Minima non curat praetor! Arguing for a strategic experimental implementation of AI into the Italian Tort law disputes dynamics

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This work deals with the implementation of Artificial Intelligence (AI), and especially of Machine-learning (ML) tools, to the area of civil law disputes. Through the application of mathematical models for the qualification and the measurement of legal situations, the legal values can be objectively determined, while preserving a certain (and specified) domain of discretional power for the policymaker. This system might be experimentally implemented within the realm of tort law disputes, and then be assessed for its possible implementation to other sectors of civil law litigation. This attempt would impose the design of cooperation among machine (AI) and human (NI) agents, guaranteeing to the human agent the role of last-resort decision-maker. Finally some aspects concerning the huge impact of such an experiment on legal practice and theory will be suggested, with particular regards to the prevention and the contrast of corruption, in its broader sense, within the area of civil law adjudications, due to the fact that this system would enhance accountability for any legal operator.

Keywords: Artificial intelligence, Legal values, Mathematical model, Accountability, Corruption

Introduction

We are going to try and devise some possible future experimental initiatives as to the implementation of *Artificial Intelligence* (AI) within the field of the administration of Italian civil justice, and specifically in the area of tort law settlements and disputes (under artt. 2043 – 2059 c.c.).

We will argue that the implementation to this field of *Machine learning* (ML) seems to be currently and practically viable[1], whilst it seems to us that the hypothesis of implementation of *Natural Language Processing* (NLP) and *Robotics* to the same field, and at the same level of depth, is not currently and practically viable[2].

To this end, we will briefly analyze Italian civil judicial system under a strategic point of view, assuming that:

Its outputs ("products") are decisions capable of being executed by the users (i.e. the parties to the judgment);

its competitors are represented by different and alternative systems of decisions, i.e. mediators, arbitrators and foreign jurisdictions[3].

1. Analysis of *status quo ante*

We choose to analyze the public organization of Italian civil judiciary system, assuming that it is characterized by a clash of interest between (at least) two parties, and its final output consists of the delivery of an act of settlement capable of being put into execution by the winning party. The competitors of the Italian judiciary civil systems may be identified in the systems of mediators (usually legal counsels), arbitrators and foreign jurisdictions. At the moment, some computing technologies are implemented in the organization at issue, especially by means of the PCT ("*Processo civile telematico*", tr. *Civil Telematic Process*), which enables the judge, the law clerks and the parties, to upload and download acts and documents of the docket, to serve acts, to file complaints and remedies through computer-based technology, though the hearings are – in principle - still held by the judge *vis-à-vis* with the parties and their counsels[4]. At present the strategies

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[1] For the description of the limits of application of AI within the job systems, see Chui, M. – Manyika, J. – Miremadi, M. (2016), McKinsey Quarterly, July 2016.

[2] For the strategic planning of organizational changes, see Kotter, J.P. (2006). Leading Change. Why Transformation Efforts Fail. Harvard Business Review, January 2007.

[3] For the analysis of interaction between human and artificial intelligence, see Wilson, H.J. – Daugherty, P.R. – Morini-Bianzino, N. (2017), The Jobs That Artificial Intelligence Will Create, MITSloan Management Review, Vol. 58, No. 4, 14-16.

[4] For an innovative discipline linked to the management of Covid-19 emergency, see art. 83, Law-decree nr. 18/2020, and further modifications and integrations.

carried out by the Italian legislator, especially in the latest years, might be classified as follows.

In the civil judgment "*di cognizione*" (i.e. since the lodging of the case until the final decision on the merits of the dispute) the strategies pursued seems to be multifaceted. In effect, the scope for transferring a civil judicial pending case into arbitration has been enlarged (Law 162/2014). This expansion involves not only minor cases (this *de minimis* policy would be interpreted as a focus strategy, reserving the "1st-class" users to the Tribunals and incentivizing others to opt out for arbitration); instead, this trend triggers the reduction of costs mitigating the stock of pending cases (with subsequent cases of State's civil liability for the unreasonable length of processes). However, disputes in labor law and fundamental rights are excluded: the former exclusion may be interpreted – in managerial terms - as focusing; the latter may be interpreted – in managerial terms - as product/output differentiation (in such sensible cases, the decision of a professional State judge offers some requirements, in terms of guarantees, which cannot be provided for by other species of decision-makers).

