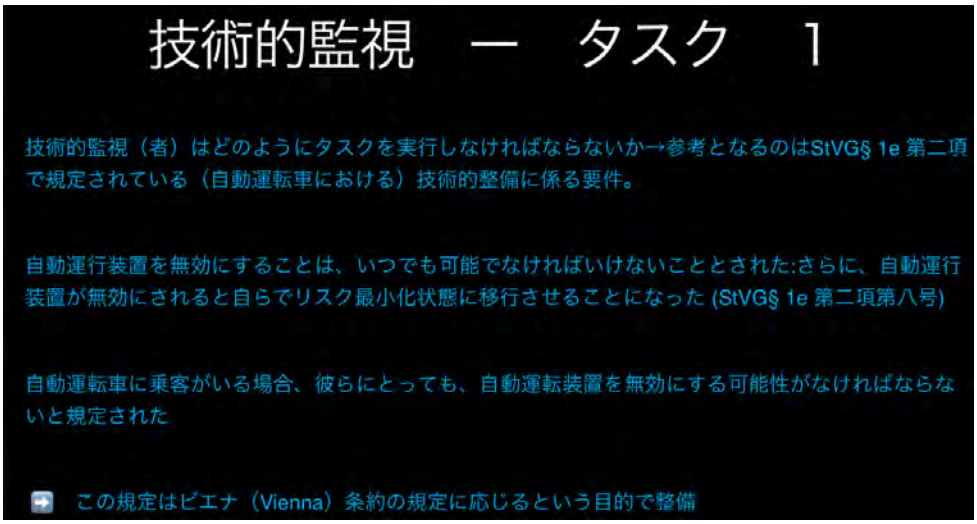


Then, we have the last definition. It is included in paragraph 3 of section 1d) and it is the definition of the so-called "technical supervision". At a first glance, it seems that the technical supervision could be an institution, but the wording of the definition then explains that the technical supervisor has to be a natural person that is able to deactivate the vehicle during its operation and to approve driving maneuvers in accordance with section 1e). So, the important thing about that is that the law establishes that the technical supervision has to be a natural person. Not a legal person, not an institution, a natural person and that is important. And here I would like to add something else that is not written on the slide now. It is interpreted that the technical supervision does not have to

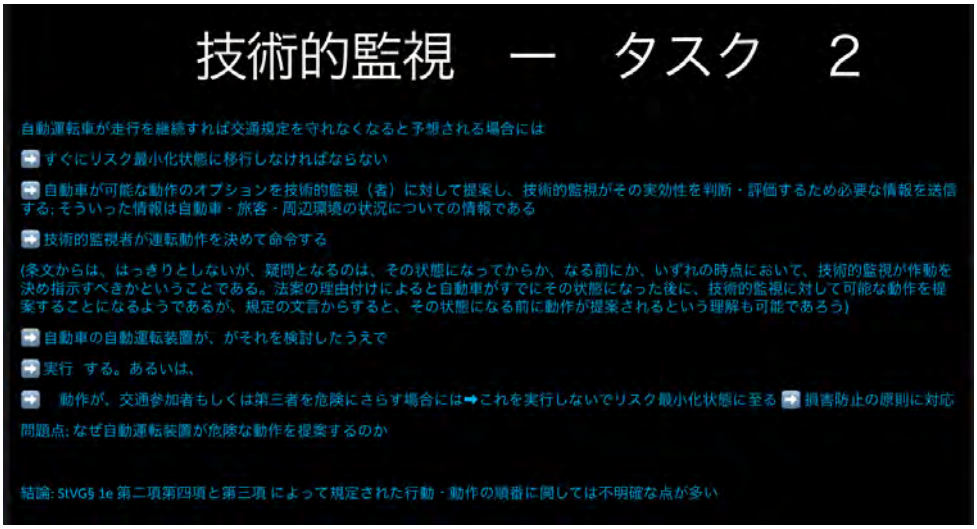
supervise the vehicle permanently, but they only have to be ready to carry out the deactivation and to approve driving maneuvers if there has been an alert to do so by the vehicle.
So that means, in consequence, that the technical supervision might supervise several cars at the same time. But it is necessary, in any event, that they can carry out the tasks regarding each and every of these vehicles at all times. That is important here to note.



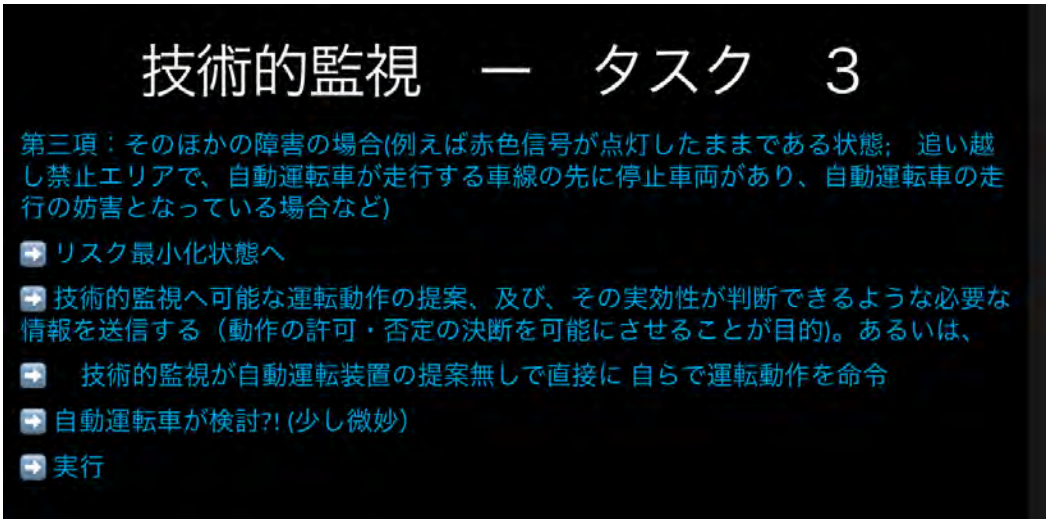
Now, who is responsible for the organization of this technical supervision? There we have some provisions about who has which responsibility. In section 1f) of the new road traffic act, we have this provision that establishes that the car holder has to make sure that the tasks of the technical supervision are fulfilled. So, there it remains a little bit unclear whether he has to do it by himself or whether he can delegate this task to somebody else. Now the new definition establishes explicitly that the car holder can either carry out this task by himself or he can authorize a person that is apt to do so. Plus, he has to provide for the necessary equipment to carry out the tasks of the technical supervision. That means he has to provide a workspace and also furnish it with the right equipment and especially appropriate IT systems.



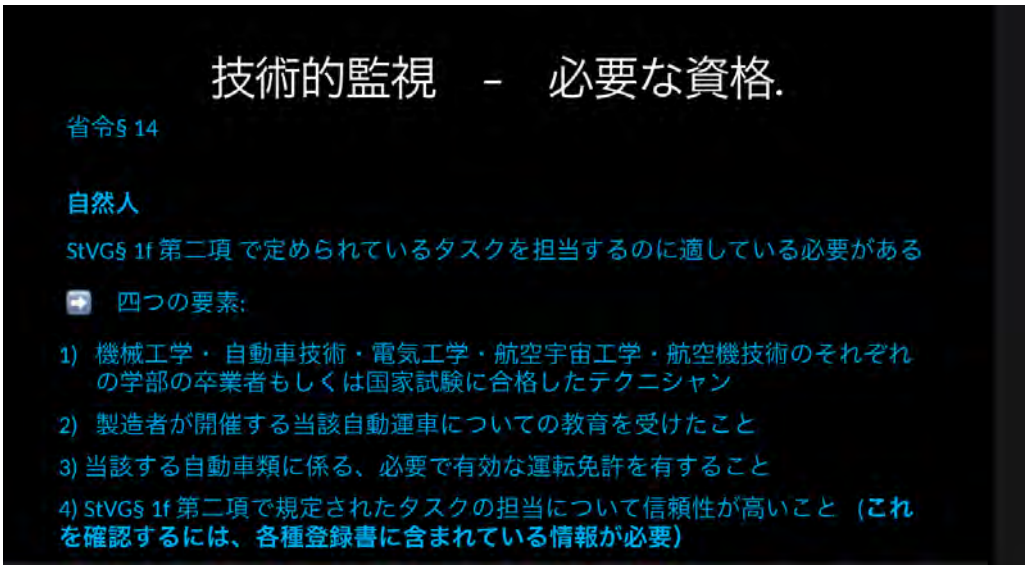
Now I would like to go into some details regarding the tasks of the technical supervision.
Actually, only some of their duties are established by the law and not really the tasks one by one. But, from the requirement that the technical equipment has to comply with the duties that are set out concerning the technical supervision, you can deduct what the tasks of the technical supervision are.
One of the most important tasks is, of course, to deactivate the vehicle. So, it has to be possible for the technical supervision, at all time, to deactivate the vehicle. Then, once deactivated, the vehicle brings itself into the so-called minimal risk condition. During the legislative process in 2021, there was some criticism on the fact that only the technical supervision should be able to deactivate the car so another clause was introduced or another part of the clause was amended, saying that it is also the passenger of the car/autonomous vehicle who will be able to deactivate the driving function. That gives them some sense of control. The provisions about the deactivation also serve, according to the intention of the legislator, to fulfill with the requirements set out by the international treaties, the Vienna Treaty. For further details you can check with slides 14-15, due to the time limit I won't be able to explain that in detail here, but you can check for further details with these slides.



