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The projects of European regulation on liability for damage caused by artificial intelligence. Striking a balance between the interests of consumers, multinationals and SMEs.

SOMMARIO: 1. The dialectical process of the European institutions. – 2. The definition of A.I. and the legal issues it raises. – 3. The proposal for a regulation of the European Parliament. The liability regimes. – 4. The responsible parties: "operators". – 5. Overlap with the Product Liability Directive. – 6. The debate on whether an ad hoc regulatory provision should be adopted. – 7. The revision of the Product Liability Directive as an alternative solution: when is the A.I. defective? – 8. Effectiveness of the liability regime as a remedy for the cost of compliance to the *ex ante* regulation
- 9. Conclusive remarks: for a general and uniform regulatory approach.

1. *The dialectical process of the European institutions*

In 2017, the European Parliament and the Commission began to weave various policy documents, some urging, others justifying, the enactment of a legislative provision laying down the liability regime for damage caused by products equipped with Artificial Intelligence (hereinafter referred to as "A.I.").

At present the legislative provision has not yet been adopted

In particular, in its resolution of 16 February 2017, the European Parliament asked the Commission, under Article 225 TFEU, to submit, on the basis of Article 114 TFEU, a proposal for a regulation on Civil Law Rules on Robotics, suggesting that a kind of legal personality should be recognised to systems with A.I. (the idea was more carefully abandoned later[1]). In 2018, the Commission published the first of

[1] European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103 (INL). On the topic of the recognition of legal personality for A.I. systems, among others: A. BERTOLINI, G. AIELLO, *Robot companions: a legal and ethical analysis,* in *Information Society,* 2018, 130-140; G. WAGNER, *Robot Liability*, in S. Lohsse, R. Schulze and D. Staudenmayer (eds.), *Liability for Artificial Intelligence and the Internet of Things*, Hart, 2018, 27 ss.; U. PAGALLO, *The Laws of Robots,* Springer, 2013; G. TEUBNER,

several Communications on the topic, in which it stated that «the EU can take the lead in the development and use of A.I. for the benefit of all, based on its own values and strengths»[2], and thus mandated a High Level Expert Group to define what is meant by A.I.[3], while another High Level Expert Group analysed the implied ethical issues[4]. In 2020, the European Commission published a White Paper entitled «On Artificial Intelligence – A European approach to transparency and trust»[5]. In the meantime, the European Parliament had its study group draw up a detailed economic analysis of the legal regimes that could govern liability for damage caused by A.I.[6].

The institutions' express aim is to boost the European market for A.I. by calling for public and private investment in the sector, without neglecting the need for specific protection of start-ups and SMEs.

In order to create an environment of trust, it is necessary to ensure legal certainty through the adoption of uniform legislation, both on the *ex ante* regulation front (by laying down the requirements for marketing a product in Europe) and on the front of the *ex post* legal protection to be granted to victims of damage caused by the products placed on the market. The economic and geopolitical threat, posed in particular by the

Digital legal entities? The private status of software agents, Napoli, 2019; C. WENDEHORST, *Strict Liability for AI and other Emerging Technologies*, in *Journal of European Tort Law*, 2020, 11 (2), 156.

[2] COM/2018/237final.

[3] High level expert group on artificial intelligence, a definition of A.I. 1 (2019), in digital-strategy.ec.europa.eu/en/library/definition-artificial-intelligence-maincapabilities-and-scientific-disciplines.

[4] Independent High-Level expert group on artificial intelligence, *Ethics Guidelines for a Trustworthy AI,* European Commission, April 2019, 37.

[5] European commission, white paper on artificial intelligence – a european approach to excellence and trust, COM (2020) 65 final, 15 et seq., in ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligencefeb2020_it.pdf.

[6] T. EVAS, *Civil Liability regime for artificial intelligence,* European Parliamentary Research Service, Brussels, 2020, in oparl.europa.eu/thinktank/en/document/EPRS_STU(2020)654178. The findings of the study highlight that «a clear and coherent EU civil liability regime for AI has the potential to reduce risks and increase safety, decreed legal uncertainty and related legal and litigation costs, and enhance consumer rights and trust. These elements together could facilitate the faster and arguably safe uptake and diffusion of AI». The protection of the victim of damage is instrumental in relation to the main objective, which is the stimulation of the market in this area.

American and Chinese giants, makes it all the more necessary to avoid legal fragmentation within the EU[7].

It is thus that the issue of liability for damage caused by the A.I. becomes crucial from the point of view of political choices (which the European institutions take care to disguise as legal technicalities).

The matter obviously refers to the liability regime for damage caused by defective products, already regulated by Directive 374/85/EEC (hereinafter referred to as the PL directive). This is why the Commission set up an expert group on liability and new technologies in 2018[8]. The expert group was divided into two formations: the first one dealt with liability issues for new technologies outside the scope of the Directive. The work of this formation ended in 2019 with the publication of the "Liability for Artificial Intelligence" report[9]. The second formation (to which I was one of the independent members) was tasked with analysing the possibility of adapting the European Directive to the features of products equipped with A.I. and to new technologies. As the intention to revise the Directive prevailed, the Commission omitted to publish the guidelines that the second panel of experts was supposed to deliver to the interpreters; then the commission asked the CSES for an *impact study*, which should provide the empirical data needed as objective foundation for the work of revision of the Directive.

At the time of writing, the Commission has not yet taken a position on the debated question of whether the general product liability directive should be complemented by a legal provision specific to

[7] China published the Next Generation Artificial Intelligence Development Plan in 2017. The US minimises ex ante regulation in order not to create barriers to entry into the US artificial intelligence market. The observation is set out in: S. LOHSSE, R. SCHULZE, D. STAUDENMAYER, (ed.), *Liability for Artificial Intelligence and the Internet of Things***,** Baden-Württemberg, 2019, 16; see also: D. GALBOIS-LEHALLE, *Responsabilité civile pour l'intelligence artificielle selon Bruxelles: une initiative à saluer, des dispositions à améliorer*, in *Recueil Dalloz*, 2021, 87.

[8] European Commission, Call for Applications for the Selection of Members of the Expert Group on Liability and New Technologies 4, in ec.europa.eu/transparency/expertgroups-register/screen/expert-groups?lang=en

[9] European Commission, Report from the Expert Group on liability and new technologies – New Technologies Formation, 2019, in europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/JURI/DV/2020/01-09/AI-report_EN.pdf.

damages caused by A.I.[10].

