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A technological shift in procedural law (from automation to transformation): can legal procedure be adapted through technology?[1]

Virada tecnológica no direito processual (da automação à transformação): seria possível adaptar o procedimento pela tecnologia?

Dierle Nunes
Associate Professor at PUC-Minas. Ph.D. at PUC-Minas, Brazil.

Abstract: This work addresses the impacts of the use of technology on procedural law and the changes brought by automation to the transformation of legal procedure. It further proposes the adaptation of legal procedure through the *incorporation of technology in full compliance with due legal process* as an alternative to the current

1. This article is the result of the work of research group "Democratic Constitutional Proceduralism and procedural reforms", linked to the Pontifical Catholic University of Minas Gerais and the Federal University of Minas Gerais and registered in the CNPQ National Research Group Directory [http://dgp.cnpq.br/dgp/espelhogrupo/3844899706730420]. The group is a founding member of Protec ("International Research Network – Civil Justice and Contemporary Procedural Law") http://laprocon.ufes.br/grupos-de-pesquisa-integrantes-da-rede.

trends driving the application of differentiated dispute resolution techniques and special procedures.

Resumo: O presente texto aborda os impactos do emprego da tecnologia no direito processual e as mudanças da automação para a transformação do procedimento. E propõe como opção às tendências de aplicação das técnicas de tutelas diferenciadas e procedimentos especiais a adaptação procedimental mediante a incorporação da tecnologia ao procedimento respeitado o devido processo legal.

Keywords: judicial procedure; online conflict resolution; procedural adaptation; artificial intelligence; technology.

Palavras chave: processo judicial – resolução online de conflitos – adaptação procedimental – artificial intelligence – tecnologia.

Summary: 1. Initial Considerations; 2. From automation to transformation; 3. Some transformative impacts of technology – ODR; 4. Final considerations

1. INITIAL CONSIDERATIONS

The legal system underwent a series of paradigm shifts over the last decades that have induced brutal changes in the foundations, purposes and very rationality of the work of legal professionals and their institutions.

For example, since the end of World War II, we have suffered the impacts of the effective constitutionalization of law through the reformulation of a series of assumptions that became natural in our legal practice, particularly regarding the role and strength of fundamental rights, constitutionality review and the role of overlapping courts.[2]

2. The Lüth case (BVerfGE 7, 198 – Lüth – German Federal Constitutional Court, first Senate, January 15, 1958) is an emblematic and pioneer case in this aspect for that period due to its constitutional filtering and analysis of the horizontalization of fundamental rights: "1. Fundamental rights are mainly the rights of citizens to defend themselves against the State; however, the fundamental rights provisions of the Basic Law (Constitution – *Grundgesetz Bonner*) also embody an objective order of values, which is a basic constitutional decision for all areas of law. 2. In civil law, the legal content of fundamental rights is developed indirectly through private law regulations. Above all, it prescribes mandatory provisions and is particularly viable for the judge through the general clauses. 3. A civil judge's ruling may violate fundamental rights (§ 90 BVerfGG) if said judge fails to recognize the impact of fundamental rights on civil law. The Federal Constitutional Court reviews civil judgments only for violations of fundamental rights, and generally not for legal errors." Free translation. Accessible at: https://www.bundesverfassungsgericht.de/e/rs19580115_1bvr040051.html See also MAUS, Ingeborg. *O Judiciário como superego da sociedade: o papel da atividade jurisprudencial*

Since the 1970s, with the emergence of the study of heuristics and cognitive biases, we have started challenging the rationality of decision-making by humans in general and, more recently, of us jurists in particular, in an effort to achieve more correct decisions through the perception of the cognitive turn.[3]

Brazil has seen some level of debate regarding the impact of the linguistic-ontological turn since the 1990s.[4] Particularly in the procedural field, these discussions have centered on the impossibility of believing in the virtues of decision-makers and judicial solipsism, and demonstrated the importance of the participation of those affected, as adversarial parties, in decision-making processes.[5]

In recent times, we have started discussing the impacts of a movement that started in the late 1990s and early 2000s but which transcended its mere instrumental application, namely *the technological shift in Law and its impacts in the procedural field.*

In addition to seeking to outline the phenomenon, I will attempt here to show a series of interactions with technology aimed at adapting legal process, taking a step forward on the recurring discussion of special procedures and differentiated forms of dispute resolution.

Regarding the latter, we had the opportunity, a decade ago, to propose procedural differentiation in accordance with the types of litigation. [6]This was adopted to some

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na "sociedade órfã" Translated by Martônio Lima and Paulo Albuquerque. *Revista Novos Estudos CEBRAP*, n. 58, Nov. 2000. HIRSCHL, Ran. The new constitutionalism and the judicialization of pure politics worldwide. Fordham Law Review, v. 75, n. Feb. 2006.

3. NUNES, Dierle; LUD, Natanael; PEDRON, Flávio. *Desconfiando da (im)parcialidade dos sujeitos processuais: Um estudo sobre os vieses cognitivos, a mitigação de seus efeitos e o debiasing*. Salvador: Juspodivm, 2018.

4. As Pedron explains when commenting on the linguistic turn, "language cannot be understood as a pure instrument for communicating knowledge already obtained; before that, it is a condition of possibility for the construction of this knowledge. However, we find that a problem remains since the first stage: the analysis of language games still takes place in an exclusively descriptive fashion, such that the subject who watches the games positions themselves as an observer external to the linguistic practice. [...]. For the legal universe, Habermas' contributions point to a reconstruction of law based on a principle of discourse that can balance the tension between facticity and validity, based on the need for provisions (administrative, legislative or jurisdictional) to take into account the potential participation of their recipients, who must be able to assume the perspective of co-authors." PEDRON, Flávio Quinaud. O giro linguístico e a autocompreensão da dimensão hermenêutico-pragmática da linguagem jurídica. Vox Forensis, Espírito Santo do Pinhal, v. 1, n.1, Jan./Jun. 2008. See CATTONI DE OLIVEIRA, Marcelo Andrade. *Devido Processo Legislativo*. Belo Horizonte: Fórum, 2015. CATTONI DE OLIVEIRA, Marcelo Andrade. *Tutela jurisdicional e estado democrático de direito por uma compreensão constitucionalmente adequada do mandado de injunção*. Belo Horizonte: Del Rey, 1998. STRECK, Lenio Luiz. *Hermenêutica Jurídica e(m) Crise: uma exploração hermenêutica da construção do Direito*. Porto Alegre: Livraria do Advogado, 1999.

