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Liability for Intelligent Robots from the Viewpoint of the Strict Liability Rule of the Hungarian Civil Code*

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Abstract. The European Parliament resolution of 16 February 2017 on Civil Law Rules on Robotics proposed that the strict liability and the risk management approach are alternative legal instruments to achieve the goals set out by this instrument. The evolution of strict liability is parallel with technological change; our question here is whether the elaborated rules are appropriate for managing new problems. For establishing accountability, the question arises: who is to be held liable for damages and based on which form of liability? Setting aside the issues of product liability and setting aside the independent liability of the most sophisticated autonomous robots having 'electronic personality', this essay concentrates on liability questions of the user, and it examines the strict liability rules instituted by the Hungarian Civil Code and their application in practice. According to the results of our previous research, the judicial practice regarding the general clause of liability for dangerous activity (Section 6:535. HCC) is quite flexible and covers the liability issues of damage caused by artificial intelligence. We observed also that the criterion 'dangerous' means less and less risk of damage within normal circumstances, and this statement of fact in practice also successfully competes with other strict liability rules (i.e. product liability for malfunctioning medical devices, liability for dangerous animals, etc.). The capacity of the 'keeper' or 'operator' of the robot and the emerging new types of risks are also touched upon.

Keywords: strict liability, dangerous activity, artificial intelligence, extra-contractual liability, capacity of operator, Hungarian Civil Code

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1. Introduction

The European Parliament (EP) resolution of 16 February 2017 on Civil Law Rules on Robotics lays down as principle that the future legal solution should not limit the forms of compensation which may be offered to the aggrieved party on the sole grounds that damage is caused by a non-human agent (i.e. robot). The title of this essay uses the notion 'robot' in the meaning of artificial intelligence, which is embedded in hardware devices (e.g. advanced robots, autonomous cars, drones, or Internet of Things applications).[1]

The possible application and appearance of AI systems is manifold.[2] That means it is hard to elaborate one general clause for liability for damages which would be appropriate for all cases and for all AIs. For example: special issues are emerging from the appearance of autonomous cars on the roads because these devices are sophisticated combinations of sensors and AI software, where the latter is dedicated exclusively for this special purpose. In addition, national road traffic liability rules are like a quilted EU carpet, where only the MID (Motor Insurance Directive) provides some uniformity not on the level of liability for damages but on the level of liability insurance. Autonomous cars being a kind of motor vehicle, the danger posed by an autonomous car is mainly attributable to the operation of an engine. However, under certain circumstances, other elements of risk would also appear as new threats emerge from AI technology.

The above-mentioned EP resolution proposed that the strict liability and the risk management approach should be alternative legal instruments to achieve the above-mentioned goal. In our opinion, risk management systems, regardless of their typology (self-insurance, compulsory liability insurance, or non-fault systems), should not be able to adversely affect the rules of civil law liability, as pointed out in the relevant literature.[3]

In order to draw up some solutions for the question 'Should new rules be introduced?', we should briefly touch upon similar legal problems concerning steam engines and automobiles which appeared on the roads more than a century ago[4] and which have shaken the classic liability systems based on the subjective criterion of fault. The evolution of strict liability is parallel with technological

1 Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions on Artificial Intelligence for Europe, Brussels, 25.4.2018 COM(2018) 237 final.

2 According to the EU Commissions Communication, Artificial Intelligence for Europe (SWD(2018) 137 final), AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems), or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones, or Internet of Things applications).

3 Fiore 2017, Wagner 2006. 277–299.

4 Kolosváry 1908.

changes; our question is here whether the elaborated rules are appropriate to manage new problems.[5]

It is obvious that strict liability rules may hinder the process by which new intelligent devices become part of everyday life either as new products on the market (economic benefits) or as useful aid for elderly people with disabilities (social benefits).[6] But the uncertainty of the regulation is also to be avoided. It should also be mentioned that the fragmentation and lack of harmonization of national liability regulations could also slow down the development of EU robot liability law.[7]

For establishing accountability, the questions to be answered are: on what do we base the liability and who is to be held liable for damages. Setting aside the issues of product liability and setting aside the independent liability of the most sophisticated autonomous robots having an 'electronic personality', this essay concentrates on liability questions of the user, and it examines the strict liability rules provided for by the Hungarian Civil Code (HCC) and the adjacent judicial practice. According to the results of our previous research,[8] the judicial practice regarding the general clause of liability for dangerous activities[9] is quite flexible and able to cover the liability issues of damage caused by artificial intelligence. We also observed that the criterion 'dangerous' means less and less risk of damage within normal circumstances, and this statement of fact in practice also successfully competes with other strict liability rules (i.e. product liability for malfunctioning medical devices, liability for dangerous animals, etc.). This essay will also touch upon the identity of the 'keeper' of the robot (registered or not, owner or not), the casual link between operating a robot, and the damage caused.