In disputes concerning migration and asylum, newly instituted specialized Chambers are competent (*ex lege* nr. 46/2017); their members must hold additional professional requirements; the procedure is simplified. Strategically – under a managerial perspective - this policy may be interpreted as a policy for cost reduction (simplification of procedures), focus (once the class of foreigners asking for asylum is set apart) and differentiation (the decision of a highly specialized judge is different from any other decision-maker).

In the civil judgment of execution (i.e. the acts necessary to put into execution the decision, notwithstanding the losing party's opposition) there is a coherent variety of intervention (*e legibus* nr. 162/2014, nr. 132/2015, nr. 119/2016) mainly sharing – in managerial terms - the strategy of cost reduction (in this sense even technologies are implemented, for ex. through the automatization of registrar offices and of the search for debtor's assets).

AI's implementation in the area of civil law litigation might trigger some various (and rather relevant) issues[5]; not just legal issues, but even in terms of management of the (administrative and jurisdictional) *apparatus* governing tort law disputes. In particular, the whole governance of such area of legal settlements might be hugely affected, mainly because:

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[5] In strategic terms in general for the explanation of the most effective paths to inject AI within organizational patterns, see Bughin, J. – Hazan, E. (2017), MITSloan Management Review.

The whole system (with its specific features of this working environment) ought to be radically adapted to the use of AI, thorough a convinced and shared vision on the part of administrative management;

The magistrates/judges charged of organizational tasks, should be aware of the potential of the interaction with "*machine decision-makers*" (at least of first instance / resort, as we will try to put out in this paper), so that, should this option be embraced, in order to deploy its potential, the acquisition of expertise and skills in AI should be of specific advantage in this area;

The market of legal professions might rapidly adapt, because counsels could be induced, with even more accelerated steps than nowadays is the case within the Italian legal market, to merge into big legal firms, in order to gather all the new featuring skills involved by the introduction of AI in this field;

The mechanics of AI's implementation to tort law might even influence the way legal professions and (the tasks of) legal counsels are conceived, both in their relationships with their clients, and in their relationships with the civil judge (and the entire *apparatus* administering the justice in this field);

In the end, the same identity of due process of law (under art. 111 Cost., art. 6 ECHR) in this field should be reinterpreted, while guaranteeing full compliance with its constitutional and supranational parameters.

Of course, in this paper we may only envisage the necessity of such a legal debate, in case AI's implementation option in this area be embraced by future policymakers.

2. Analysis of the "*legal market*" and potential for AI's implementation.

AI's implementation in tort law disputes might not deliver new tasks, in comparison with the current state of the art, though it might enable saving of times and differentiation in the features of the services of the civil judicial system.

Through the interaction of machines (AI) and persons (Natural intelligence, i.e. NI):

Robotics might reduce time and costs for material operations, tasks and processes concerned by the management of the huge amount of paper loads deriving from the lodging f the cases, at least until the entire civil litigation be fully digitized;

Natural language processing (NLP) might help reduce the preliminary phases of the first-instance judgment before a machine agent, in so that the

introduction of structured forms for the judicial acts of the parties might reduce costs and resources in the instructing phase of the trials;

Machine learning (ML) might help, both in supervised and in unsupervised manner, through the introduction of mathematical models/algorithms for the assessment of legal situations, in order to issue objective and transparent decisions to solve the contrasts among legal values.

In any case, the human agents (NI) should have the ultimate control (through appeal, revision, etc.) over the activities of the machine agents (AI). The use of discretionary power and the setting of legal policies ought to be in any case transparent and any decision/policy-maker be made accountable, in order to minimize and nullify the hypothesis of bias and discrimination due to the implementation of AI in this legal field: we feel confident, as to this specific issue, that the application of quantitative models (as explained in this paper) might comply with this mandatory (qualitative) requirement. As to the possible outcomes of AI's implementation in this field, we foresee that (judicial and non-judicial) decisions might be more timeous and less expensive; moreover, foreign, as well as national subjects, with special focus on firms and professionals, might opt for this kind of national jurisdiction.