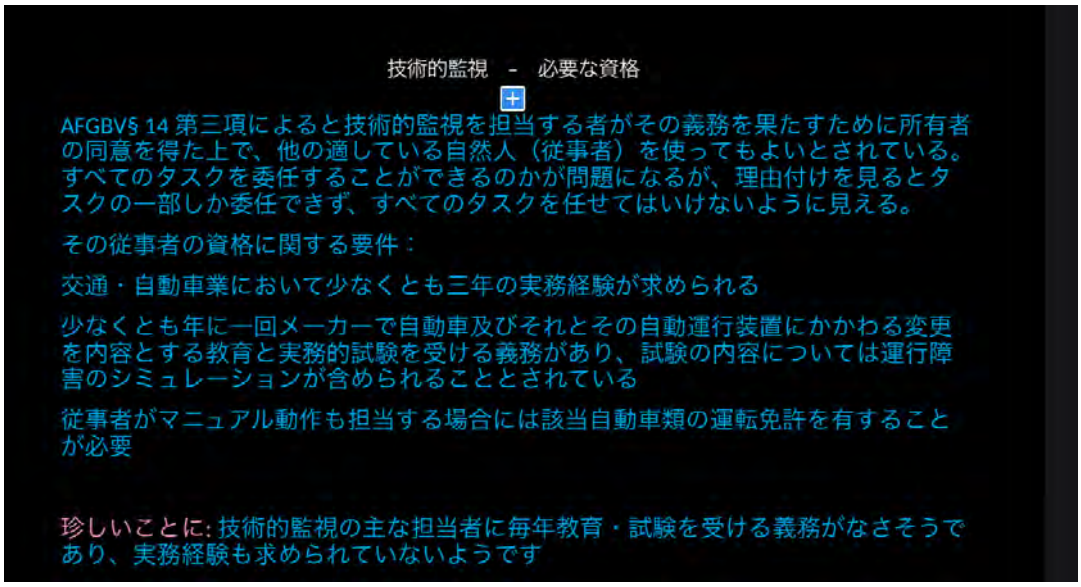
Then, another scenario that is, I would say, considered very detailed in the law is what happens if the vehicle cannot abide by the traffic law anymore. Situations like these come up. And then the following steps would have to be taken: The vehicle proceeds to the minimal risk condition and then makes a proposal regarding possible driving maneuvers to the technical supervision. It also provides some data regarding the condition of the vehicle and the environment, for example, so the technical supervision can judge whether the maneuver proposed is feasible or not. After having made his considerations, the technical supervisor has to order one of these maneuvers and the car executes the said maneuver that had been ordered and carries it out. But the car also assesses beforehand whether the maneuver puts at risk the passengers or third parties. In that case it should not carry out the maneuver.
So, you can conclude that the technical supervision does not always have the final say. What is not clear in my opinion, is whether this minimal risk condition has necessarily to be reached first and then the proposal is made, or whether the car can alert in time, propose a maneuver and the technical supervision can order then one of these maneuvers, that is before the car has reach the minimal risk condition. That remains a bit unclear.



There is another scenario. I don't want to go into details here because it is basically the same steps that are to be taken. It is not about not being able to abide by the traffic law, but it is about other problems such as obstacles. For example, constantly red traffic lights or vehicles that have stopped and suffered a breakdown and obstruct the road where our autonomous vehicle is moving on.
Here he same steps (that I have just explained) would have to be taken. And then, there are some small things that are different: The technical supervision here is able to propose, to order a maneuver without the vehicle´s having previously proposed a maneuver, but I don't want to go into the details here.



Now, as the last topic, I would like to move on to the requirements regarding the technical supervision as a person let's say. The Road Traffic Act itself only sets out that the technical supervision has to be a natural person, without establishing any details on their skills and experience. There, the new regulation comes in and in section 14, you will find very detailed prerequisites. First of all, it states that the person has to be appropriate with regard to performing the task set out in section 1f) of the Road traffic Act. Now, what is deemed to be appropriate? That is established in a more detailed way in section 14 and we can identify the following 4 elements. Firstly, they have to hold a university or college degree in one of the fields described in the regulation: that is, for example, mechanical, automotive, electrical or aeronautical engineer. Alternatively, it is sufficient to be a certified engineer or technician. Secondly, they must undergo a tailored training for the type of vehicle with an autonomous driving function they will be in charge of. Thirdly, they have to possess a driver's license for the vehicle concerned. And lastly, they have to be reliable. This judgment on reliability is made on the basis of having collected information from a variety of German registers: That is the criminal record register, the driver's license register and the register of driver fitness. During the legislative procedure, it was criticized that these requirements were exaggerated.



This might be the reason why the regulation also provides for the possibility to appoint other persons, upon agreement with the car holder, to carry out some, but not the entire duties of the technical supervision. The prerequisites regarding their qualifications are not as strict here. They have to have 3 years of relevant experience in the field of transport. They need to undergo a yearly training on how to handle the vehicle as well as on major changes concerning the vehicle and its autonomous functions. And they have to pass a practical exam which has to include a simulation of a malfunction. Furthermore, in case they are supposed to

operate the car manually, they need to possess the corresponding driver´s license for the car class in question. In my view, it is quite surprising that the overall responsible, that is the technical supervision, does not have to undergo a training and an exam every year nor do they have to be experienced in the field concerned.
Now, I think, my time is over. I thank you very much for your attention and I give the floor to the next speaker.

T.Imai: Thank you Mirja. Your presentation is very informative for us to understand the very complicated German legal system, that have been said to create the permission system for autonomous vehicle for the first time in the world. So it is very good opportunity for us to know it through your presentation. Does anyone has a question to her presentation, at the moment?
Mirja, can you understand the question of Professor Urakawa?Just a moment, Caroline, can you translate it in English to the other members

T. Imai: You can ask your questions in Japanese. Prof. Urakawa, is there anything? My apologies for pointing at you.
Urakawa: Well, the concept of technical supervisor, it means we are into level 4, right?
T. Imai: Yes
Urakawa: So, in that case, the responsibility of the driver, the human driver, is completely different,righ?
T. Imai: That is a difficult point.
Urakawa: The concept of driver will disappear but the technical supervisor doesn't really stands in the same place, it is a completely new category, isn't it?

M. Feldmann : So, I would say that the main difference is that, for example, in level 3 you have to have a driver inside the car who has to continue to drive once the car has reached a state, a condition where it is not able to carry out its tasks anymore, that can be for various reasons. The technical supervision is a person who is outside the car and who does not - and that is the most important thing he/she does not drive. There is no steering function. The technical supervision -at least that is what you can deduct from the law: - they just click. They click to deactivate the car, and then the car itself brings itself into the risk minimal condition. Or, for example, they order a certain maneuver but the car is the one that carries out the maneuver. So, there is no steering task at all. Actually, the supervisor only gives, in Japanese you say "meirei" (命令) orders , he does not really drive, in that sense.

T.Imai: Yes, I see. I would like to return to this very critical and basic matter.
Mr. Satoh, have your say in English, please.

Satoh: Thank you very much for your presentation. My question is not clearly related to the legal issue. However, it is important. My question is how many vehicles is the technical supervisor is allowed to monitor. Because, mostly, one by one, one supervisor watching only one vehicle, that is not good business. So maybe two or three.
Are they any guidelines, or something, about this in German law, that is my question.

