

THE NEW TECHNOLOGIES AND THE CIVIL JUSTICE AS COMMONS*

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ABSTRACT: Civil justice certainly belongs to the “commons” and, therefore, systems need to be adopted to prevent its depletion.

New technologies and artificial intelligence tools can help prevent waste of this important resource and enable the creation of a secure and robust repository for civil legal data that will enable stakeholders, researchers and the public to better understand the system and individuals to better evaluate alternatives.

To date, however, data on civil proceedings are very scarce, and to classify them it is essential to overcome some particularly important privacy issues.

A good project from this point of view has been initiated in Italy and is called the Next Generation UPP Project. The Project aims to improve the justice system in northwestern Italy through the strengthening of Judicial Offices (JPOs), technological innovation, and experimentation with new patterns of collaboration between universities and judicial offices.

KEYWORDS: artificial intelligence; civil justice; commons; privacy protection; civil process; new technologies; predictive justice.

SUMMARY: 1. DEFINITION OF COMMONS.—2. CIVIL JUSTICE AS COMMONS.—3. PREDICTIVE JUSTICE.—4. NEW TECHNOLOGIES AND THEIR USE IN CIVIL JUSTICE VS. PRIVACY ISSUES.—5. ARTIFICIAL INTELLIGENCE IN THE EVIDENCE PHASE OF CIVIL PROCEEDINGS.—6. ACTUAL USES OF ARTIFICIAL INTELLIGENCE IN ITALIAN CIVIL PROCEDURE SYSTEM.—7. CONCLUSIONS: A RECENT ITALIAN INITIATIVE FOR NEW TECHNOLOGIES IN CIVIL JUSTICE (NEXT GENERATION UPP).

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1. DEFINITION OF COMMONS

It is our conviction that civil justice can be included in the category of the so-called “common goods”.

Before illustrating the elements that allow us such a consideration, we consider it useful to identify—albeit briefly—the elements characterizing the commons¹.

It should be pointed out that in our legal system there is neither a category² nor a unanimously agreed legal definition^{3–4} of common goods, which present «too much variability for them to be described by a set of fixed and universal principles»⁵.

In any case, they can be understood as those goods, endowed with the requisites of essentiality and irreplaceability⁶ that acquire their characterization due to the constraint of destination that marks them, being functional to the realization of the fundamental rights of the person⁷ and generating a collective utility⁸.

Indeed, it is precisely the material and socio-cultural needs of the person that lead to the identification of that goods that, in the name of the selfish nature of the human beings, cannot be left to the government of mercantile logic. Moreover, in relation to these goods, it is necessary to adopt measures that can guarantee their indiscriminate accessibility to all, as well as their correct and efficient use.

In particular, considering the typical exhaustible character of common goods, it is necessary to ensure their exploitation in proportion to collective needs and the capacity of individuals, avoiding excess and waste and ensuring their efficient use.

Emblematic on this point is the essay by the American ecologist Garret Hardin entitled “*The Tragedy of the Commons*” published in the journal *Scien-*

¹ Giannelli (2013), p. 583.

² Luccarelli (2013), p. 63.

³ Mattei (2017).

⁴ Various definitions have come up. The Unimondo association has defined the commons as «the set of principles, institutions, resources, means and practices that allow a group of individuals to constitute a human community capable of ensuring the right to a dignified life for all»—translation from Italian to English by us—(cf. *Officina delle idee di Rete@Sinistra* (2010)). This is a definition analogous to that of the social doctrine of the Catholic Church, which defines the common good as «the sum total of those conditions of social life that allow both collectivises and individual members to reach their own perfection more fully and more rapidly»—translation from Italian to English by us—(cf. *Pontificio Consiglio della giustizia e della Pace* (2013), point 164).

⁵ Translation from Italian to English by us. Cf. Bollier (2017). The author goes on to state that «each good, each common, presents peculiar dynamics depending on the participants, its history, cultural values and so on».

⁶ Petrella (2010).

⁷ Sanlorenzo (2017).

⁸ Giannelli (2013), p. 604.

ce, in which context he argued that free enterprise in the management of the commons would lead to the ruin of all⁹.

In support of this assumption, Garret recalled the position of the economist William Forster Lloyd, who believed that grazing land open to the use of anyone who wants to enjoy it has the inexorable destiny of promoting a crisis of the system and of being exhausted in view of the continuous increase of shepherds who would like to exploit it to increase their flock¹⁰.

Hardin points out that the same reasoning can also be followed regarding pollution, since «the rational actor finds that the cost of his portion of the discharge into the common good costs less than it would cost him to clean up his discharge before disposing of it»¹¹.

It is precisely based on these considerations that Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability concerning the prevention and remedying of environmental damage was adopted.

Ultimately, it is possible to consider as “commons” those goods from the exploitation of which no one can be excluded, devoted to be exhausted or not to work in the absence of adequate institutional interventions.

It has to be underlined that common good is not necessarily an element of nature (e.g. water, the atmosphere, etc.), but can be also the result of social production (e.g. public services). In these latter cases the non-exclusion of anyone is simply the outcome of a decision at legal or political level. In this respect we firmly believe that a community having made certain decisions, can count, among its common goods, also services of public interest and in particular civil justice¹². In this case clearly the non-exclusive character is determined not by the nature of the goods, but by—as already said—a decision at political, legal or sociological level.

In the Italian Constitution some fundamental rights require the organization of specific public services: social dignity and the full development of the human person (art. 3 of the Constitution), work (art. 4), personal freedom

⁹ Hardin (1968), pp. 1242 ss.

¹⁰ Lloyd (1833), p. 31: «If a person puts more cattle into his own field, the amount of the subsistence which they consume is all deducted from that which was at the command, of his original stock; and if, before, there was no more than a sufficiency of pasture, he reaps no benefit from the additional cattle, what is gained in one way being lost in another. But if he puts more cattle on a common, the food which they consume forms a deduction which is shared between all the cattle, as well as that of others as his own, in proportion to their number, and only a small part of it is taken from his own cattle. In an inclosed pasture, there is a point of saturation, if I may so call it, (by which, I mean a barrier depending on considerations of interest,) beyond which no prudent man will add to his stock. In a common, also, there is in like manner a point of saturation. But the position of the point in the two cases is obviously different. Were a number of adjoining pastures, already fully stocked, to be at once thrown open, and converted into one vast common, the position of the point of saturation would immediately be changed».

¹¹ Hardin (1968), p. 1245.

¹² See also Giannelli (2013), p. 604.

(art. 13), health protection (art. 32), education (Art. 33 and 34), the protection of one's rights and legitimate interests (art. 24). Civil justice is the essential tool in order to ensure the last mentioned right and access to it cannot be excluded in order to protect this right as well as many others fundamental rights provided for by this Constitution.

2. CIVIL JUSTICE AS COMMONS

Having reached this point, we wish to reiterate our assumption that civil jurisdiction is a "commons".

What is clear is the benefit that the community obtains from a well-functioning civil justice system, which is aimed at the correct application of legal norms and guaranteeing the protection of rights.