2. Technological Development and Strict Liability

Technological development brings changes in society gradually. Nowadays, devices with weak or narrow AI are being utilized, and, according to conservative estimates, the strong or general AI is expected to emerge on the market around 2040. General AI is a software application that exhibits analytical, decision-making, and learning abilities similar to those of humans.[10] At the first stage, where we are currently, traditional liability rules, especially strict liability, serve as a bridge between the concepts of traditional civil liability and other, innovative concepts. In our opinion, the gradual development of artificial

5 Martin-Casals 2014.
6 Richards–Smart 2016.
7 Wagner 2018.
8 Pusztahelyi 2018b.
9 Section 6:535 HCC.
10 Artificial Intelligence for Europe SWD(2018) 137 final.

intelligence entails innovative thinking and gradual development of liability law. We agree with what the relevant literature pointed out, that the adaptation of a strict liability rule intended to cover all kinds of uses of artificial intelligence – without any regard to the characteristics of the applications or to the specific nature of the sector – is not preferable and would be excessive.[11] Furthermore, taking graduality into consideration, it seems premature to establish liability rules in this present level of development. However, certain fields of AI utilization have already reached a high degree of technological progress, where the application of traditional liability rules raises a number of acute problems even now.

One of these fields is constituted by the issues emerging from the roll-out of autonomous cars. An autonomous car is a kind of motor vehicle.[12] According to Hungarian tort law, its operation is deemed as a dangerous activity which triggers strict liability. Generally speaking, in Europe, damage caused by motor vehicles is covered by compulsory liability insurance.[13] In continental European legal systems, risk-based liability prevails[14] although some parallels exist with the fault-based liability rule. Strict liability is replaced or at least supplemented by other compensation systems, too. It means that there are well-established compensation systems in European Member States, within the common framework of the Motor Insurance Directive.[15] The broad judicial interpretation[16] of the scope of the Directive amplifies the strictness of the liability rules as liability insurance law and tort law interact on the level of practice.[17]

11 Borghetti 2019. 72.

12 The practice recommendation issued by the Society of Automotive Engineers (J3016-2018), *Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles*, is accepted worldwide among automotive manufacturers.

13 Directive 2009/103/EC of the European Parliament and of the Council of 16 September 2009 relating to insurance against civil liability in respect of the use of motor vehicles, and the enforcement of the obligation to insure against such liability (MID).

14 Karner 2018.

15 The amendment of the MID is adopted. One of its goals is to adjust the motor insurance system to new technological developments (autonomous or semi-automated cars, other electric vehicles, e.g. Segway, e-bikes). See COM(2018) 336 final (Brussels, 24.5.2018) 2018/0168 (COD) *Proposal for a Directive of the European Parliament and of the Council*.

16 A number of judgments of the Court of Justice of the European Union [in the Vnuk case (C-162/13), the Rodrigues de Andrade case (C-514/16), the Torreiro case (C334/16)] have clarified the scope of the Directive. According to the Vnuk judgement of September 2014, the third-party motor liability insurance obligation in Article 3 of the Directive covers any activities consistent with the 'normal function' of a vehicle, regardless of the location where the vehicle is used. The Rodrigues de Andrade judgement of 28 November 2017 clarified that only the 'normal use of the vehicle as a means of transport' and 'irrespective of the terrain' should be covered by third-party motor liability insurance, excluding accidents where the vehicle was used for exclusively agricultural use. See COM(2018) 336 final (Brussels, 24.5.2018) 2018/0168 (COD) *Proposal for a Directive of the European Parliament and of the Council*.

17 Baker 2005. 3–4.

The study commissioned by the European Parliamentary Research Service with the title *A Common EU Approach to Liability Rules and Insurance for Connected and Autonomous Vehicles*[18] determines four policy options to address the current shortcomings of the EU liability framework. These are the *status quo* (Option 1), *reform of the Product Liability Directive* (Option 2), *reform of the Motor Insurance Directive* (Option 3), and the *introduction of new EU legislation* as well as setting up a no-fault insurance framework for damages resulting from AVs (Option 4). The unification of the strict liability rules of Member States applied to artificial intelligence can be imagined within Option 4, however, with the assistance of a no-fault insurance framework. At the other end of the scale, Option 1 leaves the legislation untouched and places the onus of determining rules for liability on judicial practice, on a case-by-case basis.

