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UPSIDE DOWN: LIABILITY, RISK ALLOCATION AND ARTIFICIAL INTELLIGENCE

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The dynamic evolution of artificial intelligence (AI) and machine learning (ML) tools poses challenges to the existing liability concepts. This paper aims to examine some of the fields of tortious liability that are most affected by these developments to analyse whether the existing legal standards in civil liability can still be used, with slight reinterpretation, when approaching liability scenarios related to AI and ML, and whether fine tuning of the existing liability regimes is needed, or novel liability scenarios should be established. To answer this question, the paper begins by examining the nature of the regulation of AI and ML: whether it should be a regulatory regime neutral to technology or whether, instead, a sector specific approach is essential. The study considers the already existing legal authorities of the EU and the U.S. as starting points for the analysis, and briefly examines the interpretations municipal courts apply when deciding in AI and ML related tort cases.

Keywords:
data protection, machine learning, privacy law, product liability, tort law

Liability is a central element of any legal system. Liability is the legal consequence of breaching norms and it also indicates the attitude of the lawmaker and the judiciary toward expected social behaviours. In civil law legal systems, the internal structure of liability reflects the dichotomy of the legal system, and is thus divided into two important categories that often overlap with each other or, in certain cases, complement each other: liability for breach of contract and liability for breaching non-contractual obligations. The former body of civil liability is less driven by social standards as it is concerned with ensuring the enforceability of contractual promises, and therefore bolsters the ancient contractual principle of *pacta sunt servanda*. The latter category of civil liability, liability for breaching non-contractual obligations, has more of an influence on policy, and may also effectively establish behavioural standards in a society. In common law, liability for breach of non-contractual liability is known as tortious liability and, lacking the dichotomy of civil law

legal systems, it focuses more on the compensation angle of liability.[1] Irrespective of the form of legal system in an analysis of civil liability, a battle of principles can be identified through the maze of tortious liability. In the search for the functions of tortious liability, several theories compete with each other and, depending on the type of tortious liability and on the circumstances of a given case, these theories may supplement each other, or they may collide. Prevention, compensation, punishment, education, and satisfaction can all be traced back to the application of the rules on tortious liability. At the same time, in civil law legal systems, lawmakers must keep in mind the need for abstract legal provisions when determining the path of liability law. This apparent chaos must all be harmonised by judges when abstract norms are applied to real life scenarios. Unsurprisingly, the borders between civil law and common law become somewhat blurred when one examines tortious liability, as in both systems, judges use civil liability as the starting point for policy-making.[2]

As technology has evolved, it has become clear how powerful judicial decisions can be when judges are called upon to adapt existing legal principles or doctrines to a new social phenomenon. In the 19th century, across Europe, the courts were the first to regulate the use of steam engines and their massive potential for damage. Strict liability forms and virtually all special types of tortious liability were first developed by judicial practice that eventually forced the lawmaker to respond to the developments in the society. By the mid-20th century, civil liability underwent a decline in maintaining its original nature of being a negative legal consequence that responds to breaches of legal norms and legal duties.[3] Courts recognised that the dynamically developing technologies of that era and the consequent rapid changes this development induced in society required a new approach that is less focused on responding to a breach of duty, instead shifting into a concept of risk allocation. This change in the attitude of the courts and later of lawmakers in many countries across Europe also stemmed from the growing importance and use of the insurance sector that was practically pushing individuals and businesses toward an economy-driven concept of prevention: if maintaining an insurance policy is reasonably cheaper than bearing the expenses of covering loss for the injured parties of a potential damaging event, insurance can become a type of preventive tactic that ultimately takes the insured as someone who has accepted that the risk is in his control.[4] Lawmakers also realised the potential of linking tortious liability scenarios to the concept of insurance, and started to introduce more and more obligations for persons who conduct a potentially harmful activity to take out an insurance contract. In some European countries (e.g. Sweden, Finland), by the end of the 20th century, the legal system had experienced an almost complete decline in tortious liability, which was supplanted by the risk allocation theory.[5] The society, including private individuals and businesses, soon learned the lawmaker's approach to novel technologies