On the other hand, even limiting the analysis to business matters, it cannot be disputed that the defense of property rights and the enforcement of compulsory relationships are essential elements for the proper functioning of the national economy. Indeed, in an economic system in which the jurisdictional protection of property rights is effective, «the incentives to save, to invest and to start new business activities and to expand existing ones are, *ceteris paribus*, greater, with positive repercussions on the country's medium-to long-term growth prospects»¹³.

That said, it must be acknowledged that the "resource of justice", unfortunately, is not an unlimited resource. In this regard, there is a need for institutional intervention that not only guarantees indiscriminate access to it to all those who need it, but also regulates its exploitation to prevent the so-called "tragedy of the commons".

In this respect, it is well known that new technologies and specifically artificial intelligence tools, can play a fundamental role in improving the effectiveness of civil justice.

It is therefore mandatory the creation of a secure and robust archive containing civil judicial data, which could be instrumental in making research faster and less costly for legal practitioners in general but, above all, for "those who have the last word", the judges. Such an archive, if accessible to individual citizens, would allow for greater knowledge of living law with the consequent possibility of self-determination by being able, at the very least, to foresee the resolution of judicial disputes in relation to similar cases.

¹³ Translation from Italian to English by us. Cf. *The efficiency of civil justice and economic performance*, thematic focus no. 5 of 22 July 2016 prepared by the Parliamentary Budget Office. https://www.upbilancio.it/wp-content/uploads/2016/07/Focus_5.pdf.

The subject is particularly complicated if one considers that there are difficulties in defining even the term “artificial intelligence”¹⁴. In very general terms, it can be said that it is the science that deals with how to create intelligent machines and has found, in the possibilities offered by computer science, the way to achieve this¹⁵.

Artificial intelligence, moreover, has also been defined as the ability of a technological system to provide performance similar to that of human intelligence, i.e. the ability to solve problems or perform tasks and activities typical of human *action*. This presupposes, in the most advanced systems, the ability not only to automatically and autonomously process huge quantities of data and provide answers to those questions for which such systems have been programmed, but also to acquire, on the basis of special learning algorithms, the aptitude to make predictions or take decisions¹⁶.

3. PREDICTIVE JUSTICE

Related to the topic of the use of artificial intelligence in civil justice, the fascinating subject of predictive justice comes to the fore. The latter can be defined as «the computer tool, based on a database of case law, which, with the help of sorting/sorting algorithms and (the more refined) “neural networks”, makes it possible to anticipate what the statistical probability of success in a legal dispute will be»¹⁷.

The advantages of using artificial intelligence mechanisms are many and undeniable, also in terms of predictive justice¹⁸.

¹⁴ The term “Artificial Intelligence” originated in 1955 with the proposal of a conference on the subject by John McCarthy, Marvin Minsky, Nathaniel Rochester and Claude Shannon. The cited paper introduced the term “artificial intelligence” for the first time and justified the need for it to the conference in the following terms: «the study will proceed on the basis of the conjecture that, in principle, any aspect of learning or any other characteristic of intelligence can be described so precisely that a machine can be constructed to simulate it. Attempts will be made to understand how machines can use language, form abstractions and concepts, solve types of problems hitherto reserved only for humans, and improve themselves»—translation from Italian to English by us—(see *Proposta di un progetto di ricerca estivo sull'intelligenza artificiale presso il Dartmouth College*, translated by Paronitti). The conference took place in the summer of 1956 at Dartmouth College in Hanover, New Hampshire.

¹⁵ Ferrari (2019), p. 1052.

¹⁶ Lombardini (2019).

¹⁷ Boucq (2017), p. 527.

¹⁸ On the topic, Castelli & Piana (2018); Carleo (2017); Morelli (2017); Viola (2017); Dondero (2017), p. 537. The term “predictive justice” has been defined as a very concise *label* describing a range of options that have in common the application of sophisticated technologies for both analytical/inductive purposes (discovering decision-making *patterns* or behavioural *patterns* by analysing and processing data that concerning cases and decisions that have already taken place) and prospective purposes (propensities are identified and on this basis the probabilities with which the decision of the judge—in case of judicial solution of disputes—or of the mediator—in case of activation of *ADR (Alternative Dispute Resolution)* mechanisms—can be expected to converge on a point that we can define as focal) are assessed).

As far as lawyers are concerned, in particular, the use of algorithms makes it easier to know, albeit in statistical–probabilistic terms, the outcome of a possible judgement and, consequently, to avoid unnecessary litigation and, possibly, to resort to alternative ways of resolving disputes with consequent deflation of litigation and saving unnecessary litigation costs.

The use of algorithms in the administration of justice would also enable the judge to resolve disputes entrusted to him more expeditiously.

Indeed, algorithms make it possible to analyze a huge amount of data (so-called *Big Data*) in far shorter times than it would take a human being to do so.

These new technologies would allow for a better exploitation of the resource of justice by constituting support, guidance and integration tools for the interpretative and decision–making process, that would guarantee greater efficiency in the resolution of disputes.

From another point of view, predictive justice tools would also allow for a greater degree of predictability and stability of decisions, avoiding sudden and contradictory changes in case law¹⁹.

Even, according to some, these instruments would be functional to guarantee—besides a modernisation and simplification of access to jurisdiction—greater legal certainty²⁰. The latter, moreover, would also improve access to justice for citizens, who sometimes desist from going to court for fear of facing the costs of lengthy lawsuits with an uncertain outcome. In any case, it must be emphasised that these instruments are not intended to anticipate the ruling, but rather to make the parties participate in the judge’s possible reasoning²¹.

4. NEW TECHNOLOGIES AND THEIR USE IN CIVIL JUSTICE VS. PRIVACY ISSUES

That being said—apart from the many issues that may arise in connection with the functioning and usefulness of the above–mentioned mechanisms, which cannot be dealt with here—it is necessary to reconcile the use of tools belonging to the sector in question with *privacy* principles.

¹⁹ According to Castelli & Piana (2018): «it is not a matter of predicting with pinpoint accuracy the operative part of a judgment, but of identifying the direction of the judge’s reasoning. Since such reasoning never has the nature of a linear syllogism, but is composed of deductive inductive analogical steps, the prediction will be focal and not punctual» (translation from Italian to English by us). On the use of databases, see Castelli & Piana (2019), p. 50 and p. 115 and Vincenti (2019), p. 112.

²⁰ Mekki (2018), p. 28.

²¹ Certainly, such an algorithm would be well applicable to simple, standardised disputes with low litigiousness and few variables and those serious disputes (think of consumer contract disputes). Furthermore, such an algorithm could be used for the calculation of family allowances for spouses and/or offspring.

Indeed, it should be pointed out that artificial intelligence systems only “feed” on and evolve through the use of huge amounts of data from different sources and generally collected for a different purpose and this, as mentioned, poses a *privacy* issue.

Denying access to some or all of this data in deference to *privacy* would necessarily weaken the artificial intelligence that learns from the data itself: in fact, if such systems are trained on a limited dataset, representative of only a small segment of the population, they will propagate a distorted and narrow viewpoint.

Moreover, data are necessary not only for artificial intelligence to reach its full potential, but also to enable it to guard against bias and prevent errors.

