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SCHRIFTFLEITUNG

Dr. Martina Schlamp / Dr. Carmen Freyler

- Prof. Dr. Günther Schuh
- 1 **Mobilität muss in Zukunft neu gedacht werden**
- Dr. Richard Jansen und Max Grewe
- 2 **Datenschutzrechtliche Herausforderungen bei intelligenten Verkehrssystemen**
- Dr. Reinhard Siegert
- 6 **Alles offen? – Marktabgrenzung im Bereich Kraftfahrzeugteile**
- Dr. Jacob Böhringer
- 13 **Strafrechtliche Verantwortlichkeit für autonome Systeme**
- Dr. Mathias N. Schubert, Attorney at law
- 18 **Regulating the Use of Automated Vehicles (SAE Levels 3 to 5) in Germany and the UK**
- Prof. Dr. Harry Wagner und M.A. Stefanie Kabel
- 23 **Urban Air Mobility – der Beginn einer neuen Mobilitätsära?**
- Dr. Pietro Brambilla, LL. M.
- 30 **Wie Unternehmensjuristen in Zukunft arbeiten: Rechtsabteilung 4.0?**
- Anmerkung**
- Prof. Dr. Jens M. Schmittmann
- 52 **Steuerliche Förderung der Elektromobilität**
Anmerkung zu BFH, Urt. v. 5.7.2018 – III R 42/17
- Rezension**
- Boris Reibach, LL.M.
- 54 **Bernard A. Karikari: Big Data in der Automobilindustrie, 2018**

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Regulating the Use of Automated Vehicles (SAE Levels 3 to 5) in Germany and the UK

While some liability regimes cope with automated vehicles more easily than others, vehicles with Conditional Automation (SAE Level 3) will likely turn out a conundrum to all.

I. Legislative Motivation and General Context

Both in Germany and the UK, governments and legislators were extremely keen on being at the vanguard in terms of legalizing and regulating the use of automated vehicles. In Germany, the revision of the Road Traffic Act, after being passed within the Lower House of the German Parliament (Bundestag) on 30 March 2017 and approved by the Upper House (Bundesrat) on 12 May 2017, came into effect on 21 June.¹ In the UK, the legislative project was originally launched in the 2016 Queen's Speech as the Modern Transport Bill, the title of which was subsequently changed into the Vehicle Technology and Aviation Bill. After making some progress through Parliament during spring 2017, this bill lapsed due to the general election in June. A renewed attempt to regulate this subject matter (as well as the topic of electric mobility) succeeded in the form of the Automated and Electric Vehicles Bill 2018. This bill was first introduced in the House of Commons after the 2017 elections, passed the third Reading in the House of Lords on 13 June 2018 and received Royal Assent on 19 July. All the material provisions of the (now) Automated and Electric Vehicles Act 2018 (AEVA)² are yet to come into force by way of regulation (statutory instrument) issued by the Secretary of State, section 21 subsections (1) and (3).

Both the revised RTA and the AVEA³ concern driver behavior, liability and insurance. Thus, this legislation is only a part, albeit an important one, of the overall picture. Notably, the revision of the type approval framework for automation at Level 3 and up is far from complete. The latest revised UNECE Regulation 79⁴ on steering equipment does contain a number of definitions and requirements regarding Automatically Commanded Steering Functions, but most of these are not in force at this stage.⁵ Things seem to be taking longer than expected.⁶

II. Automated vehicles – a challenge to the liability regime?

When determining civil and notably criminal liability for the consequences of road accidents, in most legal systems the behavior of the driver will come under scrutiny.

For purposes of civil liability, though, we can distinguish three types of liability regimes:

- Liability regimes such as the ones found in Germany and several other Continental European countries, where driver liability for negligence (presumed or not, as the case may be) is complemented and frequently supplanted by strict liability imposed on the keeper of the vehicle (the person or legal entity in whose name the vehicle is registered).

