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Robo-liability: The European Union in search of the best way to deal with liability for damage caused by artificial intelligence

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Robotics is no longer a theme reserved for science fiction movies and technological research institutes. Although most of us do not yet possess a human-looking machine that takes care of our household, robots already play an important part in our daily lives, as search robots, virtual assistants such as Siri or Alexa, programmes that suggest products or services based on our previous purchases or searches etc.

It is difficult to define exactly what a robot is. The concept may refer to machines that carry out identical and repetitive actions. These types of robots have been widely used since the industrial revolution and our current law is fit for dealing with them. More problematic, however, are the robots that possess artificial intelligence (AI), enabling them to 'learn' from the information they are programmed with and the actions they perform, and to use this 'knowledge' to make decisions in subsequent cases. It is these types of robots that challenge the present legal framework, inter alia in the field of liability law.

Search engines and virtual shopping assistants may cause economic damage to certain traders, by steering potential customers to their competitors; they may affect consumers whenever their suggestions are not accurate or do not meet their needs or preferences. However, the risks and damage caused by self-driving cars or healthcare AI applications may be significantly larger.

Moreover, the self-learning capacity of AI-driven robots makes it difficult for the developer/producer to predict the actions the robot may undertake in the future. In addition, once the robot is sold to a third party, the developer will typically no longer have control over the use of the robot and/or the circumstances from which the robot will learn.

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This raises the question as to whether the existing rules of (non-contractual) liability law are fit for dealing with the damage caused by such robots. This question has recently caused several legislators to investigate the need for introducing new liability rules for damage caused by robots. On 16 February 2017, the European Parliament, for example, adopted a resolution 'with recommendations to the Commission on Civil Law Rules on Robotics' which dealt, inter alia, with the issue of liability law.[1] According to the European Parliament, the current liability rules would not be sufficient '(t)o deal with cases where a robot can take autonomous decisions since they would not make it possible to identify the party responsible for providing compensation and to require that party to make good the damage it has caused'. The European Parliament stressed that the Product Liability Directive[2] only covers damage 'caused by a robot's manufacturing defects and on condition that the injured person is able to prove the actual damage, the defect in the product and the causal relationship between damage and defect'.

Moreover, the European Parliament was of the opinion that the civil liability of robots is to be addressed at the European Union (EU) level to ensure 'the same degree of efficiency, transparency and consistency in the implementation of legal certainty throughout the European Union for the benefit of citizens, consumers and businesses alike'.[3] It therefore required the European Commission to prepare a proposal for 'a legislative instrument on legal questions related to the development and use of robotics and AI foreseeable in the next 10 to 15 years, combined with non-legislative instruments such as guidelines and codes of conduct'. The future legislative instrument should 'be based on an in-depth evaluation by the Commission determining whether the strict liability or the risk management approach should be applied'. While 'strict liability requires only proof that damage has occurred and the establishment of a causal link between the harmful functioning of the robot and the damage suffered by the injured party', 'the risk management approach does not focus on the person "who acted negligently" as individually liable but on the person who is able, under certain circumstances, to minimize risks and deal with negative impacts'. Furthermore, it pointed out that the liability of the parties involved, such as the trainer(s) of the robot, should be proportional to the 'actual level of instructions given to the robot and of its degree of autonomy'.

In addition, the European Parliament considerd an obligatory insurance scheme as 'a possible solution to the complexity of allocating responsibility for damage caused by increasingly autonomous robots'. The insurance scheme could be 'supplemented by a fund in order to ensure that reparation can be made for damage in cases where no insurance cover exists', although this should not necessarily be the only purpose of the fund. The European Parliament requested the Commission to investigate several options in relation to this fund, such as the means of financing of the fund, the possibility of granting the manufacturer, owner or user of the robot limited liability in case they make payments into the fund, the registration of robots and their link to the fund etc.

1. European Parliament, 'Report with recommendations to the Commission on Civil Law Rules on Robotics, (2015/2103(INL))', *European Parliament* (2017), http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A8-2017-0005+0+DOC+XML+V0//EN.
2. Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, [1985] OJ L 210/29 (The Product Liability Directive).
3. European Parliament, 'Report with recommendations to the Commission on Civil Law Rules on Robotics, (2015/2103(INL))', *European Parliament* (2017).

Finally, the European Parliament requested the Commission to consider the possibility of creating a specific legal status for robots (electronic persons) in the long run.