In our opinion, in the first phase of the development of AI systems, the latter option would be a proper choice until the moment when the proliferation of artificial intelligence will facilitate the collection of enough comparable and reliable data to decide whether these new artificial agents cause much less damage than a human driver or not and to draft the new EU legislation which can provide appropriate compensations for victims.[19] These two options are applicable for all types of artificial intelligence, but the applicability of Option 2 and Option 3 is restricted to special utilization sectors. Especially Option 3, the reviewing of the MID, is set out with connected, automated, and autonomous vehicles in mind. Option 2, the reform of the PLD, would be a good solution, but its application has its limits. The rules of product liability, such as the concept of *product*, the *burden of proof* on the injured person, or the *causal link* between defect and damage, may not be appropriate even after a reform. For example, the defectiveness of the algorithm is hardly detectable at the time of the market release, or it may occur later during a software update or as a result of machine learning or even cybercrime.[20]

To sum up, the Hungarian legislator has two options. The first one is to maintain the status quo. In this scenario, the liability rule for dangerous activities will be applied. Issues emerging from this solution will be discussed in the following. In the case of autonomous and automated vehicles, this strict liability serves the functioning of the compulsory liability system of motor vehicles. The other possible way is a more drastic option, and it depends on the strategy the EU will eventually opt for. In case there will be no special rule, or not for all economic

18 A common EU approach to liability rules and insurance for connected and autonomous vehicles. European Added Value Assessment Accompanying the European Parliament's legislative own-initiative report (Rapporteur: Mady Delvaux) PE 615.635.

19 Borghetti 2019. 66.

20 Borghetti 2019. 72.

sectors where AI is applied, the Hungarian legislator would create new rules for the utilization of AI.

In our opinion, liability issues will be left in Member State competence for a long time, with the exception of product liability, sustaining the traditional national tort law regimes. Only certain fields of AI applications require special sectoral regulation on the EU level.[21] It is noted that the national regulation relating to automated or autonomous cars among European countries had begun to flourish.[22] The sector of automated or autonomous driving systems requires special liability rules. The question is whether there is a necessity and a possibility at the level of the EU to broaden the scope of regulation of the substantive liability law in order to harmonize traffic law as a whole. Alternatively, the national road traffic law systems may remain untouched as well as the compulsory liability insurance schemes. We emphasized these questions above to show that the application of artificial intelligence with the special issues emerging from that is only one factor in determining the future issues of liability. Our other goal is to illustrate that some special characteristics, even within the operation of an autonomous car, will put the traditional liability rules as well as the risk-based rules to the test.

Setting aside these questions, in the following, the Hungarian strict liability rule currently in force for dangerous activities will be presented. What advantages could unfold that provide a remarkable potential for this statute now, and can it be sustained for the future?

3. Rationales of the Risk-Based Strict Liability

The Commission Staff Working Document called *Liability for Emerging Digital Technologies*[23] Accompanying the Communication *Artificial Intelligence for Europe* (COM (2018) 237) differentiates between *fault-based* and *risk-based* extra-contractual liability regimes. This Document emphasizes that the risk-based strict liability rule is widespread in Europe, but in manifold forms. It highlights the speciality of the Hungarian rule for strict liability for dangerous activity. As it is a 'Generalklausel' (blanket clause),[24] it does not specify which activities trigger the strict liability. 'It is often said that fault liability is attributable to corrective/

21 See also. 'It should be discussed whether that intervention should be developed in a horizontal or sectorial way and whether new legislation should be enacted at EU level.' Commission Staff Working Document *Liability for Emerging Digital Technologies* Accompanying the Communication *Artificial Intelligence for Europe* (SWD(2018) 137 final), 21.

22 Juhász 2018.

23 Commission Staff Working Document *Liability for Emerging Digital Technologies* Accompanying the Communication *Artificial Intelligence for Europe* (SWD(2018) 137 final).

24 According to Tamás Lábady, the liability rule for dangerous activity is the most general specific case of liability. Lábady 2014. 2268.

commutative justice (justitia commutativa), and risk-based liability, by contrast, is attributable to distributive justice (justitia distributiva).'[25] In other words, the strict risk-based liability rule strengthens victims' positions to claim damages, and it serves the compensatory aims of tort law.