On 20 October 2020, the European Parliament published a resolution with recommendations to the Commission on a civil liability regime for artificial intelligence[11]. At this stage, this is the last act (in terms of time) of this intricate ritual, which is also slowed down by the rotation mechanisms of European officials who have intervened in the course of the work. In this resolution, the European Parliament does not content itself with suggesting guidelines to the legislative body, but goes up to the extreme limits of its powers by drawing a draft regulation, the adoption of which is recommended to the Commission (which, as well known, is called to exercise legislative power autonomously, without any constraints by the Parliament).

The purpose of this study is to highlight a number of critical points raised by the proposed regulation and to analyze the eventual adoption of a general liability regime for defective products. The opinion advocated by the author is that a liability regime endowed with effectiveness (and thus deterrent efficacy) not only regulates the activities of market players, but can also alleviate the compliance obligations that ex ante regulation places to the detriment especially of medium or small companies and start-ups wishing to enter the technological innovation market.

2. *The definition of A.I. and the legal issues it raises*

In the plurality of documents listed above, there is no shared definition of the Artificial Intelligence System. Each act proposes its own definition[12]. The elements recurring in all the definitions, from the

[10] On the debate in Italian legal literature, see in particular: U. RUFFOLO, *Responsabilità da produzione e gestione di A.I. self learning*, in AA.VV., *Rapporti civilistici e intelligenze artificiali: attività e responsabilità,* Napoli, 2020, 233 ss.

[11] European PARL., Regulation of Civil Liability for Artificial Intelligence, 20.10.2020, P9_TA-PROV (2020) 0276.

[12] The High Level Expert Group's definition of I.A. is as follows: «Artificial intelligence (AI) systems are software (and possibly also hardware) systems designated by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, confirming on the knowledge, or processing the information, derived from this data and determining the best action (s) to take the given goal. Systems can be used Symbolic rules or learn a numerical model, and they

most complex to the more succinct ones, are the fact that, on the one hand, A.I. has the ability to learn from external inputs and its own experiences and, on the other hand, the ability to process decisions with varying degrees of autonomy in pursuing the goal assigned to it[13].

This should exclude, as some authors explain, those technologies whose decisions are predetermined by programmers with "if, then" controls uploaded to the system[14].

The combination of the two skills, that of learning and that of autonomy, makes the future behavior of the A.I. (and consequently the

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can also be adapted by analysing how the environment is affected by their preventive actions».

[13] Cédric Villani, in the report commissioned by the French government, wrote «L'intelligence artificielle désigne en effet moins un champ de recherches bien défini qu'un programme, fondé autour d'un objectif ambitieux: comprendre comment fonctionne la cognition humaine et la reproduire; créer des processus cognitifs comparables à ceux de l'être humain». C. VILLANI, *Pour une stratégie nationale et européenne, Rapport remis au Premier ministre*, 2018, 9, in aiforhumanity.fr/pdfs/9782111457089_Rapport_Villani_accessible.pdf. That said, the studies of neuroscientist Antonio Damasio highlight the fundamental role played by feelings in human cognitive processes which, as a result, at least at the current stage of development of I.A., would not be reproducible («Today, it is certainly possible to design artificial organisms that work intelligently; some of them are even higher, by intelligence, than humans. There is countless evidence to that effect. However, there is no evidence that such artificial organisms, designed for the sole purpose of being intelligent, generate feelings simply because they are acting intelligently. Natural feelings have appeared in the course of the evolution, and have been preserved because their contributions have proven to be vital to the survival of organisms fortunate enough to own them... A curious aspect is that purely intellectual processes lend themselves well to an algorithmic description and do not seem to depend on the substrate. This is why well-designed artificial intelligence programmes can bring chess samples, excellence in the play of go and drive cars without problems. However, there is nothing to suggest that intellectual processes alone form the basis of what distinguishes us as human beings. On the contrary, intellectual processes and sentiment processes need to be interconnected in their function to generate something that resembles them to the functioning of living organisms, and in particular human beings. It is essential here to remember the fundamental distinction – discussed in the second part – between emotional processes, *i.e.* programmes of action relating to the suffering, and feelings, namely the mental experiences of the state of the body (including those generated by emotions)»). A. DAMASIO, *The strange order of things. Life, feelings and creation of culture,* Knopf Doubleday Publishing Group, 2018, 229.

[14] G. WAGNER, *Robot Liability,* cit., 28; ID, *Liability for Artificial Intelligence: A Proposal of the European Parliament,* in ssrn.com/abstract=3886294

damage it may cause) unpredictable. This is the central issue that comes to the attention of the legislator, which is called upon to establish an effective criterion for attributing liability for damages caused by A.I..

The rules introduced in 1985 by the PL Directive are in fact characterised by a static approach, which makes it difficult to adapt to exponential changes through the life cycle of A.I.. The legislative provisions, drafted in the pre-digital age, channel all the responsibility to the producer making reference to the very precise moment when the product «was put into circulation». In particular, the producer is not liable if «having regard to the circumstances, it is probable that the defect which caused the damage did not exist at the time when the product was put into circulation by him or that this defect came into being afterwards» (Article 7 lett. b), or where «the state of scientific and technical knowledge at the time when he put the product into circulation was not such as to enable the existence of the defect to be discovered» (Article 7 lett e).

The aforementioned report of the group of experts also highlights the opacity (or the so-called black box effect) as a feature of A.I.' s systems. This expression refers to the fact that technological complexity makes it very difficult to explain the behavior of the system in a certain situation in order to reconstruct which of the interacting elements could be defective or which of the market players involved in the operation of the A.I. should be held liable.

These are the main reasons why the PL Directive currently in force is not adequate to deal with cases of damage caused by A.I..

In view of these difficulties, the European Parliament, rather than revising the directive in question, suggests the adoption of a legal instrument on liability for damages caused by A.I. and draws up the proposal for the regulation referred to above.

3. *The proposal for a regulation of the European Parliament. The liability regimes*

First of all, it should be noted that the rules proposed by the Parliament are not intended to replace, but rather to complement, the rules laid down in the PL Directive (raising the problems of overlapping competences that will be discussed below).

The first substantial difference between the two sets of rules is that the project of regulation removes the defectiveness as the criteria for attributing liability[15].

The rules proposed by the European Parliament (echoing a suggestion in the report of the first formation of the expert group) distinguish between high-risk A.I. and low-risk A.I..

For damage caused by the former, throughout the life cycle of the product, strict liability is provided for, which can only be excluded by proof of force majeure (Article 4 (3)), or by proving that liability for the damage is "solely" attributable to the victim (Article 10), whatever that means.