- In other jurisdictions, such as the UK and Ireland, liability for road accidents is exclusively based on the general tort of negligence.
- Finally, there are “split” liability regimes, where not all victims are treated the same. For example, in the Netherlands the road traffic legislation⁷ imposes strict liability on the owner of the vehicle where a pedestrian or cyclist is injured, whereas the general tort law applies where an accident involves two or more vehicles.

This trinity of liability regimes, which are supported by compulsory third party liability insurance in Member States of the EU and in many other countries, only concerns the fundamentals, i.e. the basis of liability. Details, including important ones that can drastically impact the overall outcome of a case, may vary, often considerably. The way individual contributions – by victims and also in multi-party collisions – bear upon recovery may differ hugely from country to country, even where the basis of liability is identical or similar. The same applies to the calculation of damages and recoverable heads of damages.

In Germany and other Continental European jurisdictions that feature a regime of strict liability attaching to the keeper of the vehicle, besides the liability of the driver for negligence (which is presumed under the RTA in Germany), the debate surrounding automated vehicles usually is quite limited. Determining liability for accidents involving ve-

* Auf Seite III erfahren Sie mehr über den Autor.

1 Eighth Act Amending the Road Traffic Act, promulgated in the Federal Law Gazette I of 20 June 2017, 1648. An unofficial English translation prepared by or on behalf of the Federal Ministry of Transport and Digital Infrastructure is available at https://www.bmvi.de/SharedDocs/EN/Documents/DG/eight-act-amending-the-road-traffic-act.pdf?__blob=publicationFile (accessed on 6 January 2019).

2 2018 Chapter 18, <http://www.legislation.gov.uk/ukpga/2018/18/contents/enacted/data.htm> (accessed on 6 January 2019).

3 Part 1 of the AEVA extends to England and Wales and Scotland but – in contrast to Part 2 – not to Northern Ireland, section 22. For Northern Ireland, the material content of the AEVA will be implemented separately.

4 Uniform provisions concerning the approval of vehicles with regard to steering equipment, <https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2018/R079r4e.pdf> (accessed on 6 January 2019).

5 Paragraph 1.2 of the Regulation 79 exempts from the application of the Regulation (i) Autonomous Steering Systems as defined in paragraph 2.3.3 (paragraph 1.2.2) and (ii) Steering Systems exhibiting the functionality defined as ACSF of Category B2, D or E in paragraphs 2.3.4.1.3., 2.3.4.1.5., or 2.3.4.1.6., respectively, until specific provisions are introduced in this Regulation (paragraph 1.2.3).

6 For a comprehensive, extremely thoughtful discussion of the broader legal issues presented by automated vehicles from a UK perspective, refer to the joint preliminary consultation paper issued on 8 November 2018 by the Law Commission (of England & Wales) and the Scottish Law Commission on 8 November 2018 (LCCP No. 240 / SLCDP No. 166 respectively) in the realm of a three year review aimed at preparing “driving laws for self-driving vehicles”, available at https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-1-ljxou24uy7q/uploads/2018/11/6.5066_IC_AV-Consultation-Paper-5-November_061118_WEB-1.pdf; a summary of the paper is available at https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-1-ljxou24uy7q/uploads/2018/11/6.5066_IC_AV_Final-Summary_061118_WEB.pdf (both accessed on 6 January 2019).

7 Art. 185 of the Road Traffic Act (Wegenverkeerswet) 1994.

hicles in automated mode does not raise any particular difficulty in such jurisdictions. Also, the rationale for imposing strict liability on the keeper does not depend on whether a human driver or a machine is controlling the vehicle at the time of an accident. In both cases, the keeper shall be liable for the consequences of the source of risk he has created in pursuit of his own interest if the risk realizes itself, causing bodily injury or property damage. That said, there were misgivings in some quarters in the political debate in Germany over the fact that increasing automation seemed to have no direct impact on the liability of the party responsible for it, namely the manufacturer of the vehicle.⁸

So, the German RTA did not change the basis of liability in any way. One, not quite “peripheral”, change was made, though. The monetary cap that German law has usually, although not invariably, provided as a quid-pro-quo for strict liability imposed on the party responsible for a somewhat uncontrollable technology, was doubled for cases where an accident is caused by a vehicle traveling in automated mode, from 5,000,000 Euro to 10,000,000 Euro as respects bodily injury and from 1,000,000 Euro to 2,000,000 Euro as respects property damage, section 12. The motivation for this was opaque, and the modification received some criticism, which seems plausible, given that the technology is usually associated with the expectation of increased safety.