The historical approach to liability for hazardous activities as resulting from the literature of that time shows that the concept of causality was widely accepted as the rationale for strict liability. According to Gyula Dezső, the rationale of causality can serve as a common theoretical ground for all strict liability rules (liability without fault).[26] According to Béni Grosshmid, the *quasi delictum* is a presumptive *delictum*, in the case of which the legislator disregards the duty to prove fault (and does not even allow its proof).[27] According to Gyula Eörsi, the obligation for compensation of the damage caused by hazardous operations encompasses three fields: the field of damage caused by subjective fault, the field of damage caused by conduct without subjective fault, and the mere indemnification without even holding someone liable for it.[28] Géza Marton stressed risk allocation at a societal level as a function of liability for damages. He emphasized that the rationale of the *Gefährdungsprinzip* (the endangerment principle), *risque creé* (i.e. the created risk in and of itself) is not the best way to establish strict liability. He instead placed the principle of equity in the focus.[29] If the rationales which are listed by Géza Marton as theorems of strict liability – besides the principle of prevention (deterrence) – are surveyed, the principle of *aktive interesse (within the same conceptual scope as the principle of cuius commodum eius periculum)*[30] and the principle of *societal distribution of damage* should also be mentioned. The principle of societal distribution of damage means that the person who must bear the burden of the risk of damage is the one who can better distribute the loss suffered among members of society than the victim could.[31]

Another rationale is based on the concept of permission: someone who is permitted to use a particularly dangerous thing for her own advantage should equally bear the associated risks.[32]

25 Karner 2018. 368.
26 Dezső 1932. 192.
27 Grosschmid 1900. 398.
28 Eörsi 1972. 67.
29 Marton 1931.
30 The law may attribute liability to the person that carries out the activity because this person has created a risk, which materializes in some damage and at the same time also derives an economic benefit from this activity. See Working Document, 8. (Briefly: the one who takes the advantage also shall bear the risk.)
31 '…every enterprise has to bear its own costs, damages included, or it has no place under the sun.' See: Eörsi 1975. 215–235. For a law and economics approach, see Wagner 2018.
32 Karner 2018. 368; see also: Ehrenzweig 1966. 1454–1455.

4. Liability for Dangerous Activity in the Hungarian Civil Code[33]

Under the provision of HCC Sec. 6:535. subs 1: 'A person who pursues an activity that is considered dangerous shall be liable for any damage caused thereby.' The Hungarian Civil Code applies a *blanket clause* (Generalklausel) to establish strict liability for dangerous activities, leaving undefined which activities are assumed to be dangerous. Thus, the category is left undefined by legislation (except for certain special activities, e.g. for nuclear power generation and referring rules, e.g. keeping of dangerous animals or pollution of the environment) but is determined instead by jurisprudence on a case-by-case basis (e.g. use of motor-propelled vehicles or machinery, of explosive or toxic materials, of firearms, etc.).

In European countries, this general approach to dangerous activities is quite unique, only a few countries (e.g. the Italian and Portuguese Civil Code) have risk-based general strict liability rules covering a large scale of dangerous activities. Although the relevance and appropriateness of the classical differentiation between subjective fault-based and objective (no-fault) liability are fading, in this viewpoint, the strict liability rule is nearly as abstract as the general fault-based rule. Every new risk of technological development can be subjected to this rule as the judicial practice interprets the given case often with the help of analogy.[34]

In European countries where special strict liability rules to specified types of dangerous activities prevail, tort law reforms have been drafted – as a tendency in the last decades[35] – with a general rule for dangerous activities, because of the gaps in the fragmented regulation. Even the application by analogy of special rules is accepted by certain national legal systems.[36]

In our opinion, the rule of liability for dangerous activity serves as a general strict rule which can compete with other strict liability rules such as product liability (HCC 6:550–6:559) or liability for building damages (HCC 6:560–561). An examination of the Hungarian judicial practice shows that this characteristic prevails even against the applicability of the product liability rule[37] in spite of the fact that the Directive (PLD) imposed on Member States an obligation for exhaustive harmonization.[38]

33 Act No. V of 2013 (a Polgári Törvénykönyvről).

34 Pusztahelyi 2018a.

35 For example: Griss–Kathrein–Koziol 2006, Reischauer–Spielbüchler–Welser 2006, Huguenin–Hilty 2013.

36 Battesini 2005. 7–9, van Dam 2013.

37 In a case resolved by the Supreme Court of Hungary, No. BH2005.251, and in another case, No. BDT2016.3459, the medical devices malfunctioned and caused serious injuries to the patients.