Artificial intelligence, in fact, like the humans who develop it, is not free of biases or errors, however, it has the potential to avoid many of the irrational errors that characterize human decision-making and to make the detection of these errors easier and more reliable. To do this, artificial intelligence tools must train on a multitude of data, especially sensitive or protected data²². Thus, denying access to or preventing the storage of certain data will only make it more difficult to detect and remedy distortions, while denying all segments of society the full potential of the benefits of artificial intelligence.

The subject matter is a clear representation of a substantive reality in which rights do not live in isolation at all, but rather in continuous dialogue and potentially even in conflict with each other.

Moreover, the spread of artificial intelligence systems creates the opportunity to come up with interpretative approaches suitable to allow one to enjoy the benefits of advanced technologies while at the same time being able to reasonably assume that individual *privacy* is guaranteed, given that artificial intelligence should first and foremost “feed” on non-personal data, to the circulation of which EU Regulation 2018/1807 is dedicated.

This requires, at the legislative level but also at the level of interpretation, a balance between the right to an efficient and functional civil jurisdiction to satisfy the fundamental rights of individuals and the right to privacy.

5. ARTIFICIAL INTELLIGENCE IN THE EVIDENCE PHASE OF CIVIL PROCEEDINGS

The same balance is also needed to exploit the potential of artificial intelligence for certain specific tasks in the civil proceedings, such as for the evidence phase.

The interaction between artificial intelligence tools and evidence phase in civil proceedings has been studied above all in the United States in relation

²² It is easy to understand that data on race, ethnicity, gender and other special sensitive data can help identify and remedy bias or discrimination in artificial intelligence models.

to discovery and e-discovery. According to the amendments that technological evolution and digitization have implied for the discovery phase, causing it to deviate towards e-discovery, legal practitioners started to look for tools capable of resolving, albeit perhaps not completely, the difficulties posed by the e-discovery and found the TAR (Technology Assisted Review), which uses sophisticated algorithms to allow a computer to determine the relevance of a document²³.

The advent of the use of these tools has first of all led to a real revolution within *law firms*, in the context of which, in order to cope with technological difficulties, departments have been created to manage *e-discovery* and, when this was not possible, the work of *discovery* has been entrusted to external structures specialized in IT. For *law firms*, the very selection of a suitable provider of these services meant acquiring new skills²⁴.

The need for TAR also stems from the fact that the e-discovery includes much more than what was already included in the paper discovery: it involves examining not only *emails* and digital documents, but also documentation originating from *social media* such as Twitter, Facebook and LinkedIn, from databases that are not necessarily online, as well as from network-connected devices such as *smartphones* and car “black boxes” or from *smart* home automation systems such as alarm systems, thermostats or virtual assistants such as Amazon Echo, given the fact that all of the above elements store potentially relevant data and documentation both locally and on the *cloud*.

Precisely because of this, human-led examination was no longer a viable alternative for handling *e-discovery* in a plurality of disputes²⁵. Today, the state of the art in *e-discovery* is, therefore, AI-assisted predictive coding.

The review process that is carried out by the TAR starts with the identification of the electronic documents to be reviewed. A team member enters the documents into software to build an analytical index. Numerous software packages are available that can apply a set of instructions and rules (“algorithms”) to a dataset. As far as algorithms are concerned, there are also a plurality of them: in fact, alongside algorithms that enable basic keyword searches, other algorithms that have been developed in the context of Natural Language Processing—by this meaning that interdisciplinary field of re-

²³ On TAR and their influence on litigation see the contribution by Kerschberg (2018), pp. 213 ss. Comoglio (2018), pp. 264 ss. In order to understand the relevance of the artificial intelligence in civil proceedings see Nieva-Fenoll (2018).

²⁴ Marcus (2006), pp. 634-635: «Although the possibilities of such discovery might seem similarly momentous, the outcome of a fairly comprehensive effort to grapple with its problems is hardly revolutionary. And this change has been accompanied by strong statements of concern that it will usher in an era of significantly changed discovery, and therefore significantly altered litigation. Although only time will tell the eventual story, the E-Discovery episode is sufficiently ambiguous that it could support arguments about a coming Brave New World or 1984».

²⁵ Grossman & Cormack: «Manual review is an expensive, burdensome, and error-prone process. Scientific evidence suggests that certain TAR methods offer not only reduced effort and cost, but also improved accuracy, when compared to manual review».

search encompassing not only computer science, but also linguistics—have become increasingly important. These are algorithms capable of analysing and understand natural language in a similar way, but tend to perform better, than humans who use that language in everyday life.

Natural Language Processing is capable of proceeding to lexical and phrasal semantic analysis and also of analyzing the syntactic structure of the text, associating the morphological categories related to the individual words, identifying syntactic dependencies and, therefore, relating the meaning to the context and the way the words are used. Also within the sphere of Natural Language Processing, Word Mining and Text Mining algorithms have been developed, which, on the basis of text samples and further materials provided, proceed to an analysis of the text that differs clearly from both syntactic and grammatical analysis and which is aimed at bringing out the co-occurrence and relationships existing between the words of a text, those words and the text, the words of a text with the words of another text and with other texts and between texts. Certainly today, these algorithms are the most advanced and the most recent among those used by TAR²⁶.

Regardless of the specific software technology and algorithm used, it is clear that all artificial intelligence systems are based, as mentioned above, on a set of documents identified *ex ante* and provided to the system and, from these, select the relevant documents from all those produced²⁷. Once the operation of selecting original documents has been accomplished, the artificial intelligence system must also be taught the criteria by which that *set of documents* was selected, so that the same system can apply them to much larger *sets of documentation*.

As already mentioned, the exponentially growing mass of data makes it possible to fulfil what the computer lacked: big data on which to “practice” and learn autonomously. It is also evident that, regardless of the function for which it is adopted, artificial intelligence has the advantage of reducing computational time²⁸, which cannot be compared with the past or with human processing capacity, of improving predictive capacity²⁹ and of reducing costs³⁰.

It is precisely on the basis of these advantages that the American *Supreme Court* jurisprudence has shown a clear tendency to consider the use of TARs permissible³¹, while emphasizing the need for the parties to share the tech-

²⁶ The aforementioned tools certainly belong to the so-called *machine learning* and are therefore able to identify patterns, classify documents and generally improve their work on the basis of the additional data provided to the tool (see on this point Surden (2014), p. 87-95).

²⁷ Scholtes & Van Cann & Mack (2013).

²⁸ McGinnis & Pearce (2014), p. 3041.

²⁹ With respect to this, see the considerations made by Nieva Fenoll (2018), p. 15.

³⁰ Kerschberg (2018).

³¹ See *Winfield v. City of New York*, 27 November 2017, in which Justice K.H. Parker cites Sedona Conference Principle No. 6, according to which «responding parties are best situated to evaluate the procedures, methodologies, and technologies appropriate for preserving and produc-

nology used and the possibility for each party to independently assess the appropriateness of using these tools.

6. ACTUAL USES OF ARTIFICIAL INTELLIGENCE IN ITALIAN CIVIL PROCEDURE SYSTEM

Apparently in Italian civil procedural system, and particularly in the evidentiary phase of our civil trial, artificial intelligence has no place and, considering the many IT deficiencies of the Italian courts, one could say that it is difficult to imagine its use in the near future.

This, however, is not entirely true; one only must think of proceedings for the protection of trade secrets.

