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INSTITUTE OF
LEGAL INFORMATICS

Liability and new technologies: Concepts and addressees of liability

January 21st, 2020, Brussels



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Agenda

- I. Introduction: Specific risks of emerging technologies
- II. Compensation of victims
- III. The responsibility of the producer
- IV. Conclusion and theses





Introduction: Specific risks of emerging technologies

Responsibility for autonomous systems

The
Guardian

*“... killed by an Uber
self-driving SUV”*

Uber

Self-driving Uber kills Arizona woman in first fatal crash involving pedestrian

Tempe police said car was in autonomous mode at the time of the crash and that the vehicle hit a woman who later died at a hospital

Sam Levin and Julia Carrie Wong in San Francisco



▲ A car passes the location where a woman pedestrian was struck and killed by an Uber self-driving sport utility vehicle in Tempe, Arizona, on Monday. Photograph: Rick Scuteri/Reuters

An autonomous Uber car killed a woman in the street in [Arizona](#), police said, in what appears to be the first reported fatal crash involving a self-driving vehicle and a pedestrian in the US.

Tempe police [said](#) the self-driving car was in autonomous mode at the time of the crash and that the vehicle hit a woman, who was walking outside of the crosswalk and later died at a hospital. There was a vehicle operator inside the car at the time of the crash.



Compensation of victims

Protection of victims

- Principle: Risks arising out of the use of new technologies should not be borne by the victim
- Conclusion: Compensation for damages should be guaranteed



Models of compensation

Compensation funds

- Compensation funds replacing liability
- Compensation funds filling gaps when liable party cannot compensate

Liability

- Fault-based liability
- Strict liability in a broad sense (e.g. product liability; requirement of a violation of a norm, e.g. defect)
- Objective liability (for any damage caused within a defined sphere of risk, e.g. operation of a car)

Conclusion: Need for objective liability to guarantee compensation in some cases

Parties and roles

Producer



Operator

(e.g. registered keeper
of a car)



Seller



User

(e.g. driver of a car)



Liability of the operator

- Thesis:

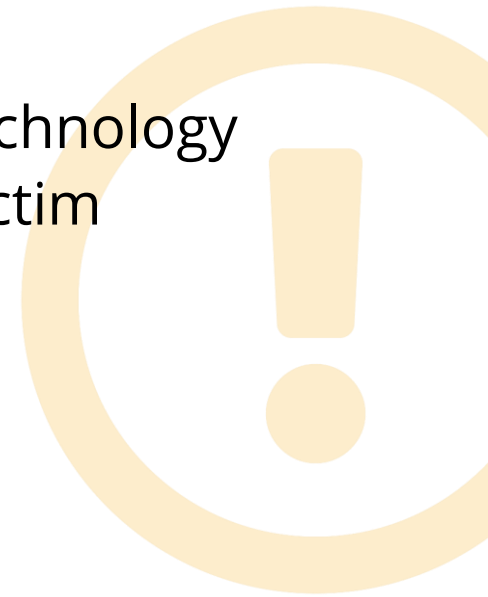
“The operator should be liable to compensate the victim.”

- Rationale:

- The operator benefits from the use of the technology
- The operator is very often best in place to control the risks of the technology
- The operator (rather than the producer) can be addressed by the victim

- Expert Group key finding:

[10] Strict liability should lie with the person who is in control of the risk connected with the operation of emerging digital technologies and who benefits from their operation (operator).





The responsibility of the producer



The responsibility of the producer

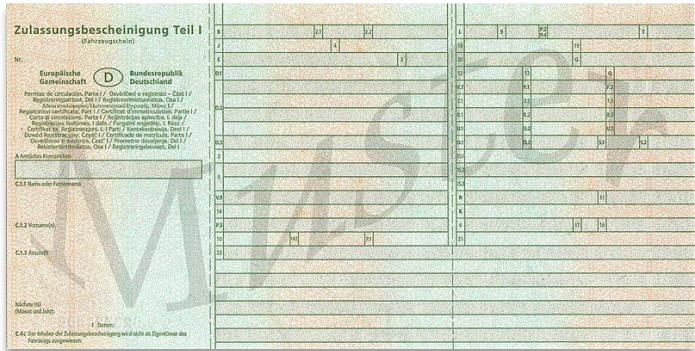


Liability for Autonomous Cars

Liability for car accidents: Roles and Participants



Driver



Registered Keeper



Insurer



Manufacturer

Liability of the Registered Keeper

Section 7 Paragraph 1 German Road Traffic Law **Liability of the registered keeper, clandestine operation of a vehicle**

If, during the operation of a motor vehicle or a trailer to be carried along by a motor vehicle, a person is killed, the body or health of a person injured, or property is damaged, the holder of the vehicle is obligated to compensate the injured person for the damages arising therefrom.