On the other hand, the damage caused by the law risk A.I. raises a mere liability for presumed fault.

Article 3 (c) of the proposal for a Regulation, defines "high risk" as «a significant potential in an autonomously operating AI-system to cause harm or damage to one or more persons in a manner that is random and goes beyond what can reasonably be expected; the significance of the potential depends on the interplay between the severity of possible harm or damage, the degree of autonomy of decision-making, the likelihood that the risk materializes and the manner and the context in which the AI-system is being used».

To the ears of civil lawyers, unaccustomed to the polyform standard of reasonableness[16] , it may sound incongruous that the risk is defined as high when it is both greater than what can reasonably be expected and at the same time likely to materialise [17]. From a more substantial

[15] Indeed, it is well known that the legal concept of defectiveness is one of the greatest problems in the application of Directive 374/85, as explained in more detail in point 7.

[16] G. PERLINGIERI, *Profili applicativi della ragionevolezza nel diritto civile*, Naples, Esi, p. 2; S. TROIANO, *La ragionevolezza nel diritto dei contratti,* Padua, Cedam, 2005, p. 48 et seq.; A.TUNC, *Standards juridiques et unification du droit*, in *Revue internationale de droit comparé*, vol. 22, no. 2, 1970, pp. 247-261, who explains how the idea of a 'legal standard' first emerged in a speech by Roscoe Pound at a congress of the American Bar Association in 1919. Pound defined the standard as an average measure of social conduct; in this sense, the good family man, the reasonable man, and the notion of reasonableness in general were considered standards.

[17] G. PERLINGIERI, *Profili applicativi della ragionevolezza nel diritto civile*, Napoli, 2015, 2; S. TROIANO, *La ragionevolezza nel diritto dei contratti*, Padova,

point of view, it has to be remarked that the severity of the risk is not related to its frequency, since damage to a single person is also covered. Therefore this distinction does not serve the purpose of protecting SMEs and start-ups from the burden of strict liability in consideration of the still small scale of their activities.

In other words, the textual distinction between high-risk and low-risk activities is based on an evanescent qualitative definition of risk, which does not take into account the size of the business generating it and thus the fact that an enterprise with larger market shares is potentially likely to create a higher number of accidents than those caused by an enterprise with a small activity.

In consideration of this nebulous definition, the European Parliament recommends that a committee be set up to draw up a list of A.I. that are to be regarded as high-risk, requiring the list to be updated at least every 6 months.

The complex mechanism inevitably entails high implementation and operating costs, to which must be added the costs of litigation fuelled by a legal regime based on uncertain and therefore questionable definitions. It is true that the costs afforded by the institutions have the advantage of lowering the cost of access to justice for the victims, who is relieved of the burden to prove that they have suffered unreasonable harm. However, it is also true that the victim's ease of access to justice is consistently undermined by the article setting the total maximum amount of compensation to be paid by a high-risk A.I. system.

The rule in itself is not surprising, since the cap is the tool which makes it possible to manage economically an risk of damage immeasurable because unforeseeable and, possibly, to cover that risk with insurance. The cap is the necessary balancing tool for an absolute strict liability regime. What is surprising rather, is the amount of the cap that has been set by Parliament, together with the fact that it is the same for any enterprise, regardless of its economic size, despite recital k of

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2005, 48 ss.; A. TUNC, *Standards juridiques et unification du droit*, in *Revue internationale de droit comparé*, vol. 22, n. 2, 1970, 247 ss., who explains how the idea of a "legal standard" first emerged in an intervention by Roscoe Pound at a Congress of the American Bar Association in 1919. Pound defined the standard as an average measure of social behaviour; in that sense, the good pater familias, the reasonable man, and the notion of reasonableness in general were regarded as standards.

the resolution, which states: «(…) whereas the crucial role of start-ups, micro, small and medium-size enterprises, especially in the European economy, justifies a strictly proportionate approach to enable them to develop and innovate».

More precisely, the amount is two million in the event of death or damage to personal injury, whereas, in the case of damage resulting in verifiable economic loss or damage to property, the maximum amount is up to one million of euro, with a minimum threshold of 500 euro (Article 5). It should be remarked that the amount is the same even in the case of damage caused to several victims by the same A.I. system. Inevitably this amount will at the same time be derisory for big companies and exorbitant for start-ups.

Indeed, the law maker, keen to avoid excessive cost that could impair enterprises activities, does not take care of those heads of damage that will be left to the community, as they exceed the fixed cap and also fails to take account of the different impact that the rules will have on SMEs and start-ups.

On the other hand, liability for fault imposed on low-risk A.I. does not provide for any limitation of the compensation obligations.

Parliament's resolution provides no justification for the victims of damage caused by low-risk A.I, on the fact they do not enjoy the same legal protection as the victim of the same damage caused by high-risk A.I..

4. *The responsible parties: "operators"*

With regard to the liable parties, the proposed Regulation does not only adress to the producer, but involves a much wider and heterogeneous category of entities called "operators" and divided into "front-end" operators and "back-end" operators. More precisely, Article 3 (e) of the proposal defines front-end operator as «any natural or legal person who exercises a degree of control over a risk connected with the operation and functioning of the AI-system and benefits from its operation»[18]. Article 3 (f), on the other hand, defines a back-end

[18] For the avoidance of any misunderstanding, the French version of the text clarifies more effectively tha fact that the operator who benefits from the operation of the A.I. is the one who gets an economic utility from it («... et tire profit de son exploitation») and not simply the one who derives a benefit of any kind as a user.

operator as «any natural or legal person who, on a continuous basis, defines the features of the technology and provides data and an essential backend support service and therefore also exercises a degree of control over the risk connected with the operation and functioning of the AI-system».

All such entities are held jointly and severally liable to the victim, not precluding subsequent recourse actions in order to apportion the compensation between them according to «the respective degrees of control the operators had over the risk connected with the operation and functioning of the AI-system» (art. 12).

In itself, the purpose of the provision is clearly to facilitate the claimant's position by taking into account the fact that the more complex and technologically sophisticated the product is, the more difficult it is to identify which of the many legal entities involved in the production process (even of just one component), distribution, management and updating of the product had the specific control over the risk of damage that materialised. Take as an example the simple case of a drone, produced by Alpha, which operates autonomously by the means of an algorithm produced by Beta and which is exploited by Delta to transport parcels; if the drone were to crash to the ground during a transport operation injuring a passer-by, the injured party would not be in a position to know to which of the companies involved the cause of the accident should be linked. In such a case, it is certainly more effective to allow the injured party to raise the joint and several liability of all three, while leaving the recourse actions to distribute the cost of the damage taking into account the specific contractual agreements prearranged ad hoc between them.