Certainly, this is not the place to go over the evolution of legislation on trade secrets, however, at least few words are needed. In our legal system, the industrial secret was for a long time protected through the discipline of unfair competition and this by virtue of paragraph III of Article 2598 of the Civil Code³²; it is only with the enactment of the code of industrial property and, therefore, with legislative decree no. 30 of 10 February 2005 that the secret acquires the *status of a* non-titled industrial property right, with respect

ing their own electronically stored information» and ruled on the admissibility of the use of TARs, while inviting the party to share with the other party the criteria on the basis of which the TARs were instructed. In favour of the use of TARs back in 2012 see *Global Aerospace v. Landow Aviation*, No. 61040, Loudoun County, Va Cir. Ct, 23 April 2012, at www.casetext.com as well as Judge Peck's opinion: «Until there is a judicial opinion approving (or even critiquing) the use of predictive coding, counsel will just have to rely on this article as a sign of judicial approval. In my opinion, computer-assisted coding should be used in those cases where it will help “secure the just, speedy, and inexpensive (Fed. R. Civ. P. 1) determination of cases in our e-discovery world» (Peck (2011), *Search, Forward*, in *Law Technology News*. Judge Peck's considerations in favour of the use of TARs can also be found in the interview with Judge Peck himself, in Li (2018). On the use of the TAR see also The Sedona Conference Working Group Series titled *The Sedona Conference. TAR Case Law Primer, Second Edition*, of February 2023, which refers to several cases where the TAR has been applied. Among them, *Independent Living Center v. City of Los Angeles* in which the Court ordered the use of TAR to search a lot of documents (more than two millions) after little or no discovery was completed before the discovery cut-off; *OSI Restaurant Partners v. United Ohana*, in which the Delaware Court of Chancery granted the defendant's motion to compel in part, ordering the plaintiff to identify responsive documents by applying TAR to all produced documents that had not previously undergone a document-by-document attorney review for responsiveness. Similarly, in *Winfield v. City of New York*, after «numerous complaints about the pace of discovery and document review, which initially involved only manual linear review of documents» the court ordered the responding party to begin using TAR «to hasten the identification, review, and production of documents responsive to Plaintiffs' document requests». For more cases see Aa. Vv. (2023), p. 11.

³² On this point Blandini (1997), p. 741; Auteri (1998), p. 131; Id. (1981). AA.VV (1981); Dalle Vedove (1998), p. 245; Abriani & Cottino (2001), p. 247; Auteri (1983); Barbuto (1996); Bertani (2005), p. 22; Franchini Stufler (2005), p. 363; Guglielmetti (2003); Traverso (2002), p. 387. It should be noted that, according to some scholars, before the enactment of the Industrial Property Code (Legislative Decree 30/2005), the subject matter of industrial secrets and their protection was to be found in Article 6-bis, Inventions Law. In favour of this interpretation see Frignani (1996), p. 337 and p. 350; Mansani (2002), p. 2016. Also recently, the possibility of using unfair competition protection with respect to secrets when they do not meet the requirements of art. 98 IPC had been affirmed, see Sbariscia (2018), p. 127; Bertani (2000), p. 103.

to the violation of which a discipline is dictated in conformity with that of the other industrial property rights³³. In particular, the Industrial Property Code dedicates Articles 98 and 99 of the IP Code³⁴ to the secret, thus identifying both a substantive and procedural discipline of confidential business information³⁵. Such discipline is moreover perfectly in line with the *TRIPs* agreements³⁶. With the corrective decree of the Industrial Property Code (legislative decree no. 131 of 13 August 2010)³⁷ the legislator returns to deal with the institute in question and, in particular, amends Article 99 of the IPC, specifying, in the context of the above-mentioned provision, that the owner of the secret may prohibit third parties from conduct consisting in the acquisition and disclosure of the same secret “in an abusive manner”³⁸.

The protection of trade secrets in the context of a society characterized by an elevated digitalization of information as well as by *cloud computing* services is becoming increasingly important; it is in this context that the European legislator is prompted to attempt the harmonization of the laws of the Member States on the subject. Already in 2011, a study was commissioned to understand which were the most significant elements that had to be taken into account for a harmonized and strengthened protection of secrecy; the findings of this study led to the adoption of EU Directive 2016/943 of 8 June 2016 «On the protection of confidential know-how and confidential business information (trade secrets) against unlawful acquisition, use and disclosure»³⁹.

³³ See Art. 1 IPC: Industrial property rights «For the purposes of this Code, the expression industrial property includes trademarks and other distinctive signs, geographical indications, designations of origin, designs and models, inventions, utility models, topographies of semiconductor products, trade secrets and new plant varieties».

³⁴ Article 98 of the IPC identifies the subject matter of trade secrets as well as the characteristics they must have to qualify as such. It must be secret information, endowed with economic value as secret and subject to reasonably adequate security measures to keep it secret. Article 99, on the other hand, deals with the protection of secrets, and provides for equal tools in favor of secrets and of proprietary rights.

³⁵ In the first version of Art. 1 IPC the expression “trade secrets” was instead “confidential business information”; the change was made to implement EU Directive No. 2016/943 of 8 June 2016.

³⁶ This is the agreement (*Agreement on Trade-Related Aspects of Intellectual Property Rights Including Trade in Counterfeit Goods*) signed in Marrakech in 1995, within the 1994 GATT (*General Agreement on Tariffs and Trade*) according. On *TRIPs* in general, see Aa.Vv. (2010), p. 575. Correa (2007) p. 438. Lavagnini (2007); Marchetti & Ubertazzi (2012), p. 5; Contaldi (2009), p. 79; Morgese (2009), p. 410. Article 39 of *TRIPs* deals with secrecy, which requires the contracting states to protect secrecy against unfair competition.

³⁷ This is the corrective decree of the Industrial Property Code published in the Official Gazette of 18 August 2010. The regulatory intervention concerns both the substantive and procedural regulation of industrial property, see Bottero (2011). Galli, (2011), p. 277; Floridaia (2010), p. 405; Cartella (2011), p. 255. See also Ferrari (2011), p. 1473.

³⁸ The illustrative report of legislative decree 131/2010 explains the change in these terms: the new provision «replaces paragraph 1 of Article 99 of the Code, reforming the text to make it conform to Article 39 of the Trips Agreement». According to some scholars, this would constitute a retreat of the protection of the secret, that cannot be used against the third party in good faith. In this perspective Pastore (2011), p. 273, in particular, p. 299, or a downsizing of the same, see Vanzetti (2011), p. 95.

³⁹ The directive at issue is known as the “Trade-Secrets Directive”. On its implementation by the Italian legislator see Galli (2018), p. 25. Libertini (2018), p. 3. Id. (2017), p. 575. The scholars empha-

The Directive was implemented in Italian legal system by means of Legislative Decree no. 63 of 11 May 2018⁴⁰, in the context of which, apart from a change on a linguistic level, in that the wording “secret information” has been abandoned and we now speak of trade secrets or know-how⁴¹, the secrecy requirements necessary to qualify secrets as such have been substantially maintained, but the scope and incisiveness of the protection have been broadened, as culpable conduct is now also punished and special powers have been granted to the judge in proceedings concerning the unlawful acquisition, disclosure or use of secrets, in order to prevent those same secrets from being disclosed or disseminated in this way. In the same vein, moreover, the legislator has also provided for a tightening of the penalties that may be imposed by the judge, establishing, however, that as an alternative to the application of precautionary measures, such as the injunction and withdrawal from the market, the judge may authorize the continuation of the infringing activity, provided that a security is paid for an appropriate amount for the purpose of any compensation for damages suffered by the legitimate holder⁴².