In jurisdictions such as the UK and generally, where liability for road accidents is based on the general tort of negligence, it is obvious that the situation can get tricky with increasing automation. Of course, a driver may still be acting negligently in some way when a vehicle is traveling in automated mode. It is however also clear that depending on the circumstances the driver may indeed be found not to have acted negligently, which could mean that the victim is left with the option to attempt a potentially difficult and time consuming recovery against the manufacturer of the vehicle or some other potentially liable party. In the end, the victim may well end up with no compensation at all.

In other words, a negligence-based system may produce a liability gap. All along, remedying this problem was one of the main goals of this legislative project. The initial concept, which apparently never progressed to a formal draft, meant to introduce some sort of product liability extension under the MTPL policy. This remarkably obscure proposal was harshly criticized by insurers and subsequently abandoned and replaced with a much more straightforward approach, namely the introduction of a “liability of first instance” on the part of the insurer in case of an accident caused by a vehicle traveling in automated mode, section 2 subsection (1).

In the debate surrounding this project, there were few calls for an introduction of German-style strict liability imposed on the keeper. However, precisely this solution is provided for in section 2 subsection (2), which deals with vehicles that are not insured (i.e. vehicles run by the government or by public bodies) and imposes strict liability on the owner of the vehicle in case of an accident caused by a vehicle traveling in automated mode.

Interestingly, this liability of first instance not only benefits third party victims, which are the traditional beneficiaries of compulsory liability insurance, but also any insured person, i.e. the driver. However, the insurer or owner of an

automated vehicle is not liable to the person in charge of the vehicle where the accident that it caused was wholly due to the person’s negligence in inappropriately allowing the vehicle to begin driving itself, section 3 subsection (2). For similar reasons, section 4 allows insurers to exclude or limit liability to the insured person for accidents caused by alterations to the vehicle’s software made in breach of the insurance policy, or by failure to install safety-critical updates. This applies subject to various conditions regarding the level of knowledge of the insured person or the policyholder about the need for updates or about the requirements under the insurance policy.

According to section 5 subsection (1), the insurer (or the owner where relevant) will be entitled to pursue a subrogation claim against any other person liable to the injured party, such as the manufacturer of the vehicle in the event that the accident was caused by a defect in the vehicle.

III. What constitutes an Automated Vehicle? Does Conditional Automation (SAE Level 3) qualify?

Regulating Conditional Automation (SAE Level 3) is possibly the most vexing task that legislators are facing in the area of assisted and automated driving. The legislative processes in Germany and the UK demonstrate that stakeholders in both countries had to wrestle with the same hard questions. The answers came out quite differently.

1. SAE Level 3 in Context

Notably from an international and comparative perspective, it is helpful to look at SAE Level 3 in context. At SAE Levels 0 to 2, the driver is fully in charge, he monitors the driving environment at all times. At SAE Levels 3 to 5, the system monitors the driving environment, which means that the driver does not have to do so. For Levels 3 and 4, this applies when the system is engaged and the vehicle is in the defined driving mode (e.g. motorway). At both Level 3 and 4, the driver is in charge of the driving task when the vehicle is operating outside the defined driving mode. At Level 3, a fallback performance of the driver is still expected, which is not the case at Level 4. Only at Level 5 is the driver obsolete, or “optional” in the form of an operator / occupant being able to drive if and when he chooses to do so.