38 'According to the CJEU, if the claim falls under the scope of product liability, the national court is prevented from applying parallel regimes of national law, even if the alternative could be more beneficial for the victim.' See Menyhárd 2017. 13–18. We agree with Attila Menyhárd, who

Studying the interactions between liability for hazardous operations and liability insurance, authors emphasize the flexibility of this general clause, whose interpretation allows the statute to be adapted to the concepts and institutions of insurance law. For example, in the field of motor vehicle insurance, the operation of a motor vehicle also covers the case when the engine is not running but the driver causes damage to other persons (by opening the door). In our opinion, from a theoretical viewpoint, this flexibility is not the best way to provide the proper coordination of the two systems, but this feature serves the applicability of the liability rule in challenging and modified circumstances created by new liability insurance schemes for AI technology. So, the judicial practice regarding the general clause of liability for dangerous activities is quite flexible[39] and able to cover the liability issues of damage caused by artificial intelligence.

Nevertheless, it should be highlighted here that domestic extra-contractual liability rules (not only fault-based but even strict ones) with their complexity generally do not facilitate victims' claims to compensation because of the burden of proof which is placed on the victims themselves or due to evidential difficulties. From this viewpoint, the special liability rule for dangerous activities has a great potential compared with product liability, for instance. In addition, the Hungarian extra-contractual liability regime does not exclude that a fault-based and risk-based liability could exist alongside one another. The competing contractual and extra-contractual claims will be discussed later.

In the viewpoint of the Law and Economics approach, Gerhard Wagner states: 'It is required to keep an eye on the different components that together represent the costs that accidents impose on society. One important component is the cost that accidents impose on victims, another is the cost that potential injurers incur for taking care, i.e. for taking precautions that prevent accidents from occurring.'[40]

He emphasized, that: '[T]he administrative costs of operating a liability system must not be ignored. Liability rules should not be based on elements that are difficult and therefore costly to establish in legal proceedings before a court or in settlement negotiations with responsible parties or their insurers.'[41]

It should be also mentioned here that the administrative cost can be reduced not only by shifting the burden of proof but also by simplifying the proceedings for enforcing claims for damages (e.g. in a collective redress procedure). The claim for damages grounded on liability for dangerous activity triggers relatively low administrative costs.

remarks that the national courts are obviously reluctant to draw the consequences of the maximum harmonization established by the CJEU in cases C-154/00 Commission of the European Communities v Hellenic Republic and C-183/00 María Victoria González Sánchez v Medicina Asturiana SA. See also Whittaker 2014. 175–176.

39 Pusztahelyi 2018b. 3–8.

40 Wagner 2019. 31.

41 Wagner 2019. 31.

But how can we determine the dangerousness of the activity? It is still a challenge to determine the degree of the danger posed (how high or extraordinary it is). The Hungarian blanket clause provides the opportunity for the judge to determine and assess this in a way which is appropriate to the case. In judicial practice, in order to assess the dangerous nature of an activity, one should consider the characteristic features of the device applied in the course of the activity and the potential consequences of the events triggered by this activity. The issue should be assessed on a case-by-case basis. Whether a slight abnormality occurring under normal conditions of use can cause damage in a disproportionately wide range or disproportionately large amount should also be held in view.[42]

However, the level of potential hazard at which the court finds the activity as dangerous is decreasing. It means that the core element of this statute would be assessed in most cases. This characteristic also helps the applicability of this liability rule.

Both causality and the conditions for exoneration from under responsibility display special features. As far as the causal link is concerned, the prevailing legal opinion emphasizes some presumption of the causality. *If the material harm (damage) is one of the normal or predictable consequences of this activity, it falls under the scope of inherent danger of this hazardous operation. Therefore, the causal link is presumed to exist*, with the exception of situations when there are several different possible causes which could have contributed to the damages occurring. This causal link extends also to the external causes which enter the scope of hazardous operation when the keeper/operator is obliged to prevent the negative impacts. In our opinion, this causality is also reflected by the exoneration rule: 'Where such person is able to prove that the damage occurred due to an unavoidable cause that falls beyond the realm of dangerous activities, he shall be relieved from liability' (HCC Sec 6:535 subs 1).