1 Benli–Şenel 2020: 297.
2 Cyman et al. 2021: 93.
3 Martin-Casals 2010: 16.
4 Robinson 2022: 341.
5 Miklič 2021: 71.

and new activities through the altered approach to liability standards. A new equilibrium was established that promised to last for a long time. The 21st century, however, brought new challenges, and was accompanied by perhaps the most rapid development of technologies that humankind has ever seen. The use of artificial intelligence (AI) and machine learning (ML) systems, on the other hand, also started to erode tortious liability from another angle, as these technologies have raised questions over the concept of who should bear liability and, ultimately, who should be held liable to cover the loss of the injured party. While the decline of civil liability in the 20th century was induced mainly by the need to reinterpret some of the details of the classical model of liability, the advent of artificial intelligence and machine learning has initiated a full-scale assault on virtually all aspects of liability, throwing into question the identification of the wrongdoer, the need for liability standards (fault), the potential defences available to the tortfeasor, and the scope of liability.[6] The approaches of risk allocation and insurance may not function as efficiently as they did earlier when responding to the new challenges this century has brought. Moreover, AI and ML are growing so rapidly that not only the lawmaker but the courts are evidently lagging far behind the evolution of modern technologies. Policy-making first requires the identification of the phenomenon the law is expected to react to, then it also is expected to map the morality of the majority of the society to ultimately establish provisions or doctrines that can be considered to meet social standards. None of this is available for the lawmaker and for the judiciary due to the rapidness of technological development and also due to the increasingly divided nature of societies across the globe. Without sufficient time lacking an ethical consensus, lawmakers and judges must rely on concepts that already exist in the legal systems and are called upon to ask questions that address the very core of their legal systems. Is there a need for a change in the current tortious liability scenarios to respond to the challenges emerging from AI and ML? Should we still use the existing norms, principles and doctrines, but with slight reinterpretations? Is it reasonable to retain the idea of abstract legislation and abstract policy-making in tort law when responding to the development of new technologies? Would a sectoral or a horizontal approach serve the needs of the society best? Can legal systems think globally and take into account the responses of other countries when deciding what attitude to adopt toward the use of AI and ML? Can the civil law dichotomy of private law and public law survive the rapid evolution of technologies, or should civil law merge the two branches of the law to respond to the new phenomenon? While these questions may sound philosophical, answering them is essential to move forward and to define the role of tortious liability in the new environment. This study attempts to respond to these questions by offering views on how tortious liability can adapt to challenges that have arisen from the application of AI and ML. As the subject of the study is complex and is in constant motion, a mixed methodology is followed throughout the paper that merges black letter methods and an analysis of the law in action. The former focuses on the analysis of existing norms, doctrines and theories

[6] Benli–Şenel 2020: 314.

that may derive from old concepts of tortious liability, while the latter deliberately selects court decisions from various legal systems, on the assumption that the topic is universal enough to seek solutions that are less focused on individual jurisdictions. The general presumption is that the challenges described above are global challenges, and hence, before adopting actual norms or communicating behavioural standards through individual court decisions, legal systems must recognise the globality and the complexity of the task, and look for fundamental theories that can serve as starting points for law- or policy-making. To support this ambitious enterprise, the black letter approach to legal analysis will be understood in a broader sense, embracing not only the letter of the law (i.e. binding legal documents) but also action plans and white papers of both governments and international governmental organisations that call for action and may contain ideas for finding a solution. As taking a cross-jurisdiction approach runs a clear risk of becoming chaotic, the paper will focus on the fundamental theories and doctrines of the law of liability rather than criticising or proposing specific texts or drafts for future legislation. For the sake of clarity, some legal terms are simplified, and in the attempt to find a global response, the terminology of English law is used to cover liability for breach of non-contractual obligations. Therefore, tort law and tortious liability are used to describe this category of civil liability irrespective of the fact that civil law and common law legal systems take a slightly different approach to this form of liability. The emphasis is on the distinction between tortious liability and the other branch of civil liability, contractual liability: a form of liability which this study has no intention of analysing, as the latter has been less affected by the development of new technologies.