5. *Overlap with the Product Liability Directive*

The author of the proposal for a regulation uses generic terms, which do not refer to known legal categories, already regulated elsewhere. It does not write product, but A.I. system; he does not refer liability to the producer, rather to an indistinct category of market players referred to as operators, so far unknown in the legal world. This category of operators also includes the producers of A.I. systems. Thus the proposed regulation partially overlaps with the PL Directive, creating delicate problems of coordination between the two, since the former is

not intended to replace the latter.

As explained above, unlike the PL Directive, the Regulation exempts the victim of damage caused by a high-risk A.I. system from the burden of proving the defect by establishing an absolute strict liability; on the other hand, in the case of damage caused by low-risk A.I. systems, it reintroduces the element of fault (even if presumed) which the PL Directive had intended to eliminate. At the same time, the category of responsible persons identified by the proposed regulation goes far beyond the producer alone.

In order to settle conflicts of laws, Article 11 of the proposed regulation states: «If there is more than one operator of an AI-system, they shall be jointly and severally liable. If a frontend operator is also the producer of the AI-system, this Regulation shall prevail over the Product Liability Directive. If the backend operator also qualifies as a producer as defined in Article 3 of the Product Liability Directive, that Directive should apply to him or her. If there is only one operator and that operator is also the producer of the AI-system, this Regulation should prevail over the Product Liability Directive».

In short, when the producer also meets the definition of the so-called front end operator, the injured party enjoys much greater protection than that granted by the PL Directive if the damage is caused by a high-risk A.I. system; on the contrary, it is disadvantaged if the damage is caused by a low-risk A.I. system.

Once again, the fragmentation of the levels of protection granted to injured parties does not appear to be justified from the point of view of the injured parties, nor does it prove to be functional with respect to the proclaimed intention to protect SMEs and start-ups wishing to enter in the market of A.I..

More generally, this regulatory fragmentation based on blurred and nebulous definitions that should distinguish high-risk and low-risk systems, front-end operators and back-end operators, is open to different interpretations according to the sensitivity of national courts and ultimately contradicts the aim at armonising the legal provisions within the EU in order to generate legal certainty and to instill trust.

6. *The debate on whether an ad hoc regulatory provision should be adopted*

The question that arises at this point is whether a specific regulation on liability for damage caused by A.I. systems is really necessary and appropriate, or whether it is sufficient to adapt the existing legal instruments to the changing reality.

Many authors argue that the legal system is equipped to address the unforeseeable risk of damages caused by A.I.'s systems. In Italy Ruffolo notes that after all these risks of damage are no less unpredictable than those that can be caused by natural intelligence, whether human or animal[19]. Obviously, the harmful potential of an A.I. system may be far greater than that of a single child or pet. This objection is answered by referring to art. 2050 Italian civil code that imposes an aggravated liability on a person who carries out a dangerous yet lawful activity. The Italian courts made good use of this legal provision, in particular in many cases of mass tort[20]. Confirming this approach, the "Gruppo di Esperti del Ministero dello Sviluppo Economico sull'intelligenza artificiale" stated in July 2019 that «In our opinion, the introduction of new laws is not necessary, since Article 2050 of the Italian Civil Code concerning the exercise of dangerous activities can be applied in the first place in our legal system. In the current state of the art, there is no reason to exclude from the category

[19] «Merita, dunque, considerazione l'idoneità dello strumento interpretativo a dare risposta ai nuovi fenomeni, soprattutto negli ordinamenti ad elevata codificazione. Non va dimenticata, infatti, la pretesa di completezza dell'ordinamento, strutturalmente idoneo a regolare il futuro con lo strumento della interpretazione: da quella letterale o logica o sistematica, sino alla analogia – quando praticabile – o al ricorso ai principi generali dell'ordinamento (ed alla interpretazione "costituzionalmente orientata"). Il che, inoltre, rende tali sistemi alterabili ed inquinabili dai potenziali effetti sistemici, anche non previsti, della introduzione di ogni non indispensabile nuova norma, col rischio di una "iperfetazione legislativa"». (U. RUFFOLO, *op. cit.*, 237).

[20] The Italian civil Code introduced in 1942 an innovative rule on aggravated liability for dangerous activities (although incorporating ideas circulating in Europe such as the German gefahrgundshaftung). Although not expressly reserved for industrial activities, it goes without saying that the legislature in 1942 took account of the fact that they are liable to cause mass tort damages, even though they cannot be prohibited for that reason alone (P. G. MONATERI, *La responsabilità civile*, in *Tratt. Sacco*, Torino, 2006, 102 ss.).

of 'dangerous activities' the use of robots and, more generally, of AI systems, used in relational activities with human beings ...».

Other legal systems, lacking a specific rule on dangerous activity, have addressed the problem of mass tort resulting from industrial activities by adapting (someone would say more accurately by deforming[21]) other legal instruments with which they were equipped, such as the liability «pour le fait des choses» in France[22].

Nevertheless, these domestic solutions do not solve the problem of regulatory fragmentation that is to be avoided in order to generate trust in the European market.

Therefore, in line with the intentions set out, it seems more appropriate to reflect on the work of revision of the existing uniform legislation, *i.e.* the PL Directive, not only in order to adapt the legislative text to the characteristics of the new technologies, but also to improve its effectiveness and consequently its deterrence effect.

7. *The revision of the Product Liability Directive as an alternative solution: when is the A.I. defective?*

As is well known, the criterion for attributing strict liability laid down in the Directive focuses on the concept of defectiveness of the product[23]. Since it is always possible to manufacture a product in such a way that it is even more resistant and safer (Viscusi noted that a car

[21] R. DI RAIMO, *Decisione e attuazione algoritmiche delle situazioni sostanziali,* in AA.VV., *Rapporti civilistici e intellegenze artificiali: attività e responsabilità,* cit., 122.

[22] France has refrained from introducing a similar general provision in its draft civil liability reform «La notion d'activité anormalement dangereuse n'étant pas définie» (J-S. BORGHETTI, *Des principaux délits spéciaux*, in F. Terrè (ed.), *Pour une réforme du droit de la responsabilité civile,* Dalloz*,* 2009, 177). However, the application of liability «pour le fait des choses» to A.I. is bound to bring back the problems of interpretation of the notion of "gardien" already known in French legal literature (H. et L. MAZEAUD, A. TUNC, *Traité théorique et pratique de la responsabilité civile*, Paris, 5e 6d, t 2, No 1160-3). See also the distinction in the case-law between gardien direct and gardien indirect (e.g. Cour. Cass. See (2), 5 January 1956, in *Recueil Dalloz*, 1960 J. 609).