⁸ See Recommendation No. 14 of the Ausschuss für Agrarpolitik und Verbraucherschutz (AV), BR-Drs. 69/1/17 of 28 February 2017 and the statement of the Verbraucherzentrale Bundesverband e.V. „Rechtssicher Fahren mit Automatisierten Fahrzeugen“ of 4 January 2017, II. 3, Haftungsregelungen, p. 9.

SAE level	Name	Narrative Definition	Execution of Steering and Acceleration/Deceleration	Monitoring of Driving Environment	Fallback Performance of Dynamic Driving Task	System Capability (Driving Modes)
Human driver monitors the driving environment						
0	No Automation	the full-time performance by the <i>human driver</i> of all aspects of the <i>dynamic driving task</i> , even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
1	Driver Assistance	the <i>driving mode</i> -specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	Human driver and system	Human driver	Human driver	Some driving modes
2	Partial Automation	the <i>driving mode</i> -specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	System	Human driver	Human driver	Some driving modes
Automated driving system ("system") monitors the driving environment						
3	Conditional Automation	the <i>driving mode</i> -specific performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> with the expectation that the <i>human driver</i> will respond appropriately to a <i>request to intervene</i>	System	System	Human driver	Some driving modes
4	High Automation	the <i>driving mode</i> -specific performance by an automated driving system of all aspects of the <i>dynamic driving task</i> , even if a <i>human driver</i> does not respond appropriately to a <i>request to intervene</i>	System	System	System	Some driving modes
5	Full Automation	the full-time performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> under all roadway and environmental conditions that can be managed by a <i>human driver</i>	System	System	System	All driving modes

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One thing is important to note regarding the SAE view whereby the driver does not have to monitor the driving environment at all times when a Level 3 system is engaged. This is a *technical* view, formulated from an engineering standpoint. The legislator regulating *driver behavior* is free whether or not to follow this view. The legislator may well take the position that the novelty of the technology and the relative lack of experience regarding its safety and reliability justify or even dictate, at least for the time being, a prudent and careful approach, and may still require the driver to monitor the driving environment at all times.

Such a view can be supported with the additional argument that the expectation of a fallback performance of the driver can reasonably be regarded as problematic per se. Closely intertwined with this concept is the question if the law should explicitly allow non-driving activities in general, but notably as regards Level 3 technology.

2. The revised RTA

According to section 1a subsection (1), "the operation of motor vehicles by means of a highly or fully automated driving function shall be permissible if this function is used for its intended purpose."

Section 1a subsection (2) defines motor vehicles with a highly or fully automated driving function as vehicles equipped with technology with the following capabilities or properties:

- control of the vehicle (including longitudinal and lateral control) in order to perform the driving task,
- compliance with traffic regulations,
- be manually overridden or deactivated at all times,
- recognition of the necessity of manual vehicle control by driver,
- indication to the driver of the necessity for manual vehicle control, with a sufficient time buffer,
- indication of utilization contrary to the system description.

The manufacturer of such a vehicle is obliged to declare, in a binding manner within the system description, that the vehicle meets the above requirements.

In addition, section 1a subsection (3) requires that vehicles be consistent with international type approval provisions applicable in Germany or be the object of an exemption pursuant to Art. 20 of EU Directive 2007/46/EG (exemptions for new technologies or new concepts).

While there is no explicit textual reference in the RTA to SAE Levels, it is very clear from parliamentary proceedings⁹ that legislators were manifestly referring to them. Here, the international observer can easily be misled, as the words "highly or fully automated" would seem to suggest SAE Levels 4 and 5. However, it is clear from parlia-

⁹ Refer only to the statement of reasons for the Draft Bill of the Federal Government (Bundesregierung) under point A.I., BR-Drs. 69/17 of 27 January 2017, p. 6 at the bottom.

mentary proceedings that Level 5 automation was intentionally eclipsed from the project at hand; legislators intended to pave the way for the nearer future, i.e. Levels 3 and 4, leaving Level 5 for future consideration.