If the implementation of ML through quantitative models for the recognition, qualification, assessment and balancing of legal situations (see *infra amplius*) might be quite rapidly achieved, given that some of such models have already been developed[6], the implementation of NLP and *Robotics* seems to be still to be worked on. For instance, as to the implementation of *Robotics* in the working places and environments of civil justice in Italy, this should require so heavy investments and business processes reengineering that it could not currently be envisaged in a short- and/or middle-term perspective; moreover, the dematerialization of the dockets[7] seems to be a rather more favorable option. For those reasons, in this paper we will mainly deal with the possible and experimental implementation of ML in the realm of Tort law disputes, through quantitative model of legal analysis, under a strategic point of view which combines the consideration of legal as well as of management outcomes, costs and benefits.

We do see potential for the Italian civil judgments "*di cognizione*" (*cognitiones*) gaining competitive advantage through the deployment of quantitative models[8], applied - in first-instance minor disputes - by AI,

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[6] See, for ex., Ferrara, M. – Gaglioti, A.R. (2012) Law and Mathematics. Il diritto nel prisma di un modello matematico, Rubbettino.

[7] In Italian civil procedural judgements is still into force the PCT, starting from D.P.R. nr. 123/2001.

[8] For one example of such models: M. FERRARA – A. GAGLIOTI, The derivation of the legal principle on human persona from the legal rules on personal freedom and on freedom of

initially as peer arbitrators about a closed list of matters (specific models of tort law, under art. 2043 /2058 c.c.; and then, after a first assessment, *jura in re*; obligations; typical contracts), with the strategies of reducing costs and differentiating the product/output (delivering a more objective and transparent decision). This list of matters[9] might be progressively enlarged via ML, fed based on labeling by human operators. Appeals against AI decisions to human judges ought to be regulated by statutory law. In the first experimental phase, a strategy of focus might be enacted too (devoting machine arbitrations to small consumers' disputes, or B2B minor litigations, etc.).

3. Areas of impact and procedural process for the introduction of ML within tort law disputes

This initiative would lead to interaction between AI and NI. Once the platform has been built up (with strong initial investments!), ML would lead to time and costs savings. The AI judicial decisions might be seen – under a managerial perspective - as differentiated outputs, in comparison to NI decisions, due to transparency in the use of discretionary powers and policies; in this sense, ML implementation to tort law disputes might lead to better foreseeability of the adjudication and could be considered ad a further tool in preventing and contrasting corruption in the whole system at stake. The shift towards ML might be focused on firms operating in transnational contexts, to attract forum-shopping.

Cost leadership through ML would match some of the current strategies, as above indicated. A possible focus towards firms and professionals, especially within transnational contexts, would imply a new strategic alignment. The initiative hereof, would imply the framing of the written acts of the parties (writs of summons, responses, etc.) through statutory law, establishing templates to encode the inputs by the parties to the AI decision-maker; Statutory law would even design the model of output to be issued by the AI-decision maker: a list of elements of the legal situations at stake, once these have been recognized through ML, that need evidence by each of the parties (*thema probandum; onus probandi*). Then, AI decision-maker might pose the written queries to each of the parties, to give evidence of their respective

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movement: a mathematical approach, Applied Mathematical Sciences, Vol. 8, 2014, no. 91, 4497 – 4510

[9] For a theoretical application of a mathematical model to the sector of civil law, see Gaglioti, A.R., Azioni positive in favore dei disabili: impatto (e limiti) dei rimedi nell'ottica di un modello matematico di analisi assiologica, Rivista Critica di Diritto Privato, Jovene, 2017 fasc. 3, 463-485.

legal situations. This phase would require cooperation between AI (which indicates the elements to be proved by each party) and NI (which indicates the more adequate means of proof and decide whether the standard of legal evidence has been complied with by each party).