[23] Let me refer to E. RAJNERI, *Prodotto difettoso*, in Digesto/civ., IV ed., Torino, agg. 2015, *at vocem*.

can always be manufactured like a tank[24]), the element of defectiveness is necessary in order to strike a balance between the desired level of safety on one hand and the degree of functionality and cost-effectiveness that cannot be renounced, on the other.

Defectiveness is not a physical, empirically verifiable element, but an abstract legal concept. Otherwise said, producer's responsibility depends on the legislative definition of defects and how it is interpreted.

The legislative definition of defects is deliberately fluid in order to be adaptable to any kind of product, case by case[25]. For this reason, it is necessary to analyse the reasoning underlying the judicial decisions in order to deduce the parameter applied to ascertain defectiveness.

It has been pointed out that, in all judgments concerning the defectiveness of the product, there are two recurring elements, namely the foreseeability of the damage and its avoidable nature[26]. I therefore consider it useful to distinguish case-law into three categories: (a) cases of damage which were foreseeable and avoidable by the parties at trial, (b) cases of damage which were theoretically foreseeable but unavoidable by both parties and (c) cases of damage which were unforeseeable and unavoidable when the parties acted. In conclusion of the analysis of the case-law, (d) it will be necessary to reconsider the temporal extension of the notion of defect in order to adapt it to the progressive mutation of A.I. systems.

The standard of cheapest cost avoider in cases of avoidable damage

In the first category of cases, the court's reasoning consists in assessing which of the parties at trial could have avoided the damage more easily than the other[27]. If the court considers that it is the producer,

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[24] W. K. VISCUSI, *Reforming Products Liability,* Harvard University Press, 1991, 2.

[25] J-S.BORGHETTI, *La responsabilité du fait des produits, Paris,* 2004, 443.

[26] J-S.BORGHETTI, *La responsabilité du fait des produits*, cit. 609.

[27] Reference is made to the well-known theory *of the cheapest cost* avoider of Guido Calabresi (G. CALABRESI, *The Cost of Accident, a legal and economic Analysis,* Yale University Press, 1970). The court adopts an *ex ante* reasoning, based on the information available to the parties at the time they acted, rather than an *ex post* analysis of who, on balance, could have avoided that damage at the lowest cost. For an example of a judicial decision that follows this reasoning, see: Corte di Cassazione No 3242 of 2 March 2012. In the view of Calabresi the c.c.a. is not just the one who can avoid the damage, but also the one who can easier manage the cost of the damage (see the following point).

the court will say that the product is defective; if, on the contrary, the court considers that the victim could have avoided the damage by taking normal precautions, then the principle of self-responsibility on the victim will apply[28]. In this case, therefore, the difference between the system of liability under the P.L. Directive and that envisaged by the European Parliament resolution for damage caused by A.I. is reduced to the reversal of the burden of proof, since in both cases the fault of the victim excludes the liability of the producer.

But this reasoning only works in cases where the damage was avoidable.

Management Risk Approach in cases of foreseeable but unavoidable damage

In cases of damage which was statistically foreseeable but unavoidable, in accordance with the strict liability rule stated in the recitals of the Directive, the product must be considered defective and consequently the producer must be held liable. The rationale of the rule is illustrated by the well-known studies of economic analysis of law[29]: since the damage is statistically foreseeable, its total amount is lumps sum quantifiable by the producer; this means that the producer can

[28] McDonald coffee cases are a paradigmatic of how the principle of self-responsibility is implemented differently depending on the judge's sensitivity to the more or less strong need for social solidarity towards the victim felt in different economic contexts. These are two essentially analogous cases which gave rise to two opposing decisions, one before a US court (*Liebeck v. McDonald's Restaurants P.T.S.* Inc., N.M. Dist. 1994), the other before an English court *Boogle and Others v. McDonald's Restaurants* Ltd (2002) All ER (D) 436. The English court denied compensation (See para. 80: «They expect precautions to be taken to guard this risk but not to the point that they are denied the basic utility of being able to buy hot drinks to be consumed on the premises from a cup with the lid off»). On the contrary, the American court condemned the defendant to pay compensation and also punitive damages. It is likely that the lack of a public health system in the US grows the need for solidarity toward the victims of personal injuries.

[29] The effectiveness of this criterion for attributing liability, as opposed to fault liability, is well known and is well summarised in the study commissioned by the European Parliament. That study, recalling to the well-known theories of economic analysis of law, states that "strict liability" makes it possible to control not only the level of precautions that the producer is required to take, but also the level of activity in such a way as to exclude automatically from the market those business activities that unload more damage on the community than the expected profits (T. EVAS, *Civil Liability regime for artificial intelligence,* cit., 34-35).

manage it more easily than potential victims, with insurance and a proportional increase in the selling price of his products[30].

Further, Richard Posner argues that the strict liability rule for the risks of foreseeable and unavoidable damage would incentivise the producer to invest in research in order to find a way to eliminate the adverse effects of his product, rather than waiting for someone else to solve the problem[31].

This approach is in line with the so-called management risk approach (MRA), which is mentioned in all the European acts on liability regime for damage caused by A.I. systems listed above[32]. This approach consists of attributing liability for damage to the one who is in a position to control the risk of damage, which means not only being able to reduce or eliminate it, but also to manage its cost more efficiently[33].

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[30]Among others: S. SHAVELL, *Foundations of economic analysis of law,* 2004, Harvard University Press, 193 ff.

[31] The observation is quoted in W. M. LANDES, R. A. POSNER, *A positive economic analysis of product liability,* in *Journal of Legal Studies,* Vol. XIV, 1985, 555.

[32] See, e.g., European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103 (INL)). Point 55 states that «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 minimise risks and deal with negative impacts». In this sense, the Commission distinguishes between a criterion for attributing liability to the person who generates the risk of damage or to those who are best placed to minimise the cost of damage (risk generating approach and risk-management approach respectively). Commission (point 9), COM (2017) 9 final, 15.