5. NUNES, Dierle. *Processo Jurisdicional Democrático: Uma análise crítica das reformas processuais*. Curitiba: Juruá, 2008.

6. NUNES, Dierle. Novo enfoque para as tutelas diferenciadas no brasil? diferenciação procedimental a partir da diversidade de litigiosidades. *Revista de Processo*, vol. 184/2010, p. 109 – 140, Jun/2010.

extent in the 2015 CPC (Code of Civil Procedure), which outlines a microsystem of repetitive litigation and the formation of precedents. Also noteworthy is the recent hypothesis raised doctrinally[7] which seeks to systematize the application of special procedures and interpret the new rule brought by Article 327(2) of the CPC.[8]

But here the hypothesis we propose is to promote procedural adaptation through the use of technology – automation of procedural acts and facts, ODRs, use of online constraints and Artificial Intelligence-aided processes, among others – not just to structure digital lawsuits[9] as a mere repetition of the procedure as normatively defined, but rather for technologically adapted[10] lawsuits and, in some cases,[11] to

7. See DIDIER JR., Fredie; CABRAL, Antonio do Passo; CUNHA, Leonardo Carneiro da. *Por uma nova teoria dos procedimentos especiais: dos procedimentos às técnicas*. Salvador, JusPODIVM, 2018.
8. Article 327. It is lawful to cumulate several demands in a single suit filed against the same defendant, even if there is no connection between them. [...] Paragraph 2 When each demand corresponds to a different type of procedure, cumulation shall be allowed if the plaintiff employs the common procedure, without prejudice to the possibility of employing the different procedural techniques provided for in special procedures to which one or more cumulative requests may be subjected, provided those are not incompatible with the provisions on the common procedure.
9. Like our electronic lawsuits in Brazil. Susskind alludes, in this topic, to an "online court", a concept according to which human judges, without the use of artificial intelligence, should decide cases not in a physical court or through oral hearings, but rather following the presentation of evidence and arguments by the parties online via an asynchronous hearing system, that is, without the parties providing oral arguments at the same time, and under which they can submit messages/petitions and arguments to the judge remotely and receive responses thereto in the same fashion. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 60.
10. "In actuality, there are courts that currently operate online. In July 2016, the United Kingdom court system announced a radical reform: £730 million would be allocated to revolutionize the technology of the British court system, a major component of which would be the institution of a new online court charged with addressing small claims of up to £25,000.00 Several months earlier, another online court was introduced in British Columbia in the form of a tribunal, established through legislation, mandating an online avenue for small claims of up to Can$5000 and "strata," certain neighbor-related, claims.4 In the Netherlands, a platform called Rechtwijzer until recently allowed divorcing couples and disputing neighbors to resolve their cases online.5 In addition, a few dozen U.S. state courts have successfully implemented Matterhorn software for the online processing of outstanding warrant cases and traffic violations.6 Also, a pilot of online proceedings for debt collection cases is being devised for the New York court system.7 What these and other courts have done is remarkable. Instead of refining existing court procedures through technology, they have developed novel processes that draw on the unique qualities of digital technology; such novel processes rely on new tools, involve new actors, and fulfill new goals." RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. *American University Law Review*, vol. 67. 2017. p. 166-167.
11. Susskind's ideas for the expansion of court services are quite controversial, as they concern the use of technologies – and in particular AI – to assist procedural subjects directly, sometimes without the participation of lawyers. This defense of liberalization of professions in English and American law has some relevance due to the difficulty of access to the professional services of lawyers due to the high costs thereof. The situation in Brazil, despite the great challenges in access to justice faced by vast swaths of the population, needs to be looked into more conservatively. According to the British author, the prevailing idea in the concept of expanded online courts is that "technology allows us to provide a service with much wider remit than the traditional court. The additional services include

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expand lawsuits with tools to aid in procedural activities and debates, automate case screening based on the notion of litigation management and implement novel techniques to obtain and expropriate assets during the enforcement stage, among other possibilities, ultimately creating new and more adequate ways of addressing conflicts. First, however, we need to understand how such interactions between procedural law and technology are articulated.

2. FROM AUTOMATION TO TRANSFORMATION

At the outset, we need to point out that the technological shift in law we address in this work does not refer merely to judicial computerization/automation and the use of technologies in the regular exercise of legal profession (such as electronic lawsuits or the use of e-mail/WhatsApp to assist in communication), but rather more importantly to the impact of these technologies – with emphasis today on artificial intelligence[12] – on the very tenets of legal process. Such impacts range from the propaedeutic scope of these processes[13] to the determination of a new rationality for their implementation, including the creation of new tenets (e.g. Online Dispute Resolution (ODR) platforms) and absolutely innovative legal practices (e.g. binding and clustering,[14] predictive judgments, latent semantic analysis (LSA)[15], automated

tools to help users to understand their rights, duties and options open to them, facilities assist litigants to marshal their evidence and formulate their arguments, and systems that advise on or bring about non-judicial agreements." SUSSKIND, Richard. *Online courts and the future of justice*. cit. p. 61.

12. "The essence of AI— indeed, the essence of intelligence— is the ability to make appropriate generalizations in a timely fashion based on limited data. The broader the domain of application, the quicker conclusions are drawn with minimal information. the more intelligent the behavior. If the same program that learns tic- tac- toe can learn any board game, all the better. If it can also learn to recognize faces, diagnose medical conditions, and compose music in the style of Bach, I believe we would agree that it's artificially intelligent (there are individual programs that passably perform each of these tasks today). Whether it does so the same way people do, and whether it appears to be self- aware as people are, would seem to be irrelevant. KAPLAN, Jerry. *Artificial Intelligence: What everyone needs to know*. Oxford: Oxford University Press, 2016, p. 5-6.
13. Specifically for proceduralists, in the understanding of the constitutional model of the legal process and its fundamental norms. See NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio. *Teoria Geral do Processo: com comentários da virada tecnológica do direito processual*. Salvador: Juspodivm. 2020.
14. Such as Victor, developed by the Brazilian Federal Supreme Court. On Clustering, see [https://www.maxwell.vrac.puc-rio.br/24787/24787_5.PDF].
15. MELO, Tiago; MEDEIROS, Richerland. Estudo exploratório sobre aplicação de técnica de análise semântica latente, para vinculação de processos judiciais a temas de repercussão geral e incidente de resolução de demanda repetitiva. *Revista de Direito e as Novas Tecnologias*, vol. 1/2018, Oct-Dez 2018. DTR\2018\22686.