Following the nomenclature adopted by the German Federal Highway Research Institute (“BAST”) a few years ago, the RTA refers to Level 3 automation as “highly automated” (rather than “conditionally automated” under the SAE nomenclature) and Level 4 as “fully automated” (rather than “highly automated” under the SAE nomenclature, in which the term “fully automated” is reserved for Level 5 automation). Fortunately, the narrative used for the various levels is very similar.

SAE Label	Level of Automation	BAST Label
Driver only	0	Driver only
Assisted	1	Assisted
Partial automation	2	Partially automated
Conditional automation	3	Highly automated
High automation	4	Fully automated
Full automation	5	Driverless (autonomous)

Thus, it is entirely clear that the RTA addresses SAE Level 3 and 4 – Conditional Automation and High Automation in SAE parlance. This is also reflected in the unofficial English translation prepared by or on behalf of the Ministry of Transport and Digital Infrastructure (BMVI),¹⁰ where two footnotes attached to the heading of Section 1a make reference to SAE Level 3 and 4 respectively.

The RTA treats the driver as legally in control of the vehicle, also when he activates and uses an automated driving function for control of the vehicle, even though he is not manually controlling the vehicle in this mode, section 1a subsection (4).

This brings us to the most contentious topic in the German debate surrounding the revised RTA, namely non-driving activities. Should the revised RTA remain silent in this regard, leaving it to the courts to decide, in civil cases where driver negligence has an impact on the outcome, and for sure in criminal cases, whether the pursuit of (“reasonable”) non-driving activities constitutes negligence, or should it explicitly allow such activities, thus enabling drivers to legally take practical advantage of the technology?

While the Ministry of Transport and Digital Infrastructure (BMVI) was in favor of explicitly allowing non-driving activities, the Ministry of Justice (BMJ) adamantly opposed it.

Only quite late in the legislative process was section 1b inserted, addressing the rights and obligations of a driver using an automated driving function: the driver is allowed to turn away from the traffic environment and vehicle control, but must remain sufficiently perceptive¹¹ so that he can resume control without delay when required. This is the case when the automated system prompts him to do so, or when he realizes, or, because of obvious circumstances, must realize that the conditions for using the automated driving functions are no longer being met.

While it is quite possible to posit that “distraction light” is a workable concept, it will be interesting to see how courts will apply it in real life.

2 AEVA Part 1

The core piece of Part 1 of the AEVA is section 2, titled “Liability of insurers etc where accident caused by automated vehicle”.

Its subsection (1) reads as follows:

“Where–

- (a) an accident is caused by an automated vehicle when driving itself on a road or other public place in Great Britain,
- (b) the vehicle is insured at the time of the accident, and
- (c) an insured person or any other person suffers damage as a result of the accident,

the insurer is liable for that damage.”

Thus, this first instance liability of the insurer (or, of the owner, in the case of a vehicle that is not insured) will depend mainly on the following two criteria:

1. Is the vehicle in question considered an “automated vehicle” under the law?
2. If so, was the vehicle “driving itself” when the accident occurred?

Section 7, Interpretation, deals with the meaning of the term “automated vehicle” and refers to section 1 subsection (4), and indirectly to the entire section 1, which reads in part as follows:

“1 Listing of automated vehicles by the Secretary of State

- (1) The Secretary of State must prepare, and keep up to date, a list of all motor vehicles that–
 - (a) are in the Secretary of State’s opinion designed or adapted to be capable, in at least some circumstances or situations, of safely driving themselves, and
 - (b) may lawfully be used when driving themselves, in at least some circumstances or situations, on roads or other public places in Great Britain.

...

- (4) In this Part “automated vehicle” means a vehicle listed under this section.”

Subsection (1)(a) is hardly an epitome of clarity. Firstly, the reference to the “Secretary of State’s opinion” seems to suggest a discretionary element that seems a bit odd in this context. Secondly, the phrase “capable, in at least some circumstances or situations, of safely driving themselves” would seem, on the face of it, broad enough to encompass all three SAE Levels of automation (Levels 3 to 5).