M. Feldmann: Thank you very much, Satoh-san, for your interesting question. In the German new regulation, this is not written, let's say, in a detailed way. But what is written, as I just explained, is that the technical supervision can use other persons to help them. So, I think that is the way how they could monitor several cars. for example, because they can use employees. As far as I can see, there is no limit set out in the legislation on how many cars you can control at one time. But you have to make sure that you can comply with all the duties regarding each and every single car. So, I think that it is something that would have to be found out in practice. How it can be realized to monitor several cars in one time and how you have to organize your employees to do that. But it is a very good question because, as you said, it is not economically wise to only monitor just one car - then you can drive yourself.

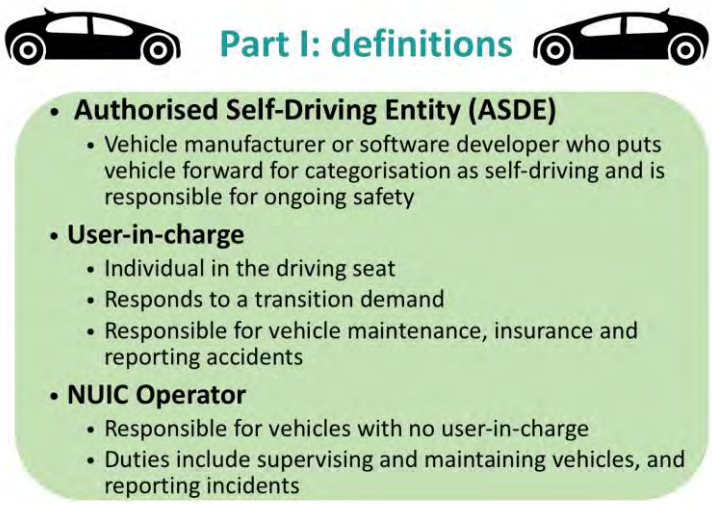
Satoh: Thank you very much

T. Imai : Thank you. We will go back to the topic in the discussion panel, because they are very important and we have to consider them very carefully.
So, next is Jessica Uguccioni. Please take your turn.

J. Ugucioni: Hello everyone.
Thank you so much, Mirja, for your wonderful presentation. Let me share our presentation here.
Hopefully you are able to see the screen. Hello everybody, my name is Jessica Uguccioni, and I work with the law reform agency in the UK. And our team has been advising UK government about bringing in new regulations for self-driving vehicle since 2018. Those, we kind of introduced before. Our report was approved last year, to be taken through with legislation. So, government is looking for opportunities to basically bring some of the changes into law. So, what I was proposing to do today is to share the main, some of the highlight from our recommendation to UK government for the changes that would be coming up in the future, as well as the latest project that we have been working on, which is about remote driving, which is where you have a natural person, an individual that is actually

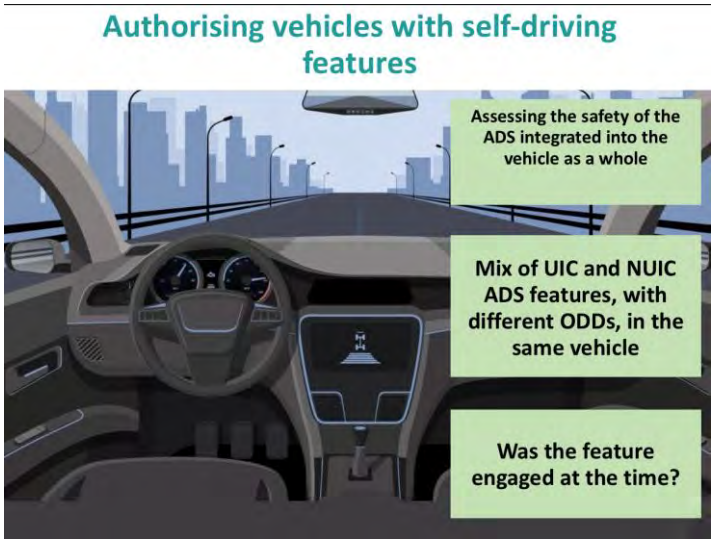
steering directly, in the way Mirja was saying, the technical supervisor in Germany does not do. So we are looking at different angles on driving automation technologies.

Today I will share some of the definitions and terminology, aspects of the new legislation that we are suggesting as well as the critical question of the threshold of how safe the technology has to be before it is authorised. How do we decide that? And finally, marketing, and what rule you might want to put in place to ensure that the marketing of driving automation technology is appropriate and does not compromise road safety.



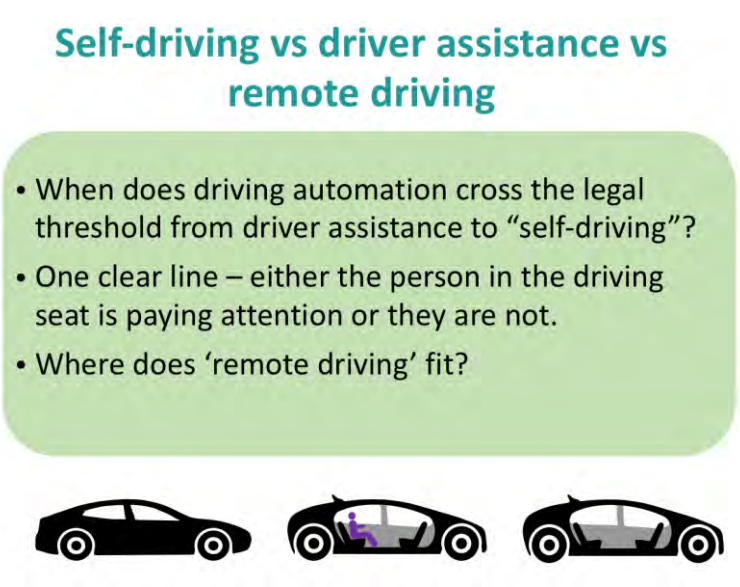
So firstly, looking at definitions, and some of the key actors that are involved. We suggested that corporate accountability should be at the very centre of the regulatory regime. And the entity, the company that puts a vehicle forward for authorisation as self-driving would therefore be the key entity with responsibility for its behaviour on the road. This is a regulatory approach. It is not focusing on criminal sanctions or civil law sanctions as such.

Thank you. So, this is the, well we call it the authorised self-driving entity (ADSE) engages with the regulator and put a vehicle forward for authorisation as meeting the requirements the regulator put in place for safe driving. That is the key entity in that regard. We also talk about a user in charge. That is an individual that is in the vehicle, in the driven seat but very importantly does not have the responsibility of the driver when the ADSE is engaged. We thought it was very important to change the terminology once the ADS is engaged. We should not be talking about the individual that is in the vehicle as a driver, because the responsibility for dynamic control is with the system. So, that's where the terminology of user in charge comes in.Importantly, they still need to respond to a transition demand. So they would become a driver and the end of a transition demand and they have the responsibility over the non-dynamic tasks that driver to, like making sure that the children wear seatbelts, or vehicle maintenance, for example, insurance obligations, and if there were to be an incident, to make sure that they take all the appropriate actions in reporting it.
Those obligations remain with what we refer to as the user in charge. Of course, not all of vehicles that are self-driving will have a user in charge. Some might not even have a driving seat in them, they might just be for delivery of goods, for example, or indeed a shuttle that is only carrying passengers. For these vehicle, what we suggest is that one needs to have an operator, and we call it a NUIC because it is no user in charge, just to make sure that there is binary category. So some vehicles will be approved with a user in charge, other vehicle will not have one but instead they will



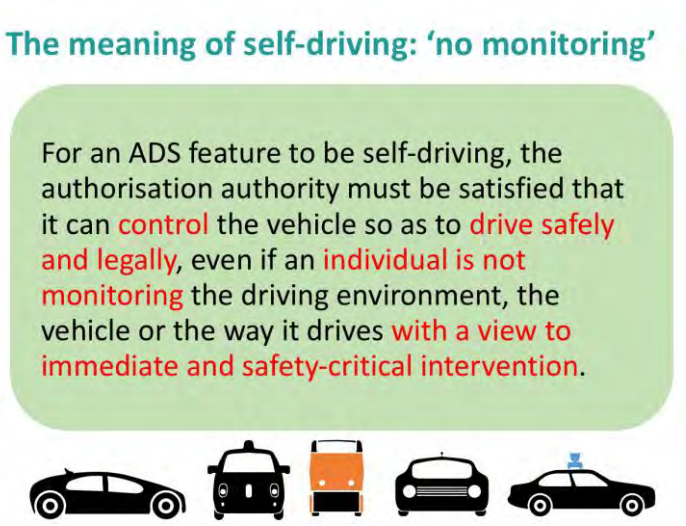
have an operator that is responsible for oversight of the vehicle, which is in some way very similar to the role of the technical supervisor. The difference is very much a corporate responsibility, it is not a natural person, so we go to great lengths to make sure that we are identifying more the functions, and not tying it down to an individual. The duties include having oversight of vehicles, supervising and insuring if they are getting themselves in trouble on the road, the intervention be prompt and there should be a protocol in place, with emergency services for example, to make sure that any untoward event is dealt promptly.

