

Civil Liability for Algorithmic Data Processing: The Codicic Protection and Regulatory Limits in Italy

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Abstract

The advent of Artificial Intelligence has had a major impact on contemporary society, thanks to the interaction with the external environment, and it brings with it important technical-legal issues, ranging from the emergence of new concepts of risk related to the use of the new technology to civil liability for causing damage. In fact, the interaction of the AI system with the environment allows the system to influence it but, above all, to alter it. The generative hypothesis of damages, deriving from interaction with the outside world, acquires a fundamental value in the future scenario and materialises in the world of The right balance between the existing legal norm and the massive growth of the phenomenon passes through a different interpretative canon that overcomes the normative gaps, towards an interpretative and cultural mediation of the law that draws inspiration not only from outside our legal system but also from within it.

Keywords: algorithmic damages, artificial intelligence and law, artificial intelligence liability, regulatory limits, system of responsibility

Introduction - 2. The damage caused by algorithmic processing - 3. Research method and materials used - 4. Artificial intelligence and the system of controls - 6. The presumption of liability - 7. Resources and adaptability of the civil code - 8. Conclusions

1. Foreword

The theoretical reflection on the function of civil liability rules in the transition phase from the information society,¹ marked by the advent of the internet, to the algorithm society, characterised by the spread of artificial intelligence systems based on algorithms, is animated by the need to answer concrete questions² with regard to damages caused by algorithmic data processing and who should be held liable for them (Gambini, 2019)³. Comparing these questions, it is necessary to verify whether the domestic and European liability systems developed so far are able to cope with the new dimensions of damages or whether it is necessary to develop regulatory tools, even sectoral ones, to ensure a different and more efficient approach compared to what is known today, high and able to

¹G. Ziccardi, P. Perri, Technology and Law. Vol. 3: Advanced Legal Informatics, Milan, 2019; The watershed is marked by the evolution of the technological system from an instrument of innovation to an instrument of information with a global character in which the massive application of new technology transforms society into an overall integration in which the data becomes an asset in the economic chain that starts from acquisition and arrives at refined utilisation.

²F. Naddeo, Artificial intelligence: liability profiles in *Comparazione e diritto civile* p. 1143- 1162, 2020;

³L. Coppini, Robotics and artificial intelligence: issues of civil liability, in *Politica del diritto*, no. 4/2018, 722, in which the problem of imputation of responsibility between traditional disciplines and new solutions is highlighted.

adequately respond to emerging issues (D'Alfonso, 2022 & Gambini, 2019). The importance of this topic goes beyond just the economic interests associated with algorithmic data processing to embrace values more closely related to the fundamental freedoms and rights of people who might be harmed, such as people's safety, health, privacy and protection of personal data, integrity and dignity, self-determination and non-discrimination (Infantino, 2019). We now know that liability rules are the result of a legal policy assessment and reflect the search for a balance between different interests⁵. Therefore, they cannot be understood simply as a preference for a specific compensation model⁶. In a broader perspective, in fact, they respond to the need to minimise the cost of social (not only economic) losses through policies of prevention and making those involved responsible⁷, as well as the need to spread the risk of damage associated with economic initiatives, these, economic initiatives, are useful from a community point of view but can also be harmful in some cases.

2. Algorithmic treatment damage

With regard to the damage caused by algorithmic data processing, which is the subject of the study, the issue of control measures can be defined as internal to the system, i.e. specific to the actors and players involved in technological development and innovation, inspired by the principle of precaution and prevention as it aims to analyse and manage risks as well as minimise the resulting harm in a supportive and individualistic manner, and this with regard to the individual's fundamental rights and freedoms (Gambini, 2019).

In practical reality, we have identified three main situations in which the performance of algorithmic processing of data, in particular of information society services, is of paramount importance;⁸ one thinks for all of the algorithmic processing of services underlying search engines, automated computational analysis in digital format underlying online content sharing services, the

⁴M. Galdi, *The Constitution and the Challenges of the Future*, Cava de' Tirreni 2019, 13-15. The sharing of content and the world of IT services is a fundamental part of the overall investigation. The social function and the consequent impact on the social fabric is now well established in the literature, although there are important legal implications inherent in the processing of data through its manipulation both to create a product and to form the basis of complex analyses.