decision making,[16] collecting and sorting of information[17] and even impacts on the design of procedural papers – "legal design"/"visual law"). The automatic collection and analysis of dispute data will affect concepts, traditions and values, as well as the lawsuits themselves.[18]

In the Brazilian judiciary, Porto[19] points to potential applications:

> From a high-level look at possible applications of AI in the Judiciary, we can identify the following trends: (a) assisting the judge in carrying out acts of constriction (online attachment, Renajud (National Vehicle Attachment System) and others);[20] (b) assisting judges in identifying cases of suspension of simultaneous judgments due to repetitive appeals, (IRDR ("Recurring Dispute Resolution Mechanism"), complaints etc.), which allows for an affected proceeding to be identified and suspended without human effort greater than that based on confirming what the machine has pointed out; (c) assisting judges in transcribing hearings, saving enormous amounts of time; (d) assisting in the proper classification of suits, generating more consistent statistical data; (e) assisting judges in the preparation of suit reports, filtering the relevant steps of the lawsuit and synthesizing them; (f) assisting in the identification of fraud; (g) assisting in the identification of contumacious litigants; (h) assisting in the identification of mass demands; (i) assisting in risk assessment (probability/impact of something happening in the future); (j) assisting in the management of conflict anticipation based on unstructured data; (k) assisting judges in assessing jurisprudence applicable to a given case; (l) allowing for a better experience for users of the legal system: conversational systems, "chat bots" (for ombudsman and

16. NUNES, Dierle; MARQUES, Ana Luiza Pinto Coelho. Inteligência artificial e direito processual: vieses algorítmicos e os riscos de atribuição de função decisória às máquinas. *Revista de Processo*, v.285, Nov. 2018. MARTÍN, Nuria Belloso. Algoritmos predictivos al servicio de la justicia: ¿una nueva forma de minimizar el riesgo y la incertidumbre? In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Jus Podivm, 2020.
17. Such as [https://www.nexlp.com/], created by Leib and Roth in 2013, which uses artificial intelligence to analyze data and identify trends and extract "including predicting litigation and measuring workflows in real time. His company uses predictive coding, whereby users sample data and identify what is relevant." SOBOWALE, Julie. How artificial intelligence is transforming the legal profession. Accessible at: [http://www.abajournal.com/magazine/article/how_artificial_intelligence_is_transforming_the_legal_profession]. See also: HEIKKINEN, Tiia-Helinä. *How Does the Use of Artificial Intelligence Affect the Concept of Fair Trial*? Lund University, 2019.
18. RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. *American University Law Review*, vol. 67. 2017. p. 206.
19. PORTO, Fábio Ribeiro. O impacto da utilização da inteligência artificial no executivo fiscal. estudo de caso do Tribunal de Justiça do Rio de Janeiro. *Direito em Movimento*, Rio de Janeiro, v. 17 - no. 1, pp. 142-199, 1st semester 2019, pp. 180-181.
20. See NUNES, Dierle; ANDRADE, Tatiane Costa. Tecnologia e execução: atualidades e tendências. In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Juspodivm, 2020.

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> internal affairs); (m) identification of dissenting votes in the electronic agenda; (n) assisting in notarial management, identifying bottlenecks, stalled processes, civil servants with comparatively lighter and heavier workloads; (o) identifying and gathering proceedings for batch handling, and (p) assisting judges in the preparation of draft orders, decisions and judgments.

As Susskind informs, through the use of technology for the automation of legal functions, "systems can be used to improve, refine, perfect, optimize and supercharge our traditional ways of [...] working on routine, repetitive and often outdated tasks and activities in their jobs and wonder (correctly) whether some set of systems can be introduced to bring new efficiencies and make life easier".[21]

In this merely instrumental approach, new technologies are introduced to old work practices. However, the phenomenon that we call the technological shift concerns what the author calls 'transformation through technology', i.e. changes in existing doctrines and the creation of new ones aimed at finding more adequate ways of resolving conflict. The author even mentions the transformations in the music and banking industries as examples of this revolution of old practices that have now been normalized[22]. As computational capacity continues to become both more ubiquitous and easily accessible than ever before, it became increasingly clear that the impacts technology will offer us each day will not be limited to instrumental uses (i.e. automation of activities), but rather that bring about profound effects on the nature of legal practice[23].

In other fields of law, one can point out to the impacts on the discussion of Property Law that startups such as Uber or Airbnb have brought to the transport and accommodation industries by providing users with the world's largest transportation and vacation rental networks devoid of any real property.

The shift in the procedural field is not, therefore, merely about changes in the structuring of organizational workflows for procedural acts and facts that increase efficiency and decrease the processing time of an electronic lawsuit. Such changes concern only the structuring of stages and reduction of filing downtimes, official incentives etc. that can be automated without any use of Artificial Intelligence (AI).

AI, conversely, allows for the parameterization of very large datasets (big data) comprised of previously unstructured data and, subsequently, for the use of the resulting parameterized information to drive a revolution in law institutes with absolutely innovative methods, including in the performance of legal professionals –

21. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 34.
22. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 34.
23. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 36.

of course, always bearing in mind the risks involved, chiefly among which mistaken generalizations, opacity (not understanding how the results were achieved)[24] and the potential to perpetuate prejudices and discrimination.[25]

Some technology-based services offered in the legal field by the so-called *legaltechs/lawtechs* (startups dedicated to addressing legal issues with technology) claim to be able predict the result of agreements and disputes and offer legal guidance with 'invasion of tasks' (i.e. with machines becoming increasingly responsible for work usually assigned to humans[26]).

When one looks, for example, at the procedural techniques for managing and forming precedents in Brazil (CPC microsystem),[27] the amplitude of repetition is usually not clearly and precisely known, as the normative criterion is generic as to the number of lawsuits involved and it is not known, as a rule how, many remaining lawsuits will be impacted by the pronouncement. As we gain access to unstructured database and AI-based tools (such as semantic analysis) that can structure them, it becomes possible to have much more accurate knowledge of the number of lawsuits affected and the size of the impact an appellate court decision (either by the state or federal appeals courts) will have downstream. Furthermore, we will be able to gain relatively easy access to measurements of coherence between the pronouncements of a judicial body, with clear predictability of the institutional history of application of precedents by a given judge or Court (Article 926 of the CPC).