So, the way that we approach the all authorisation process as part as an automated vehicle is assessing the safety of the automated driving system into an integrated whole, so though we talked about in integrated ADS, what came back to us very strongly throughout our consultation is that you cannot assess the ADS in isolation, it is very much assessed within the entire vehicle. It is the safety of the vehicle that is assessed not just the ADS. And this vehicle might have a mix of different features. So it might have some features that are for user in charge but other features that might not be, for example valet parking. So you might, on the motorway engage an automated lane keeping system for example, that might be driving itself on the motorway, and then you reached your destination, and then you can engage a no user in charge feature that goes and drives the vehicle to its parking lot space. So, there can be in the same vehicle a mix of different systems. And of course, they might not all be engaged at the same time. So, it is essential that we have data and informations to tell us what function is engaged at any particular time

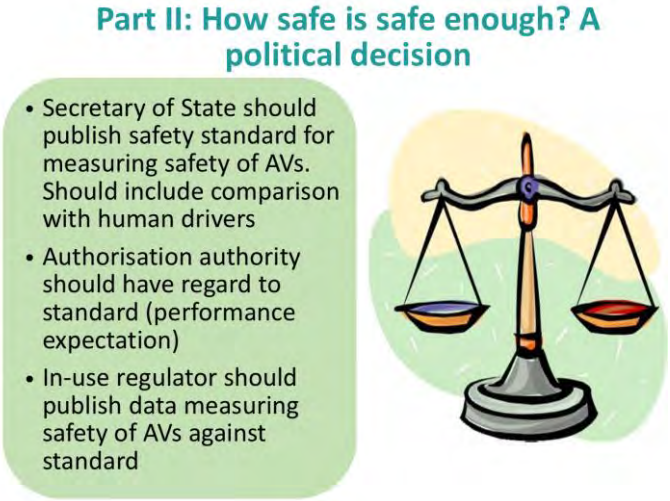


Now one of the key bars of difference and lines within the registry scheme that we are suggesting is "What constitutes as self-driving and what makes a vehicle an automated vehicle versus a vehicle that is just driver assistance. We have seen a lot of this discourse also in respect of some of the very advance driving systems, sometimes called Level 2+, although the SAE would, you know, obviously not endorse that terminology because they don't talk about degrees within the levels. But you know, very sophisticated level 2 systems. It is not always easy for the consumer to know what that might look like and what makes something self-driving and crosses the boundary into something self-driving. So we have suggested that instead, from a regulator perspective, instead of having degrees of automation that we would refer to, either something crosses the line into self-driving, or it doesn't, right? It is a very clear line which is only determined by a regulator. It is basically determined by whether your system has been authorised by the relevant regulator. And of course the regulator is

going to have regards to the SAE level, because they are very informative from a technical perspective, but we cannot use the SAE to determine peoples' liability and to decide wether something is self-driving. There has to be, we suggest a regulatory separate step for that.
What is quite interesting is also our work on remote driving and to figure out what actually does it mean to remote drive vs. remote assist. I think some of the example that Mirja was giving before about pressing a button, and for example deactivating a vehicle. Under our reading, from a UK perspective, that could be classified as driving. If you are relying on an individual to basically intervene in the driving task, that can be driving. It is not just about whether there is the ability to have longitudinal and latitudinal control.

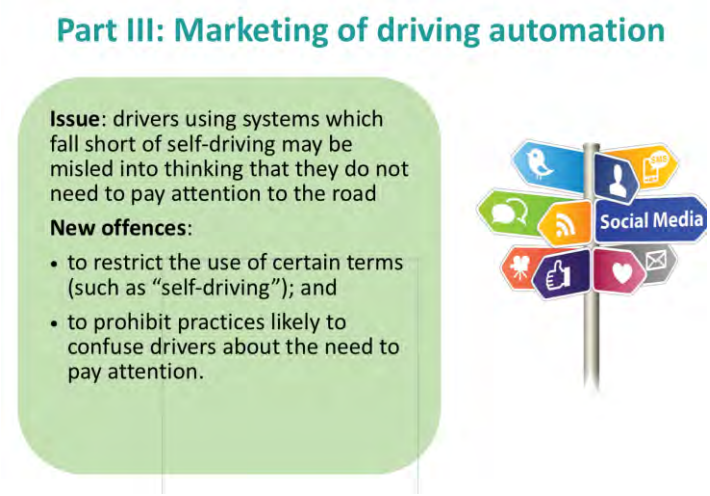


Let me share with you the approach that we have taken to our definition of self-driving, which is very much focused on the absence of monitoring requirement from natural person. And you'll see that we talked about an ADS feature being authorised, so that makes it self-driving, because it has been authorised. But then we describe exactly what the criteria are in law. And the idea is that the ADS must be able to control the vehicle, so that it can drive safely and legally, even if an individual is not monitoring the driving environment, the vehicle or the way it drives. The key differentiator between a driving assistant, on the one hand, and a remote driver, on the other hand is whether that person has a role that is for immediate and safety critical intervention. If this individual that we are relying on, that might be supervising the vehicle, if their intervention has to be immediate or safety critical, then, that means the vehicle is not able to drive itself. It is being remotely driven, as far as we are concerned, because that individual has such a high importance, and the vehicle therefore is not self-driving, there is remote driving.
On the other hand, supervision is entirely in assistance, or entirely consistent with self-driving. So, if someone is for example helping to classify obstacles, or as Mirja was saying, for example, if the vehicle sends an alert and then an individual has to respond and assist, and then provide a safe path, that is fully compatible with self-driving. However, if the vehicle is not able to bring itself to safety if that person doesn't intervene, then that is where the problem lies, and that is where the capability would not be self-driving, in our analysis. It is very much a problem of facts or degrees, whether something can count as self-driving or whether it cannot and is actually more a remote-driving type of system.



Another key element that we have advised UK government about as part as our recommendations, is the threshold at which we ought to accept something as self-driving. And what we sought to do in our recommendations is to highlight that this is a political decision. Although the actual technical requirements are going to be essential: there are going to be a lot of engineering and technical parameters around what a vehicle has to be able to do, what does the minimal risk condition look like, all those things are extremely technical and we'll have standards for them. But at a higher level, the decision about whether introducing this technology on the public road and spaces is one that should be taken, is political, because these systems are still going to cause some fatalities,

there is obviously still a risk with them. And determining how good those systems have to be before they are allowed on the roads is something that needs to be debated democratically and understood. So, although the secretary of state will delegate a lot of their power, you know, in terms of deciding wether a particular system meets the criteria. To regulators, ultimately, it is very much a political decision, and we also highlighted the fact that the in-use regulation, so keeping a very careful eye on the way that these vehicles perform, and the actual fatalities and incidents that might occur is incredibly important in the overall scheme. So that it is not enough to have demonstrated a particular ability when the vehicle is first authorised but is it absolutely essential for the vehicle to be compared to the performance of existing feeds of human driven vehicles to make sure that they are actually improving road safety rather than introducing different risks.



And finally marketing, we will all have all seen at different junctures, various references from companies that are marketing their system and giving the impression that they probably have bigger self-driving capabilities that they actually do. And of course this can be a big problem because it can lead to over-reliance from the public. And so, general legislation on marketing of course exists: misleading advertising is something that happens in absolutely every field. But for us, it is very safety critical here, and given that the technical requirements and understanding of the system is quite challenging, certainly for the generic marketing laws we have. We suggested that it is worth having specific rules about the marketing of driving automation system. And in particular, we suggest that certain words, certain terminology should be exclusively for systems that are authorised as self-driving. In particular, the word "self-driving" should be reserved to systems that have actually passed a third-party testing system to verify that they are capable of handling the situation without the need for human monitoring. We suggest other terms might be protected as well, possibly "driverless", using that for a driving assisting system could obviously be very misleading.

In addition to protecting particular words, in the future, there might actually be some hallmarks, symbols that are unique to vehicles that can drive themselves. In addition to that, having a more general prohibition on any marketing technics that give people the impression that they do not need to monitor the road. So for example if you had an advert for a driver automation system which showed the individual taking up a book and just reading it like this, covering their face, when in fact it was not an authorised system, then you maybe looking at the SAE terminology and studying that, as I do, a lot, but they would be breaking the law, because they would be encouraging people to do something that would be unsafe. We think that it is a very important element in the overall scheme. And also because self-driving vehicles are taking longer to come on to our road, and the marketing of drive-assistance system is actually here now and it is causing problems to road safety today, so we think it is a high priority area for us to look at.