⁵U. Pagallo, *Il diritto nell'età dell'informazione. Il riposizionamento tecnologico degli ordinamenti giuridici tra complessità sociale, lotta per il potere e tutela dei diritti*, Turin 2014;

⁶G.M. Riccio *The relevance of legal bases for the processing of personal data by artificial intelligence systems*. In *Artificial intelligence and law: a revolution? Fundamental rights, personal data and regulation*. Vol.I pg.281-311;

⁷C. Perlingieri, *The impact of the use of robotic technology in civil relations*, in *Civil Law Review*, 2015 , 1244 ff;

⁸*Ibidem*, In *artificial intelligence and law: a revolution?* In *Trattato breve della responsabilità civile* p. 63 a 83 , Cedam, Padua, 2022;

more or less autonomous forms of artificial intelligence of robotic technology, in the production of goods and the provision of services (Elmi, Marchiafava, 2022). The latter is a constantly growing sector, with important implications from a social point of view; one thinks of its use in the medical field and, thus, implications for the health of the individual or the rights and freedoms of the community, with a significant social function as well as its application to PA. Related technological innovations and the creation of continuous algorithmic processing of personal data are now permeating society and the lives of individuals,⁹ think of robot assistants in cars, robot assistants in the world of work and everyday life equipped with artificial intelligence capable of recording conversations, or the adoption of digital home assistants in the medical field to capture the emotions of the elderly beyond biometric parameters, conversational agents capable of capturing the needs and listening to the most private thoughts of individuals. In this scenario, a monophonic approach appears, therefore, difficult, as far as Competence in algorithmic data processing is concerned (Gambini, 2019), there is, in fact, a strong reciprocal implication, far from generalised situations in relation to the subjects involved, as the interests protected are different. That is, a generalisation *sic et simpliciter* with respect to the different areas requiring protection cannot be substantiated (D'Alfonso, 2022).

With respect to the above-mentioned decalogue, the information society, i.e. the categorisation relating to automated data processing, is one of the categories that has been addressed by the legislator with special liability legislation (Perlingieri, 2020). This legislation addressed the particular impact of new technologies and the potential for injury on the one hand, and dealt with internal controls on the other.

3. Research method and materials used

In order to answer the research question of whether the domestic and European civil liability system is able to cope with the new damage figures or whether it is necessary to elaborate new regulatory instruments, a qualitative analysis of bibliographic research was conducted, consulting the main databases. In particular, articles pertaining to the field of investigation were searched on the Wolters Kluwer, RW and Google Scholar platforms. With reference to the parameters used, following the scheme of the same platforms, i.e. the AND, OR, NOT conjunctions, in order to select, therefore, bring to light the research conducted by other authors on the topic that is being examined here, the search strings are reported.

WOLTERS KLUWER

- 1) liability for algorithmic processing AND artificial intelligence damage

RESULT 27 articles

- 2) algorithmic treatment liability AND regulatory limits

RESULT 23 articles

- 3) artificial intelligence liability AND regulatory developments

RESULT 222 articles

⁹V. Cuffaro, R. D'Orazio, V. Ricciuto I dati personali nel diritto europeo Pag.397-412 Giappichelli, Torino 2019;

4) liability for algorithmic processing AND regulatory limits AND artificial intelligence

RESULT 19 articles

GOOGLE SCHOLAR (ADVANCED SEARCH)

Searching on Google Scholar, using the parameters with the logical AND operators mentioned in point 1 above, it emerges that most of the articles are not consistent with the research in question. In particular, the database returns output articles, albeit scientific ones, pertaining to the field of health. Therefore, the bibliographic search was refined with the keyword 'algorithmic treatment liability'. This resulted in 37 articles.

Continuing with the third database Web Journals (RW), we proceeded with the advanced search by means of the synoptic string 'algorithmic treatment liability'.