PROPOSALS, POLICY DOCUMENTS AND GUIDELINES ON AI AND ML SYSTEMS AND APPLICATIONS IN THE EUROPEAN UNION AND IN THE UNITED STATES

Artificial intelligence and machine learning are dynamically developing technologies that have already led to a significant transformation, with further change expected, in several sectors, including finance, transportation, tourism, and healthcare. While these technologies have the potential to improve people's lives, they also raise significant legal and ethical questions due to their adaptability and continuously changing knowledge. The latter is especially disturbing, given the fact that human interaction is the most important source of knowledge for AI and ML applications and it provides the basis for their evolution. To some extent, these technologies may behave like humans. In the past, by contrast, most smart applications were only able to make people's lives easier by simplifying tasks which human beings had previously performed or by facilitating the organisation of these tasks. These now old-fashioned applications were all based on algorithms, which made them predictable and easy to understand. AI and ML tools, however, use human interaction and their own "experiences" to learn and improve, and therefore, in many instances, it is we, human beings, who provide the algorithm to allow their operation and functioning.

Recently, the European Union has taken steps to address the legal and ethical challenges and implications of AI- and ML-operated technologies. These steps have included making legislative proposals and producing several policy documents that envisage a new approach to these modern technologies. While none of these measures can be considered to have constituted a coherent and consistent approach that clearly shows how the European Union will approach AI and ML, the various considerations and the challenges identified in the policy documents certainly indicate some potential directions for the future that may form the basis of future legislation at the EU level.

In April 2021, the European Commission published a proposal for a regulation on AI that intends to introduce a harmonised base legal framework for AI related technologies in the 27 Member States of the Union.[7] The proposal recommends establishing different levels of risk for AI systems and sets out specific requirements for each level. The classification is based on a kind of risk assessment, whereby high-risk AI systems, such as those used in healthcare or in the transportation sector, would be subject to stricter requirements than technologies otherwise applied in these sectors, such as obligatory human oversight and proper testing. The latter may be a crucial point for future considerations in liability law as the thorough testing requirement alone suggests that the European Commission does not prioritise concepts which would entrust AI technologies with personhood; instead, tortious liability would be based on the already existing legal schemes which, in all cases, identify an existing person, natural or legal, through either factual or risk allocations considerations, as being liable for the loss and harm AI technologies could potentially cause to third parties. The proposal also includes provisions on transparency, data protection, and liability. The proposed regulation has been subject to debate and criticism, however. Some stakeholders argue that the proposal is too restrictive and may stifle innovation in the EU that could be hugely disadvantageous in the world market for the EU. This fear is certainly legitimate, as a "wait and see" mentality can be observed in other parts of the world. In practice, most governments are waiting to see how the other states react to modern technologies and awaiting the outcome of these reactions.[8] Other critics of the proposed regulation have argued that it does not go far enough in addressing all the major risks AI tools may pose. These commentators also highlight the lack of a clear legal framework on tortious liability.

Beyond the proposed regulation of the European Commission, several other policy documents have also been developed by the EU that address some of the legal and ethical implications of AI and ML. The European Strategy for Data,[9] which was published in February 2020, is probably the most noteworthy of these attempts. This strategy aims to create a single market for data in the EU, while also ensuring that data is used in a way that respects privacy, security, and other fundamental rights. While the strategy exclusively focuses on protecting the privacy of people using AI and ML tools, it continues to emphasise the importance of data protection as a key element of an individual's privacy in the EU.