In addition to its influences in the study of precedents, this technology allows for innovative procedural adaptations when undertaken by those involved in procedural conventions and also assists in the prior review of repetitive litigation.[28] This novelty, of

24. BURRELL, Jenna. How the machine 'thinks': Understanding opacity in machine learning algorithms. *Big Data & Society*. Jan 6 2016. See NUNES, Dierle; MARQUES, Ana Luiza Pinto Coelho. Inteligência artificial e direito processual: vieses algorítmicos e os riscos de atribuição de função decisória às máquinas. *Revista de Processo*, v.285, Nov. 2018. MARTÍN, Nuria Belloso. Algoritmos predictivos al servicio de la justicia: ¿una nueva forma de minimizar el riesgo y la incertidumbre? In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Juspodivm, 2020.
25. "...it is necessary to increase the transparency and auditability of systems on the one hand, developing the necessary capacities to observe, understand and audit their operation and, on the other hand, invest massively on researching 'explainability'" VILLANI, C. *Donner some sens à l'intelligence artificielle: pour a strategie nationale et européenne*. 2018. p. 140-142.
26. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 38.
27. See NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio. *Teoria Geral do Processo: com comentários da virada tecnológica do direito processual*. Salvador: Juspodivm. 2020.
28. See the use of procedural conventions in the emblematic leading case of OI S/A's reorganization proceeding: Processing the judicial reorganization lawsuit of one of the largest telecommunications providers in the country, with more than sixty-five thousand creditors in several different classes, required the design of a dispute settlement system and the use of multiple disciplines, all through concerted efforts between and in cooperation with procedural agents in order to allow for the suit

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course, complements (i.e. does not invalidate) the use of technology for the completion of regular procedural acts by electronic means (Articles 193 et seq of the CPC) and its use in the analysis of in-procedure cognizance itself.[29]

On the emblematic reorganization case of OI S/A, César Cury[30] points out that, with the use of technology:

> the reorienting of procedural functions allows subjects to exercise the share of responsibility corresponding to their respective positions, duly distributed throughout centers of interest, in such a manner as to make them more appropriate contributors to the proceeding and the search for a resolution that is recognized as legitimate. [...] *this adaptation translates into an early stage of consensual management of creditor disputes, namely consisting of a computerized (online dispute resolution) system designed and operated by an external manager and supervised by the procedural subjects.*

Another relevant Brazilian example is the interaction between automation and AI in the tax enforcement sphere, such as the use of ELIS by the Court of Appeals of the state of Pernambuco (TJPE) and the PoC developed by the Court of Appeals of Rio de Janeiro (TJRJ)[31]. About ELIS[32]:

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to proceed smoothly. The adaptation of the lawsuit and the introduction of an AI- and Machine Learning-based online dispute resolution ecosystem, run under the delegated management of an entity specifically established for this purpose, allowed for speedier dispute resolution for thousands of creditors and the consequent continuation of the lawsuit in compliance with the constitutional guarantees enshrined in the fundamental rules of the Code of Civil Procedure. CURY, César. Um modelo transdisciplinar de solução de conflitos: direito e tecnologia no processo de recuperação judicial do *leading case* OI S/A. In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Jus Podivm, 2020. And on the suggested use of protocols for adopting ethical standards for AI: FARIA, Guilherme Henrique Lage; PEDRON, Flávio Quinaud. Inteligência artificial, diretrizes éticas de utilização e negociação processual: um diálogo essencial para o direito brasileiro. In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Juspodivm, 2020.

29. FENOLL, Jordi Nieva. *Inteligencia artificial y proceso judicial*. Madrid: Marcial Pons. 2018. p. 79 et seq.
30. CURY, César. Um modelo transdisciplinar de solução de conflitos: direito e tecnologia no processo de recuperação judicial do *leading case* OI S/A. In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Juspodivm, 2020.
31. Another noteworthy example is that of the PoC (Proof of Concept) developed by the TJRJ, whose "objective was to perform tests of constrictive acts (namely with BacenJud and RenaJud - online systems for automated seizure of monetary assets and vehicles, respectively) and consultation acts (InfoJud - searches of Federal Revenue Secretariat database to identify debtor assets that may be subject to attachment). But the machine would need to assist in deciding which lawsuits said constrictive acts should be assigned to, always with a judge individually reviewing decisions on a lawsuit-by-lawsuit basis The criterion adopted was as follows: if a debt had been detected