As we will explain later in this paper, the legal conflicts instructed by AI-decisors, may be divided in two main species: bound conflicts; not-bound conflicts. In any case, statutory law should rule the templates for AI-decision maker's *decision* (in case of conflicts with a bound result) or *recommendation* (in case of conflicts with a not-bound result), on the basis of the evidence requested and provided for. This would lead to cost reduction, via savings of time and technical/human resources, enhancing their productivity. Moreover, the requests of evidence (by AI) would be limited to just the indispensable queries, while NI should choose the most economical means of proof and assess whether the party has satisfied the standard of proof. This would even lead to more objective, transparent and accountable AI decisions and/or recommendation, and at the same time human tasks (NI) would be limited to highly complicated tasks, with more productivity. The strategic shift would be sort of a breakthrough in Italian judicial system.

4. Some remarks on Ferrara-Gaglioti's mathematical model

Some of the present Authors have introduced in the related literature a mathematical model for legal analysis. This model allows to shape, in clear and logical terms, the structure of any legal rule and situation. While referring for more details on such models to the already published articles and essays on it (for some basic references, please see under notes nr. 6, 8 and 9), we deem it necessary to explicit the rationale of such a model, so as to illustrate its adequacy to the issues discussed in the present article. The model in question converts any legally relevant situation into patterns of numbers which represent the axiological potential to be recognized and associated to each situation under scrutiny. This model's input consists of a legal situation that a party assumes to own, and it gives back the legal value to be associated to this legally relevant situation; more exactly, the model gives back two pieces of information: the legal value which cannot be denied to this situation by any decision-maker (intangible asset); a second numerical interval of legal values which can be discretionally recognized to this situation, according to the policies of the competent decision-maker (discretional asset).

In order to convert legal situation into numbers, the legal operator has to describe the structure of the (factual and effectual) situation, for any of its elements, and then putting the elements among them in logical sequences/

strings, whose origin is always legal subjectivity. Each element constitutes a unit of legal (conceptual-) mass; the legal mass gravitates both around the origin and the periphery of the string. The more the mass (, i.e. logical Time of the -element) tends to the origin (T=0), the more it gains axiological Height (); the more the mass tends to the periphery (i.e.), the more it gains axiological Strength (. The two axiological dimensions (Height and Strength) can hence be described through two mathematical functions:

Furthermore, the logical description of the strings/sequences of element along the legal situations, necessarily create some contradictions (in effect, there is always more than one logical path form the origin to the periphery), which can be solved admitting the emersion of gap-mass to fill the logical gaps within the logical structure of the legal situation. The axiological potential associated to conceptual-mass is not-discretional, whereas the axiological potential associated to gap-mass is discretional for the policy maker.

In the easiest case of tort law dispute, two parties oppose each other a distinct legal situation[10], which they have to describe in its legal logical structure (i.e. each party has got to describe the framework of the whole *Tatbestand* of the legal situation assumed, i.e. all of its *Bestandteile*[11]). The implementation of the model offers the axiological legal potential associated to this *Tatbestand*, differentiating an intangible axiological asset and a discretional axiological asset. Once converted each conflicting legal situation into numbers (i.e. into the numbers representing the two quotas of their axiological potentials), the conflicts can be divided upon two species:

Bound conflicts: in this series of cases, the intangible axiological potential of one conflicting situation is greater than the sum of (intangible and discretional) axiological potentials associated to the other conflicting situation. In this case, the first situation will prevail upon the second one, no matters which the policy of the decision-maker. Such conflicts can be directly adjudicated by an expert AI system (a sort of automatized arbitrator);

Not-bound conflicts: in any other conflict, the policy of the decision-maker matters, which imposes that the conflict is adjudicated by NI agents.

The same logic can apply to more complex patterns of legal conflicts (i.e. involving more than two parties and/or more than one legal situation within the asset of each party).

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[10] In this article we use the concept of legal situation as developed by Falzea, A (1965) *Efficacia giuridica*, Enciclopedia del diritto, vol. XIV, *ad vocem*.