All this being said, the reason why proceedings on infringement of secrets are of interest here derives from the evidentiary difficulties that often arise

sized how the directive had only reached a partial harmonization, which therefore has not affected the different national models and has not even managed to unequivocally define the legal nature of secrecy, leaving significant uncertainties in relation to the possible conflicts of applicable regulations, in particular in case of transnational breaches of the same secret. The issue concerns in particular the qualification of the breach of secrecy as an act of unfair competition or as an infringement of an intellectual property right (Falce (2017), p. 560 underlines the still existing uncertainty). Notwithstanding these criticisms, other scholars pointed out that the directive has in fact, based on Article 114 TFEU, identified the most relevant forms of unlawful acquisition of know-how and dictated uniform rules on remedies and exceptions, extending protection also to third parties who, although having unwittingly violated the secret, have used it by engaging in production and/or marketing conduct in further violation of the same. In this hypothesis, a more favourable remedy mechanism is provided for, which consists in the payment of compensation provided that the third party has «originally acquired a trade secret in good faith, but only learnt at a later date [...] that his knowledge of the secret in question came from sources that were unlawfully using or disclosing the secret in question» and also that there is a disproportionate damage in relation to the person concerned and the compensation is satisfactory for the injured party (see Recital 29 of the Directive). The Italian legislature has implemented the requirements of the Directive also regarding this point but has removed the condition according to which the possibility of imposing compensation was to be considered linked to the consent of the injured party.

⁴⁰ Cf. Ciccone & Ghini (2019), p. 525; Mastrelia (2019), p. 513; Serafini (2018), p. 1329.

⁴¹ In fact, the directive includes know-how in secrecy. Relevant — in this respect — is Recital 1: «Non-commercial undertakings and research organizations invest in the acquisition, development, and application of know-how and information, which are the currency of the knowledge economy and provide a competitive advantage. Investment in the production and exploitation of intellectual capital is a key determinant of the competitiveness and innovativeness of companies in the market and thus the return on their investment, which is the underlying motivation for companies' research and development activities. The latter resort to various means to appropriate the results of their innovative activities when the openness of the market does not allow for the full exploitation of the investments made in research and innovation. One of these is the use of intellectual property rights, such as patents, design rights or copyright. Another means of appropriating the results of innovative activities is to protect access to and exploitation of knowledge that is valuable to the entity that owns it and is not disseminated. This valuable *know-how* and business information, which is not disclosed and is intended to remain confidential, is called a trade secret».

⁴² This is the amendment implemented in Article 132 paragraph 5–*bis* of the IPC.

in these judgments, whether provisional or on the merits; it is sufficient to think of the difficulties that a company may encounter when one of its former employees decides to resign and accepts a job offer from a competitor and the company itself fears that the employee has stolen some of its trade secrets in order to make them available to the new employer. In these cases, the practice of Italian courts is to grant—obviously on the basis of justified claims—industrial description orders *inaudita altera parte*, aimed at allowing the owner of the secrets to obtain proof of their violation; such acquisition is permitted by providing that a computer forensics expert can access all the devices of the former employee and the new employer of the same, acquiring all the data present on the devices in question and possibly also paper data that are scanned and thus become digital data themselves.

Bearing in mind that the judge normally issues an order in which he also identifies all the safeguards that must be adopted in order to avoid the disclosure, in the course of the proceedings, of the secrets for the protection of which the order has been granted.

It is clear that, for the purposes of identifying in the bulk of the documents acquired, those that are relevant, the use is normally envisaged, by the computer forensics expert, in contradistinction with the consultants appointed by the parties and endowed with the same skills, of software that is able to make this selection, on the basis of keywords⁴³. The use of these tools therefore provides for the prior elaboration, by the judge, of the keywords on the basis of which the search will be carried out, which normally consist, purely by way of example, of the names of the companies, the names of their clients or even the names of the secrets themselves, for example “recipe for paradise cake”; moreover, the keywords in question are very often the subject of discussion during meetings between the computer forensics experts involved.

With a view to the future use of more complex artificial intelligence tools, such as the more advanced Natural Language Processing tools, to a certain extent the identification of relations between inferred facts, facts and evidentiary instances could be more precise, provided that the artificial intelligence tools are adequately trained.

It is believed that greater accuracy can be acquired through the development of computational language models. Linguistic modelling is a form of unsupervised learning underlying the processing of unstructured data. Text Mining and Text Preprocessing techniques appear to be particularly relevant in this respect. Text Mining, unlike Data Mining, which includes all techniques for analyzing and interpreting quantitative data generally derived from observations in science or economics, incorporates all statistical techniques and algorithms for the classification, automatic extraction of information and grouping of text documents; it is based on the retrieval of information from text documents, which are, however, in a highly unstructured and confused

⁴³ On the topic see Ganesh (2017), p. 21.

format, so that the information is lost in “a sea of words”. Text Preprocessing consists of a series of operations aimed at cleaning the text of all those linguistic forms that may pollute the subsequent retrieval of information.

The purpose of Text Preprocessing is to convert the text in such a way as to put in the best possible conditions both the algorithms that, through the tools of Natural Language Processing, will have the task of describing the words through a multi-vector representation, and the algorithms in charge of extracting the information to characterize the texts under examination⁴⁴. After Text Processing is the vector extraction phase, and this is done specifically by means of the Word Embedding technique⁴⁵, precisely that technique that allows the representation of sentences and words through the use of vectors⁴⁶. Based on methodologies from machine learning, it is in fact possible to exploit models that automatically extract from documents the information needed to train neural networks. By means of Word Embedding, it is possible to decode the semantic and syntactic information of words, and this technique makes it possible to identify the relationships existing between words contained in different texts. Certainly this methodology is difficult to understand for anyone who does not have, like the writer, a real expertise in computer science, however, in light of the results obtained to date by computer science, it is believed that these Word Embedding methodologies can be used for a number of purposes and, therefore, also in order to improve operations of classification of factual circumstances and subsumption of the same in the cases invoked in order to identify the limits of the evidentiary instances.

7. CONCLUSIONS: A RECENT ITALIAN INITIATIVE FOR NEW TECHNOLOGIES IN CIVIL JUSTICE (NEXT GENERATION UPP)

In conclusion, the implementation of artificial intelligence and new technologies can be a concrete help to improve the efficiency of justice as well as a tool that allows for greater legal certainty, which—as anticipated—contributes to a better distribution of available resources in order to avoid their depletion.

In this respect, attention can be focused on a very important Italian initiative—precisely aimed at the implementation of artificial intelligence and new technologies in the civil justice system—called Next Generation UPP.

Next Generation UPP—UPP stands for “*Ufficio per il processo*” and we are going to translated it as “Trial Offices”—is a project of the University of Tu-

⁴⁴ On the subject see Kursat Uysal & Gunal (2014), pp. 104 ss.