7 European Commission 2021.
8 Heiss 2021: 207.
9 European Commission 2020a.

The General Data Protection Regulation (hereinafter: GDPR) of the EU[10] was intentionally formulated to be neutral to technology, to allow the GDPR to provide for the rights of data subjects in a uniform way, irrespective of what technology was used to control and process the personal data of individuals, and in which sector. As part of the data strategy, on 23 February 2022, the European Commission proposed a Regulation on harmonised rules on fair access to and use of data (hereinafter: Data Act).[11] This proposal completed the harmonisation of data laws in the digital era that had started with the Data Governance Regulation the Commission proposed in November 2020.[12] This regulation established processes and structures to facilitate data, while the Data Act determines who can create value from data and under what conditions. The Data Act includes provisions dedicated to the use of data generated by "Internet of Things" (IoT) devices. The Commission, through the Data Act, proposes that data generated by IoT should be under the full control of the user rather than the manufacturers of the IoT devices. While the Data Act does not specifically address AI and ML tools and the challenges they pose to data protection laws, it indicates that the European Union, in all forms of digital applications and tools, intends to establish safeguards for the users to take full control over their data. This may lead to AI and ML also becoming subject to stricter rules, as the Commission intended, and may entail the imposition of serious data protection obligations on developers.[13]

Another important policy document in the European Union is the Ethics Guidelines for Trustworthy AI, which was developed by the European Commission's High-Level Expert Group on AI.[14] The document was published on 8 April 2019. The guidelines lay down a set of principles for the development and deployment of AI systems, calling for transparency, accountability, and respect for privacy and human rights. In connection with the accountability principle, the guidelines recommend that mechanisms be put in place to ensure the responsibility and accountability of AI tools and systems and of the outcomes the operation of such systems generate. Auditability is a requirement which the Guidelines set to enable the assessment of algorithms, data and design processes. Details of the steps the manufacturer or developer take to ensure auditability should also be made available to the user as part of the transparency principle. Another consequence of auditability is that accessible and efficient redress mechanisms should also be ensured for cases where users face negative consequences when interacting with AI systems.

The development and deployment of AI and ML have had significant legal and ethical implications, and the EU has developed some initiatives that reveal a great deal about how the European Union intends to address these issues. Legislative proposals such as the proposed regulation on AI and policy documents such as the Ethics Guidelines for Trustworthy AI provide a framework for the responsible development and deployment of

10 Regulation (EU) 2016/679, 1.
11 European Commission 2022.
12 European Commission 2020b.
13 Mireille 2020: 75.
14 European Commission's High-Level Expert Group on Artificial Intelligence 2019.

AI systems in Europe. However, significant challenges remain, particularly with regard to bias, privacy, and liability despite the fact that almost all policy documents identify these risks. It is obvious, however, that these policy documents and even the proposed AI regulation in the EU are currently only at the level of establishing principles and making declarations that do not reach the core of the problem: the broader questions of (tortious) liability. While the proposed AI regulation, following a categorisation and risk assessment of the AI system, imposes a strict, no-fault liability on the service providers (developers) for any harm the high-risk AI system may cause to users, it remains a question whether this would constitute a new form of tortious liability or whether it can be cited as an example of the already existing strict liability scenarios in the Member States such as product liability or liability for highly dangerous activities. Another area of concern is how high-risk AI systems can be identified and whether the relatively loose criteria on classification and risk assessment for these systems will lead to incoherent interpretation by the national courts across the EU.[15] This would certainly undermine the attempts at harmonisation and at establishing a uniform approach across the EU. Given the fact that tort liability is not harmonised in the Member States, as the basis of liability is still within the competence of the individual national legislations, a mere declaration of strict liability may still lead to different applications in practice due to the diverse approaches to the burden of proof, the available defences for the wrongdoer, the statute of limitations and other factors that may be relevant in the enforcement of claims arising from liability.

An interesting aspect of the proposed AI regulation of the EU is that providers of high-risk AI systems would be required to maintain mandatory liability insurance or provide some other form of financial guarantee (deposit) that would be able to cover the potential damages the developers are obliged to pay for loss or harm caused by their high-risk AI systems. This is a remarkable idea, as the mandatory insurance obligation shows signs that public administration law and tort law are interacting in this area. To enforce the insurance obligation or other forms of a financial guarantee, a licensing requirement would most likely have to also be attached to the legal framework, which suggests a preset classification of what constitute high-risk AI systems. While this is a promising idea, the classification rules for high-risk AI systems, as proposed in Article 6 of the draft AI regulation, are still loose and flexible, and thus it remains uncertain who would implement these rules, and how, in the national legal framework.