Liability of the Driver

Section 18 paragraph 1 Road Traffic Act (Straßenverkehrsgesetz; StVG) Obligation of the driver to pay compensation

In the cases where section 7 paragraph 1 applies, the driver of the vehicle or trailer is also obliged to pay compensation pursuant to the provisions of sections 8 to 15. The obligation to pay compensation is excluded if the damage is not caused by the fault of the driver.

Compulsory Insurance

- **Section 1 Compulsory Insurance Act (Pflichtversicherungsgesetz; PflVG)**
 - The duty of the registered keeper to maintain compulsory insurance
- **Section 115 I 1 No. 1 Insurance Contracts Act (Versicherungsvertragsgesetz; VVG)**
 - The injured party can claim against the insurer directly
- **Section 116 I 1 Insurance Contracts Act (Versicherungsvertragsgesetz; VVG)**
 - Sole liability of the insurer in the internal relationship

Interim Conclusion

- Regulation of accidents involving vehicles occurs via a system of compulsory insurance
- Focus of liability is on the vehicle's registered keeper



Product Liability Law

Section 1 paragraph 1 1st sentence (Product Liability Act; Produkthaftungsgesetz, ProdHaftG) Liability

In such case as a defective product causes a person's death, injury to his body or damage to his health, or damage to an item of property, the producer of the product has an obligation to compensate the injured person for the resulting damage.

- Defect (of the product) and causal link are required to establish liability
- Liability is similar to Section 823 I BGB (German Civil Code)

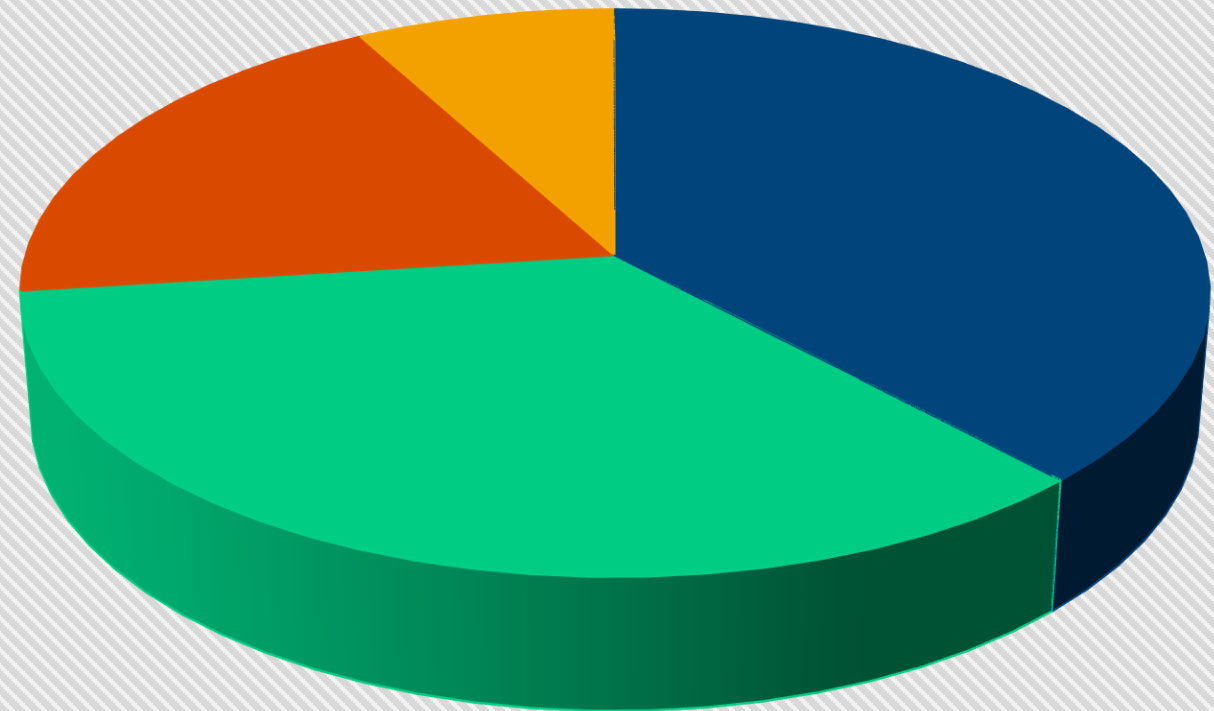
Manufacturer as the Driver of the Vehicle?