JOURNALWEB GATE (ADVANCED SEARCH) - ITALIAN PLATFORM FOR THE HUMANITIES AND SOCIAL SCIENCES

RESULTS: 11 items

Below, in tables, is the bibliometric analysis of the literature.

Art.	Author	Article title	Research design
1	Gambini, M.L.	Algorithms and security	exploratory
2	Di Rosa, G.	What rules for intelligent automated systems?	transversal
3	Frattari, N. F.	Robotics and algorithmic responsibility. The production process of artificial intelligence	comparative
4	D'Alfonso, G.	The regime of liability for property in custody between traditional issues and 'algorithm liability'	case study
5	Ferrari, I.	Comparative survey of case law on civil liability for damage caused by the use of artificial intelligence systems	empirical
6	Aragon, B., Amato, F.	Algorithmic risks and mitigation tools	social research
7	Sassi, S.	Algorithms in public decision-making between transparency and accountability	comparative
8	Celotto, A.	How to regulate algorithms. The difficult balancing act between science, ethics and law	exploratory
9	Zaccaria, G.	Changes in law: technological innovation and predictive applications	exploratory

Tab. 1: Selection of articles with the respective research design

Art.	Study topic	Method and tools	Database
1	liability and algorithmic data processing	Qualitative analysis (commentary on case law); Database searches	WK
2	relations between law and technology	Qualitative analysis (commentary on case law); Database searches	WK
3	product liability US - Italian	Qualitative analysis on standards governing software production	WK
4	code discipline, algorithm liability	Qualitative analysis	GS
5	examination of case law	Comparative analysis	GS
6	Critical analysis of algorithmic risk for society	Qualitative analysis	GS
7	analysis of European and US legal systems	Qualitative analysis	RW Web Magazines
8	algorgetic and algorithmic public law	Qualitative analysis	RW Web Magazines
9	criminal law and AI	Comparative analysis	RW Web Magazines

Tab. 2: Articles selected by methods, tools and database (of selection)

Ultimately, scientific articles published between January 2019 and January 2023 were taken into account. In order to ensure the quality of the articles, only those in peer-reviewed journals were examined. The search strings, as mentioned, were constructed by keywords in various combinations that also included 'liability from algorithmic processing', 'damage from artificial intelligence', 'regulatory limits and artificial intelligence', and 'civil liability from artificial intelligence'.

Only qualitative empirical studies were included, while monographs and other forms of scientific communication were used as comparative material. Abstracts and articles extracted from the databases were analysed avoiding duplication, choosing articles relevant to the subject matter. Qualitative data were analysed, processed and systematised.

The results are therefore the fruit of analyses that have highlighted a regulatory uncertainty at the European level that reverberates within the systems of the individual states that make it up, including Italy, and a lack of homogeneity in the national systems that, for the Italian case are reported in the following pages, while for other aspects please refer to another study.

1. Systematic technical framework

In such contexts, therefore, the examination can only start from a framing of the legislation in the Italian-European context (Salanitro, 2020). In the European directive no. 31 of 2000 on electronic commerce, transposed by the Italian legislator with Legislative Decree no. 70 of 2003, the issues of liability and Internet service providers are only marginal compared to the issues of internal control. In fact, the regulation expressly exempts service providers from any general obligation to monitor