The Ethics Guidelines for Trustworthy AI also addresses the issue of liability. The guidelines state that the developers and operators of AI systems should be held accountable for the behaviour of their systems, and that they should be able to demonstrate that they have taken steps to prevent harm or damage. The guidelines also states that in cases where harm or damage does occur, the developers and operators of the system should take steps to mitigate the harm and prevent similar incidents from occurring in the future. These requirements also assume the existence of some kind of oversight

[15] Cyman 2021: 103.

mechanism in the Member States, and that follow-up processes after incidents will also be in place to ensure that the already identified faults and malfunctions do not cause loss or harm to people again.

While the present study mainly focuses on the European continent and the basis of tort law in Europe, it is also worth briefly considering the developments in the United States in relation to AI and ML systems. The United States has not yet enacted comprehensive federal legislation addressing the liability issues related to AI and machine learning, although there have been proposals and discussions on the topic, similarly to the efforts in the European Union. Currently, the legal framework in the U.S. is largely shaped by common law principles of tortious liability that allow private individuals and legal entities to claim damages for loss or personal injury caused by another party's negligence or intentional misconduct. This means that if an AI system causes harm or loss, it may be possible for the injured party to lodge a lawsuit against the developers, manufacturers, or operators of the AI system based on classic tort law principles.[16] However, because AI and machine learning are still relatively new technologies, some uncertainty remains around how existing legal frameworks will apply to these systems. In addition, there is an ongoing debate about how liability should be assigned in cases where an AI system causes loss or damage, particularly in cases where the system has some degree of autonomy.[17] Some legal scholars and industry experts have already called for the adoption of clear guidelines and legal frameworks for assigning liability in cases involving AI and ML technologies in order to provide clarity for both developers and the users of such systems. Another idea that has been floated is that the existing legal frameworks should be sufficient and that common law courts must be able to apply the classic legal principles to novel cases involving AI and ML systems and the incidents they cause. In the absence of comprehensive federal legislation, states across the U.S. have begun to adopt their own laws related to AI and ML. These initiatives also embrace laws related to data privacy and security.

California is an example of a U.S. state that has passed legislation related to AI and ML, focusing mainly on the data privacy and security angles. In 2018, California adopted the California Consumer Privacy Act (CCPA),[18] which grants Californian residents the right to know what personal information businesses collect about them. The CCPA also ensures Californian citizens the right to request that their personal information be deleted, and the right to opt out of the sale (trade) of their personal information. Under the CCPA, businesses that use AI and ML to make decisions about consumers must disclose this fact and must provide a general description of the underlying logic (algorithm) that is used to make those decisions. Businesses must also ensure that consumers are able to request information about the specific types of personal information that were used to make decisions about them, and that they can correct any errors in that information (right to rectification). The CCPA also requires businesses to implement reasonable security measures to protect the

16 Robinson 2022: 335.
17 Bathaee 2020: 117.
18 California Consumer Privacy Act of 2018 (1798.100 – 1798.199.100).

personal information of consumers, including data that is used in AI and ML tools and applications. Businesses must also disclose the categories of personal information that they collect, as well as the type of third parties with whom they share this information. The CCPA is considered one of the most comprehensive data privacy law in the U.S., and it has proved influential in shaping data privacy legislation in other states.[19] It does not, however, focuses on issues of tortious liability, which suggests that the concept of the applicability of classic tort law principles by the courts is the leading approach in the U.S.