These measures were followed by an Opinion of the European Social and Economic Committee dated 31 May 2017.[4] Subsequently, the European Council of October 2017 stated that the EU needs a sense of urgency to address emerging trends such as AI 'while at the same time ensuring a high level of data protection, digital rights and ethical standards' and invited 'the Commission to put forward a European approach to artificial intelligence'.[5] In an interview given on 18 February 2018, the author of the European Parliament's report expressed her disappointment with the fact that the Commission had not yet taken any legislative initiative in response to the European Parliament's resolution.[6] On 10 April 2018, 25 EU Member States signed a Declaration of Cooperation on AI, including an agreement to cooperate on ensuring an adequate legal framework building on EU fundamental rights and values including privacy and data protection as well as transparency and accountability.[7] On 25 April 2018, the Commission then published a communication, *Artificial intelligence for Europe,*[8] and a Commission staff working document, *Liability for emerging digital technologies*.[9] Around the same time, the Commission also set up two expert groups to advise on these issues.[10]

It is undoubtedly of great importance to carefully consider the legal problems that may arise in case of damage caused by AI. However, some of the statements made in the European Parliament's resolution themselves raise questions. In particular, it is questionable whether the fact that a robot can take autonomous decisions really makes it impossible to identify a party who can be held liable under the existing rules of civil liability. Although some additional rules or amendments to existing rules may be required to provide adequate compensation for damage caused by robots, it seems that most generally accepted principles and rules should remain applicable, even in the case of damage caused by robots.

Where the harmful conduct of the robot is due to the negligent behaviour of a physical or legal person when developing or producing the robot, (which may either merely consist of software or of the combination of hardware and software), and this negligent behaviour contributed to the robot's harmful conduct, this person should be personally liable. Negligence can be judged according to the normal criterion of the bonus pater familias, in this case a reasonable developer or producer

4. European Economic and Social Committee, 'Artificial Intelligence', *EESC* (2017), https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/artificial-intelligence.
5. European Council, 'European Council meeting (19 October 2017) – Conclusions', *European Council* (2017), https://www.consilium.europa.eu/media/21620/19-euco-final-conclusions-en.pdf.
6. P. Teffer, 'Robotics MEP angry at lack of Commission response on AI', *EU Observer* (2018), https://euobserver.com/science/141143e.
7. European Commission, 'EU Member States sign up to cooperate on artificial intelligence', *European Commission* (2018), https://ec.europa.eu/digital-single-market/en/news/eu-member-states-sign-cooperate-artificial-intelligence.
8. 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, 'Artificial Intelligence for Europe', COM(2018) 237 final.
9. Commission Staff Working Document, 'Liability for emerging digital technologies' accompanying the document 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 'Artificial intelligence for Europe'. SWD(2018) 137 final.
10. See also House of Lords, Select Committee on Artificial Intelligence, 'AI in the UK: ready, willing and able?, Report of Session 2017–19', *House of Lords* (2017), https://publications.parliament.uk/pa/ld201719/ldselect/ldai/100/100.pdf.

placed in the same circumstances. When the robot 'learns' from the behaviour of other persons or the circumstances it is put in by other persons, these other persons may also incur personal liability if they acted negligently, that is, not as reasonable persons placed in the same circumstances, and this behaviour is causally linked to the damage caused. The applicable legal criterion of causation (conditio sine qua non, adequate cause etc.) will be of great importance in determining the success of actions based on personal liability. The assessment of the causal link will often require expert advice. Although the cost of expert advice may make the action for personal liability unattractive for those who suffered damage, so that this action alone is not sufficient, it needs to remain available.

More difficult is the question of whether there is room for a qualitative, strict liability of owners or users of a robot as an object that causes harm.[11] In particular, when these owners or users are consumers, they rely on the safety of the robot as a product that is sold to them. Even if they are liable towards the party who suffered damage, it seems that they should be able to have recourse to the producer of the robot. Where the buyer is a consumer, the producer should probably not even be entitled to exclude or limit his liability.[12]

The Product Liability Directive seems to be a good starting point for liability for damage caused by robots, although some amendments may be needed for it to adequately cover damage caused by all types of robots based on AI. The Directive is based on the principle that the producer (of the final product and of any component of it) shall be liable for damage caused by a defect in his product; this seems to be good starting point for robot-liability. Although the behaviour of the robot may be influenced by subsequent trainers/users of the robot, it is the producer of the AI technology who has the ability to determine which elements the robot takes into account in its learning and decision-making process, and who will probably also be able to build in elements preventing the robot to take into account socially undesirable instructions or information. It is also the producer of the AI and/or object including the AI who is best placed to judge whether it is safe enough to be put on the market and who takes the risk of putting the object on the market in view of earning large profits so that it is justified to let him (at least in principle) bear the risk for any damage that may result from the use of the robot. Both the strict liability principle and the least-cost avoider principle, mentioned by the European Parliament, therefore seem to point in the direction of the producer of the robot being held liable whenever the latter causes damage.