[11] For a complete explanation of the construction of *Tatbestand*, see von Tuhr, A – Thiel, G. (1910-1918), "Der allgemeine Teil des deutschen bürgerlichen Rechts", and specifically "Die rechtserheblichen Tatsachen, insbesondere das Rechtsgeschichte", as a part of "Systematisches Handbuch der deutschen Rechtwissenschaft", Abt. 10, T. 1, Bd. 1-2.

5. The process of implementation of ML to tort law disputes

It has to be observed that once the system of AI arbitration starts to be enacted, the parties ask in their cases that a certain legal situation is recognized (qualified) as legally relevant by the arbitrator. The issue of the qualification (vesting) of legal situations is preliminary and crucial, as the whole legal system is "in action" (so called "*diritto vivente*") and some situations, which in a certain time have not been qualified by the case-law, just some time after have been legally vested by the doctrine and the case-law. To ensure the action of the system, even while enacting an AI tort law arbitration, several methods can be thought of. We may suggest the following:

Featuring an experimental period of implementation of such automatized arbitration (this constitutes the training data set in this legal area); in this period NI supervises any of the qualification process of the situation put at stake by the parties. The situations which are validated *ab initio* be NI constitute an asset of legally vested situations which the arbitrator can assume as legally vested (i.e. capable of being protected and measured through the application of the mathematical model of axiological measurement);

Once the experimental period has been completed, when a party deduces a situation which has not been legally vested so far, the AI system (fed by the index of situations recognized/codified through the experimental phase) can learn by itself, comparing the nearest already recognized situation to the situation that the party wants to be legally vested by the system for the first time.

The mathematical model at stake allows to identify clusters of elements[12] of the two situations, and to measure – in numerical terms – the quota of the elements which are in common between the legal situations.

The decision about the legal vesting of a newly conceived situation can be even devolved to NI whenever the case arises for the first time; in this case, the AI system will assist the NI decision by supporting the decision via the indication of the structural common quotas between the two situations in comparison, so suggesting which is the threshold in order the vesting of the new situation to be satisfied.

The more the process of learning/feeding of the system goes on, the fewer new cases of vesting will have to be devolved to an assisted decision of NI.

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[12] The mathematical model at stake has already demonstrated to be viable for such clusters' analysis. See Ferrara, M. – Gaglioti, A.R. (2012) Functional Innovation and the Clusters within the Legal Structures. Some Quantitative Remarks in an Axiological Model, Proceedings of WSEAS 3rd International Conference on Communication and Management in Technological Innovation and Academic Globalization (COMATIA '12), Paris (France), 2-4.12.2012 (Proceedings ISBN 978.1.61804.138.8).

6. Milestones and strategic alignment for AI's introduction

AI (and specifically ML) might start to be applied within the realm of Tort Law (i.e. litigations under artt. 2043/2058 of the Italian Civil Code), through the supervised labeling of existing legal situations and the testing of unsupervised recognition of action in law. However, it must be pointed put since the very beginning that this step would radically impact the whole legal culture and some of the traditional features of the national legal system, apart from posing even ethical questions of primary depth. The initial preparatory phase would require a convinced engagement of all the stakeholders, apart from some strong initial investments. Plenty of resources should be acquired outside the organization at stake, such as technical resources (hardware, software, data processing computing power). Furthermore, some technical juridical issues ought to be underscored. A renewed constitutional framework might cover the proposal in question, to guarantee the full protection of the human rights involved in the administration of justice. The role of the appeals judgment (to be reserved to a NI judge) should be reinterpreted. The Institutions concerned might embrace the new vision, through determined leadership orientated towards cultural changes in terms of openness to innovation.

The implementation of AI within Italian civil judicial system would be rather ambitious, requiring the convinced involvement of several stakeholders, and especially of:

the Legislator and the Government (to determine the legal framework and the human rights' guarantees such as the right to a fair trial; human rights guarantee; the role of the judge and of the counsel; the legally not binding force of judicial precedents);

the top-management of Justice administration (to deliver the infrastructure and the platform to be deployed);

the Institutions of the Bench (i.e. the main actors of legal enforcement and interpretation)[13];

the administrative personnel of the Tribunals (which deal with secretarial tasks);

the Bar Chambers (the legal counsels would radically change their role, as "*legal engineers*", projecting and shaping the framework of AI decisions/ recommendation through their thesis);

public opinion, given that this system would change the way the civil jurisdiction of tort-law cases is administered.