So, that is it for me. I say a big thank you to you all and I would love to have some questions.

T. Imai: Thank you Jessica. Your presentation is very clear and gives us the latest informations that you have got, as well as the policy planning amongst the UK government. I have also the same idea regarding the definition of the levels. I mean, I know the limits of the SAE terminology, so it is very interesting and I hope that your idea should be built in into the framework, legal framework in the UK.
Does anyone would like to have a say?

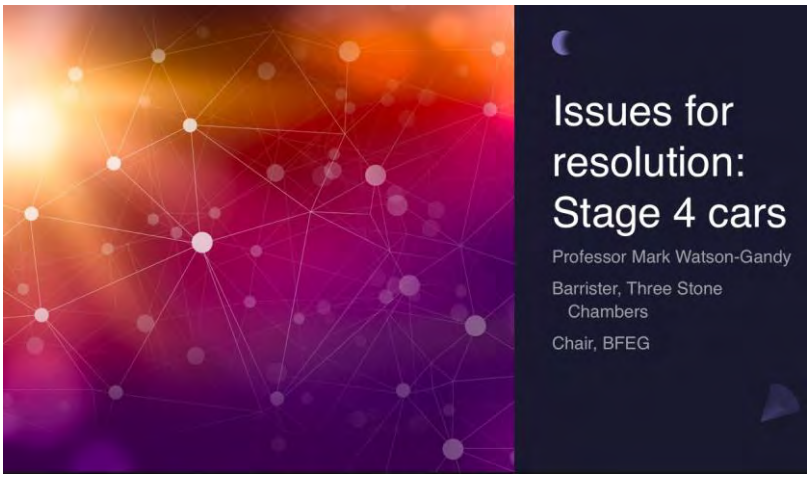
T. Imai: Mr. Hatano, what do you think. My apologies for pointing at you, please.
Hatano: Sorry, I didn't expect to be called.How to put it, of course the SAE definitions are not enough, well you can say that there are missing elements, but I have the impression that this has become quite common understanding lately and globally. However, the SAE, especially the definition in the J3016, is only just a definition. So, instead of asking for a uniformed fit-all definition in J3016, and criticising which is a dead-end, the side referring to the SAE should add-on specific definitions to resolve the issue, or at least that is my understanding of this.

J. Uguccioni : I mean, I am a member of the SAE group, and I have been studying the SAE from the very first time that I joined this field, when I started working in it back in 2018. So, I am not saying, I wasn't suggesting that they are lacking in general. The SAE levels were not designed to be laws, they are not. I would not be right for them to be laws. I was just observing that, we talk about vehicles being authorised or not. We have a binary system, which, when one looks at through legal framework, I think they are not necessarily that different. But we still refer to, for example the laws that Mirja was telling us about as the general laws, different countries do that. But, yeah, I don't disagree. I think it is interesting, I think the comment is.I was just remarking something that is common knowledge, I was just sharing it again.

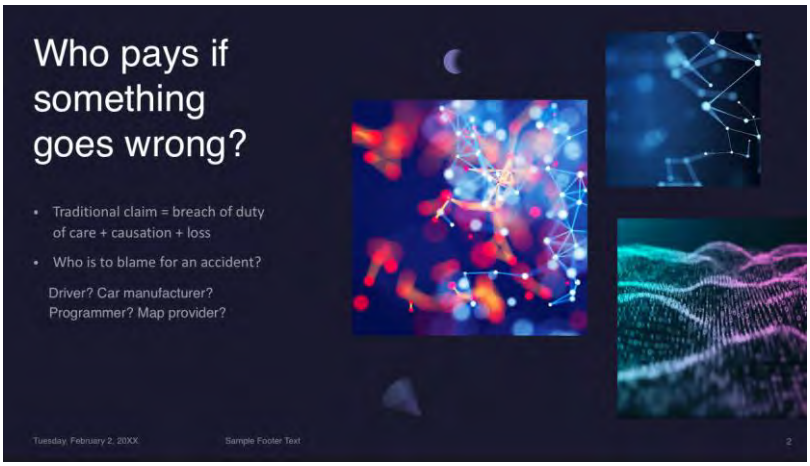
T. Imai; Thank you. At the moment, does anyone want to have a say?
Ok. Jessica, may I just ask you a very basic question regarding the NUIC. What should the NUIC operator do when the vehicle runs out the ODD if we use the SAE terminology, because NUIC operator is supposed to be working when the vehicle is supposed to be self-learning. So, if the vehicle runs out of the ODD, it cannot be said to be self-learning. At the time, we don't know how the NUIC operator would handle it.

J. Uguccioni: I think the all handling of what happens when a system exists the premises of where it is authorised to operate i s something that has to be discussed within the safety case. So we suggested that the before it is authorised, there has to be a safety case that is put forward to the regulator for the authorisation. That safety case would have to describe how the vehicle handles that situation and ensure that it does so in a way that meets the expectations of safety for regulator. That would be how likely that is to happen, and how bad the risk is, as a risk assessment kind of element. I think that is probably the key expectation in that scenario.

T. Imai: Thank you indeed,Jessica. Right, so, let's listen to the 3rd respected person. Mark, could you take your turn, please.



M. Watson-Gandy Hello! What a joy, delight and pleasure to be able to speak to you all. I come from a slightly different perspective to the other speakers. I come from the perspective of a litigator and, hopefully you can see a screen.



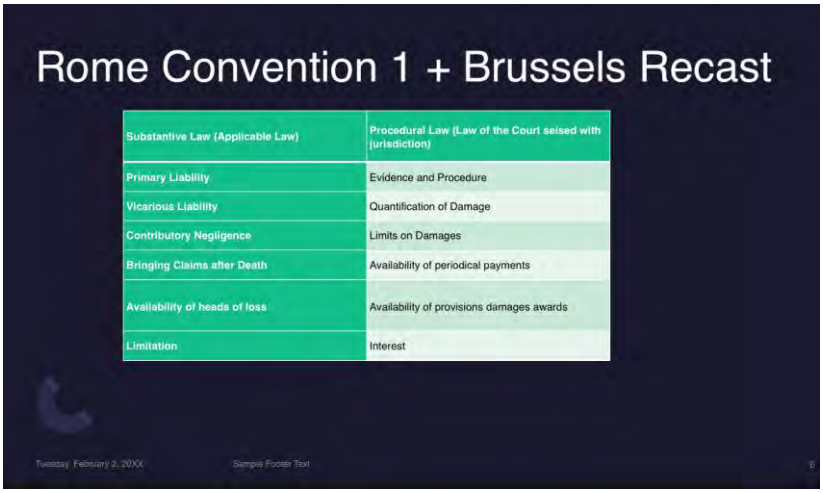
Wonderful. Who pays if something goes wrong? Ultimately, the question, from my standpoint and certainly from my clients' standpoint, is who is going to pay if something goes wrong? Conversely, you are the defendant or the insurer, whether we can find solution or argument so we do not have to t pay. Certainly, as you know, insurers are in business. And it is not part of the business of an insurer to pay back if you do not have to pay. The answer to those questions, from a common lawyer's perspective, starts on two levels. Two ways you can bring the claim. You can seek redress - remedies under statute (and you have heard about the legislation in the UK and new legislative framework that are being thought out by Jessica). But that is not all.. You also could bring a claim in common law. For that, really what you really looking at is the tort of negligence. In other words that there is a breach of duty of care which caused foreseeable loss and damage.

Traditionally a driver had a duty of care not to harm other road users. But when a driverless car is involved, that simple question becomes more complicated. So who might have breached that duty of care. Is it the user who is in charge of the car? Is it the manufacturer? The programmer? Is it the map provider? Is it the person controlling the geo-space zone?

The UK has already got a statute to try to answer this. We have presently a bit of legislation called the Automated & Electric Vehicles Act 2018, which fixes the responsibility on the insurer of the vehicle owner. But, not always. It also begs questions on what really happens in one of the excluded scenarios. For example - if the system - the program - inside the car is not fully updated, presently under the scheme, the insurer gets out of that automatic liability.

Or you leave the geofence zone. Or if your system is hacked by mischievous 13 year old, or if your system is not fully updated.
For the answer to the question, we need to craft a solution using the common law.
There is another issue that we need to bear in mind. We have all been talking about national solutions. And national solutions are all very well provided you have no international element.
But things become a little more complicated if there is an international element. After all the question that arises then is ….Which country's Court is going to look at the case? Which country's law is going to be applied by that court?