[33] The MRA recalls to the theory of business risk that was circulating in Europe in the '60s, without finding any explicit regulatory recognition. In Italy, the theory was declined from the point of view of the economic efficiency of the system by Pietro Trimarchi (P. TRIMARCHI, *Rischio e responsabilità oggettiva,* Milano, 1961); A. draws inspiration from both American legal literature that was developing in those years (in particular, he refers to: F. JAMES, J. J. DICKINSON, *Accident Proness and Accident Law,* in *Harv. L. Rev.,* 1950, 769), and the older French doctrine which had developed the theory of the business risk in relation to accidents at work (L. JOSSERAND, *La Liability du fait des choses inanimées,* Paris, 1897) and then the studies of André Tunc, who in France advocated the adoption of a general system of strict liability (in particular: A. TUNC, *Responsabilité civile et dissuion des compostements antisociaux*, Mélanges Ancel, 1975, t. I, 407). A few years after the business risk theory was developed from a social solidarity perspective by Stefano Rodotà (S. RODOTÀ, *Il problema della responsabilità civile*, Milano, 1964). Ugo Carnevali applies the business risk theory specifically to liability for damage caused

The problem is that the strict liability rule is uniformly applied in all jurisdictions when a so-called manufacturing defect is at issue, whereas it is disregarded in the case of a so-called design defect[34].

The difference is that, in a manufacturing defect case, the defect is empirically verifiable by comparing the item, which caused the damage with all the products belonging to the same series, which do not cause that damage (the French would say that it is defective because it caused *abnormal* damage, the Anglo-Saxons would say that it is defective because it caused *unreasonable* damage). Instead, when the risk of unavoidable damage is inherent to the whole series of products, another parameter of comparison must be found to ascertain the defectiveness. In such cases, European judges, following the US case law, surreptitiously bring into the reasoning the analysis of the costs and benefits generated by the product[35]. Briefly, when the benefits brought

by defective products (U. CARNEVALI, *La responsabilità del produttore*, Milano, 1974).

[34] As well known, the Directive makes no mention of the division between manufacturing, design and warning defects drawn up in the United States. Nevertheless, in Italy and also in Spain, the strict liability rule for manufacturing defects is set out in the law transposing the Directive (according to Article 117 (3) of the Consumer Code «A product is defective if it does not offer the safety normally offered by the other specimens of the same series»). In the other countries of the European Union, the strict liability rule for manufacturing defects is non controversially applied by courts (see, for example, in the typical case of sudden explosion of the glass bottle containing a gaseous drink, BGH, 9 May 1995. For a comment on the judgment, see: S. LENZE, *German product liability law: between European directives, American Restatements and common sense,* in D. Fairgrieve (ed), *Product Liability in Comparative perspective,* Cambridge University Press, 2009, 115; C. HODGES, *The case of the Exploding button of water,* 18, *Product Liability Int.* 73, 1996.

[35] The reference is to *the risk/utility test* developed by American courts to determine when a product can be said to have a design defect. The *leading case* is *Barker v. Lull Engeneering Co.*, 573 P.2d 443, 455, Cal. 1978. Following this decision a product is defective when the producer neglected to adopt an alternative design which eliminate the specific risk of damage at a lower price than the cost of the damage. In the case of unavoidable damage, in the absence of an alternative design of the product, courts consider the costs and benefits generated by that series of products for the community as a whole. For the doctrine supporting the adoption of risk/utility in the US, see in particular: A. D. TWERSKI, *From Risk-Utility to Consumer Expectation: Enhancing the Role of Judicial Screening in Product Liability Litigation*, in *Hofstra Law Review,* 1983, 861. On the unacceptability of the results that would result from a rigorous application of *the risk/utility test*, see the analysis of the famous

by that type of product are greater than the cost of the damage that it is likely to cause, the product will be said not to be defective; consequently, the cost of the damage will have to be borne by the victims (provided that they were informed of the risk, e.g. in the label of a medicinal product).

The critical point of the courts' reasoning is that the result of the calculation of costs and benefits is not the same depending on whether the overall costs are compared with the benefits for the community as a whole, rather than the benefit obtained and the cost of the damage caused by the product in the individual case. In fact, the analysis of the overall costs and benefits leads the private court to duplicate the role already played by the regulator who authorised the marketing of that product, having assessed indeed that the risk of foreseeable damage was acceptable in view of the expected benefit for the common interest[36]. Consequently, the product will not be considered defective, even though in the individual case it has caused a damage that exceeds the benefit received by the victim.

The result is reversed when comparing the harm and the benefit obtained individually. In my view, the latter solution is more consistent with the rational of the directive, since there are the same elements that justify the attribution of strict liability to the producer in cases of manufacturing defects: by definition, the risk of damage is known to the producer and is therefore statistically measurable and therefore insurable, or otherwise economically manageable. For this reason, I believe it is worth explaining (in guidelines or in the revised directive) that the assessment of the defectiveness of a product can not be related to the analysis of the global costs and benefits generated by the entire

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Pinto case in: G. CALABRESI, *The complexity of torts – the case of punitive damages*, *Exploring Tort Law*, Cambridge University Press, 2005, 342). For a comparative study on the application of cost-benefit analysis in the courts of justice in EU Member States: M. SANTOS SILVA, D. FAIRGRIEVE, P. MACHNIKOWSKI, J-S. BORGHETTI, A. L. M. KEIRSE, P. DEL OLMO, E. RAJNERI, C. SCHMON, V. ULFBECK, V. VALLONE, H. ZECH, *Relevance of Risk-benefit for Assessing Defectiveness of a Product: A Comparative Study of Thirteen European Legal Systems*, in *European Review of Private Law*, 2021, 29, Issue 1, 91-132.

[36] W. K. VISCUSI, *op. cit.*, 83. «(I) f regulatory requirements exist and lead to an efficient level of safety for a product, then a risk/utility test in the courts is extraneous. In effect, the analyses supporting the regulations have improved the benefits to the risk/utility test in that they have shown that the resulting guidelines are efficient».

series of this product for the community as a whole[37].

Obviously, when the damage caused in the individual case is lower than the benefit achieved by the victim (e.g. a life-saving drug causing a slight discomfort as a side effect) the product will not be considered defective. It is in this case that the notion of defectiveness plays a key role.

Briefly, the product is defective when it causes damage which is unreasonable or abnormal because the other specimens of the same series do not cause that damage, or because the damage in the single case exceeds the benefit brought to the victim.

The development risk defence and the protection of SMEs

The problem that the application of the Directive to A.I. systems leaves open is rather the hypothesis of damage that was not even foreseeable in theory. In this case, the European Directive provides for the possibility of exempting the producer from liability if he proves that «the state of scientific and technical knowledge at the time when he put the product into circulation was not such as to enable the existence of the defect to be discovered». Since A.I. is characterised precisely by the unpredictability of its future conduct, it is easy to assume that the producer will very frequently invoke this exemption clause[38].