The meaning of this capability might be further informed by the definition of a vehicle “driving itself”. This is addressed in section 7, Interpretation, subsection (1)(a), which states that a vehicle is driving itself “if it is operating in a mode in which it is not being controlled, and does not need to be monitored, by an individual.” This language is somewhat but not fully consistent with SAE terminology for Level 3.

¹⁰ *Supra* note 1.

¹¹ The unofficial translation referred to in note 1 uses the phrase “sufficiently alert”, which seems to suggest a level of attention greater than the German word – “wahrnehmungsbereit” – would seem to require.

In Parliament, notably the House of Lords, there was considerable debate about this.¹² One of the amendments proposed in the process would have achieved more clarity in the wording, by replacing the reference to the Secretary of State's opinion with a requirement that the vehicles "meet the conditions listed in Levels 4 and 5 of SAE International's levels of driving automation." This amendment, however, was not taken up by the Lords. There was a general reluctance to use SAE terminology, because in their Lordships' opinion it does not meet the level of precision needed for type approval and regulation. Also, in the end the prevailing view and the legislative intent was that Level 3 technology is properly regarded as enhanced driver assist systems that do need to be monitored by the driver at all times.¹³ Therefore, Level 3 technology is considered to fulfill neither the criteria of "driving itself" nor those of an "automated vehicle". This view was intensively propagated by the British insurance industry, which in large parts has serious concerns about the safety of Level 3 driving functions.¹⁴

Moreover, the seemingly unclear wording of the AEVA may become clearer when looked at in the context of the Highway Code, which regulates driver behavior in detail. The Highway Code¹⁵ in its current form requires that the driver avoids distraction and monitors the driving environment at all times, and requires him to be "hands-on" at all times, preferably with both hands (Rules 150 and 160). A revision of the Highway Code with a view to automated driving is under consideration, and it appears likely at this stage that a "relaxation" of these requirements will be reserved for Level 4 and 5 automation. If that happens, it would be clear under the AEVA, by implied reference, that Level 3 technology needs to be monitored by the driver.

So, who will be liable in the case of an accident caused by a vehicle with SAE Level 3 technology engaged? While the language of the AEVA is not quite clear, the legislative intent is clear – it does not apply to SAE Level 3. This may further be corroborated by a revision of the Highway Code. Hence, there will be no insurer liability of first instance. The driver will be liable if the claimant can show negligence.

I am aware of the argument that a driver using a Level 3 functionality is considered to be legally "in control" of the vehicle and likely to have acted negligently in case of an accident. I do understand that drivers are being held to a very high standard of care. I would, however, consider it quite possible that a driver acting prudently and in compliance with the manufacturer's instructions will not be held negligent if surprised by a sudden, unexpected aberration or failure of the system.¹⁶ In such a case, the third party victim, as well as the driver if he was injured, may only have the option of bringing a product liability action against the manufacturer or to recover from other parties.

While I do appreciate concerns about the safety of Level 3 technology, I do not quite understand the insurers' motivation to have Level 3 eclipsed from the new first instance liability imposed on them. After all, insurers will still have to pay claims where a driver engaging a Level 3 functionality was negligent. If the danger of a liability gap (see above) does not exist, or is minuscule, what have insurers gained by avoiding first instance liability if they are saddled with the driver liability assumed via the traditional liability insurance path?

IV. Conclusion and Outlook

As we have seen, SAE Level 3 technology presents particular challenges, and legislators do take different positions in this regard for reasons one can consider valid.

While German law recognizes it as a legitimate form of automation and explicitly authorizes non-driving activities also with regard to Level 3 technology, this will not be the case in the UK. Nevertheless, I reckon that vehicles with Level 3 technology will most likely be legal (i.e. approved) in the UK.

There is some uncertainty about the wording of the AEVA, but legislative intent and evolving regulatory context strongly suggest that the AEVA will not apply to Level 3 technology.