and the debtor had failed to either pay the debt, accept an installment plan for its payment or offer assets to be pledged for said payment, then the AI-based system should: (a) identify lawsuits under which a positive hit on a debt registry search had been found; (b) search the Municipality's database for the restated amount of the debt; (c) based on this information, identify the nature of the tax involved (since said nature may affect the flow of processing of the lawsuit); (d) perform the attachment in the BacenJud system; (e) wait for the attachment result period; (f) read the result thereof and proceed as follows: (f.1) if the amount of the attachment is reached, i.e., if the total amount of the debt is satisfied by the attachment, transfer the amount to the judicial account created for its settlement and release any surpluses, automatically drafting a judicial decision outlining said measure; (f.2) if the debt is unsatisfied or partially satisfied, proceed to the following step; (g) restrict assets available in RenaJud and conduct a search on InfoJud, reporting whether or not there are assets subject to attachment and automatically drafting the respective decision for further review. the judges responsible for the cases reviewed the results of each of these steps (human confirmation of "machine" activity) in order to identify in detail the accuracy of the AI system and its usefulness. The AI system reviewed 6,619 lawsuits in just over 3 days. The court would take 2 years and 5 months to handle the same volume with a civil servant assigned exclusively to this activity (which would already be a "luxury" in the current state of Brazilian courts). The AI system took an average 25 seconds to perform all the aforementioned acts; a human would have taken an average 35 minutes to do the same, leading to the "machine" being on average 1,400% faster than a person at the task. In addition – and particularly awe-inspiringly – the machine reached an accuracy rate of 99.95%. In other words, the machine "made mistakes" in only 0.05% of the cases (only 3 cases), while the human error average is of 15%. The system has shown that it is much, much faster than humans and infinitely more effective, making far less mistakes. But it wasn't just that! The Artificial Intelligence system also generated the following results in its 3 days of operation: 1) Total satisfaction (attachment) of the tax debt amount sought in 1,532 enforcement cases, leading part of these lawsuits to be extinguished by payment. This meant the shaving off of two thirds of the national average lifetime of a lawsuit (they were filed in 2016 and average life time is 7 years and 5 months), which results in possible savings of approximately R$ 4,357,693.48 to the TJRJ (considering the cost for the lawsuits included in the IPEA study), before any restatement. Duly restated, the possible savings are of approximately R$ 6,722,460.50; 3) Partial attachment of the debt amount sought in 1,157 enforcement cases, speeding up processing of these cases by 2 years and 5 months against their regular workflow, thus generating possible savings of R$ 1,646,736.00 in processing time (costs of ongoing debt enforcement proceedings), again considering the cost of the lawsuits included in the IPEA study, without any restatement. Duly restated, the possible savings are of approximately R$ 2,540,361.72; 4) Negative attachment (i.e. no assets found for seizure) of the debt amount sought in 3,930 enforcement cases, speeding up processing of these cases by 2 years and 5 months against their regular workflow, thus generating possible savings of R$ 5,593,493.93 in processing time (costs of ongoing debt enforcement proceedings), again considering the cost of the lawsuits included in the IPEA study, without any restatement. Duly restated, possible savings are of approximately R$ 8,628,886.40. In all, possible savings due to reduced processing time may be as high as R$ 11,597,923.42 before restatement. Duly restated to present value (the IPEA used data from 2011 to calculate savings), this would be equivalent to R$ 17,891,708.61. There is also immense added value to this time gain: the judges and civil servants of the court will be able to dedicate much more of their time to greater-complexity, more valuable cases (large debtors). This results in incalculable productivity increases. The most expressive data point, however, was that direct collection reached R$ 31,919,214.37 through the total and partial attachments conducted, the principal of which goes straight to the creditor (i.e. the municipality of Rio de Janeiro). This generated record tax collection in just 3 days and clearly encouraged tax education: countless debtor taxpayers, upon learning of the attachments, sought the municipality or utility involved to settle their debts, even though they had not yet been reached by the constrictive acts. Also, even in cases of negative

> [...] the team from the Secretariat of Information and Communication Technology (Setic) of the Pernambuco Judiciary programmed the "ELIS" system to learn how to perform the initial screening of cases filed electronically by the Municipal Government of Recife based on lawsuits selected by the employees of the Tax Enforcement Court of the state capital. Based on the knowledge submitted to it, the AI-based system learned to classify Tax Enforcement electronic cases regarding registration data differences, issues of jurisdiction and possible prescriptions. At a later stage, using automation techniques, "ELIS" was also able to insert draft documents into the system and even sign orders (if so allowed by the judge). The system was developed using free open-source software, generating a new product without additional costs for the Court. (...) In the simulation carried out by Setic in a user acceptance (i.e. non-production) environment, the "ELIS" system evaluated 5,247 cases and managed to accurately classify jurisdiction of the lawsuits, registration differences, errors in debtor registry information and cases that fell under statute of limitations. "Of the total volume of electronically distributed lawsuits, 4,447 (84%) were able to continue processing; 640 (12%) were filed but had prescribed; 160 (3%) contained an error in the debtor registry status certificate (CDA); 16 (0.3%) were incorrectly distributed because they were the responsibility of the state (not the municipality); and 14 (0.3%) contained divergent data. In three days, "ELIS" was able to screen more than 5,000 cases", described the Court's systems director, Raphael José D' Castro, in a presentation about the project.

In fact, there is a multitude of uses for structured data parameterized by AI. Legal data measurement reports, that allow one to understand the importance of a repetitive Special Appeal or extraordinary appeal, can even help a small or large player impacted by the decision request the allocation of a more comprehensive appeal that allows for real influence (Articles 10, 489(1)(IV) and 1,036(6) of the CPC).[33] The parameterized

attachments (i.e. no assets seized), several taxpayers, upon learning of the efforts, paid off their debts, generating further tax collection on top of the amounts mentioned above. Moreover, the AI system made it possible, in these 3 days alone, for the TJRJ to collect R$ 2,133,994.88 in court costs and fees. The immediate conclusions are straightforward: (a) direct savings for the Court in reducing processing time; (b) a greatly reduced docket, with a significant drop in the backlog rate and, as a result, a marked increase in productivity; (c) greater effectiveness of tax enforcement; (d) increase in collections by the municipality at never-before-seen rates; (e) increased payment of court costs and fees; (f) significant reduction in the manual and intellectual workload of civil servants and the time taken to perform acts of medium complexity; (g) fostering of a tax education culture; (h) better management of the court itself, among countless others." PORTO, Fábio Ribeiro. O impacto da utilização da inteligência artificial no executivo fiscal. estudo de caso do Tribunal de Justiça do Rio de Janeiro. *Direito em Movimento*, Rio de Janeiro, v. 17 - no. 1, pp. 142-199, 1st semester 2019 P. 185-190. Accessible (in Portuguese) at: [http://www.emerj.tjrj.jus.br/revistadireitoemovimento_online/edicoes/volume17_numero1/volume17_numero1_142.pdf].

32. [https://www.tjpe.jus.br/noticias/-/asset_publisher/ubhL04hQXv5n/content/id/2079372].
33. On the right to an adversarial proceeding as an influence: NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio. *Teoria Geral do Processo: com comentários da virada tecnológica do direito processual*.

data can also assist in the programming of ODR systems, leading to the procedural adaptations mentioned in the title hereof.

3. SOME TRANSFORMATIVE IMPACTS OF TECHNOLOGY – ODR

Online Dispute Resolution[34] (ODR) systems:

> is the application of information and communications technology to the prevention, management, and resolution of disputes. ODR originally emerged in the mid-1990s as a response to disputes arising from the expansion of eCommerce. During that time the web was extending into commercial uses, becoming an active, creative, growing, and, at times, lucrative space. Such an environment, with significant numbers of transactions and interactions (where relationships are easily formed and easily broken) seemed likely to generate disputes. At the same time, it was also clear that disagreements emerging from online activities could not be resolved through traditional offline channels. With parties likely to be at a distance from each other and incapable of meeting face-to-face, these new disputes could only be resolved online. This meant that new tools and resources that exploited the capabilities of digital communication and information processing by computers had to be developed.[35]

Salvador: Juspodivm. 2020. On the various uses of data science in law, See ZAVAGLIA, Alexandre. Ciência de dados aplicada ao Direito. 2018. Accessible (in Portuguese) at: [https://youtu.be/pTlBdnkKCe0].