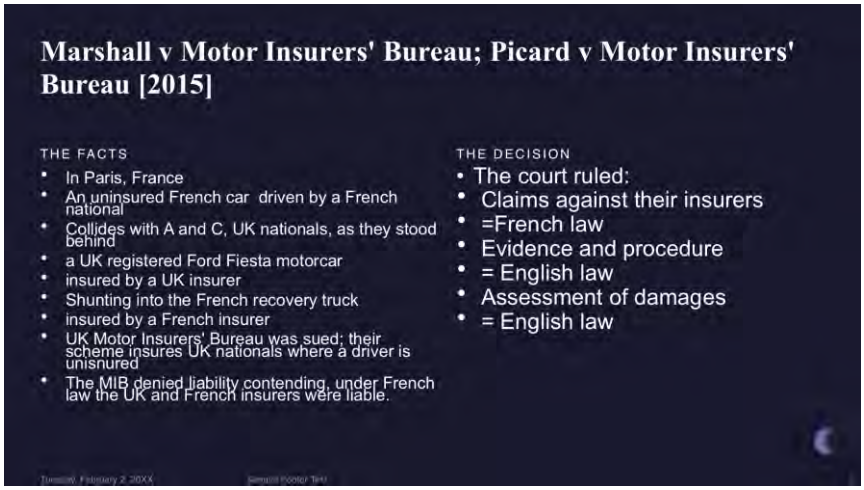
To illustrate this, what I am going to do is just give you an example of how this solved using the European model. So, as regards to the choice of law, that is to say "Which country's laws deals with the accident?", that is the law of the country where the damage occurred. Except when both the claimant and the defendant come from the same country, and/or some country is manifestly more closely connected. As for the country whose court is to decide



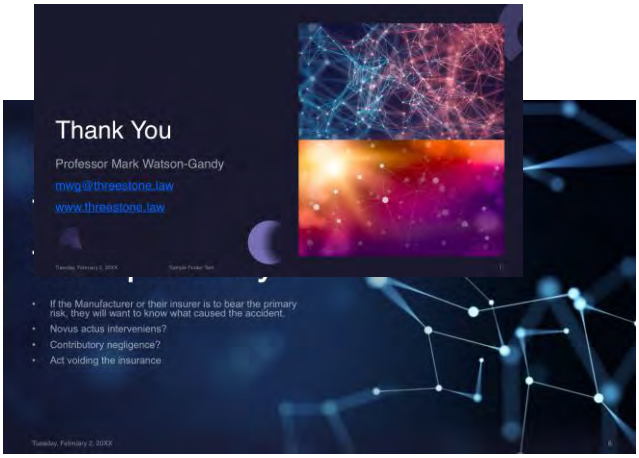
the case, well that is the country where the person who is being sued is domiciled.

The substantive law covers the question “do I have a claim?” It also addresses the question “who might be vicariously liable”. A vicarious liability is the liability of an employer for his employees and agents. An employer is jointly and separately responsible for the actions of their agents or their employees provided they are acting within their apparent or ostensible responsibility. Under English law, in a case called Lloyd v Grace, the employer is liable provided the employee is acting with apparent authority even if they behaved maliciously or if they committed a criminal offence. Indeed, even if they did an act that had in fact been prohibited by their employer.

The law as regards forum covers not just the choice of court. Also the procedure law is the law where the Court is situated. That includes the rules of evidence and and also how the loss is going to be quantified. And whether there is going to be a limitarion on the damages being awarded. So, you can potentially find yourself with different outcomes for a case depending on the international make-up of the case.



I will give you one example. A case called Marshall v Motor Insurer’s Bureau provides an illustration of quite how easily this can arise. This concerned an accident in Paris, France. An uninsured French car driven by a French national, collided with two UK nationals who are standing behind their broken down UK registered Ford Fiesta motorcar, insured by a UK insurer. The car then shunts into a French recovery truck, insured by a French insurer, throwing the French driver of the French recovery truck though its window. The car then spins around and hits one of the owners of the Ford Fiesta. The Court wrestling with that, said that the claims against the insurers have to be dealt under French law, the evidence and procedure were to be dealt with under English law and the assessment of damages decided under English law.
So can see what a mix, a hotchpotch of potentially conflicting laws, had to be applied, to try to determine the outcome of what was just a simple, ordinary accident. Now transpose into that a situation where we are looking at a driverless car, where you have a Korean car manufacturer, an American programmer and some Germans controlling the geo-space zone. Now that really potentially becomes a lot more challenging, exciting problem to resolve.



Other important issues that an insurer or manufacturer will need addressed in any accident: “Was there somebody else responsible for the accident that occurred?”. “Was the user of the car somehow contributorily negligent?” “Was there some sort of intervening act that in fact shows that the accident had nothing to do with the way the automated car was driving?”

To answer that you need to share what was happening in the car and around it. That in itself creates an interesting question as regard on how you balance the defendant’s rights and the issue of privacy. How much needs to be, should recorded and shared? Is there going to be a recording of where the driver was going? Ore indeed of what the driver doing in the car? ... And with whom? Or what the driver was saying?
And then follow on from that, the question of data protection rears its head. It is not just an ethical problem. It is also a legal problem. If we are to keep a black box recording what occurred before or during the accident. What happens to the back box? Who is actually going to control that data? How long is it to be kept?
The vehicle user might have been doing something that he’d rather keep private in the back of the car.

The idea that a third party might have control over it, or access to it, might touch on issues that he very much like to keep quiet. The other question is how long that data is going to be kept. This touches on a further issue: the question of consent to that data being stored. If, perhaps, you could show consent for the insured vehicle user, what about the passenger too?

T. Imai: Okay. Thank you very much, Mark. Well, due to your presentation, we can understand how important the way of compensation for the accidents resulting from automated vehicles as well as data protection privacy and other perspectives.
Does anyone would like to have a say.
Lawyer Ito, how is it? My apologies but Japanese is fine.

Ito： It has been a while.Thank you very much for your presentation, it was very interesting to me. Well, it might not be related to this topic, but I am interested in the impact on the proposal of revising

EU product liability which was produced last year on September. When the level 4 comes to the market, when the EU directive was really revised, do you have any idea about the interconnection or something.

M. Watson-Gandy: This is maybe a question that is better asked of our first speaker, but it is something that is going to be of significant impact for, I think, car manufacturers selling to Europe and indeed elsewhere. Because, ultimately what we are trying to do is to have a homogenous product which is acceptable everywhere. From my standpoint, as a litigator, if there has been a breach of local product safety requirements, that opens the door to a potential action.
So, from my standpoint, I would very much also watch the space. Of course, as the UK because of Brexit is not longer governed by the EU product regulation. However, the reality is: I suppose the manufacturers will be watching this space very closely and it would be foolhardy not to watch and ensure your product complies.

T. Imai: I see. Thank you very much
Anyone else? As we are more in the civil law sphere. Mrs. Suzuoki, if you have a question, please.

Suzuoki: I thought it is very important to see what types of cases arise, you gave the concrete example of the French driver hurting the UK national, and to see the types of cases for autonomous vehicle. I felt again very strongly the importance of seeing how other countries resolve those cases.

Mark Watson-Gandy: For driverless cars, road traffic accidents, collisions between driverless cars and cars which are driven by sentient drivers. And also the issues that arise when the automation of the driverless cars ceases; stage 4 envisages a driving within a geofenced zone. But of course the reality is: what happen when you fence outside this geofenced zone? Does the car automatically stop, or as it happens on the motorway at 100 km an hour, are you left to your own devices and struggle to grab the steering wheel in time. When does the responsibility hand over? And also, there are always going to be dead zones, within those areas, what occurs? I think litigation is going to be particularly prevalent, when things are not working properly. The case where a car or a system is being hacked, where somebody hasn't updated their system, where somebody has decided to improve their system by buying in an extra-service by a third party provider which may or may not be fully compatable. Those are all areas where, if something goes wrong, there is going to be some hard fought litigation and tough questions for judges to determine. Who should take the responsibility? Who should bear the cost? Fun times ahead for us all.

Imai: Referring to Mrs. Suzuoki's question, let me add a few words. You said at p7 of your slides that the claims against their insurer were to be checked under French Law. Could you explain the reason a little more because I think that the defendant car was not insured and the claimants are UK nationals. In this case, the manifestly more closely related law to the claimant seems to be the English law. Isn't it correct?