I addressed the danger of a liability gap. If it turns out to be significant, there is a problem, the perpetuation of which would hardly be in the interest of insurers. If the liability gap does not exist or is minuscule, what have insurers achieved by keeping Level 3 out of the scheme?

Given the most likely inapplicability of the AEVA to SAE Level 3 technology and the potential liability gap, one can wonder if the AEVA will be able to really live up to the expectation of supporting the advancement of technology. In spite of the reservations in some quarters, it is clear in my view that SAE Level 3 technology will not only happen but will actually be dominating the world of automated driving within the domain of the "traditional" passenger car¹⁷ for years to come, before we see the advent of Level 4, and later again, perhaps Level 5 automaton. The disadvantageous treatment of SAE Level 3 technology given by the AEVA and the emerging regulatory environment may well set back the progress of the technology in the UK.

The AEVA is a clear admission that negligence-based MTPL systems are reaching their limits with increasing automation. The AEVA's response – first instance liability of insurers – may do the trick, but it does strike me as an odd approach, particularly as strict liability is indeed imposed on the owner of a vehicle that is not insured.

12 Hansard, Volume 791 of 9 May 2018, [https://hansard.parliament.uk/lords/2018-05-09/debates/E1642C10-22AA-4356-995D-7087BB7817DA/Debate and of 5 June 2018](https://hansard.parliament.uk/lords/2018-05-09/debates/E1642C10-22AA-4356-995D-7087BB7817DA/Debate%20and%20of%205%20June%202018), <https://hansard.parliament.uk/lords/2018-06-05/debates/C7E8FE14-B881-423E-AC35-1FF9839A1852/AutomatedAndElectricVehiclesBill> (both accessed on 6 January 2019).

13 Hansard, Volume 791 of 5 June 2018, *ibid*, Column 1249.

14 See ABI/Thatcham, "Assisted and Automated Driving – Definition and assessment: summary document", <https://www.abi.org.uk/globalassets/files/publications/public/motor/2018/06/thatcham-research-assisted-and-automated-driving-definitions-summary-june-2018.pdf> (accessed on 6 January 2019). In the diagram shown on p. 7, the line between "Assisted" and "Automated" is drawn between SAE Levels 3 and 4, rather than between SAE Levels 2 and 3, which is the position taken by the SAE.

15 The text of the Highway Code is available at <https://www.highwaycodeuk.co.uk/> (accessed on 6 January 2019).

16 This view is also taken by Pfeffer, Dempster and Allsop in their Legal Briefing "Green light for new Automated and Electric Vehicles Act" of 26 July 2018, <https://www.herbertsmithfreehills.com/latest-thinking/green-light-for-new-automated-and-electric-vehicles-act> (accessed on 6 January 2019).

17 Shuttle buses, people movers etc. with predefined or restricted routes or areas of operation („everything somewhere", meaning full automation in some places) will follow a different development path than "traditional" passenger cars, which will overwhelmingly follow the "something everywhere" format (meaning varying degrees of "assisted" and "automated" functionality in all places where the vehicles are allowed to travel) in the foreseeable future.

In my view, a much more straightforward system of comprehensive strict liability imposed on the keeper would have been preferable to a two-tiered system of negligence-based liability on the one hand and strict liability on the other.

Finally, I'm convinced that once Level 4 automation becomes a reality in production cars, an extension of the MTPL system to the automaker – who would then be covered under the traditional MTPL policy as an additional insured – will gain ground, at least in some Continental European jurisdictions.¹⁸ Since accidents will still occur in large numbers for years to come, it just makes common sense to do so, as this will open the way to new forms of pragmatic overall loss cost distribution, in lieu of burdensome, time consuming and expensive – in other words utterly wasteful – product liability litigation in the form of subrogation claims brought by MTPL insurers against automobile manufacturers and the product liability insurers behind them. It should also be contemplated that prod-

uct liability lawsuits would certainly attract a high degree of media attention, and at least some cases could turn out to prove to be quite detrimental to the further spread of the technology.