The *raison d'être* for the exemption clause is the need to protect the producer from the risk of damage which, as not foreseeable, cannot be measured even in a lump-sum basis; therefore, it cannot be managed

[37] The interpretation suggested in the text is implicitly confirmed by the CJEU in its decision of 21 June 2017 (C-621/15) on an allegedly defective vaccine case. The court states that «the vaccine therefore does not offer the safety that one is entitled to expect, taking all circumstances into account, as provided for in Article 6 of that directive, because it causes abnormal and particularly serious damage to the patient who, in the light of the nature and function of the product, is entitled to expect a particularly high level of safety» (paragraph 41). Although this is an *obiter dictum* in a decision concerning the proof of causation, it cannot be overlooked that the Court does not refer the vaccine's defectiveness to a cost-benefit analysis from a general point of view, but rather assesses the costs and benefits exclusively in relation to the individual interests of the parties at dispute.

[38] Report from the Commission to the European Parliament, COM (2020) 64 final, 16 February 2020, cited above, the Commission does not seem to take a position on this point, except to point out that in the field of artificial intelligence there could be an "abuse" whereby the producer is not liable if the defect did not exist at the time when the product was put into circulation or if the state of scientific and technical knowledge did not allow the defect to be foreseen.

either by insurance or by increasing the selling price of the product. If that is the rational of the clause, it cannot be neglected that its application has the inconvenience of leaving the damage to the victim, who could not avoided it in any way and for which the cost of the damage may be unaffordable. This inconvenience is difficult to justify in the light of the need for social solidarity felt nowadays in Europe. Therefore alternative legal solutions are needed, as, for example, the one adopted by the German Law of 1976 on liability for adverse reactions of pharmaceutical products (a law that is still in force under Article 13 of Directive 374/85)[39]. The German law does not exempt the producer from liability for those adverse side effects that were not foreseeable in the light of the technical and scientific knowledge available at the time he marketed the drug. However, this law counterbalances the producer's absolute liability by setting a cap on the amount of damages he is required to compensate. This measure avoids exposing the producer to an incommensurable economic risk and enables him to manage the risk with insurance (and an increase in the selling price of the products). In other words, by setting the cap on compensation, the case can be brought under the logic of the MRA.

This interesting solution can be further refined in order to take into account the interests of SMEs and start-ups. I already had the opportunity to expose at the High Level Conference on A.I. the14th September 2021[40] that it would be preferable to adjust the cap of compensation in proportion to the turnover of each producer, rather than prefixing a cap that is the same for all.

At the end, there is no reason why the suggested regulatory solution should not be adopted for all kinds of products, rather than exclusively for A.I.. Indeed the application of the exemption clause for the so-called development risk has the inconvenient to neglect the need for social solidarity towards the victims of unforeseeable damage, whatever the type of product that caused it.

Dynamic interpretation of defects

Having defined the notion of defectiveness, a temporal extension of its relevance must be made possible in order to adapt the directive to

[39] Arzneimittelgesetz of 24 August 1976 (U. CARNEVALI, *La responsabilità del produttore di medicinali in una recente Legge della Repubblica Federale Tedesca*, in *Rivista di diritto industriale*, 1977, I, 476 ss.).

[40] https://ai-from-ambition-to-action.com/breakout.php?id=2

the progressive changes in A.I. systems and new interconnected technologies. First of all, a dynamic and flexible interpretation of the legislative text would allow to include also those defects that were only potentially existing at the time when the product was put into circulation. However, a broad interpretation is not sufficient to solve the problem. By analogy with the rules laid down in Directive No 771 of 2019 on the sale of products with digital content[41], and in line with the obligation to monitor the safety of the product throughout its life cycle, the producer should also be held liable for damage caused by defects which appeared and became knowable at the time of subsequent updates of the product already put into circulation, provided that such updates are to some extent preconfigured or even only recommended by him.

8. *Effectiveness of the liability regime as a remedy for the cost of compliance to the* ex ante *regulation*

The provisions of the Directive most in need of revision are those, which constitute an obstacle to access to justice (as demonstrated by the fact that the Directive has so far had very little impact compared to expectations). In this regard the distribution of the burden of proof between the parties at trial is discussed above all. Indeed, it is pointed out that the asymmetry of information affecting the victim in relation to the producer is likely to increase due to the complexity and opacity of new technologies.

For this reason, the report of the expert group recommends to require that the operators record the data on the functioning of the A.I. system so to make them available in case of accident. This suggestion has not been taken up in the European Parliament's proposal for a Regulation.

[41] Article 10 (2) of dir. No 771/2019: «2. In the case of goods with digital elements, where the sales contract provides for a continuous supply of the digital content or digital service over a period of time, the seller shall also be liable for any lack of conformity of the digital content or digital service that occurs or becomes apparent within two years of the time when the goods with digital elements were delivered. Where the contract provides for a continuous supply for more than two years, the seller shall be liable for any lack of conformity of the digital content or digital service that occurs or becomes apparent within the period of time during which the digital content or digital service is to be supplied under the sales contract».

In order to ease the claimant's position, it is widely believed that it would be appropriate to reverse the burden of proof so that it is the defendant who has to prove the lack of defectiveness of the product or the absence of a causal link [42]. However, this solution is not sufficient to solve the problem of the litigation costs that hinder access to justice for victims. In fact, the reversal of the burden of proof does not relieve the claimant of the costs of the technical expertise which he should oppose to the defences put forward by the producer, who has all the technical and scientific information. The costs of expertise are considerably high when it comes to legal systems which provide only for the appointment of a court expert only, and even more so in the case of systems which also authorise the appointment of party experts. Among the legal instruments to be considered in order to facilitate access to justice, I would like to point out Article 120 (3) of the Italian Consumer Code, according to which: «If the damage is likely to have been caused by a defect in the product, the judge may order that the costs of the expertise be advanced by the producer». This provision was autonomously introduced by the Italian legislator transposing the P.L. Directive, but its impact has not yet been studied.

The European Parliament took up the suggestion of the expert group to broaden the circle of those liable for damages by identifying the category of "operators", in order to facilitate the victim's claim for compensation. This is probably the most innovative provision of the proposed Regulation, although, it should be said, the idea was already under discussion in relation to the P.L. Directive. For instance, the question of whether online sales platforms should be included in the category of producers (or in the category of importers in the European market) has long been discussed[43].