the information they transmit or store online. This is because it is considered a control and cannot be imposed at a technical legal level (Gambini, 2019). This position has been confirmed by the Directive of 26 March 2019 on Copyright Protection in the Digital Marketplace. The particular rules on the liability of Internet service providers contain criteria of liability graduated according to the professional activity of the individual providers, figures of providers, merchants, caching and hosting, called to answer for the non-observance of obligations of diligence legislatively described, which are substantiated in stringent obligations of activation and collaboration¹⁰, for the offences perpetrated on the network¹¹, with the Supervisory Authorities, administrative, and/or the Judicial Authority (Perlingieri, 2021). These obligations include limited control by Internet operators on the information stored or transmitted, in any case in the post-crime phase, when a violation has been identified or at least suspected. In fact, the difficulties encountered in practice by holders of infringed rights in attributing liability to Internet service providers¹² as the infringements committed through the new services offered and made available to users, as well as the need for better control, have demonstrated the need to anticipate this form of protection against telecommunications crime, compared to their actual operation. Bearing this need in mind, recent legislative and regulatory interventions in national and European legal systems have **assigned** prevention and control functions to Internet service providers by imposing new filtering measures, blocking access to information, requiring its deletion, blocking and reporting violations. To prevent their content and distribution. Because it is the only person or the person most qualified to intervene. Finally, the recent directive on copyright protection in the digital market, in Article 17, holds providers of online content-sharing services liable if they fail to demonstrate that they have done their best, in accordance with the highest standards of professional diligence in the industry, to ensure that no other work or material is available on their copyright-protected website, uploaded by users without the necessary authorisation, and if users fail to demonstrate that they have made every effort to prevent access to it; in such cases, they will be subject to the obligation to prevent its downloading and dissemination in the future. The Court of Justice of the European Union has moved in this direction through its rulings, which have clarified the limits of control with regard to filtering and blocking obligations assigned to Internet access providers (Infantino, 2022).

In response to the need to promote the free movement of data and to strengthen the protection of data subjects, the European legislator agreed to base the protection of personal data and the protection of personal data against tort law on the principle of the responsibility of the active party

¹⁰M. D'Ambrosio, Tutela dei diritti della personalità nella rete: ruolo del provider nella fruizione dei servizi online e (a)territorialità dell'ingiunzione di rimozione di contenuti illeciti, in *Tecnologie e diritto*, Vol. 2. Pg. 582-601, 2020; see

M. D'Ambrosio, The protection of personal data in the light of ECHR and CJEU jurisprudence: general aspects and critical profiles, in *International Tax Law and Practice*, 2019;

¹¹F. Schiaffo, Protection of human rights and social sciences: problematic aspects of integration with criminal science, in *Juvenile Law and Justice* p. 11.27, Salerno, 2019; Epistemological paths between neuroscience and artificial intelligence p. 219-237;

¹²E. Pellicchia, Profiling and automated decisions in the time of the black box society: data quality and algorithm readability in the framework of responsible research and innovation, in *Le Nuove leggi civili commentate*, no. 5/2018, 1210 ff.

of the processing (Fusaro,2020) and identified the active party responsible for the processing as the controller and, in the event of infringements or breaches, the active party responsible.

The accepted European legal framework for the protection of privacy places itself, with respect to the damage that may result from the processing of personal data, in a subordinate position with respect to the violation of the rule of law that has been violated, giving priority to the prevention function as the instrumental priority adopted, providing for a distribution of the associated risks only in a subordinate way, in terms of compensation for damage resulting from a harmful event (Gambini, 2019).¹³.

Considering the twofold objective and the utmost responsibility of data controllers and the significant strengthening of their profile in order to avoid possible harm, a series of specific behavioural obligations have been identified, related to automated processing, which data controllers should already implement in the initial planning and design phase of the structure of IT services, with the obligation to have technical **and** organisational and security measures in place, proportionate to the risks to the rights and freedoms of individuals, to review and assess their effectiveness and to update them.(Gambini,2019). The system of controls as outlined in the European framework is therefore oriented to the analysis of the risks connected to the automated processing of data, inspired by the principle of prevention and precaution; the nature and means of the processing has an intrinsic dangerous potentiality that presents dangers of damage that are not always foreseeable and that can be stemmed with adequate and effective precautionary measures according to the canons of proportionality and reasonableness. The new rule providing for aggravated liability for presumed fault under Article 82 of the Privacy Regulation ¹⁴ links the protection of personal data under civil law to the breach of conduct that the professional could have, should have, assumed in awareness of the risks and dangers as typologically connected with his activity, opening the way to the prospect of an assessment of the diligence performed by the data controller in the system of controls.