Finally, we should mention a fundamental change introduced by the new Hungarian Civil Code. The provisions of HCC draw a line between the two regimes of contractual and non-contractual liability for damages, and exclude parallel compensation claims: 'The obligee shall enforce his claim for compensation against the obligor in accordance with the provisions of contractual liability even if the obligor's non-contractual liability also exists.' – i.e. the principle of non-cumul.[43] It is essential to establish whether one of the contracting parties can cause damage to the other party irrespective of their contractual relationship. Furthermore, it is important to identify the legal grounds of claims for damages that are not related to non-performance or performance of a contract.

42 BDT 2010. 2358.

43 Section 6:145 HCC: The obligee shall enforce his claim for compensation against the obligor in accordance with the provisions on liability for damages for loss caused by non-performance of an obligation even if the obligor's non-contractual liability also exists.

Judicial practice in the field of the rule of non-cumul is still taking shape. Nonetheless, it can be stated that the rule is likely to be interpreted very strictly, that is, the contractual relationship will, for all intents and purposes, exclude the victim's claims on the ground of non-contractual liability.[44]

5. Operation of AI Systems as Dangerous Activity

5.1. Special Sources of Danger in AI Systems

Fear of an unknown, non-assessable or unavoidable risk emerging from activities carried out by others is the typical key element for establishing strict liability. The main question is what type of risk could emerge from AI technology, especially when the risk is rather immaterial and could result in pure economic losses (for example, in the case of using automated message systems for contract formation). In these situations, the strict rule of liability for dangerous activity shows its imperfection as the judicial practice defines danger as a possibility of suffering significant material harm. In our opinion, if this strict liability rule is desired to be applicable on a wide scale for damages caused by AI technology, the first requirement is to extend its conceptual scope to the significant risks of immaterial harms, too.[45]

In order to define and to assess the risk triggered by the operation of an AI system, one should pay attention to the above-mentioned study of the European Parliamentary Research Service: 'A common EU approach to liability rules and insurance for connected and autonomous vehicles'.[46] The legal problems emerging from autonomous cars shall constitute a testbed for lawyers in the field of application of AI technology in the retail sector on which to study liability and insurance problems. As an autonomous system, the AV shall be able to make hundreds of decisions per minute in order to cope with dynamic traffic conditions.

According to the 2018 study compiled by the EPRS, *four main categories of risk* relating to the liability issues associated with AVs are likely to emerge or become significantly more prominent with the mass roll-out and use of the AV. These new risks include:

(1) risks relating to the failure of the operating software that enables the AVs to function,

44 Judit Fazekas showed that the principle of non-cumul could endanger the enforcing of the right to damages based upon the rule of product liability. Fazekas 2017. 29. See also: Pusztahelyi 2016. 60–78, Fuglinszky 2017. 114, De Graaf 2017. 701–726.

45 For example, in the case of electronic banking, smart contracts, etc.

46 http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf.

(2) risks relating to network failures,
(3) risks relating to hacking and cybercrime, and
(4) risks/externalities relating to programming choice.[47]

These new risks are added to the classical ones such as human error or the malfunction of the device. We can add one more source of risk to this list. This risk comes from the situations of mixed traffic where driverless and traditional human-driven cars participate in the same traffic, affecting the behaviour of each other. So, the interaction and any forms of good or bad communication between human and AI participants generates a new risk never experienced before,[48] which will be well in excess of the inherent hazards of a traditional traffic situation.

As we can see, software failure, or the 'bad' choice of the AI will occur within the scope of the activity. According to Hungarian judicial practice, network failures also fall *within* the scope of activity. Why should this concern us? Because the operator can exonerate themselves from under liability only if they prove that the damage occurred due to an *unavoidable* cause that falls *beyond* the realm of the dangerous activity.[49] However, if two vehicles (an autonomous and a human-driven one) collide, other provisions of the HCC are to be applied. At first, the one whose behaviour was at fault (i.e. the damage is attributable to him or her) is liable to provide compensation.[50] It is remarkable that crash reports show the frequent occurrence of rear-end traffic collisions. One of the reasons of these accidents is the extremely short reaction time of the AVs for staying in the lane and using the breaks in ways for which the slightly undisciplined human drivers cannot be properly prepared. Under the above-mentioned provision, the human driver (and the insurance company) is the aggrieved party who has to bear all cost consequences in these cases as an autonomous car cannot act with fault. Therefore, in our opinion, the application of this provision will not be appropriate for these collision cases.

47 http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf.

48 Nyholm–Smids 2018.

49 HCC Sec 6:535 Subs. 3.

50 [Interaction of hazardous operation and relationship of operators in liability for torts committed jointly]

(1) Where damage is caused by one hazardous operation to another, the operators shall be liable to provide compensation as commensurate according to attributability. If the damage is caused by a person other than the operator, the operator shall be liable to provide compensation as commensurate according to the attributability of the de facto tortfeasor.