A hurdle in the current formulation of the Product Liability Directive is, however, the fact that it defines products as movables (Article 2 of the Product Liability Directive). From the injured party's perspective this is fine, so long as the AI is incorporated into a movable object such as a self-driving car. It leads, however, to the exclusion or at least uncertainty as to the inclusion in the directive's scope of AI that consists purely of software.

The fact that the injured party is held to prove the defect, the damage and the causal relationship is not necessarily problematic, depending on the criterion to determine causality and the standard of proof used to determine the defect.

11. On this question, see for example H. Jacquemin and J.-B. Hubin, 'Aspects contractuels et de responsabilité civile en matière d'intelligence artificielle', in H. Jacquemin and A. De Streel (eds.), *L'intelligence artificielle et le droit* (Larcier, 2017), p. 73 et seq.
12. In the absence of negligent conduct of the consumer, where there should be room for shared liability. Compare, Article 8(2) of the Product Liability Directive.

In essence, the defect within the meaning of the Product Liability Directive is a safety defect: a product is defective when it does not provide the safety that a person is entitled to expect, taking all circumstances into account, including: (a) the presentation of the product; (b) the use to which it could reasonably be expected that the product would be put; and (c) the time when the product was put into circulation (Article 6 of the Product Liability Directive). It follows from the case law that the producer is liable if the product is not safe, not only when it put to its normal use, but even in the case of 'reasonable' misuse.[13] This seems to imply that the producer of AI has to make sure that the product does not 'learn' from or 'respond' to unreasonable instructions. To facilitate the burden of proof for the injured party, a rebuttable presumption could be introduced according to which harm caused by AI is presumed to be the result of a defect.

Once the injured party has proven the defect, the damage and the causal link, the producer may only avoid liability when he proves one of the exemption grounds that are limitatively included in Article 7 of the Product Liability Directive. Of particular interest for innovative products such as AI is the development risk defence that is included in Article 7(e) of the Product Liability Directive. This defence allows a producer to escape liability when he proves that the state of scientific and technical knowledge at the time when the product was put into circulation did not enable to discover the defect. However, this exemption ground is interpreted very strictly: it refers to the most advanced level of the objective state of scientific and technical knowledge at the moment the product was put into circulation.

The other main limitations of the Product Liability Directive are the fact that it provides only for compensation of (a) damage caused by death or by personal injuries and (b) damage to, or destruction of, any item of property other than the defective product itself, with a lower threshold of €500, provided that the item of property is of a type ordinarily intended for private use or consumption, and was used by the injured person mainly for their own private use or consumption.

The European Parliament seems to suggest that immaterial damage caused by AI is also to be compensated. However, given the divergent opinions in the Member States regarding the compensation of immaterial damage, it may be difficult to introduce harmonized rules on this point. Furthermore, the question arises as to whether the scope of the Product Liability Directive should be expanded to also cover damage other than that caused by death or personal injuries incurred in the performance of a professional activity.

The idea of mandatory insurance or the creation of a damages fund deserves further investigation. However, I have serious doubts about the incentives created by and the economic consequences of granting the producer of AI a limitation of liability in case he pays a contribution to this fund.

In sum, I believe that all persons responsible for contributing to the damage caused by AI, either by negligence or intention or by creating the risk of putting AI on the market, should be liable in proportion to their contribution to the damage. An exception can be made for simple passers-by who only incidentally interact with the AI and for employees or parties who benefit also in other fields of liability law benefit from immunities.

At least at this stage of the development of robots, granting them legal personality seems complicated and would most likely lead to a limitation of the victim's right to damages, even when the robot would be required to take out a civil liability insurance. The European Economic and Social Committee also opposes the idea of giving legal personality to robots, arguing that it

13. Preamble to the Product Liability Directive.

would diminish the preventive remedial effect of liability law; it would create a risk of moral hazard in both the development and the use of AI and it would create opportunities for abuse.[14] A group of 140 AI specialists is even more outspoken and sent a letter to the European Commission stating that granting legal personality to robots would be 'inappropriate' and 'non-sensical' from an ethical and legal perspective and it would contradict human rights.[15] The Commission's decision not to include the introduction of legal personality in its European AI initiative published on 25 April 2018 therefore appears, at the present point in time, to be a wise decision.[16]

14. European Economic and Social Committee, 'Artificial Intelligence', *EESC* (2017), para. 1.12.
15. M. Murphy, 'Europe warned granting robots legal status would breach human rights', *The Daily Telegraph* (2018), https://www.telegraph.co.uk/technology/2018/04/13/europe-warned-granting-robots-legal-status-breach-human-rights/.
16. 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, Artificial Intelligence for Europe, COM(2018) 237 final.