Sooner or later, the time will come when the paradigm shift that comes with increasingly automated (and at a later stage, autonomous) vehicles – namely the gradual displacement of the human driver by the technology, for which the manufacturer is responsible – will also be reflected at the level of road traffic liability.

¹⁸ Harmonizing national traffic liability rules at the European level would, of course, be extremely desirable in my view. However, amending the scope of the Motor Insurance Directive in order to include substantive provisions on the determination of liability and compensation “would be extremely difficult”, *Evas*, A common EU approach to liability rules and insurance for connected and autonomous vehicles, 31. This 2018 study is available at [http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU\(2018\)615635_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf) (accessed on 6 January 2019).

Wirtschaft und Technik

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Urban Air Mobility – der Beginn einer neuen Mobilitätsära?

I. Einführung

Mit kaum einem anderen Verkehrsmittel können tausende von Kilometern in so kurzer Zeit zurückgelegt werden, wie mit einem Flugzeug. So trägt einen beispielsweise die Boeing 747 über 900 Kilometer weit und dies innerhalb einer Stunde. Den Weg dahin ebneten eine Vielzahl von engagierten und enthusiastischen Menschen, die dem Traum vom Fliegen ganz und gar verfallen waren. Fasziniert von den geschmeidigen Bewegungen der Vögel in der Luft, verlor Otto Lilienthal 1896 sogar sein Leben bei dem Versuch das Gefühl des Fliegens selber erleben zu können. Trotz dieser Tragödie lässt ihn sein immerwährender Drang – das Fliegen möglich zu machen – als Pionier der bemannten Luftfahrt in die Geschichte eingehen.¹

Als wichtige Waffe in Kriegen wurde besonders durch die militärische Anwendung die Luftfahrtindustrie stark ausgebaut, verbessert und weiterentwickelt, sodass mit Beendigung des Krieges die Passagierluftfahrt wesentlich von diesen Forschungs- und Entwicklungsarbeiten profitierte. Heutzutage ist die Möglichkeit in kurzer Zeit nationale und internationale Strecken zurückzulegen nicht mehr wegzudenken. Ob für berufliche oder private Reisen, das Fliegen ist aufgrund der hohen Geschwindigkeit und den wachsenden Distanzen in einer zunehmend globaleren Welt ein beliebtes Verkehrsmittel.²

Auch die Voraussetzungen für Urban Air Mobility konnten durch das Militär geschaffen werden. Unbemannte Fluggeräte, auch Drohnen genannt, dienen dort als Aufklärungsmittel und sind zudem in der Lage Lasten zu tragen. Bedingt durch die vielseitigen Einsatzmöglichkeiten sowie dem steigenden Bedarf an intelligenten Mobilitätslösungen stellt sich die Frage, ob Urban Air Mobility bspw. in Form eines „Luftaxis“ wirtschaftlich und nachhaltig in Städten Anwendung finden kann.³

II. Entwicklungen im Bereich der Mobilität

Die Mobilität befindet sich im Wandel. Neben dem motorisierten Individualverkehr (MIV) sowie dem klassischen öffentlichen Personenverkehr (ÖPV), entstehen nach und nach immer mehr neue und innovative Mobilitätsangebote. Derartige privatwirtschaftliche oder öffentliche Angebote sollen so komfortabel und individuell gestaltet sein, dass der Besitz eines Kraftfahrzeugs nicht darüber bestimmt, wie flexibel eine Person mobil ist. Car Sharing, Bike Sharing

* Auf Seite III erfahren Sie mehr über die Autoren.

1 Vgl. <https://www.nzz.ch/wissenschaft/technik/sternstunde-der-technik-otto-lilienthal-und-der-traum-vom-fliegen-ld.83538> (Abruf: 8.2.2019).

2 Vgl. *Von Lüneburg*, 2003, Geschichte der Luftfahrt: Luftschiffe, S. 67.

3 Vgl. <https://www.wiwo.de/technologie/forschung/fliegende-helfer-drohnen-koennen-mehr-als-krieg/9814614.html> (Abruf: 8.2.2019).