THE APPLICABILITY OF THE EXISTING LEGAL FRAMEWORK ON TORTS TO ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING SYSTEMS

Since AI and ML emerged as a global problem for tort law, many authors have argued that regulation, legislation or at least a change in policy is urgently needed in the courts. It is, however, crucial to understand that the law has always been shaped by its reaction to challenges, emerging social phenomena and hot new topics. At the same time, delayed reactions or lack of reaction on the part of the lawmaker have never resulted in a total collapse or failure. Tort law and its century old doctrines and principles have always managed to adapt to new circumstances. Bending, reinterpreting or twisting these rules should not be regarded as blasphemy; instead, this is the normal use of tort law that was designed to respond to and to correct civil wrongs through providing for some form of satisfaction or compensation for the injured party. This means the lack of AI- and ML-specific legislation or the lack of clear policies from the lawmaker or from the courts does not mean no law is in place to handle tortious scenarios involving AI and ML. It is even questionable whether the emerging new technologies of AI and ML are groundbreaking enough to warrant the introduction of new legal concepts, doctrines or principles in the world of tort law. We have witnessed the birth of new tort law formations several times in the past (e.g. strict liability during the industrial revolution, vicarious liability in the 19th century), and all those novelties in tort law emerged from judicial practice and were later enshrined in statutes in civil law legal systems.[20] When no specific laws could be applied to what were then new social phenomena, courts could still fashion a response by interpreting the toolkit of tort law that already existed to resolve disputes and communicate an attitude to society on how to approach novel technologies. The application of AI and ML tools, therefore, may not seem to be real gamechangers that must necessarily induce a drastic change in the existing legal framework of tort law.

Importantly for this question, tortious liability relies on concepts about the identification of the tortfeasor, the person who is liable for the unlawful act, unlawfulness, causation theories, various standards of fault and defences available for the wrongdoer. The typically

[19] Robinson 2022: 359.
[20] Martin-Casals 2010: 18.

abstract rules and theories on these elements of tort law were designed to enable judges to shape them and adapt them to various and diverse tort scenarios. Some authors believe that AI and ML tools are gamechangers, as the technology is capable of mimicking the acts of a reasonable human being, therefore, the technology – the "robot" – itself should be given some kind of a personhood to make it accountable and, therefore, liable for its actions.[21] In common law legal systems it is probably much easier for the courts to personalise a machine and furnish it with personhood, given the flexible and somewhat open nature of civil liability law.[22] In civil law legal systems, however, this would lead to a shift of the most important paradigm of liability law: only human beings and their organisations and associations are accountable for their actions and everything else is just a *res* that is not capable of making decisions. While artificial intelligence may seem like a whole new entity, with free will and the capacity to make decisions, in some ways it does not seem very different from some animals that are also equipped with skills and abilities to make decisions and act based on such decisions. In tort law, civil wrongs committed by animals are accounted to a human being of legal entity who is their owner or handler at the time of the commitment of the tortious act. In a similar vein, torts committed by artificial intelligence, in my opinion, should also be accountable to the person in whose interest or under whose control the artificial intelligence acted. I cannot see how artificial intelligence can be considered a legal person without all the attributes that the law requires from legal persons, most importantly assets independent of the legal person's founders, members or shareholders. Although the developer of the technology may not always be the fairest choice to bear liability for the actions or malfunctions of an artificial intelligence, given the somewhat autonomous nature of the machine it created, several other existing theories of tort law may be of help in this. An obvious solution to the problem is the analogous application of the special form of tortious liability: liability for torts resulting from dangerous activities. The definition of such dangerous activities is typically missing from the statutes, and courts consequently also avoid drawing up an exhaustive list of activities that involve an inherent danger, and therefore, they are at a greater risk of causing loss or harm to others while they cannot be fully controlled by either the developer, manufacturer or the operator. In some legal systems, such dangerous activities include both simple human acts such as digging a hole and very sophisticated technologies like using nuclear power, on the grounds that these activities are similar to the nature of a wild animal that may be domesticated, but which never loses its inherently wild nature and, consequently, can snap at any time. In my opinion, artificial intelligence can be compared to such a wild animal that was raised and taught by human beings to be sociable and kind to others, while the autonomous behaviour of the machine and the machine learning features are probably not capable of truly recognising socially good or bad behavioural standards set by various members of the community, and thus always carry a certain risk