M. Watson Gandy : This was an interesting case. The reason I referred to is that it illustrated that there were a lot of choices as regard which law should apply to the issue of responsibility. The court said that the starting point is where did the damage occur, which was in France, rather than which country was manifestly more closely connected. To try to provide litigants with a degree of certainty they set the bar quite high before one could use the more closely connected exception.

That decision was important in the case. Under English law, the Motor Insurance Bureau pays out on claims where an accident is caused by a driver who has no insurance, irrespective of where the accident occurs. Under French law, the question was which car caused the harm, rather at looking at it from it from the standpoint of whether an uninsured driver was to blame.

Imai: Thank you very much for your lecture.

Now, it is 24 past 7 pm. So we shall take a break for 10 minutes. The panel discussion starts at 7:34 pm in Tokyo.

T. Imai: Ok. So, it is 7:34 pm in Tokyo, let's begin the panel discussion, alright?.
Firstly, let me organise the questionnaire. Mr. Takayama? If you would please…

Takayama: Let me ask a question. My first question is, can I make a couple of questions, or one question only?

T. Imai: please, plural question is OK

Takayama: My first question is for the prof. Feldmann. If I correctly understand, in the German Law, the car holder has to make sure that the technical supervision goes well. And, what is the definition of a car holder? So, what if the car owner leases a particular automated vehicle to an actual operator? Or what if the operator is like a big company and it owns kind of a large number of automated vehicle. And that company allocates, let say 20 vehicles to branch A, and 20 to branch B. In that case the car holder has to make sure that the technical supervision goes well. Is the car holder company itself or the branch manager who actually holds and operates the automated car?

T.Imai: Yes, very interesting question. Mirja, please.

M. Feldmann: Thank you very much for your question. Yes, the concept of the car holder in Germany can be a little bit tricky. But it does not necessary have to be the owner of the car, but they are the ones who are in charge of the responsibility for the car. So, it is not necessarily the driver, but the person who is mainly involved with the car. I think it is possible that a company is the car holder. It does not have to be a natural person. A company could be the car holder. Because also in the law, there is no sort of personal liability but it is a so-called "Gefährdungshaftung[1]" so the car holder is liable just because of the fact that he is the car holder. He takes the responsibility of a dangerous good or dangerous means such as a vehicle. That is why it is perfectly imaginable that a legal person can be a car holder.

Takayama: I understand. And that legal person can be a holder even though the company leases the car from a leasing company. Then the leasing company is just an owner of the car but it does not actually operate that car, but the company leasing the car is an operator.

M. Feldmann: I think in that case, the company that leases the car would be the car holder

Takayama: I Understand.
Feldmann: Because they are in charge of the car that… they might insure the car, they are the ones that operates the car mainly.
Takayama: Ok
Feldmann: So there is a difference between the owner, the holder and the driver.

Takayama: I understand, thank you very much. Can I ask just one, can make another question to Professor Watson Gandy.

M. Watson Gandy: Oh dear, I just saw how hard the last one was (laughs). I really got happy that I had got away lightly.

Takayama: This is Just a comment I think. You were discussing about the conflict of laws.That was very interesting. But, at the same time, I think that currently a lot of cars are exported and imported from one country to another country. Let's say that a German manufacturer produces a lot of cars, and some parts of the car are exported to the UK and other part are exported to France. I think that the ADS has to be tailored, designed, customized to match to the local laws, regulations and law conditions. Then, I think this is a question for the manufacturers, even thought the vehicle is

[1] strict liability

manufactured in Germany, but, you know, those with a particular ADSs in the UK , or in France, those are designed/customized in particular countries where the particular cars are operated. Then the conflict of laws' discussion is maybe even more complicated. This is just a comment but if you have any views on this.

M. Watson Gandy: No, no, I entirely agree. We drive on a different side of the road to that in Germany. So, you could see a very interesting a problem arising, if they don't tailor it to the local market.

Takayama: Thank you very much. I think that sort of show the arising issues in the coming years.

T. Imai: Thank you. Jessica, let me ask you the following question which Professor Yoshida would like to ask you but now he can't ask in person.
Let me read it. In the UK, the road traffic act was changed last year to established a hierarchy of road users. Under the current traffic laws, how should collision between driverless vehicles and pedestrians be handled. In this case, the concept of negligence does not apply to the vehicle (I also think so) but only to the pedestrian. In addition, if the pedestrian is a child who cannot be held responsible for his or her actions, it is possible that the child may not be found to be at fault. In that kind of case, the scope of liability for collision for autonomous vehicle needs to be clarified in advance (I agree). I would like to hear about any areas of progress in the UK debate. (It is very interesting to me).

J.Uguccioni : Yes. I think the key provisions that were introduced in the UK in respect of anyone who is harmed by a vehicle that is driving itself, which I should add of course that we don't yet have any vehicle that has been listed as being capable of driving themselves in the UK. That there is no such vehicles on the road at the moment. But, when such a vehicle might be authorized, the compensation scheme is done on a no-fault basis in the automated and electrical vehicle act.
As Mark very ably described, there are of course complication in ways of which some might argue that the vehicle might not have caused a collision, you know, if the degree of negligence of the pedestrian was incredibly strong, one could argue that. But, our conversation with insurance doesn't seem to go in that direction, at least at the moment. If there was a pedestrian that was involved in a collision, even if they have a very high degree of fault, I think there isn't any argument that the electrical vehicle act of 2018 would apply. In terms, of being able to coming to play, of course there can be a reduction in damages, and that is provided for in the act itself. But, the idea behind it, certainly with children, Mark would be able to possibly say more about that, but children were regarded as highly protected even before the changes of our Highway Code and the hierarchy of road users. So certainly, if a child was involved, I think there would be no questions asked that some compensation could be awarded under the current scheme. I don't know, Mark, if you want to come in on that.

M. Watson Gandy: I was going to chip in if I disagreed, but I don't. The liabilities are on the section 2-1, the exception on section 4. But, it is very much a "watch this space" area.

T. Imai: It is very difficult to report it to Professor Yoshida.
Jessica has just put it, not only negligence but also causation is a very tricky problem when there is a collision with other types of vehicles. I think that negligence, fault or causation regarding the automated vehicle's accident should be carefully considered. We should change our mind to calculate how risky it would be to go on by using a self driving mode.
But, I am sorry to Jessica, I forgot to send my paper regarding those kind of things, I will send it to you afterwards.
Anyone else? Professor Hasegawa, are you here? You can ask in Japanese if you like. The specialty field might a little bit different. Of course, you can ask in English.

K. Hasegawa My name is Ko Hasegawa and I thank you very much, all of the speakers. I am a legal philosopher, so I am not well versed in this field. But, it is very nice for me to run about important problems of topical regulations for automate vehicles. One of the things I 'm thinking, at the background of your legal expertise, it seems to me from the view of legal team, there are several

matters which are assumptions or requisites for the legal topic of regulations for the automated program vehicles. It seems to me that, for example , very important values, such as safety of smoothness, efficiency or comfort, or something like that, are much important goals to think about concrete problems. And also the definition, for example, of the technical adviser or the driver, are also very much related to the realisation of the values in some concrete situations. So, it seems to me that the 3 or so dimensions are very important. One is sort of the actor dependence What is the option of the regulator, driver or manufacturer, or the technical adviser, or the people. And, secondly, it is the action/situation dependence. Which means the, of course there are system failures, or some collision between automated vehicle, and also emergency situation that are represented in problem such as so-called trolley problem, and so it depends on the situation. And also, finally, I'd like to, so 3 dimensions. Machine quality is very important, what kind of quality does the autonomous vehicle has. So, some sort of combination of those actors would be very relevant when there is such a various background to think about concrete problems. My question is, do you have any ideas or thoughts about this sort of combination of values or principles, particularly some approach are classificatory approaches, which mean again the combination of those values, factors. So, I would very much appreciate if I could learn something from the speakers. Particularly Professor Watson Gandhi, has referred to this question more explicitly on the question of responsibility to many parties, so Professor Watson Gandhi, if you have any thoughts about this problem of backgrounds, values or relevant factors. And also I would like to listen about others speaker's opinions.