Section 18 paragraph 1 StVG **Obligation of the driver to pay compensation**

In the cases where section 7 paragraph 1 applies, the driver of the vehicle or trailer is also obliged to pay compensation pursuant to the provisions of sections 8 to 15. The obligation to pay compensation is excluded if the damage is not caused by the fault of the driver.

Liability for Autonomous Cars

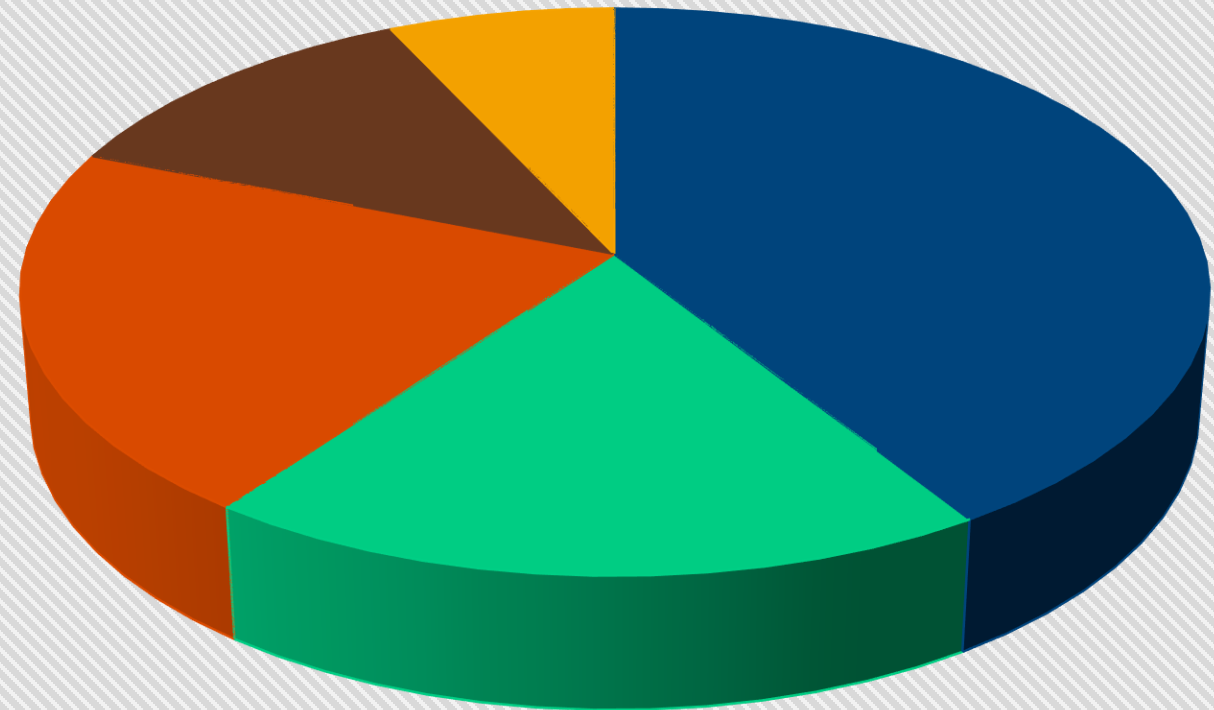
- **Bitkom-Survey** on liability for autonomous vehicles
 - The question posed was, who should be liable in the case of accidents caused by self-driving cars?
 - **1,006 people over the age of 14 years** were asked



■ **Software-provider (38 %)**
■ **Vehicle manufacturer (35%)**
■ **Operator (19 %)**
■ **Registered keeper (0 %)**
■ **No answer (8%)**

Liability for Autonomous Cars

- **Bitkom-Survey** on liability for autonomous vehicles
 - The questions posed was, who should be liable in the case of accidents caused by self-driving cars?
 - Survey of:
177 Business involved in the automobile industry



■ Software-provider (41 %)
■ Vehicle manufacturer (19%)
■ Operator (21 %)
■ Registered keeper (12 %)
■ No answer (7%)

Fundamental Principles of Objective Liability for Vehicles

Section 7 paragraph 1 Road Traffic Act (StVG) Liability of the registered keeper, joyriding

If during, the use of a motor vehicle or a trailer which is intended to be towed by a motor vehicle, a person's death, injury to a person's body or damage to his health, or damage to an item of property is caused, the registered keeper has an obligation to compensate the injured person for the resulting damage.