(2) If the cause of damage is not attributable to either party, compensation shall be provided by the party whose dangerous activity is responsible for the malfunction that contributed to causing the damage.

(3) If the cause of mutual damage is a malfunction that occurred in the scope of both parties' dangerous activity, or if such malfunction cannot be attributed to one of the parties, each party shall, where individual responsibility cannot be established, bear liability for their own loss.

5.2. The Capacity of the Operator of Dangerous Activity

The capacity of an operator of a hazardous activity (the operation of an AI system) determines the human who must carry the risk in case the AI causes damage, regardless of its (or the driver's) personal conduct or blameworthiness.

In the following, the concept of the keeper of hazardous things should be examined more accurately as being the operator who carries out the hazardous activity or the person who assumes control over that activity. However, it should be mentioned here that administrative rules also affect the civil law concept of keeper through the obligation for registration or for concluding third-party insurance contracts.

Within the scope of the meaning of *operator*, the HCC of 2013 brings some novelty. The judicial practice developed and fixed the concept of the operator decades ago under the old HCC of 1959. The operator is the person who maintains and continuously undertakes the hazardous operations or under whose oversight management and/or control of the hazardous operation would be undertaken.[51]

The use of an autonomous car would be a good example for choosing a scenario for examining the concept of operator and for establishing the details of who will be held liable. At this time, the keeper of a motor vehicle is quite fixed and determined. It is obvious that there is an inconsistency between the registered person and the person who controls the vehicle.[52] In the case of vehicles, the operator is the one who has actual and economic control over the vehicle but who is not necessarily its legal owner.[53]

According to the Ethical Guidelines of EU-HLEG:

> human oversight may be achieved through governance mechanisms such as a human-in-the-loop (HITL), human-on-the-loop (HOTL), or human-in-command (HIC) approach. HITL refers to the capability for human intervention in every decision cycle of the system, which in many cases is neither possible nor desirable. HOTL refers to the capability for human intervention during the design cycle of the system and monitoring the system's operation. HIC refers to the capability to oversee the overall activity of the AI system (including its broader economic, societal, legal and ethical impact) and the ability to decide when and how to use the system in any particular situation.[54]

51 Old decision of Supreme Court of Hungary No. BH1988. 273. The decision added that the fact that who has the interest in the ultrahazardous operation is irrelevant. This decision needs to be revised in the light of the new HCC provision.

52 For the discrepancies between the administrative and the civil law concept, see: Pusztahelyi 2018c. 216–229.

53 Karner 2018. 370.

54 HLEG: Ethics Guidelines for Trustworthy AI. https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai, 16.

It means that the human oversight would decrease more and more upon the artificial intelligent system as AI technology develops gradually and as general AI will be rolled out. For example, in the case of autonomous cars with a maximum automation, the AV operates and fulfils tasks without any expectation that a user will respond to a request to intervene. On levels 4 or 5 of driving automation, the user's role is only to verify operational readiness of the ADS-equipped vehicle and to determine whether to engage the ADS. The user becomes a passenger only when the ADS is engaged if physically present in the vehicle.[55]

The actual control of the operator will fade, so the classical assessment of the capacity of the operator needs to be revised. Finally, we should stress that the legal concept of operator (keeper) is a stringent and mandatory rule. It means that the agreement to shift the capacity of operator to someone else is invalid if the personal and technical requirements to take over control are missing. This rule does not affect the validity of a contract which is concluded for undertaking the losses emerging from this case. The new rule of the HCC emphasizes only one element of the concept of operator: 'The person *on whose behalf* the hazardous operation is carried out shall be recognized as the pursuer of a dangerous activity'[56] (emphasis added).

This change would be assessed as a shift towards *the principle of aktive interesse (who is the person gaining benefits from the operation of the hazardous activity*) and in our opinion towards the risk-allocating function of the liability rule *and the risk management approach.* According to judicial practice, the user who uses the AI system for their own purposes (for example, who engages the motor and switches on the autonomous system) will be deemed as being an operator and will be held liable for damage caused by an AI system (i.e. autonomous car). However, this person is not able to control and to correct the malfunctions of the autonomous system; moreover, the operation of the AI system is hardly understandable, untraceable, or uncontrollable for him or her, particularly in the case of the so-called black-box phenomena. In our opinion, at this point of development, the concept of operator within the above-mentioned classical scope of meaning will begin to become inappropriate for application relating to AI technology. Therefore, when one of these above-mentioned new types of risks[57] manifests itself as the cause of the damage, the operator has got less opportunity to take protective measures or act promptly.