4. Governance of a complex system. Artificial intelligence and the system of controls .

We are witnessing the blossoming of the Internet of things and the era of intelligent robotics and services, which allows devices to talk to each other and interface with humans, in the vast phenomenon of big data resulting from a huge amount of data generated by the network and the use of things, predictive analyses substantiate a new phenomenon that deserves detailed analysis. Thus, the radical change in information services follows a change in the use and processing of data; in fact, the everyday life of individuals is permeated by continuous flows of data that may result in their illicit algorithmic manipulation (Proietti, 2022), or, again, in their distortion when they may be erroneous or incomplete, sometimes even used obscurely for decision-making purposes. Algorithms are created by human decision-makers who can already bend the data, distorting the processing and arriving at results that are detrimental to human freedom and dignity. In addition to the loss of

¹³R. D'Orazio , G. Finocchiaro , O. Pollicino , G. Resta Privacy code and data protection Page 886-894 Milan Giuffrè Francis Lefebvre, Art. 82. Right to compensation and liability, 2021;

¹⁴A. G. Parisi, THE GENERAL REGULATION ON THE PROTECTION OF PERSONAL DATA. LIABILITY AND SANCTIONS, COMPARISON AND CIVIL LAW. Pg.1-16, 2016;

control over human data, a phenomenon of great technical-legal importance that needs to be questioned for the purposes of adapting our legal system, the study, of the strong implications that the new technology exerts on human freedom and the consequent damage to individuals (Ruffolo,2022), appears at this point of no secondary importance. Algorithmic decisions and the decisions constructed on them could represent a danger to human freedom and society in general (Ruffolo,2020); sometimes they can move on the secrecy of the algorithm itself, and it is on this that our analysis focuses, their application could compress fundamental freedoms such as preventing an individual's access to a place when he or she falls within a specific parameter, or, denying a health service or the provision of an essential service. At present, in the absence of an established legal framework, there are strong doubts about the adequacy of data protection and protection mechanisms in general to the new reality. In the field of civil liability related to technological innovations and intelligent algorithmic robotics, it will always be on the basis of applied experience to assess whether scenarios based on constitutional principles can be realised. Given the liability model that is progressively evolving towards strict internal controls entrusted to operators and charged to those who design, devise and develop algorithms, the direction is to move systems towards a preventive perspective. The focus seems to be on maintaining the pay profile. background. When we build algorithmic accountability, we must focus our attention on complex governance systems centred on prevention. Indeed, in the world of robotics and artificial intelligence, heterogeneous self-regulatory interventions are needed already at the algorithmic conception and design stage with impact assessment and early damage analysis. A rigorous impact assessment and early risk analysis for society seem to be necessary. To overcome such complex phenomena, analysis and monitoring from the perspective of proactive trust-based control, based on the greatest possible transparency of algorithmic processing, seems to be crucial.

The Council of State, in a ruling in April 2019, subordinated the legitimacy of a decision-making process of the P.A. taken in an automated form to a criterion of transparency of an enhanced nature (of this principle), which implies its full knowability,¹⁵ both for citizens and for the judge, ensured in every aspect, from the authors to the procedure used for its formation, to the decision mechanism, priorities and data deemed relevant, to the data entered and the mechanism of processing of the same, in short, readable in every part. The character of transparency and transparent logicity occurs by making the rule governing the algorithm known a priori¹⁶ (Ratti,2020)¹⁷.

¹⁵M. Sabatino, Council of State: the algorithm is a computerised administrative act, in *La Pagina Giuridica*, 7 August 2019, available online; G. Pesce, The administrative judge and the robo-decision. When the algorithm is opaque, in *Judicium*, 15 June 2020

¹⁶Sent. Corte d'Appello di Roma, sez. lav.,26 October 2022 no. 3372; Sent. Corte d'Appello di Roma, sez. lav. 3 March 2023 no. 834; Corte di Giustizia UE sent. 12 July 2011; in the current system with respect to data processing it is possible to analyse two different types of automated decision-making processes, i.e. those involving human intervention and those relying solely on the algorithm European Directive 95/46/EC has precisely the function of avoiding discriminatory treatment deriving from the algorithm alone by making the type of data processing transparent. See Cons. Stato, sez. VI, 8 April 2019, no. 2270, which acknowledged, in the case at hand, the violation of the principles of impartiality, publicity and transparency, due to the impossibility of understanding the way in which, through the introduction of an algorithmic system, the available positions for the allocation of teaching staff had been assigned. For a summary of the legal dispute, see, for all, I. Piccinini, M. Isceri, op. cit., p. 22 et seq.