- Goals of Section 7 StVG
- Allocation of risk according to controllability
- Protection of the injured party
- Effectiveness of compulsory insurance

Objective Liability of the Manufacturer de lege ferenda

- **Proposal:**
Introduction of objective liability of the manufacturers of self-driving cars
- **Requirements**
 - Manufacturer
 - Accident must have occurred whilst the vehicle was driving autonomously



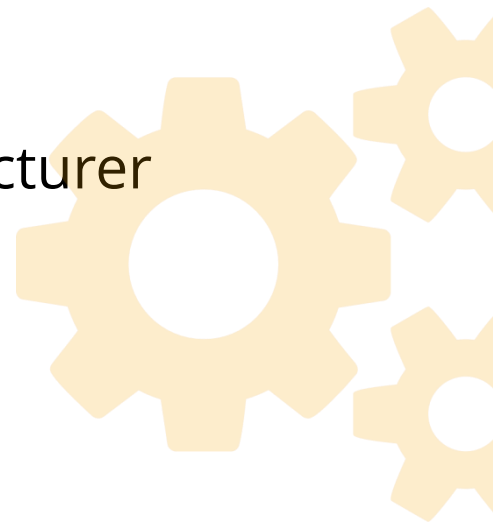
Objective Liability of the Manufacturer de lege ferenda

- **Proposal:**

Introduction of objective liability of the manufacturers of self-driving cars

- **Relationship to liability of registered keeper**

- Liability of registered keeper will remain
- Joint and several liability of the external relationship
- Internal settlement between the registered keeper and the manufacturer



Conclusion

- Liability for self-driving cars cannot be solved satisfactorily by de lege lata
- **Solution:**
Introduction of objective liability of the vehicle manufacturer
- Coordination with liability of the registered keeper