⁴⁵ The most widespread word vector analysis technique to date is that of GloVe (literally *Global Vector*); underlying GloVe is the idea that it is possible to derive semantic relationships between words in light of their succession from the recurrence matrix.

⁴⁶ The *Word Embedding* approach was first identified by Mikolov in 2013 (Mikolov & Chen & Corrado & Dean (2013).

rin, Departments of Law, Computer Science and Management, in partnership with eleven universities in North-West Italy. The project is part of the «Unified Project for the Dissemination of the Trial Office⁴⁷ and the Implementation of Innovative Operational Models in Judicial Offices for the Disposal of the Backlog» promoted by the Ministry of Justice under the NOP Governance and Institutional Capacity 2014–2020 and implemented in synergy with the

⁴⁷ The Trial Office had been inserted in our legal system by Decree Law No. 90 of 24 June 2014, *Urgent Measures for Administrative Simplification and Transparency and for the Efficiency of Judicial Offices*, converted with amendments by Law No. 114 of 11 August 2014. Namely the cited Decree Law provided for the Trial Office inserting Article 16–*octies* into the Law No. 221/2012 which had dictated the first provisions for digital justice, to emphasize the close link between technological innovation, organization, and the quality of justice. Article 16–*octies* provides: «In order to guarantee the reasonable duration of the trial, through the innovation of organizational models and by ensuring a more efficient use of information and communication technologies, organizational structures called “trial office” are established at the courts of appeal and ordinary courts, through the employment of clerical staff and those who carry out, at the aforesaid offices, the training traineeship pursuant to Article 73 of Decree Law no. 69, the successful completion of which becomes a qualification for the competition in the judiciary, as well as auxiliary appeal and honorary court judges. The SCM and the Ministry of Justice are asked to implement the provision within the available resources and without any additional expense». Subsequent Decree–Law No. 83 of 27 June 2015, *Urgent Measures on Bankruptcy, Civil and Civil Procedure and on the Organization and Operation of the Judicial Administration*, converted with amendments by Law No. 132 of 6 August 2015, introduced additional incentives for the provision of court internship. With Ministerial Decree dated 1 October 2015, the Minister of Justice adopted the *Organizational Measures necessary for the operation of the trial office*; Article 2 provides that the presidents of courts of appeal and tribunals shall establish the trial offices based on available human resources and that the administrative managers shall adopt personnel management measures in agreement with the determinations of the head of the office. Paragraphs 3 and 4 provide: «3. The president of the court of appeal or of the court shall allocate the organizational structures referred to in paragraph 1 to support one or more professional judges, considering as a priority the number of contingencies and pending cases as well as, for the civil sector, the nature of the proceedings and the management program referred to in Article 37(1) of Decree Law No. 98 of 2011»; «4. The coordination and control of the organizational structures referred to in paragraph 1 shall be exercised by the Presidents of Chambers, or by the judges delegated to perform the before mentioned tasks». On the Trial Office see Finocchiaro (2015), p. 973. Moreover, with Decree Law No. 168 of 31 August 2016, *Urgent measures for the definition of litigation at the Court of Cassation, for the efficiency of judicial offices, as well as for administrative justice*, converted with amendments by Law No. 197 of 25 October 2016, the trial office tasks had been extended to administrative justice. Legislative Decree No. 116 of 13 July 2017, aimed at the systematic reform of the honorary judiciary, provides for the assignment of honorary justices of the peace to the «organizational structure called “trial office”», where they will carry out exclusively the tasks and activities inherent to the same, subject to the limited assignment of civil and criminal proceedings (art. 9). On 9 June 2021, the Government adopted Decree Law No. 80, *containing Urgent Measures to Strengthen the Administrative Capacity of Public Administrations Functional to the Implementation of the National Recovery and Resilience Plan (PNRR) and for the Efficiency of Justice*, converted with amendments by Law No. 108 of 29 July 2021. Article 11 of the latter provides, subject to the approval of the PNRR by the European Commission, that, in order to facilitate the full operation of the organizational structures known as the trial office, the Ministry of Justice may initiate procedures for the recruitment on fixed-term employment contracts of 16.500 trial office staff (graduates in law or, in a minority share, economics and political science), with the qualifications of administrative, IT and statistical officer. The first recruitment procedures of trial office staff had been already performed. With respect to the relevance of the trial office see Civinini (2022); Ghirga (2022), p. 185. Finally legislative decree No. 151/2022 provides that at tribunals, courts of appeals, Supreme court and courts for persons, juveniles and families one or more units of trial office are set up for civil and criminal matters; it provides also for the establishment of several units at the Supreme court and at the General Prosecutor’s Office of the Court of the Supreme court (Article 1). Each unit is coordinated and managed by the heads of the judicial offices, who define the priorities of intervention, the objectives to be pursued and the actions to implement them.

interventions included in the National Recovery and Resilience Plan (PNRR) in support of civil justice reform that had been enacted quite recently and will be in force at the end of this month, namely on February 28, 2023⁴⁸.

The project aims to improve the performance of justice in Northwest Italy through the strengthening of trial offices, experimentation with new collaborative schemes between universities and judicial offices, and technological innovation. These objectives had been considered worthy of funding and consistent with Action 1.4.1 of the NOP Governance and Institutional Capacity (2014–2020) and by the Directorate General for the Coordination of Cohesion Policies of the Ministry of Justice.

Next Generation UPP involves the judicial offices of courts of appeal of Brescia, Genoa, Milan and Turin, the courts of the relevant districts and the juvenile courts that actually recently the civil justice reformed severely.

With the approval of the PNRR, Italy made a commitment to the European Commission to achieve specific targets, with reference to the reduction of the length of proceedings and the elimination of the ultra-long civil and criminal backlog, in accordance with the reasonable duration of trials. To help maintain the commitments made and improve the performance of justice in northwest Italy, the project intends to adopt a multidisciplinary approach at each stage by harnessing legal, business and IT expertise.

The purpose is to achieve a structural reform that, by means of artificial intelligence, economic–managerial control, change management and digitization tools, will ensure that an organization can function efficiently, rationally and in a coordinated manner by correcting cognitive biases and avoiding waste of time and resources.

Next Generation UPP project is consistent with what the Council of Europe's European Commission for the Efficiency of Justice (CEPEJ) highlighted in the European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and their environment, aims to enhance the digitization process of judicial activities as a basis for the application of Legal Analytics (LA) tools and to create a technical environment in which different disciplines, including data science, artificial intelligence (AI), machine learning (ML) and natural language processing (NLP), can converge.

The project coordinators agree that AI is merely meant to support the human operator, not replace it. In fact, AI is intended to expand the tools of knowledge and analysis, in fact and in law, available to the constitutionally

⁴⁸ The reform of civil justice had been enacted by Legislative Decree no. 149 of 2022 in accordance with the delegation law no. 206 of 2021. It is a very wide reform that implies amendments not only to Civil Procedure Code, but also to Civil Code and too other laws. In its original version article 35 of the said legislative decree provided for the entry into force on June 30, 2023, but with law no. 197 of December 29 2022 the entry into force date had been anticipated to next February 28, 2023. With respect to the reform—the contents of which is very ample and cannot be taken into consideration here—see Tiscini (2023); Carratta (2023); Cecchella (2023).

autonomous magistrate, so that he or she becomes authentically aware of his or her choices.