34. As a European Commission report informs: "The Commission launched the ODR platform in January 2016. The platform was opened to the public on 15 February 2016. In building the platform, the Commission was supported by an expert group composed of ODR experts designated by the Member States. Before the platform's launch, the Commission had conducted three comprehensive testing exercises. The platform's workflow is prescribed in the ODR Regulation. The Commission therefore designed the platform's various interfaces in accordance with those legal specifications. [...] Consumer ADR and ODR has become an integral part of the EU's toolbox for the public and private enforcement of consumer law. Today, EU consumers have access to high-quality ADR procedures across the Union and in virtually all retail sectors, regardless of whether the dispute is domestic or cross-border and whether the purchase was made online or offline. The European ODR platform provides a centralised and multilingual hub for resolving online disputes, triggering a direct settlement in up to 42% of cases. However, about one year after full ADR coverage has been achieved and three-and-a-half years after the launch of the ODR platform, the ADR/ODR framework is underused and has yet to reach its full potential. Current challenges include ADR awareness and perceptions, the navigability of national ADR landscapes and traders' uptake of ADR. Furthermore, the workflow on the ODR platform currently only partially reflects demonstrated user needs." TRANHOLM-MIKKELSEN, Jeppe. Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the application of Directive 2013/11/EU of the European Parliament and of the Council on alternative dispute resolution for consumer disputes and Regulation (EU) No 524/2013 of the European Parliament and of the Council on online dispute resolution for consumer disputes. Brussels. Council of the European Union. Oct. 2019.
35. KATSH, Ethan; RULE, Colin. What we know and need to know about online dispute resolution. *South Carolina Law Review*, 2016, v. 67. p. 329.

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The emergence of ODR, however, is not directly related to alternative conflict resolution techniques (ADRs), because originally, the intent of ODR was not to displace, challenge or break an existing legal regime or known ADR processes. Instead, its goal was to fill the vacuum involving online disputes where the right was absent or inadequate.[36]

This should remove, even partially, the idea that online conflict resolution techniques (ODRs) would be subject to the same rationality as alternative dispute resolution techniques (ADRs) implemented through the partial or total use of their adoption with computerized support.[37]

As pointed out by Anderson: "However, the latest ODR developments no longer resemble ADR, as the ODR systems do not merely translate conventional ADR processes to an online environment. Instead, a variety of ODR tools use machine intelligence to support and directly facilitate dispute resolution, thus displacing the human facilitator. ODR software may support negotiation through the matching of specific interests with potential solutions, or the provision of problem diagnosis customized to the individual".[38]

This demonstrates that, when seeking to solve problems, technology professionals, working with lawyers, are able to think of new avenues that would not be covered by the traditional model of ADR *or judicial procedure*, coming up with viable procedural adaptations of such extent that one must realize ODR can no longer simply be conceived under the limits of a reproduction of existing means, but rather from a perspective of new potentials, provided that the limits of normativity and our democratic process model are respected.

Since Dispute Systems Design (DSD) revolves around communication, processing and information management, the use of technology has naturally sparked intensive debate, and in ODRs the emphasis of the discussion has been on establishing conflict

36. KATSH, Ethan; RULE, Colin. What we know and need to know about online dispute resolution. *South Carolina Law Review*, 2016, v. 67. p. 329.

37. Feigelson et al report that "[...] it is significant to emphasize that ODR is not only limited to the digital application of MASCs; it goes further. So much so that, right at the beginning of its use, ODR was seen as an application of technology to the already-known MASC. However, as the years went by and technologies advanced and improved, ODRs clearly differentiated from traditional MASC, specifically the two primary ones, as explained by Katsh and Rabinovich-Einy (2014, p. 23, translation and emphasis added), "ODR's *exclusive* resources revolve around the following: (1) remote communication and (2) machine intelligence. These capabilities are attractive because they add flexibility, efficiency, capacity and expertise". FEIGELSON, Bruno; FURNALETO NETO, Mário; CARMO, Júlio Cesar Lourenço do. Resolução on-line de controvérsias: a conversão da cultura do litígio à cultura da autocomposição. *Revista de Direito e as Novas Tecnologias* | vol. 4/2019, Jul - Sep / 2019, DTR\2019\40166.

38. QUEK ANDERSON, Dorcas. Ethical concerns in court-connected online dispute resolution. (2019). *International Journal of Online Dispute Resolution*. 5, (1-2), 21.

resolutions platforms where communication is based on users' interests,[39] sometimes parameterized with high accuracy.[40]

As Katsch and Rabinovich-Einy explain, ODR offers the opportunity to review large amounts of data on dispute patterns at a low cost, *allowing for greater control over the functioning of dispute resolution processes and helping determine the underlying causes of disputes.* These features of ODR systems have cumulatively changed the focus of dispute resolution[41].

It is important to note that the interest driving the implementation of ODRs is not always motivated by the need to adopt a normatively correct environment (in due constitutional process) for the pursuit of autocomposition or heterocomposition. It must not be forgotten that ODR platforms are often built by the party involved in the litigation itself, who, surely, in possession of informational privileges, can program it to favor their own purposes.

In the first hypothesis, we could think of the platform idealized in the early 2000s to resolve conflicts occurred on the eBay website. It is acclaimed worldwide for its results, having reached more than 60 million conflict resolutions in a single year with a very high rate of satisfaction.