To investigate which is the most comprehensive system of protection without compromising or delaying technological development, we can state that it is necessary to promote new forms of standardisation, albeit not authoritarian, with an increase in professional and technical skills. In short, a high level of quality standards, with the strengthening of the professional profile required in the performance of operations, i.e. technical standards and sector regulations, with or higher safety standards required by European political declarations. These standards, however, are not sufficient because they are left to the free will of the individual to comply with them, based on ethical principles, on a voluntary basis. The proposal to establish an AI supervisory authority at the European level seems to be a valid strategy for monitoring a complex and multifaceted phenomenon. Soft law systems appear to be insufficient and the legality or illegality of behaviour is moving towards a preventive system, with the fear of sometimes significant damage occurring due to the fact that there are so many different actors. Therefore, civil liability arising from damages **caused** by algorithmic data processing remains the common denominator in terms of fair compensation for damages. In essence, we hope that there will be a shift in **focus** from liability to prevention¹⁸.

The issue is even more thorny with respect to deep learning algorithms capable of self-learning (D'Alfonso,2022), programmed to decide on the conduct to be adopted autonomously, now if those who design, programme, develop and use them are unable to foresee their reactions, how should the protection of harmful actions and liability for harmful actions and omissions be regulated? The primacy of human protection over the reasons of the market, in a balancing system, provides for two possible forms of attribution of liability, one based on strict liability that facilitates the proof of damage and the chances of compensation, the other based on risk management by making the subject responsible on the basis of risk minimisation (Amedei,2019).The contribution in the context considered has led to the conclusion that product liability for defective products is applicable in the interpretative doubt, without any claim to completeness. A number of questions arise at this point with respect to this new technology; can the machine-integrated algorithm enter into the definition of a product or its component, or instead with respect to the deep learning algorithm, would it not be more correct to frame it in the provision of services? The unlawful conduct of the deep learning machine can be considered a development risk, with the consequent exclusion of liability. The search for the defect in the causation of the damage makes the reconstruction of the aetiological relationship, a defect of conception with respect to tortious conduct, very problematic. The overlapping of multiple roles and competencies of the many actors involved in the self-development phases, which evolve in a network of causal connections, make the identification of the party responsible for the damage uncertain. In the European resolution of 2017, Art. 22 establishes a principle, a fixed point with respect to the supervised autonomy of intelligent machines; in fact, it is stipulated that the possibility of human verification and control must always be integrated into the algorithmic decision-making processes and, therefore, possible. Hence, the consequent allocation of human responsibility, as to date, no responsibility can be attributed to machines for damage caused within the scope of autonomous decision-making. As things stand, machines cannot be held liable for the damage they cause, although there are some authors who

¹⁷G. Pesce, *Il giudice amministrativo e la decisione robotizzata*. When the algorithm is opaque, in *Judicium*, 15 June 2020;

¹⁸A. Aloisi, V. De Stefano, *Il tuo capo è un algoritmo. Contro il lavoro disumano*, Bari, Laterza, 2020;

propose a theoretical approach in this sense. A system of competing responsibilities linked by the bond of solidarity is configurable at the expense of the various actors along the chain in which the various phases of the construction of the AI are articulated, ensuring downstream a fair economic distribution of the damage resulting from tort by calling to account each time the subject considered causally closer.

5. The presumption of liability

The choice on the identification of the imputation of liability between the creator, programmer, developer and the provider of services and products intended for the public that integrates the algorithm, be it a third party, owner, user or the network operator or in some cases the external aggressor, varies depending on the existing conditions on the basis of the principles of reasonableness and proportionality, verified by the judge on the basis of the concrete case. The first figure to be emphasised is the designer of the algorithm program, i.e. the one who prepared the rules and principles of the automated learning that governs the life of the machine. The imputation of liability that will ensue if the damage is caused takes place in all cases in which the causation can be linked in a direct or indirect manner as a potential development of that original programming. The liability of the designer and the designer should at this point be cumulative and not exclusive with respect to that of the information society, in fact, the liability of these subjects cannot be excluded a priori but they assume the risk when they incorporate the algorithm in their product (Perlingieri, Giova, Prisco, 2022).