M. Watson Gandy: I think that what we just heard nicely encapsulates the holistic issues that we're facing. And I think the reason the subject is quite so exciting is because it forces us to enter the realm of what, in my time, would have been science fiction and now is very real, a reality that is slowly unfolding in front of us. One of the solutions that has been toyed with in the UK is to fix the responsibility on the insurer. But that of course, takes us to the next question: where does the insurer then look to, to get his/its money back from. The answer is that they will be after the people involved in the creation of the cars, those who bear responsibility of the geo-fenced zone, and those who bear responsibility for any intervening activities that are happening in the car. We are throwing into play a whole raft of potential new defendants to that secondary claim. It is an exciting area.
I am going to pause there and let Jessica much intervene because they are the next step of actually us crafting a solution to these, it is an incredibly exciting problem

J. Uguccioni: No I agree, I think what I would add is that it increases the range of considerations to be taken into accounts and the range of interests are so diverse that we felt that it was important when we introduced the system of self-driving onto our roads on any significant basis, we should have a regulatory scheme in place, a licensing scheme in place and an in-use regulation scheme so one has of course the litigation aspect that Mark was highlighting, which is operating in the background. But I think the primary focus has to be that the systems are safe. I think these are the key consideration because the comfort levels and the smoothness of the ride can vary between different providers. And people would not object to that. But they would object if suddenly a child was not being detected, or if the road rules were not being complied with. If any of these things happen, it is very important that the regulatory scheme is designed in a way to capture those very quickly and be able to detect, and rectify them without any delays. And of course, if there are responsibilities that need to be determined, they will be in the background. But the primary focus has to be on rectifying the problem rather that blaming. Because that could just take too long. You know, there's a driving ticket today if the vehicle goes through a red light. At the moment, the real function is, the driver might get a driving tickets days later at their home and then they might challenge it. It can take a really long time. We want, instead of that happens for the regulator to be alerted right away, and for that vehicle and to understand why was the vehicle riding a red light and to be able to handle it, in a rather speedy fashion, rather than going to a all system of allocation of responsibility. That is where we need to change the balance of road traffic, when we are talking about self-driving, from what is now a primarily a criminal system to primarily regulatory scheme where we are assessing the competence of computers, we are assessing the competence of artificial intelligence. That is a complement to Mark's work.

K. Hasegawa: Thank you very much.

T. Imai: Mirja, can you have your say, because you have prepared for the slides showing how difficult it is to resolve the dilemma situation even in Germany. Could you just touched on it.

M. Feldmann: Yes. Talking about dilemma, I explained at one of the last symposiums that we had an ethical Committee that talked about the guidelines we should follow when it comes to dilemma situations. Now, the new Road Traffic Act incorporated some of these guidelines, actually they incorporated 3 of them. One is you should reduce, or possibly reduce or avoid damage. And that was a little bit more clarified by the new regulation, I think, because it says that avoiding the damage should be done by either emergency breaking or by a manoeuvre which avoids the damage,but, at the same time, does not compromise the safety of third parties, road traffic users and passengers of the vehicle.
Then also they included another requirement. These are all, I want to point out, requirements that are addressed to the technical equipment of the vehicle, the technical function. There is one that says when you cannot avoid a damage, but this damage refers to values, we would say “Rechtsgut” but I think that this term does not really exist in English terminology, but in Japanese you would say “houeki”(法益)。If there is a gap between them, then this gap should be taken into consideration by the system and hereby the top priority should be given to the human life. So this means when you have a situation where you are about to cause A damage to some material thing and the alternative would be that you cause damage to somebody’s physical integrity, you should go for damaging the thing and not the physical integrity of a natural person. Then, a third rule was set out, and it says that in the event of not being able to avoid compromising the safety of human lives, several human lives, then you are not allowed to take into consideration personal characteristics of these individual such as age, gender or others, like medical conditions. I think that they did not incorporate in the legal provisions - which is quite German - the prohibition of offsetting. Which means if you are about to damage 3 people and you could avoid that by for example changing the lane and hitting only two people, this, under German law, cannot be justified because you cannot outweigh or offset lives, even though there is a difference in quantity.
There is another prohibition that the German Ethics Committee was also talking about. It is about the prohibition of sacrificing a third party that has not been involved in the scenario. Here, I think that the regulation now establishes something that could be read or interpreted as having incorporated this prohibition because it says that if several lives are compromised, then, in such situations, you are not allowed to give the priority to the car passengers. Or in German, it says it the other way around. I don’t know how we would say that in English. It is the opposite of priority: You are not allowed to give this non-priority to the third person/party or other road users. So, that means, if the autonomous vehicle is heading towards an obstacle and if it crashes with this obstacle, all the passengers die, then it is not allowed, in my view, to change the lane and hit an oncoming car, with 2 other persons, or, for example to go on the pedestrian walkway in order to save the lives of the passenger on-board.To kill a third party, let’s say pedestrians that are walking on this pedestrian walkway, that would be forbidden; you are not allowed, in my view, to program the car in that way, according to the legislation, as I interpret it. But there haven’t been any comments on it so far in our discussions. So, there are detailed regulations now on dilemma.

K.Hasagawa: Thank you very much for all the speaker.

T. Imai: Mark and Jessica, could I ask you a very short question provided by Professor Yoshida. It reads as follows.
Could you share the trend of discussions in the UK regarding legal liability on a cooperative system, namely automated vehicle with a driver which used data provided by other infrastructures or other road users, or people driving nearby.
I am not so sure but maybe he would like to know the combination of the driving entities and other entity, and how could we dispatch the responsibility. If I correctly understand. Jessica, please.

J.Uguccioni: Yes. I think in terms of systems relying on external data sources like weather-reports or in respect of how the highway is functioning, we absolutely expect that to be the case. We don’t think that that changes the licensing scheme that we have suggested in the sense that it is still up to the entity that is putting the vehicle on the road to demonstrate with the safety case the integrity of the data and the system that is going to be relying on. So, if something goes wrong and they were

given data that was inaccurate and then they made, you know, there was a decision by the automated driving system that wasn't correct, I don't think it wouldn't be a ground for them to be absolved of responsibility. Like the regulatory scheme still very much relies on basically, as we defined it to the recipient that the regulator can interrogate and interact with. Of course, they might themselves then have recourse against others. But, as we said, the regulatory system is not one of blame. It would be about identifying where the problem is and fixing it, rather than people pay money, or putting a financial penalty on them. This emphasis is very much on correcting errors rather than financial penalties. I think that is the kind of approach that we are envisaging for the scheme. But of course, it is not yet in place so there will be a lot to work out in terms on how we would function in practice. But that is the intention with the scheme. Mark, I don't know if you want to add anything.

M.Watson Gandy: Just to add that, of course, the financial implication will be a material going forward. Because losses will occur. And people will want to attribute that. But it is still very much a matter of "watch this space". And I am certainly watching what Jessica will be producing with excitement. It is a much more sophisticated approach to a very exciting problem. It looks that we are going to get something very interesting and very well considered.

T. Imai: Mirja, is there any similar question in Germany? The responsibility of those who compose plural entities: Natural person, service provider, data provider, and so on.

M.Feldmann: I think there is also some discussions going on, but the law now focuses on, let's say maintaining the existing liability system.

T. Imai: I see, Thank you. Ok. Thank you very much.
Well, I am sorry to say that the closing time is approaching. I do want to continue the discussion about the trolley problem raised by Professor Hasegawa, but now I have to pass the baton to Mr. Kawai, the managing director of IATSS.
Mr.Kawai, please.

Final Remarks by Mr. Kawai, director of IATSS
Thank you, Dr Feldmann, Dr Uguccioni, Professor Watson-Gandy and Professor Imai.
It was a great discussion, very insightful and inspiring. On behalf on the board of directors of IATSS and as the executive director of its secretary, I would like to express my sincere appreciation to the panelists of today's discussion, members of the IATSS project, and all the participants online today, for your invaluable contributions in the form of knowledge and expertise which made this symposium successful. In the principle inspired by the founders of Honda motor company, nearly 50 years ago, we, the international academy of traffic and safety sciences have been pursuing our goal of making solid contributions to the realisation of an ideal mobile society. Judging from the archeological movement of human migration, it is apparent that a desire to move between geographical locations is one of the most fundamental drives, no point intended, of human beings. As long as humans continue to go forward, reaching this goal is our aim to contribute to the further improvement and the well being of human society. One of the most important, and latest concern in this field is, without a doubt, development of a legal and social framework that is needed in the merging of the automatic driving technology with the modern culture. In this context, today's discussions were timely and significant, offering valuable insights and suggestions from the participants belonging to various related fields. Through activities such as today's symposium, and working together with IATSS member, we are one step closer to our ultimate gold.

Thank you again the panelists, projects members and all the participants for your continuing support.
Thank you.

Imai: Thank you Mr. Kawai
Before we end, I also would like to again express my great appreciation to our distinguished speaker and Caroline, please give them a big applause by way of zoom function.
Thank you.
Thank you indeed and good night.