The responsibility of the producer

**Liability for Autonomous Systems
in general**

Liability for Autonomous Systems in general



Liability for Autonomous Systems in general

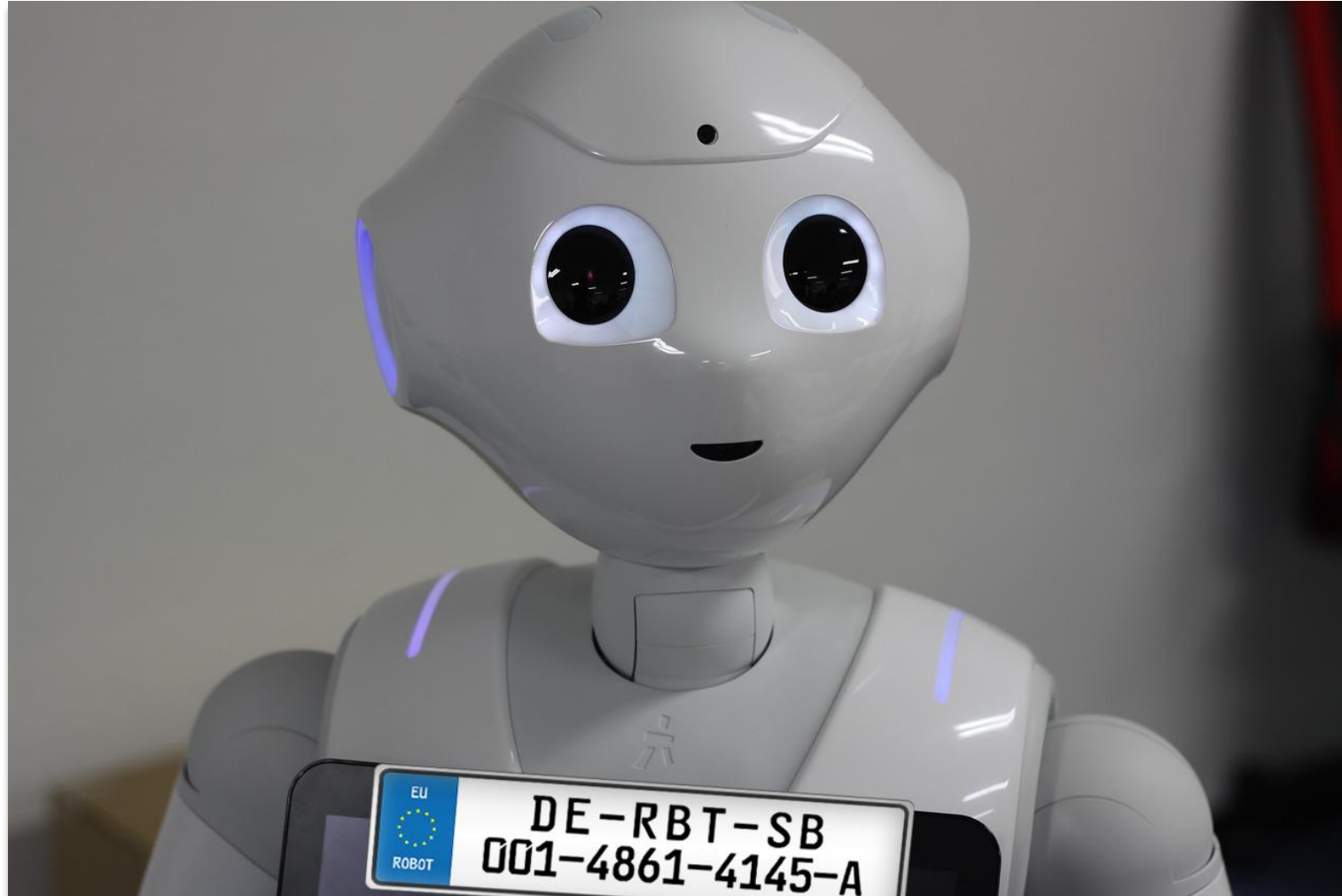


Liability for Autonomous Systems in general

Section 833 German Civil Code Liability of animal keeper

If a human being is killed by an animal or if the body or the health of a human being is injured by an animal or a thing is damaged by an animal, then the person who keeps the animal is liable to compensate the injured person for the damage arising from this. Liability in damages does not apply if the damage is caused by a domestic animal intended to serve the occupation, economic activity or subsistence of the keeper of the animal and either the keeper of the animal in supervising the animal has exercised reasonable care or the damage would also have occurred even if this care had been exercised.