[21] Robinson 2022: 348.
[22] See 2021: 417.

of becoming intrusive and offensive and which, ultimately, may lead to a damaging act against others. The application of AI and ML systems, therefore, may be categorised as a dangerous activity in tort law, hence the designation of the person liable for the actions of the machine can be identical to the one in this special form of tortious liability: either the person who conducts the dangerous activity (the person who uses the application) or the person for whom the machine works. The lawmaker, in a given legal system, may even decide that the person charged with liability for the dangerous activity is the one who makes a profit on the operation and use of the machine. Any one of these theories can be justified by the standards and rationale behind the concept of tortious liability for dangerous activities once we accept the inherent danger coded in the application of AI and ML tools. Personhood, therefore, is no longer a relevant consideration and civil law legal systems do not have to create a brand-new concept in the law of persons, absurdly constructing a unique category of legal persons beyond the existing ones.

ARTIFICIAL INTELLIGENCE UNDER THE PRODUCT LIABILITY LAWS OF THE EUROPEAN UNION

Today, AI and ML technologies and tools are increasingly being integrated into various products and services. As a result, product liability laws are one of the focal points for discussions on possible reactions to modern technologies in the European Union. The main focus of a potential amendment and reform to the existing legal framework is currently on autonomous vehicles, medical devices and drones equipped with AI and ML. A proposal for a reform of the EU's Product Liability Directive recommends extending the current product liability laws to also cover AI-enabled products.[23] While the Directive already requires manufacturers to compensate consumers for damages caused by defective products, it provides only a restrictive definition of products and a rather vague definition of defectiveness. The definition of products should not be a problem as the Directive embraces tangible movable property, which can cover devices that contain artificial intelligence technology. While it is obvious that AI systems that are not manifested in physical products remain beyond the scope of the Product Liability Directive, and could be integrated only if services were also embraced by the directive, the European legal culture does not really support this idea.[24] Services are typically provided under contractual frameworks where remedies are offered by contract law rather than tort law. This assumes that services should not be merged under the scope of the product liability directive as only the contractual party would suffer loss or harm, whereas anyone may suffer damage in relation to products. The directive defines a defective product as one that does not provide the safety that a person is entitled to expect, taking all the circumstances into account,

[23] Council Directive 85/374/EEC.

[24] Ebers 2021: 208.

including the presentation of the product, the use to which it could reasonably be expected to be put, and the time when the product was put into circulation. The directive does not specifically address AI-enabled products with complex decision-making capabilities that are difficult to predict or control. It would not, however, seem necessary, in my opinion, to explicitly name AI-enabled products as products in the directive, as products are already within the material scope of the directive, irrespective of their smart features and functionality. The only reason why the explicit mention of AI-enabled products might be beneficial would be to clarify that the conditions for determining defectiveness should have a less flexible interpretation in regard to such products than to others. The autonomous and unpredictable decision-making capabilities of AI-enabled products may be misleading when focusing on the expectations about the safety of the product based on the current conditions set in the directive. It should be obvious that the different levels of autonomy of AI-enabled devices should not be decisive factors when determining their defectiveness.

Another proposal is to create a new liability regime specifically for AI-enabled products. This proposal is based on the recognition that AI-enabled products have unique characteristics that require a different liability framework. For example, AI-enabled products can make decisions autonomously, and in such circumstances, it may be difficult to determine who is responsible when something goes wrong.[25] Under this proposal, manufacturers would be required to ensure that their AI-enabled products meet certain safety standards, and they would be strictly liable for any damages caused by the product's decisions or actions. However, liability could be shifted to other parties if they contributed to the defect or if the product was misused by the consumer. I do not support this proposal, as it does not really add anything to the product liability regime in the EU. The possibility of shifting liability to other parties already exists in the product liability directive, since the concept of joint tortfeasors is already known in the application of the directive. Moreover, the identification of the manufacturer is broad enough to provide some freedom to the courts when determining which party had control over the function that caused the defect of the product.