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[13] For some powerful insights of the role of legal professions in contemporary context, see Susskind, R. (2019) Online Courts and the Future of Justice.

The adoption of NLP would help the enactment of ML in this field, though it would require the active engagement of several stakeholders[14]. The legislator should establish statutes to outline the mandatory templates for the judicial acts and adapt the rules on *onus probandi* and on the means of proof at the parties' disposal. The (human) judges might accept their role as limited, in first-instance judgments, to the solution of certain kinds of (chaotic) legal conflicts, the choice of the most adequate means of proof and the assessment of the collected evidence, while interacting with AI machines. The legal operators should initially encode / label the inputs (elements – templates) for ML and NLP, under the legislator's supervision (to mitigate the risk of data bias). The counsels should adapt their role in drafting judicial acts and in gathering evidence.

Furthermore, the outlined initiative might pose some relevant ethical issues[15], among which we shall list the following[16]:

The role of the machine agents (and their programmers) as arbitrators, in terms of *status*, prerogatives, guarantees, duties and responsibilities, and as to the possible bias within their decisions[17]. This might be faced by making public the decisions' algorithms and any of their modifications, and the entire training data sets (even regulating privacy aspects).

The role of legal counsels in the judgments before a machine agent: counsels might be compelled to strategically orientate their defense towards the most probable expected outcome; however, the emotional and personal features of any case might be underestimated. This might be faced in the appeals before the human agent.

To evaluate the success of the initiative[18], under the perspective of a management control[19] of its possible implementation, the following criteria/indicators might be proposed:

Reduction in processes' time length (measured in days);

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[14] See, in general, for the impact of AI's introduction on workforce stakeholders, Jesuthasan, R – Boudreau, J. (2017), Thinking Through How Automation Will Affect Your Workforce, Harvard Business Review, April 20, 2017.

[15] For the rise of ethical impact issues of AI, Brooks, R., IEEE J. Robot. Automat., 2, 14-23, 1986.

[16] In general, for the risks of biases within the enactment of AI, see Devlin, H., AI programs exhibit racial and gender biases, research reveals, The Guardian, April 13, 2017.

[17] For a comprehensive analysis of the ethical issues of the introduction of information system in contemporary world, see Floridi, L. (2013) The Ethics of Information.

[18] For the general issues of determining the impact of AI's introduction, see. Agrawal, A. – Gans, J.S. – Goldfarb, A., What to Expect from Artificial Intelligence, MITSloan Management Review, Spring 2017, Vol. 58, No. 3, 23-26.

[19] For a general assessment of the outcomes of automation, see Autor, D.H., Why Are There Still So Many Jobs? The History and Future of Workplace Automation (2015). Journal of Economic Perspective, Vol. 29, No. 3, 3-30.

Uniformity of the decisions in first instance (similar) cases;

Number of agreements to opt for Italian jurisdiction in transnational contexts.

In the context of Italian civil judicial system, the following processes might deploy machine learning:

Recognizing the legal relevance of situations (creating a training labeled set of existing legal situations, through supervised ML; reckoning emerging or newly formulated legal situations, through unsupervised ML, exploring clusters within the training set);

Weighing the legal values associated to any recognized legal situations, indicating two quotas of axiological potential (see *supra amplius*); the fraction of their axiological potential which becomes active in a certain case;

Identifying the result of a conflict among coalitions of legal situations at stake in any given case [f. ex., in tort law, coalition a): the legal situations of the wrongdoer vs. coalition b): the legal situations of the claimant]: conflict with a bound result; conflict with a not-bound result;

In case of legal axiological conflicts with *bound* result, AI might take the first-instance decision; the appeal before a NI second-instance decision-maker should be guaranteed at constitutional level and ruled by statutory law.

In case of legal axiological conflicts with *not-bound* result, optimizing the modeled parameters (each of which enshrining a legal policy), to ensure systematic coherence within the (micro- and/or macro-) system of legal rules and principles in question, so that AI recommends a decision to NI agent.