In this context a prominent role has been recognized to the Trial Offices and the staff employed therein, present and future. Over the next five years, the Trial Offices structure will undergo a temporary, but substantial change due to the PNRR-funded intake of 16,500 new employees destined to be exhausted at the end of 2026. The challenge is therefore twofold: to make the most of this once-in-a-lifetime opportunity by managing term staff in the best possible way, and to properly set up Trial Offices so that they continue to perform their functions efficiently once the extraordinary workforce is exhausted.

Thus, the first line of action concerns the «definition of operational forms for the establishment and implementation of the Trial Offices».

After an initial phase of acknowledgment regarding the functioning of the judicial offices at which the Trial Offices are active and those that still lack them, the project envisages the «definition of the catalog of activities and procedures for the activation and strengthening of the Trial Offices»⁴⁹.

In concrete terms, this action will see the implementation of some of the following operational modules: supporting the writing of the motivation of civil and criminal measures; creation of the conceptual sentence file-model; document builder systems; semi-automatic anonymization of judicial decisions; semantic analysis tools for judgments; study and prototyping of tools for automatic extraction of information from documents submitted by the parties; automatic classification of documents in trial folders and their correlation; use of AI techniques for precedent management; enhancement of the existing digital; case law databases.

The second line of intervention is aimed at «identifying models for the management of incoming flows and backlogs at Court Offices». The project makes use of the legal, IT and business skills of the recruited resources by implementing the following activities: economic-managerial domain control over reconnaissance activities; identification of offices for testbed and support for formalization of processes modeling of flows for the testbed; assessment of testbed activities.

The third line of intervention involves the «Activation and testing of models and plans related to the previous actions» through the establishment of a Task Force to deal with the activation and testing of the models and plans developed during the project and to assess their capacity building and extension at the national level as well.

⁴⁹ The phase of acknowledgment with respect to the functioning of the judicial offices at which the Trial Offices are active and those that still lack them is finished and meanwhile the IT and business experts are working on the definition of activities and procedures for the activation, if needed, and the strengthening of the Trail Offices. Those updated information had been gathered during a conference organized by the University of Turin on January 30, 2023.

The fourth line of intervention acts on the role of university institutions and their relationship with the world of civil justice. The desire is to define new collaborative patterns based on sharing of objectives, collaboration, experimentation capacity, identification of potential, and development of organizational capacity, in order to improve justice services for citizens and territories.

Next generation UPP identifies activities to be carried out in the context of the single— and three—year master’s degree program in the legal disciplines and activities to be carried out in the context of postgraduate offerings, such as: changing the syllabi and examination methods of the fundamental courses for the training of the future practitioner of jurisdiction, with greater emphasis on the acquisition of skills necessary for the new market of jurisdiction, primarily the ability to draw up concept maps and approach practical cases; writing workshops, legal informatics workshops, legal clinics for deserving students in the single-cycle master’s degree program; training of graduate student scholars and/or fellows to be sent to judicial offices in the Northwest area as part of Next Generation UPP; training of trial clerks recruited through the extraordinary examination phase under the NRP-funded recruitment plan; higher interdisciplinary training courses or executive master’s programs.

Clearly the objectives of the project are different and on different levels.

With respect to the situation of the Trial Offices the aim is to safeguard and improve the UPP facility projected beyond 2026, when the activity of the extraordinary workforce envisaged by d.l. 80/2021 and funded by the PNRR will end as well as to achieve—during the implementation period—a more efficient management of incoming litigation and a reduction in the civil backlog by the judicial offices involved.

With respect to the training context, the main objective is to be able to train law graduates equipped with the skills necessary to be placed in the Trial Offices by minimizing the need for on-the-job training by judicial offices and initiate with judicial offices (and bar associations) new forms of post-graduate collaboration suitable for meeting the needs of the justice market.

The final goal is both to have judicial offices in the relevant Macro Area who could have acquired a more efficient method of managing judicial affairs and utilizing the Trial Offices in order to contribute to the reduction of the backlog of cases and reduce the average duration of proceedings and to have law graduates in the Macro Area who could have acquired soft skills, IT and management skills for inclusion in the Trial Offices.

BIBLIOGRAPHY

AA.VV. (2023), *The Sedona Conference. TAR Case Law Primer*, (2nd edition), Wgs.

AA.VV. (2010), *Resource book on TRIPs and the development*.

Abriani N. & Cottino G. (2001), I brevetti per invenzione e per modello. In *Trattato di*

- diritto commerciale*, Cedam.
- Auteri P. (1983), Il segreto industriale. In Aa.Vv., *Il segreto nella realtà giuridica italiana, Atti del convegno nazionale – Roma, 26–28 October 1981*, Cedam.
- Auteri P. (1998), Sub art. 14, in Commentario al d.lgs. 19 marzo 1996, n. 198. In *Nuove leggi civili*.
- Barbuto M. (1996), La tutela giudiziaria del segreto d'impresa. In *Atti del convegno “La tutela del segreto d'impresa dopo i TRIPs”*, Torino, 5 novembre 1996.
- Bertani M. (2000), Impresa culturale e diritti esclusivi. In *Quaderni di AIDA*.
- Bertani M. (2005), Proprietà intellettuale e nuove tecniche di appropriazione delle informazioni. In *Studi in onore di Gerhard Schricker*.
- Blandini A. (1997), voce Know-how. In *Enc. dir., Agg.*
- Bollier D. (2017), Lo sviluppo del paradigma dei beni. In C. Hess and E. Ostrom, *Understanding Commons as Knowledge* (translated in Italian, *La conoscenza come bene comune*), Mondadori.
- Galli C. (2011), La revisione del codice della proprietà industriale: da un'impostazione “proprietary” a un approccio market oriented. In *Corr. giur.*
- Bottero N. (2011), La riforma del codice della proprietà industriale, Giuffrè.
- Boucq R. (2017), La justice prédictive en question. In *Dalloz Actualité*.
- Carleo A. (2017), Calcolabilità giuridica, Il Mulino.
- Carratta A. (2023), Le riforme del processo civile. D. Lgs. 10 ottobre 2022, n. 149, in attuazione della L. 26 novembre 2021, n. 206, Giappicchelli.
- Cartella R. (2011), Brevi note in merito ai profili processuali del d.lgs. 13 agosto 2010, n. 131. In *Riv. dir. ind.*
- Castelli B. & Piana C. (2019), Giusto processo e intelligenza artificiale, Maggioli.
- Castelli C. & Piana D. (2018), Giustizia predittiva. La qualità della giustizia in due tempi. In *Questione giustizia*.
- Cecchella C. (2023), Il processo civile dopo la riforma, Zanichelli.
- Ciccone C. & Ghini F. (2019), La tutela giudiziale civile dei segreti commerciali anche dopo l'introduzione del d.lgs. n. 63/2018. In *Dir. ind.*
- Civinini M. (2022), Il “nuovo ufficio per il processo” tra riforma della giustizia e PNRR. In *Questione giustizia*.
- Comoglio P. (2018), Nuove tecnologie e disponibilità della prova. L'accertamento del fatto nella diffusione delle conoscenze, Giappicchelli.
- Contaldi G. (2009), La tutela delle invenzioni nel sistema OMC. Esclusiva brevettuale e valori emergenti nella comunità internazionale, Giuffrè.
- Correa C. (2007), Trade-related aspects of intellectual property rights. A commentary on TRIPs agreement. In *Oxford Commentaries on GATT/WTO Agreements*.
- Dalle Vedove G. (1998), La violazione del segreto industriale tra vecchio e nuovo diritto. In *Riv. dir. ind.*
- Dondero B. (2017), Justice Prédicative: la fin de l'aléa judiciaire?. In *Dalloz*.
- Falce V. (2017), Trade secret, unfair competition and the right to intellectual property. Certainties and perplexities of EU Dir. 2016/943. In *Dir. ind.*
- Ferrari F. (2011), La recente riforma delle norme procedurali del codice della proprietà industriale. In *Riv. dir. proc.*
- Ferrari F. (2019), Il processo civile a confronto con il diritto alla privacy. In *Il Giusto processo civile*.
- Ferrari F. (2020), La pesca di frodo, Giappicchelli.
- Floridia G. (2010), Il decreto correttivo al codice della proprietà industriale: una riforma necessaria. In *Riv. dir. ind.*
- Franchini Stuffer B. (2005), Studi sull'evoluzione economica e giuridica del know-how e della sua tutela. In *Riv. dir. ind.*
- Frignani A. (1996), Segreti d'impresa. In *Dig. it. disc. priv., sez. comm.*