Another idea would be to oblige manufacturers of AI-enabled products to implement certain safety measures to prevent harm being caused to consumers. Manufacturers could be required to implement algorithms that prevent the product from making decisions that are likely to cause harm, or to provide consumers with clear instructions on how to use the product safely.[26] This would require the explicit mention in the product liability directive that inadequate instructions and warnings also constitute a sign of defectiveness. This would be a godsend to the users of non-AI enabled products, as currently it depends on the interpretation of the national courts whether inadequate warnings and instructions alone can be understood as defects that give grounds for product liability. It would also be beneficial to require manufacturers to provide consumers with transparent information about the AI-enabled product's decision-making capabilities. This would enable consumers

[25] Ebers 2021: 214.
[26] Ebers 2021: 211.

to understand how the product works and to make informed decisions about whether and how to use it, in the hope that they would be more likely to avoid damaging scenarios. The real concern about this idea is that it presumes the consumer is seeking information and that the consumer understands the operation of the product. This may be doubtful, as many consumers do not dedicate any time to getting to know the product better, and even if they do, the description of its functionality may not be comprehensible for many.

CLOSING REMARKS

The above discussion of one of the challenges which the application of AI and ML tools pose for tort law is only one example of how the existing legal standards in tort law can be adapted relatively easily to new technologies without the need to create something entirely new and without the necessity of seriously reinterpreting existing doctrines by the courts. Although this approach may sound old-fashioned, conservatism, especially in civil law legal systems, is a sign of predictability and certainty, which also reinforces the constancy of the legal norms. Moreover, at the moment when the emergence of new technologies immediately triggers a hysterical reaction from the lawmaker or from the courts to change or amend the existing legal framework and to react to the new phenomenon in a highly targeted manner, the way toward a sectoral approach in regulation becomes the only solution for the future. Given the rapid development in AI and ML, it is impossible to predict what the future holds for us and what the timeline for the evolution of such technologies will be. Therefore, the lawmaker or the courts can easily be stuck in a spiral of chasing novelties and responding to them in a piecemeal, sector-specific manner. Ultimately, this approach leads to fragmented and sporadic laws that lack predictability, certainty and constancy, causing inconvenience in the society and eroding the general law-abiding behaviour of users and developers alike.

It is obviously a different problem if any of the new technologies is found to be problematic enough that public administration law drags it into its circle of regulation. Licensing obligations for the manufacturing, marketing, sale, import or export of certain technologies may seem a world away from tort law, but there is an obvious connection between them. If we accept the conservative approach and rely on the existing legal framework of tort law, resisting the urge to take a sectoral approach, the courts will carry the torch and find suitable analogies between new technologies and existing legal standards in tort law. Courts, especially in civil law legal systems, however, are cautious players and crave guidance coming from the lawmaker. Any legal norm that shows some attitude of the lawmaker toward the new technologies would reassure or even guide judges' decisions. Naturally, if a judge sees that the lawmaker introduced a licensing obligation for the marketing of a technology, he could interpret it as a highly dangerous technology that the lawmakers pay special attention to, rather like other acts, which are also carrying some inherent damaging potential. Therefore, the courts may strive to make deeper reinterpretations of tort law norms simply to be in line with the attitude of the

lawmaker, even if it was communicated in another branch of the law, public administration law. This demonstrates that the various branches of the legal system form a real matrix, where, from some perspectives, everything is connected to everything. In search for unlawfulness as a precondition for tortious liability and in search of the classification of the new social phenomenon, the reactions of the lawmaker, even if communicated through amendments of novel norms in other branches of the law (e.g. public administration law), will be considered by the civil courts as hints, if not direct orders, on how to approach torts committed by (the use of) artificial intelligence. Based on this presumption, I would recommend taking the path of conservatism even for the lawmaker when approaching new technologies, and I believe that licensing obligations should be carefully examined prior to their introduction into any legal system.

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