The implementation of ML within Italian judicial civil system, as above, would lead to interaction between AI and NI agents, with variants (peer or assistance) depending on the results of the axiological conflict among the legal situations at stake in any given case. To make a similar procedure legally viable, a reformed constitutional and legislative framework should guarantee human rights (users' and last-instance human decision makers'), involved in the administration of justice. The use of discretionary power and the setting of legal policies would be transparent and any decision/policy-maker accountable. Decisions might be more timeous and less expensive. Foreign, as well as national subjects, with special focus on firms and professionals, might opt for this national jurisdiction. The impact on costs leadership might be positive once the platform has been built up (with heavy initial investments in infrastructure, human resources, reengineering of processes, changes in leadership, etc.), due to time and costs savings. The judicial decisions might be differentiated, due to transparency in any form of use of discretionary power and policies. The shift towards machine learning might be focused on firms operating in transnational contexts,

to attract forum-shopping, hence facilitating international investments in the Country, enhancing national (legal) professionals, fostering national language and (legal) culture. As to the processes dealing with the merits of the case, the reduction of costs and times through machine learning would match some of the current strategies, though it would require strong initial investments. A possible focus towards firms and professionals, especially within transnational contexts, would imply a new strategic alignment. Even differentiation of the product (more transparent and accountable decisions and policies) seems to assume a renewed strategic configuration.

Legally speaking, the introduction of ML in Italian civil judicial system might start from an experimental attempt within Tort Law (i.e. litigation on artt. 2043/2058 of the Italian Civil Code), what would enable the supervised labeling of existing legal situations and the testing of unsupervised recognition of action in law. However, this initiative would radically impact the whole legal culture and some of the traditional features of the national legal system (among others: right to a fair trial; human rights guarantees; the role of the judge and of the counsel; the legal not binding force of judicial precedents, etc.).

In our opinion, within Italian civil judicial system, the following organizational processes might benefit from the implementation of NLP:

Structuring written acts of the parties (writs of summons, responses, other written pleadings, etc.) through statutory law, establishing templates allowing to encode the inputs to be given by the parties to the AI-decision maker;

Structuring through statutory law an output by the AI-decision maker, in terms of a list of elements of the legal situations at stake, once these have been recognized through (supervised and/or supervised ML), that need to be proved by each of the parties (*thema probandum; onus probandi*);

Structuring the written queries posed by the AI-decision maker to each of the parties, in order their respective legal situations at stake to be deemed proved in the judgment (object of the proof) once the queries have been adequately answered;

Structuring through statutory law the template for AI-decision maker's decision (in case of conflicts among legal situations with a bound result) or recommendation (in case of conflicts among legal situations with a not bound result), on the basis of the evidence requested and provided for by the parties.

Instead, the processes of choosing the means of proof for each element (for ex. written witnessing, documents, technical expertise, etc.), and assessing the collected evidence, should be reserved to Natural Intelligence (NI). NLP deployment in civil judgments might path the way to more efficiency in

the management of the judicial procedures and to a differentiated "product" (output) in terms of objectivity, transparency and accountability. This output would even potentially and positively be assessed in terms of quality management[20] regards the requirements of an evolved anticorruption system within a judicial and/or legal organization. Automatization through NLP of some of the judicial processes as to *quaestio facti* would lead to cost reduction, via savings of time and technical / human resources, enhancing their productivity. Moreover, the automatization of the evidence gathering phase of the judgment would limit the requests of evidence to just the sufficient queries to the parties so that a decision can be taken (savings costs for unnecessary means of proof). NI should choose the most economical means of proof for any element, whereas more than one are possible. Furthermore, automatization through NLP would lead to more objective, transparent and accountable AI decisions and/or a recommendation than today it is the case. The reasoning of the decision maker (AI and NI respectively for the various processes hereabove) would be clear and offered to the parties in order them to possibly try and challenge it through appeals. Human work would be limited to highly complicated tasks, with more productivity.