From the reported difficulties of subsuming algorithmic damage and the aetiological link in the concrete case, the need emerges to regulate the phenomenon normatively on the system of presumption with respect to the imputation of "damage resulting from algorithmic data processing" (Neri, 2022). Thus, configuring a presumed fault, linking liability to the failure to control one of the phases of the construction process. The relative obligations on an objective and subjective level would accompany the fault requirement.

The liberating burden that would only occur in the presence of suitable measures to avoid the phenomenal materialisation of the damage. Supplementing this reserve with a compensation fund in the event that subjects are exempt from liability could be one of the possible solutions to regulate such a complex and constantly evolving phenomenon (D'Alfonso, 2022)

The integration of such a liability model for alleged fault would push vigilance and controls with constant improvement of technology while not frustrating the development of new technologies.¹⁹

In particular, producers of goods and providers of services being called to much greater attention in the event that they are misused or used inappropriately would raise the threshold of liability, thus balancing the different interests at stake.²⁰ In order to put the system in balance alongside the

¹⁹G. Ponzanelli, Responsabilità oggettiva del produttore e difetto di informazione, in *Danno e responsabilità*, 2003, I, 1005; The defect of information is to be placed at the basis of a liability action insofar as it is to be presumed that the very absence of clarity and the crypticity and opacity of the algorithm causes damage to the private citizen who is unaware of the operating mechanism that is not made clear and unambiguous before its use, interesting discussions on the advertising system are addressed by numerous authors and legal experts, also with respect to the unlawful processing of data.

²⁰ O. Lanzara, BRIEF REFLECTIONS ON "THE PROCESSING OF PERSONAL DATA IN THE ON-LINE ADVERTISING

SECTOR

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traditional restorative and compensatory function, a further preventive function should be placed with conviction (Gambini,2019). The monofunctional character of the institution of civil liability with regard to the subjective imputability of the damage²¹ by algorithm in the compensatory protection brings to light the urgency of preparing legislation through a protection by presumptions. Presumed fault for the benefit of the injured party in the event of a lack of controls or breaches of control obligations.

6. Resources and Adaptability of the Civil Code

The codicic discipline relating to civil liability, in general, is modelled on human action and the consequences thereof, whereas artificial intelligence is the product of human action²². In fact, far be it from us to impute some form of the liability to A.I. in the event of damage caused to third-party users and custodians by virtue of a futuristic subjectivisation of the same, the task of the jurist at this state-of-the-art is to contribute to cultural and legal growth in order to overcome interpretative shoals and regulatory gaps. As is well known, the Italian system, from an interpretative point of view, cannot fail to resolve a legal issue even in the absence of an ad hoc rule, hence an interpretative process of an extensive or analogical nature. On the basis of this, the interpreters have hypothesised applying, with respect to the use of the AI, Articles 2050, 2051, and 2052 of the Civil Code, i.e. liability for damage caused by dangerous activities by things in custody and damage caused by animals, respectively.²³ In all these cases, however, the burden of proof, which is not easy, falls on the injured party who will have to prove the existence of the causal link with respect to a highly sophisticated technology, enigmatic in certain respects even for experts in the field (D'Alfonso,2022).