Classification and Registration



Classification and Registration

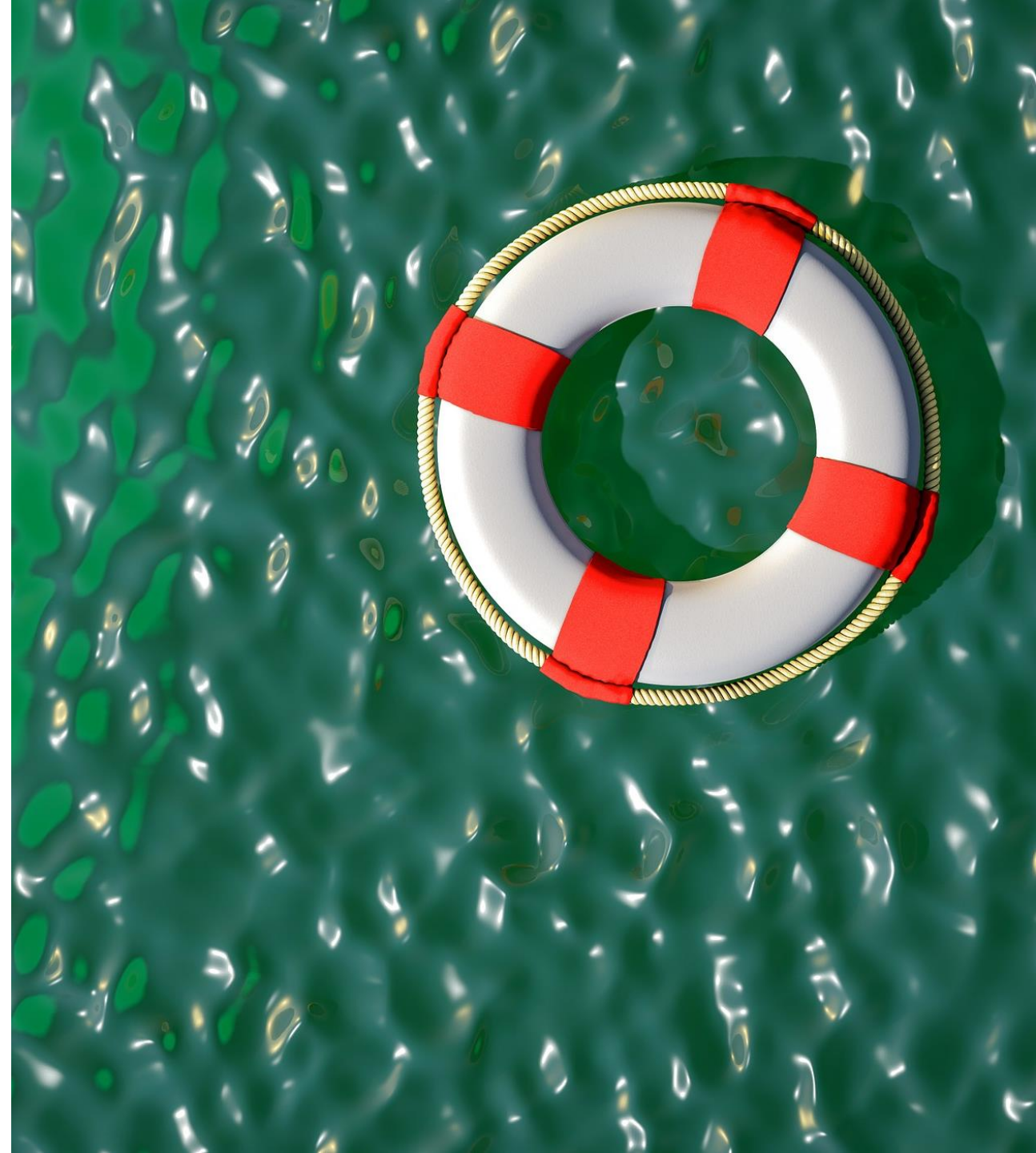
European Parliament resolution (2015/2103(INL)) No. 59

Calls on the Commission, when carrying out an impact assessment of its future legislative instrument, to explore, analyse and consider the implications of all possible legal solutions, such as:

- e) ensuring that the link between a robot and its fund would be made visible by an individual registration number appearing in a specific Union register, which would allow anyone interacting with the robot to be informed about the nature of the fund, the limits of its liability in case of damage to property,

The concept of a second operator

- Goal: Liability rules should incentivise the producer to provide safe products and services
- Challenge: The operator is not necessarily best in place to control the risks
 - „Consumers“ as end users may have little capacity to control risks
 - Producers may have strong control over the use of the product



The concept of a second operator

- Suggestion of the expert group: Producer as second Operator
- Expert Group key finding:
 - [11] If there are two or more operators, in particular
 - (a) the person primarily deciding on and benefitting from the use of the relevant technology (frontend operator) and
 - (b) the person continuously defining the features of the relevant technology and providing essential and ongoing backend support (backend operator),strict liability should lie with the one who has more control over the risks of the operation.