In other respects, some legal systems easily allow the joint and several liability of all those who have contributed to the damage, albeit with different roles and responsibilities (e.g. Article 2055 of the Civil

[42] See A. AMIDEI, *Intelligenza artificiale e* product liability*: sviluppi del diritto dell'Unione Europea,* in *Giur. it.,* 2019, 1723-1724.

[43] E. BÜYÜKSAGIS, *Extension of Strict Liability to E-Retailer,* in *Journal of European Tort Law,* 2022, 64-86.

Code in Italy)[44]. The basic idea of these pragmatic solutions is that, once the victim has been compensated, recourse actions will rebalance the compensation obligations between the various co-responsible, according to their previous contractual agreements.

Therefore the idea of including among the liable persons, in addition to the producer, all those who had the possibility of controlling the risk of damage caused by the defective product is in line with the purpose of the P.L. Directive.

Lastly, the removal of the threshold of EUR 500 is under discussion. This provision, introduced with the aim of avoiding the multiplication of frivolous claims, has the inconvenience of leaving essentially unpunished those lucrative practices by which companies spread a plurality of minor damages with the certainty of being exempt from any obligation to pay compensation[45].

The need to ensure access to justice for compensation goes far beyond the mere need for social solidarity toward the victim. Indeed it is well known that liability does not only fulfil a compensatory function (in which case it would certainly be preferable to adopt the easier and less costly system of the compensation fund). When the liability rule is made effective, it automatically acquires a deterrent effect that ensures the proper functioning of the market in accordance with the fundamental principle of any liberal economy that freedom of action must be matched by equal responsibility for the consequences of one's actions[46]. Since ex ante regulation and ex post liability are two

[44] A. MIRABELLI PROCIDA DI LAURO, Le *Intelligenze artificiali tra responsabilità civile e sicurezza sociale*, in AA.VV., *Rapporti civilistici e intelligenze artificiali: attività e responsabilità,* Napoli, 2020, 299.

[45] The problem of underdeterrence against profit-making torts had already been addressed in the late '50s by Rodolfo Sacco in Italy and André Tunc in France. The first alleged an obligation on the part of the tortfeasor to return the profit in the light of an analytical study of unjust enrichment (R. SACCO, *L'arricchimento ottenuto mediante fatto ingiusto*, Torino, 1959). The second suggested the idea of condemning him to pay a fine to public authorities, in order not to infringe the principle of full compensation for damage (A. TUNC, *Responsabilité civile et dissuasion des compostements antisociaux*, Mélanges Ancel, 1975, t. I, 407). On the issue of profit-making torts: E. RAJNERI, *Il progetto di riforma della responsabilità civile in Francia,* in *Riv. critica dir. priv.,* 2019, 476-479.

[46]«Liberty not only means that the individual has both the opportunity and the burden of choice; it also means that he must bear the consequences of his actions.

complementary instruments aimed at the same purpose of preventing accidents, the proper functioning of the liability rule also has the merit of softening the ex ante compliance rules by which the legislator chase the potential risks of incessant technological innovation. The result is not insignificant given that the more detailed ex ante regulation, the higher the compliance costs borne by enterprises willing to enter into the market.

The OECD and economists studies demonstrates that high compliance costs constitute real barriers to market entry for SMEs and start-ups, to the benefit of the oligopolies of multinational companies[47].

9. *Conclusive remarks: for a general and uniform regulatory approach*

In conclusion, I do not see a real necessity for an *ad hoc* rules on liability for damages caused by A.I.. overlapping or replacing the PL directive. This solution will increase precisely the legislative fragmentation that European Institutions would like to avoid in order to generate legal certainty and trust. It seems rather preferable (also in compliance with the proclaimed principle of technological neutrality) to revise the PL Directive, which was drafted in the pre-digital age, in order to make it applicable to any kind of product, including A.I.[48].

Jean-Sébastien Borghetti argues that the notion of defectiveness in the PL Directive cannot be applied to A.I., since the tests used by the courts to ascertain its existence would not be workable[49]. Allowing me to question the conclusions of the author's brilliant analysis, I consider that a general definition of defects based on whether the damage was avoidable, foreseeable but unavoidable or unforeseeable, would make it possible to adapt the notion of defectiveness also to A.I., so to avoid the regulatory fragmentation caused by a sectoral approach. I consider

Liberty and responsibility are inseparable» (F. A. HAYEK, *The Constitution of Liberty,* I, Cap. V "*Responsibility and Freedom*", Chicago, 1960, 133).

[47] F. CHITTENDEN, T. AMBLER, *A Question of Perspective: Impact Assessment and the Perceived Costs and Benefits of New Regulations for SMEs,* in *Environment and Planning C: Government and Policy*, 2015, 33. J. KITCHING, *Is less more? Better regulation and the Small Enteroprise,* in S. Weatherill (a cura di), *Better Regulation,* Hart, 2007, cap. 9.

[48] The same conclusion is reached in: C. WENDEHORST, *op. cit.*, 180.

[49] J-S. BORGHETTI, *Civil Liability for Artificial Intelligence: What Should its Basis Be?*, in *Revue des juristes de Sciences Po*, No 17, 2019, 76-84.

it preferable that the lawmaker strikes an unequivocal and general balance between the interests of producers on the one hand, and those of consumers on the other, in order to shape the functioning of the market regardless of the type of product in question. It will then be up to the judge to ensure the implementation of the balance fixed by the law, taking into account the specific features of the product brought to his attention on a case-by-case basis. After all, it is not possible or even desirable for the lawmaker to be required to chase with punctual disciplines a reality that is in continuous and rapid evolution, in an attempt to anticipate future technological developments and related practical problems, that only the experience can reveal in all their implications.

At the end, A.I. systems do not confront the lawmaker with challenges never known before. Portalis, father of the codification idea, already explained: «Quoi que l'on fasse, les lois positives ne sauraient jamais entièrement remplacer l'usage de la raison naturelle dans les affaires de la vie. Les besoins de la société sont si variés, la communication des hommes est si active, leurs intérêts sont si multipliés, et leurs rapports si étendus, qu'il est impossible au législateur de pourvoir à tout. (...). L'office de la loi est de fixer, par de grandes vues, les maximes générales du droit : d'établir des principes féconds en conséquences, et non de descendre dans le détail des questions qui peuvent naître sur chaque matière. C'est au magistrat et au jurisconsulte, pénétrés de l'esprit général des lois, à en diriger l'application»[50].

[50] J-E-M. PORTALIS, *Discours préliminaire du premier projet de Code civil,* prononcé en 1801, éd. confluences, 1999, 19.