In order to be able to understand how the legal norm can adapt to the great technological acceleration²⁴ that seems to be breaking out of the normative fence, one must ask oneself how the process of machine learning works in practice. In essence, the algorithm that learns from the data, thus generating knowledge itself, cannot completely disregard the work of man, (designer, owner, custodian, trainer, creator), who prepares a model that is at the basis of the computational processing of data in a massive way (Neri, Almanza, 2023). In fact, the automatic learning of a machine learning system is the result of complex training in which inputs are entered and in supervised systems also outputs with the desired value, representing, in the latter case, dataset values in a learning guide. In unsupervised systems, since no outputs are entered, the system tries to identify a model, a law not visible to the human eye, which emerges from a large computational

IURA AND LEGAL SYSTEMS. Vol. Volume 9, 4 (2022). Pg. 60-65; G. Garofalo, Processing and protection of personal data: remedial insights in the health sector, Family and personal law, 2021;

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M. G. Stanzione, The protection of personal data between the 'consumerization' of privacy and the principle of accountability

COMPARISON AND CIVIL LAW. pp. 1-39, 2021;

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S. Sica, Civil liability for the unlawful processing of personal data. In Regulating technology: the EU Reg. 2016/679 and the protection of personal data. A dialogue between Italy and Spain Page 161-174 Pisa, Pisa University Press, 2018;

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G. Salito, Damage from things in custody: a hypothesis of (s)strict liability of the custodian? DANNO E RESPONSABILITÀ. Vol. 2. Pages 225-233, 2023;

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V. D'Antonio, Digital Rights, D'Amato editore, 2022;

calculation. In concrete terms, training takes place on a collection of examples through which the machine automatically learns. In the writer's opinion, taking into account the fundamental distinction of the roles of the individual protagonists in the process of developing and optimising Ai, it is precisely in this phase that civil liability is genetically substantiated, which can only be read in a general objective key unless one is able to segment the single contributory moment in the course of a process; the algorithm training technique determines in itself a liability profile comparable to that of parents under art. 2048 civil code or to the supervision of the incapable subject under art. 2047 civil code. It is therefore considered that in addition to the liability of the producer, the custodian, and the user, there is a further liability falling on the trainer, and on the modeller, i.e. on the person who in practice administers a 'defective or inappropriate' dataset, such as to alter the generative process of machine learning, in short a culpa in educando²⁵. In fact, the algorithm is optimised by minimising the error associated with the test, so as to achieve a high performance characterised by the ability to generalise. In such a framework, it goes without saying that an important portion of responsibility derives from the method through which the available data were collected.

7. Conclusions

As we have been able to observe, from the analysis of the existing literature, the regulatory system, with respect to the discipline of artificial intelligence, is pushing on the bank of risk prevention on the one hand and on the level of civil liability and compensation for damages arising from algorithmic data processing on the other. Although the need for an organic discipline of the phenomenon, in all its declinations, appears self-evident at present, we cannot fail to observe, for the sake of science, that over-regulation would, on the one hand, represent a great limitation to the development of new technology and economic initiative and, on the other, would risk being outdated in a short time and never being exhaustive and adequate, given the speed at which technological progress advances. In fact, any form of regulation and legislation, whether internal or of supranational reception, would run the risk of being obsolete when it contains provisions on the technology or technical modality that it is to regulate, going beyond the principle of technological neutrality that now seems to be affirmed on the international stage. A regulatory harmonisation with an enunciation of the objectives to be achieved by the technological means, identifying only the principles, could be the key to facing the future, trying to combine technological development with the certainty of the legal rule that regulates the phenomenon. In any case, while waiting for the European Union to arrive at an unambiguous regulation on civil liability, capable of identifying the person responsible for the damage caused by algorithmic processing and the competent jurisdiction, given the spatiality of technology, the civil code 'from art. 2043 et seq.' has once again shown itself capable of adapting to the changing society, offering possible solutions even with the complications arising from the difficulty of identifying the person responsible within the product development chain. In particular, the application of Article 2050 of the Italian Civil Code, overcoming the exception of the development risk exemption, represents for the Italian system the adoption in practice of strict liability for dangerous activities when the person carrying out the activity does not prove that he has taken and adopted every suitable measure to prevent the damage.

M. Lombardi, M. Macchi, *Il lavoro tra intelligenza umana e intelligenza artificiale*, in A. Cipriani, A. Gramolati, G. Mari (eds.), *Il lavoro 4.0. La quarta rivoluzione industriale e le trasformazioni della attività lavorative*, cit., p. 293 ff;

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