In the scope of these new risks, in most cases, the manufacturer is the person who can manage the risk and has the means to defend against them. In this

55 SAE: Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles J3016 of Jun 2018. 21.

56 HCC Sec 6:536. Subs. 1.

57 Risks relating to the failure of the operating software that enables the AVs to function, risks relating to network failures, risks relating to hacking and cybercrime, and risks/externalities relating to programming choice.

viewpoint, the manufacturer can be deemed as the operator. We see that the function of societal distribution should be the focus of the solution given, but we experience meanwhile some departure from the other rationale (on whose behalf the dangerous activity is carried out). The two different approaches for the capacity of operator lead to the uncertainty of the legal concept and lead us to examine the manufacturer's role as operator of the AI systems. The question is whether the liability rule for dangerous activities is appropriate in order to establish the accountability of the manufacturer or whether these problems need an innovative approach to liability rules. In the cases when the control shifts to the manufacturer, this person will be the operator of the AI device. As a result: 1) the scope of the activity would be largely extended – as I mentioned – and 2) the evitability of the external causes leading to damage would lose its subjective side (i.e. the possibility to take action promptly when the AI device itself is not able to cope with it). The manufacturer is far removed from the accident scene and is unable to influence the behaviour of the vehicle in the relevant situation.

One more opportunity should be examined in order to retain the operator's liability. In theory, there will be a possibility to separate the human's failure and that of the AI with the help of a black-box recording device. *The human or non-human agent who actually takes control of the machine could be considered the operator of the hazardous activity, who could technically change from time to time.* It is possible to share the capacity of the operator between the user (driver, owner) and the manufacturer. *But the concept of operator requires also some stability and continuity.* Relating to one single hazardous operation, the capacity of the operator is singular, with the exception when several persons' interests are common. This concept excludes that another person can be held liable for any malfunction at the same time and grounded on the same liability.

The above-mentioned study of the European Parliamentary Research Service states that *the application of the existing rules to AVs* will likely shift the existing balance *in liability distribution between consumers and producers, further accentuating existing gaps and potentially contributing to legal and administrative costs arising from uncertainty.*[58] Gerhard Wagner states the following: 'The risk management approach, envisaged to serve as an alternative to strict liability, should not, it is said, focus on the person who acted negligently but rather on the individual who was able to minimize risks and deal with negative impacts.'[59]

These are the reasons why we agree with Gerhard Wagner, who emphasizes the shift from user control to manufacturer control, relating to the liability for dangerous activity.

58 http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf, 24.

59 Wagner 2019. 30.

6. The Future of the Strict Liability for AI Technology

It should be mentioned that liability for dangerous activity is interpreted nowadays as the ceiling of the standard of reasonable care as the general non-contractual liability rule is also based on fault with objective meaning. Nevertheless, the objective approach to strict liability rule for dangerous activity may trigger two consequences. First, the characteristics of the liability rule will change as the blameworthiness will fade out and the liability rule will be degraded to a pure risk management solution, where the deterrence function disappears and only the societal distributive function remains. Second, in parallel with the fact that the elements of a special case of liability (especially the dangerous nature, the causal link between hazardous operation and damage) will weaken and the scope of the application of this liability rule will broaden, the scope of the general fault-based liability rule will diminish. Therefore, the strict liability rule for (not so) dangerous activities will compete not only with the other strict liability rules (e.g. product liability) but also with the general fault-based liability rule.

In cases when the manufacturers will be held liable on the grounds of this strict liability rule, as operators, product liability and the liability for hazardous operations will come very close. Their conceptual scopes will graze each other, and this fact can degrade the priority of product liability which the EU legislation and CJEU practice want to strengthen.

We think that this is a useful liability rule which served for rendering good solutions and as a legal basis for indemnification relating to disturbances of technological development for more than one century. At the roll-out of autonomous systems, as we stated above, interpretational and application questions will emerge relating to this rule.

To sum up, in the phase when general AI will be rolled out and will appear in the retail sector, the strict liability rule for dangerous activity will begin to lose its potential relating to general AI applications. Although this strict liability is worded in a general clause which generates fewer administrative costs and allows the injured person to gain compensation in a relatively easy way, the capacity of the operator – with its original conceptual scope – will be insufficient at the following stage of AI development.

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