The responsibility of the producer



Product liability and Artificial Intelligence

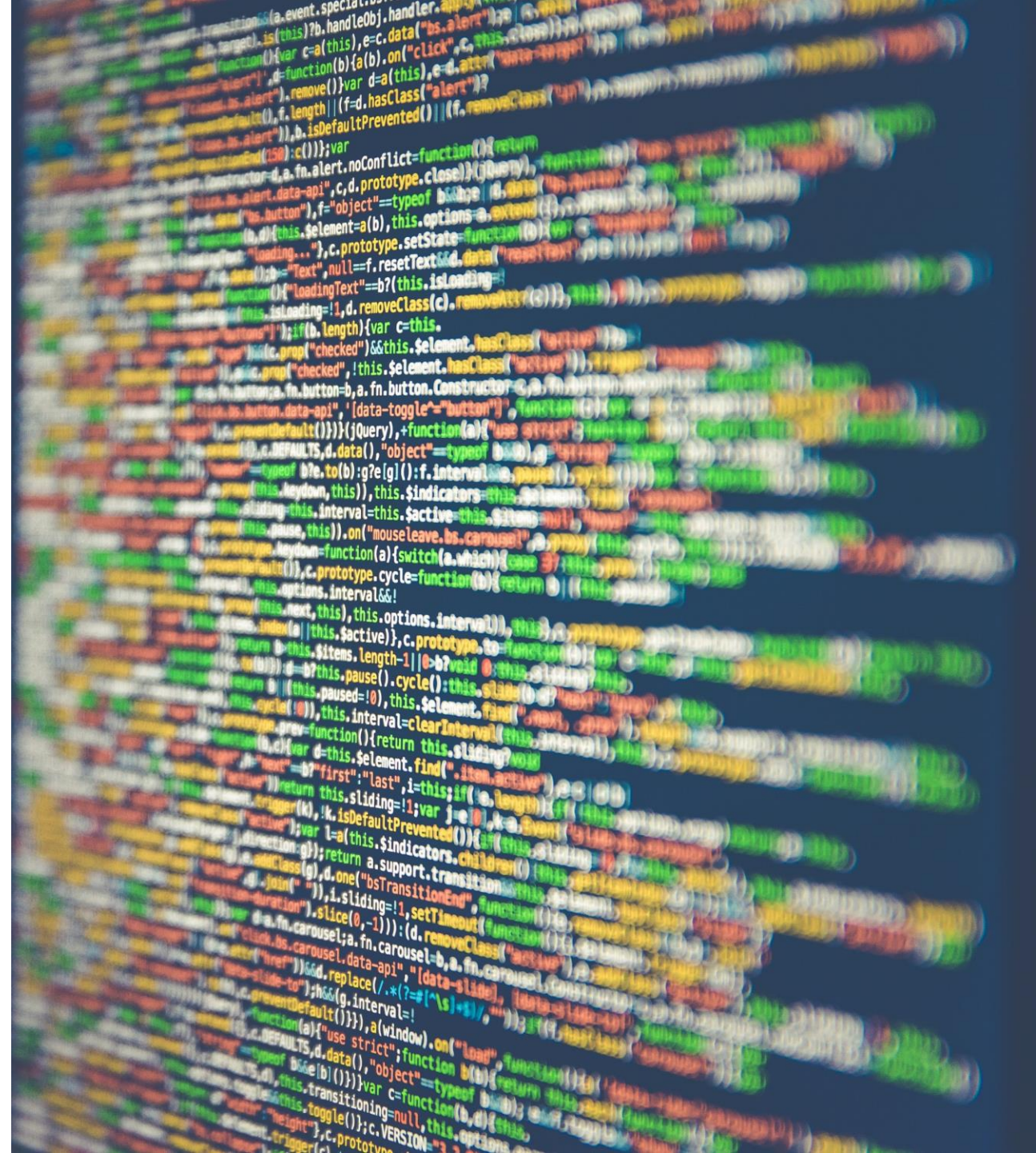
Behaviour as a defect?

■ Question

- Is an individual occurrence of defective behaviour in itself a defect of the product which generated such defective behaviour?

■ Examples

- a driving error by an autonomous car
- an incorrect answer given by a Robo-Advisor



Product liability and Artificial Intelligence

■ Concepts

- Defective behaviour constitutes a product defect
- Defective behaviour is not a product defect
- Autonomous cars are not defective when they are, on average, better than human drivers

■ Monitoring and updating of systems

■ Technical development and defect



Product liability and Artificial Intelligence

- Expert Group key findings:

[16] Operators of emerging digital technologies should have to comply with an adapted range of duties of care, including with regard to

- (a) choosing the right system for the right task and skills;
- (b) monitoring the system; and
- (c) maintaining the system.

[17] Producers, whether or not they incidentally also act as operators within the meaning of [10], should have to:

- (a) design, describe and market products in a way effectively enabling operators to comply with the duties under [16]; and
- (b) adequately monitor the product after putting it into circulation.



Conclusion and theses

Need for further development of the Legal Framework

1. The existing liability system contains gaps and must be developed further.
2. A new system of liability for autonomous systems should be introduced to guarantee compensation for victims.



Need for further development of the Legal Framework

3. Objective liability should be a central element of the liability system for new technology.
 - a) In general, operators of autonomous systems should be liable to compensate victims.
 - b) In addition, objective liability of producers should be introduced in some cases.



Need for further development of the Legal Framework

4. Insurance is an important instrument in controlling the allocation of risk in connection with autonomous systems.
5. Compensation funds can supplement compulsory third-party insurance and should be implemented in this area.



Need for further development of the Legal Framework

6. As an element of the liability system duties to adequately train and monitor autonomous systems based on machine learning should be recognised and clarified.





Thank you very much!

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