7. AI's implementation as a tool to foster accountability and to prevent corruption

The fight against corruption, understood in its broader sense, is developing through a complex system of repression which is also accompanied by measures aimed at preventing the creation and/or spread of the phenomenon itself. The measures for preventing corruption revolve around two elements: the transparency and the accountability[21]. These represent not only the cardinal principles of prevention activities, though they form its essential tools. A transparent system allows the implementation of widespread forms of control over the interested parties' activities, leaving the latter with the accountability for the correctness and suitability of their actions. It would be superficial to state that a prevention system constructed in this way can remove the phenomenon of corruption *tout court*, however, by affecting the prior phase to its configuration as a crime, it would lower the risk of this

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[20] In general for the analysis of quality management, see Rose, K. H. (July 2005). Project Quality Management: Why, What and How. Fort Lauderdale, Florida: J. Ross Publishing.
[21] For the analysis of interaction between transparency and accountability, see Bovens, M., Analysing and Assessing Accountability: A Conceptual Framework (2006), Bellver, A., and Kaufmann, D., Transparenting Transparency: Initial Empirics and Policy Applications (2005), World Bank Policy Research Working Paper, United Nations Office on Drugs and Crime, United Nations Convention against Corruption(2004).

happening. Therefore, the risk cannot be removed although it can certainly and effectively be reduced. By transferring the above into the main subject of discussion, the following observations can be made.

The implementation of AI, and especially of ML, to the area of civil law disputes, through the introduction of mathematical models/algorithms for the assessment of legal situations, as described above, enable to reach objective and transparent decisions to solve the contrasts among legal values. In this sense, ML implementation could be considered a tool in preventing and contrasting corruption in the whole system at stake. In fact, one can observe that:

From the viewpoint of the interaction between human agent (NI) and machine agent (AI), the use of discretionary power and the setting of legal policies ought to be in any case transparent and any decision/policy-maker be made accountable, in order to minimize and nullify the hypothesis of bias and discrimination due to the implementation of AI in this legal field;

As to the possible outcomes of AI's implementation in this field, the judicial and non-judicial decisions might bring overall to a reduction in terms of time and costs. As a matter of fact, greater transparency in decisions and, even, the entire judicial governance, reduces the risk of exposure to corrupt behavior and, consequently, to a decrease in use of resources and productivity (e.g. economic, human, technical, etc.);

As a further effect, this system would lead to greater effectiveness and efficiency of administrative management, as well as the formation of an environment in which building a culture of integrity and anti-corruption within which all legal operators would find themselves work.

Finally, from the viewpoint of firms operating in transnational contexts, the possible implementation of AI might be used strategically to attract forum-shopping with the prospective of clearer decisions and a better foreseeability of the adjudication itself. All this would bring to increase the investments themselves.

That said, it seems obvious that the implementation of AI within the realm of Tort Law disputes might be represent a valid and effective tool since it guarantees a transparent and accountable model and system capable of preventing the formation of areas where corruption might lurk.

Conclusions

In comparison with the current strategies, the shift would be radical for almost all the stakeholders concerned. Apart from constituting a further tool for the prevention and the contrast of corruption within the field of legal adjudications (due to the injection of transparency and objectivity in the

whole adjudication process), the division of judicial tasks between AI and NI would be a breakthrough in Italian judicial system.

Honestly, we cannot state yet whether Italian judicial system is ready for the attempt of introducing AI, though only as an experiment waiting to be tested, assessed and validated. However, we do assume that AI is a constant of the contemporary world which - sooner or later - the Italian legal system will have to face, even within the realm of civil jurisdiction. To this end, the idea of an experimental and partial implementation of AI within tort law disputes, as above suggested, might trigger enormous impact and competitive advantage, should it be validated by practical success.

Even the strategy of costs reduction, which is already pursued in many ways by our system, would require heavy initial investments in human / technical resources (platform, infrastructure, etc.), what seems difficult to achieve in times of budgetary "*austerity*", though the opportunity of renewal of the (legal) infrastructures to be linked with the priorities of the implementation of Recovery Fund, and other similar instruments, seems to offer an unprecedented chance to take on such experimental initiative.