- Galli C. (2018), L'attuazione italiana della Direttiva europea sui Trade Secrets tra continuità nella disciplina sostanziale e deviazioni rispetto al testo della Direttiva. In *Contratto e impresa/Europa*.
- Ganesh V. (2017), Artificial Intelligence Applied to Computer Forensics. In *International Journal of Advanced Research in Computer Science and Management Studies*.
- Ghirga M.F. (2022), L'ufficio del processo: una sfida. In *Riv. dir. proc.*
- Giannelli N. (2013), Beni comuni e servizi pubblici: utilità sociale e gestione democratica. In *Istituzioni del Federalismo*.
- Grossman M.R. & Cormack G.V., (2011), Technology-Assisted Review in E-Discovery Can Be More Effective and More Efficient Than Exhaustive Manual Review. In *Rich. Journal L. and Tech.* <http://jolt.richmond.edu/v17i3/article11.pdf>.
- Guglielmetti G. (2003), La tutela del segreto. In Aa.Vv., *Le nuove frontiere del diritto dei brevetti*.
- Hardin G. (1968), The Tragedy of the Commons. In *Science*.
- Kerschberg B. (2018), What technology-assisted electronic discovery teaches us about the role of humans in technology. In *Forbes*.
- Kursat Uysal A. & Gunal S. (2014), The impact of preprocessing on text classification. In *Information Processing & Management*.
- Lavagnini S. (2007), Introduction to the TRIPs Agreement. In Marchetti P. & Ubertazzi L.C. (2012), *Commentario breve alle leggi su proprietà intellettuale e concorrenza*, Cedam.
- Li V. (2018), From paper to digital documents, Judge Andrew Peck travelled (and set) the discovery trail (podcast). In *American Bar Association Journal*.
- Libertini M. (2017), Confidential business information (trade secrets) as the subject of industrial property rights. In *Dir. ind.*
- Libertini M. (2018), Brevi note sui rimedi risarcitori e indennitari a tutela dei segreti commerciali. In *Contratto e impresa/Europa*.
- Lloyd W. F. (1833), Two Lectures on the Checks to Population. https://upload.wikimedia.org/wikipedia/commons/3/34/Two_Lectures_on_the_Checks_to_Population.pdf.
- Lombardini I. (2019), Nuovi scenari su Intelligenza Artificiale e giustizia civile. In *Diritto.it*.
- Luccarelli A. (2013), La democrazia dei beni comuni, Gif Editori Lattenza.
- Mansani L. (2002), La nozione di segreto di cui all'art. 6 bis l.i.. In *Dir. ind.*
- Marcus R. (2006), E-discovery & Beyond: toward Brave New World or 1984?. In *Rev. litig.*
- Mastrelia D. (2019), La tutela del know-how, delle informazioni e dei segreti commerciali fra novità normative, teoria e prassi. In *Dir. ind.*
- Mattei U. (2017), I beni comuni come istituzione giuridica, in *Questione giustizia*.
- McGinnis J.O. & Pearce R.G. (2014), The Great Disruption: how machine intelligence will transform the role of lawyers in the delivery of legal services. In *Fordham Law Review*.
- Mekki A. (2018), Justice, judiciaire, justice amiable, justice numérique: des liaisons dangereuses?. In *Gazette du Palais*.
- Mikolov T. & Chen K. & Corrado G. & Dean J. (2013), Efficient Estimation of Word Representations in Vector Space. In *Proceedings of workshop at ICLR*. <https://arxiv.org/pdf/1301.3781v3.pdf>.
- Morelli C. (2017), Giustizia predittiva: in Francia on line la prima piattaforma europea. www.altalex.it.
- Morgese N. (2009), L'accordo sugli aspetti dei diritti di proprietà intellettuale attinenti al commercio (TRIPs), Cacucci.
- Nieva-Fenoll J. (2018), Intelligenza artificiale e processo, Giappichelli.

- Officina delle idee di Rete@Sinistra (2010), La società dei beni comuni. In Cacciari P., La società dei beni comuni, Futura editrice.*
- Pastore M. (2011), La tutela del segreto industriale nel sistema dei diritti di privativa. In Resta G., *Diritti esclusivi e nuovi beni immateriali*, Utet.
- Peck A. (2011), Search, Forward. In *Law Technology News*.
- Petrella R. (2010), I beni comuni. Tra governo e governance, gratuità e monetizzazione. In Cacciari P., *La società dei beni comuni, Futura editrice.*
- Pontificio Consiglio della giustizia e della Pace (2013), Compendio della dottrina sociale della Chiesa. In http://www.vatican.va/roman_curia/ May.
- Sanlorenzo R. (2017), Di che cosa parliamo quando parliamo di beni comuni?. In *Questione giustizia*.
- Sbariscia D. (2018), La tutela concorrenziale delle informazioni “meno riservate”. In *Dir. ind.*
- Scholtes J.C. & Van Cann P. & Mack M. (2013), The impact of incorrect training sets and rolling collections on technology-assisted review. www.semanticscholar.org.
- Serafini S. (2018), Luci e ombre della nuova disciplina sul segreto commerciale. In *Corr. giur.*
- Surden H. (2014), Machine learning and law. In *Washington Law Review*.
- Tiscini R. (2023), La riforma Cartabia del processo civile. Commento al d.lgs. 10 ottobre 2022, n. 149, Pacini Giuridica.
- Traverso C. (2002), La tutela giurisdizionale del segreto. In *Dir. ind.*
- Vanzetti A. (2011), La tutela “corretta” delle informazioni segreti. In *Riv. dir. ind.*
- Vincenti E. (2019), Il “problema” del Giudice-robot. In Aa.Vv., *La decisione robotica, Il Mulino*.
- Viola L. (2017), *Interpretazione della legge con modelli matematici, Diritto Avanzato*.