In 2003, years after adopting the Square Trade system (1996), eBay decided to develop internal ODR systems and hired Colin Rule as director of ODR. It launched an internal automated trading system for disputes of specific problem types (MODRIA): As Rabinovitch and Katsh point out, "in all those cases, eBay discovered that disputes primarily arise due to miscommunication and that the transfer of key information can clarify the nature of the problem and assist in assigning responsibility and devising a solution. (…) the volume of transactions and the repetitive, simple nature of these disputes have allowed eBay to formulate fixed formats that can be programmed and do not require human intervention for addressing these problems."[42] In 2017, MODRIA was acquired by Tyler Technologies, the largest software company operating in the segment in the United States, subsequently expanding its applications.[43]

The ODR platform structured by Rule (MODRIA), as Ben Barton explains, "attempts substantive as well as financial settlement of disputes. It starts with a "diagnosis module" that gathers relevant information. A "negotiation module" summarizes areas

39. RABINOVICH-EINY, Orna; KATSH, Ethan. Technology and the Future of Dispute Systems Design. Harvard Negotiation Law Review. Vol. 17. 2012. p. 153.
40. NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio. *Teoria Geral do Processo: com comentários da virada tecnológica do direito processual*. Salvador: Juspodivm. 2020.
41. RABINOVICH-EINY, Orna; KATSH, Ethan. *Digital Justice*. Oxford University Press, USA, 2017, p. 47.
42. RABINOVICH-EINY, Orna; KATSH, Ethan. Technology and the Future of Dispute Systems Design. cit. p. 174.
43. RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. American University Law Review, vol. 67. 2017. p. 201.

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of agreement and disagreement and makes suggestions for solving the issue. If these do not result in settlement, a "mediation module" with a neutral third party begins, and the final step is arbitration. The managers of Modria claim that the "vast majority" of claims are settled in the first two steps without a human ever becoming involved."[44]

However, as Rule confesses, [45]his purposes were never to create an exceptional platform in terms of accuracy, but to induce greater engagement and negotiations on eBay itself, which is seen both in those who achieve a positive solution or even in those who are frustrated in their intent.

The impacts and risks of the procedural neoliberalism paradigm discussed elsewhere aside[46], perhaps Susskind's assertion in his latest work also has some

44. BARTON, Ben. *Modria and the Future of Dispute Resolution.* [http://www.odreurope.com/news/articles/online-dispute-resolution/1172-modria-and-the-future-of-dispute-resolution].

45. As Katsh and Rule point out: The goal for a large eCommerce marketplace like eBay, however, is not to resolve an exceptionally large number of disputes. The goal is to maximize the number of successful transactions, and resolving disputes is essential to increasing that volume. By monitoring the buying and selling behaviors of users and extending the expertise side of the triangle, eBay can provide fast and fair resolutions that encourage buyers to engage in more transactions. This collection and analysis of the data generated by very large numbers of disputes can enable techniques and approaches that are not possible in face-to-face offline dispute resolution. In the ADR world, various studies have measured satisfaction rates of users of different ADR systems. In actuality, these are measurements that derive from what the parties say about how they feel after participating in a mediation or arbitration. Companies like eBay, by having access to every click made by a user, can examine satisfaction in a different and more granular manner. In 2010, eBay and PayPal conducted a study that was not intended to measure satisfaction in the traditional manner, by surveying disputants before and after participating in a dispute resolution process. Rather, it would compare the actual behavior of participants before and after the process, something it could easily measure with data they routinely collected. In other words, eBay would not look at what users said but at their actions as buyers or sellers after participating in an online dispute resolution process. E-Bay randomly assigned several hundred thousand users to two groups and compared their buying and seller behavior for three months before and after the ODR experience. This activity ratio indicated not only how more or less active the party became on the site after winning or losing a dispute, but could also calculate how much the company gained or lost financially as a result of someone participating in the ODR experience. It did this by knowing the value of each transaction the person engaged in before and after the dispute resolution process. The study designers had hypothesized that parties who "won" their dispute (e.g., received a reimbursement) would have increased activity and that parties that "lost" their dispute would have decreased activity. It assumed, in other words, that parties that won would be more satisfied than parties that lost and would adjust their transaction volume accordingly. This did occur; but the most meaningful lesson of the study, and the most counter-intuitive, was that participation in the ODR process led to increased activity even from the losers. What it found was that: [t]he only buyers who decreased their activity after filing their first dispute were buyers for whom the process took a long time, more than six weeks. This lesson affirmed feedback we had heard previously indicating that buyers preferred to lose their case quickly rather than have the resolution process go on for an extended period of time. KATSH, Ethan; RULE, Colin. What we know and need to know about online dispute resolution. *South Carolina Law Review*, 2016, v. 67. p. 334-335.

46. "[...] agendas of *procedural neoliberalism*, which has captured institutions so deeply that, in Brazil, as has been stated, since the 1990s and as adherence to the premises of the Washington consensus

relevance in the sense that citizens do not want the courts themselves, but rather the results brought about by them. If results can be offered in new ways that are less costly, better, faster or more practical than what today's courts offer, then court users will switch to these alternatives [47]. Furthermore, it is necessary, as has been argued for a long time, to realize that procedural law must have citizens as protagonists,[48] and technology developed through the collection of the so-called *user experience* can assist in achieving this objective.[49]

In the second hypothesis, we have habitual litigants who create platforms that already present contacts and proposals via online tools (e.g. chat bots, direct messages on social networks) that ingest standardized data and use it to estimate the future amount to be paid in case of conviction in court; the platform is then trained to negotiate via bots that can make offers that always allow the reaching of an agreement whose payment amounts are below what was estimated for a court conviction. Some offices have already created legaltechs that negotiate directly with consumers. As stated, they parameterize data from their massive trove of previous cases and negotiate with predictive judgment analysis, establishing as their goal to pay 30 to 40% of the amount that would be owed in case the dispute was resolved in court (something they already know through parameterized analysis of legal data). Some of them make thousands of deals each semester.

Another possibility is the use of ODR incorporated into lawsuits, something that meets, as a first step, the concept of the adaptations proposed in this article. A first emblematic example of this use in Brazil, already mentioned above, is the reorganization lawsuit of OI S/A, in which the use of an ODR system allowed for more than 46,000 agreements *to incorporate the technology directly into lawsuits*.[50] Another example is the embryonic use of the consumidor.gov consumer law platform, currently at the

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increased, the ideals of efficiency, results and productivity became more often discussed and pursued than the effective implementation of a democratic process that is in line with the participation of subjects – and, consequently, the building of a legal system in which citizens are seen as subjects instead of being treated primarily as mere numerical data." See NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio Quinaud. *Teoria Geral do Processo: com comentários sobre a virada tecnológica no direito processual*. Salvador, Juspodium, 2020. NUNES, Dierle. *Processo jurisdicional democrático*. Curitiba: Juruá, 2008.p. 157-164.

47. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 179.
48. See NUNES, Dierle. *Processo jurisdicional democrático*. Curitiba: Juruá, 2008. NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio Quinaud. *Teoria Geral do Processo: com comentários sobre a virada tecnológica no direito processual*. Salvador: Juspodivm, 2020.
49. RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. American University Law Review, vol. 67. 2017. p. 205.
50. CURY, César. Um modelo transdisciplinar de solução de conflitos: direito e tecnologia no processo de recuperação judicial do *leading case* OI S/A. In: NUNES, Dierle; LUCON, Paulo Henrique dos Santos; WOLKART, Erik Navarro (Coord.). Inteligência artificial e Direito Processual: os impactos da virada tecnológica no direito processual. Salvador: Juspodivm, 2020.

initial stage of use in the electronic lawsuits of the TJDFT (Federal District Court of Appeals) and the TRF1 (Federal Appeals Court of the 1st Region).[51]

There are numerous examples in foreign law, one of the most prominent of which being the layered and modular ODR system of the British Columbia Civil Resolution Tribunal[52-53] (CRT). As Quek Anderson reports:[54]

51. CNJ, *Projeto piloto marca integração entre PJe e Consumidor.gov.br.* Available (in Portuguese) at: [https://www.cnj.jus.br/projeto-piloto-marca-integracao-entre-pje-e-consumidor-gov-br/].

52. RABINOVICH-EINY and KATSH offer a more detailed explanation of the Canadian Civil Resolution Tribunal: "British Columbia is the first jurisdiction to have an operational online tribunal. The tribunal, called the Civil Resolution Tribunal (CRT), was established under law and has been in operation since July 2016. The CRT currently handles civil monetary claims of up to C$ 5,000 and certain "strata," or neighbor-related, claims. Strata disputes have been processed by the CRT since its launch, and the small claims, up to C$ 5,000, since June 2017.131 The CRT went through extensive planning, development, and testing stages before being launched last year, requiring not only technical know-how and software adjustments, but also provoking political challenges because of the CRT's mandate. The CRT was adopted as a mandatory, lawyer-free (with some exceptions) system for all claims falling under the tribunal's jurisdiction. It is available 24/7, accessible via computer or smartphone for a low fee, and is premised on a collaborative, non-adversarial approach. Furthermore, the entire process is quick, on average lasting sixty to ninety days. Lawyers and professional associations perceived this new scheme as a significant challenge, so additional consultations with relevant constituencies were necessary prior to CRT's launch. The system itself is comprised of four main stages. The first involves "information, problem diagnosis, and self-help." This stage allows the parties to anonymously explore their options and have a better understanding of their legal case – its merit, its strengths and weaknesses, and available courses of action. To that end, the parties use the "Solution Explorer," a user-friendly stage that provides tailored legal information, based on the user's answers to interactive questions, on whether they have a valid claim and what legal route they can pursue in addition to tools, template letters, and other resources. If parties decide to pursue their claim, then the claim is seamlessly transferred to the CRT and the parties can proceed to the second stage of "party-to-party negotiation," which is an automated negotiation through ODR process. In this stage, the software presents the parties with pre-structured language describing their problem and highlighting possible solutions. The negotiation phase is a relatively brief one and if it does not result in an agreement, the parties are directed to a third "case management" stage, which involves third party online facilitation, and opens several options. Parties can have a synchronous facilitation in which the third party's assistance is rendered in real time or they can communicate asynchronously. The facilitator is not limited to a purely facilitative role and may provide parties with an evaluation of their legal case in an attempt to bring the parties closer together through online interaction or help them prepare for a hearing. Most claims will be resolved at this stage, but those that are not will continue to the fourth and final stage, referred to as adjudication. During adjudication, the hearing may take place via written submissions, telephone, or video conferencing. The CRT platform provides the parties with a reasoned written decision, which is enforceable as a court order and is subject to a bifurcated appeal process: small claims orders are subject to an appeal de novo, and strata claims can be appealed only on limited grounds. Since its launch, the CRT has handled over 7500 strata claims. They are committed to ongoing learning and improvement. The CRT team constantly seeks feedback from both satisfied and unsatisfied users to improve the process, identify problems, and replicate successful elements. They collect data in a myriad of ways available only because of the CRT's online nature: active user input given through rating and ranking, open text boxes, ex-post feedback, and analysis of dispute resolution data. Indeed, CRT developers have devoted significant efforts and resources to the development and refinement of categorizations of claims and defenses in

> Designed to handle condominium property claims and small claims (and motor accident claims in 2019), the CRT features an end-to-end process combining dispute resolution phases and focusing on early participation by parties. The first phase provides initial problem-diagnosis and self-help through the online tool Solution Explorer. This software uses guided pathways to help the user learn more about the dispute, and then diagnoses the problem according to relevant legal rights, and provides tools such as letter templates that can deal with the problem. If the dispute is not resolved at this stage, the user can formally commence a claim through an online intake process that will give notice of the claim to the opposing party. The claimant is then brought to the second phase in which the parties are able to negotiate directly using the online system. The third phase of facilitation introduces the human facilitator to the process. The facilitator draws on a wide range of ADR processes, including mediation and non-binding neutral evaluation, to assist the parties to reach an agreement. While a range of modes of communication are used, a large part of the facilitation takes place remotely and asynchronously. In the event that the parties cannot agree, the facilitator takes on a case management role and helps the parties narrow their issues and prepare for the next phase. The final phase of adjudication is usually conducted remotely through asynchronous communication channels. If an oral hearing is needed, it is conducted via telephone or video-conferencing.

One novelty introduced since 2017 is the expansion of the use of MODRIA in legal proceedings following the aforementioned acquisition by Tyler Technologies.[55]

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order to allow for meaningful use of the data. Such data helps to improve the CRT and the diagnosis phase, and, perhaps more importantly, helps prevent future claims." RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. *American University Law Review*, vol. 67. 2017. p. 190-192.

53. [https://civilresolutionbc.ca/].

54. QUEK ANDERSON, Dorcas. Ethical concerns in court-connected online dispute resolution. cit. p. 23

55. "One of the most interesting developments in court ODR is the acquisition of Modria by Tyler Technologies in May 2017.222 Modria is the leading software platform for the design and operation of online dispute resolution services. It was established by Colin Rule and Chittu Nagarajan in 2011, after the two left their positions at eBay and Paypal.223 Rule and Nagarajan developed the eBay-PayPal ODR system, which handled over 60 million disputes a year, the vast majority of which were resolved through automated dispute resolution services.224 While Modria has had substantial experience in the e-commerce sector designing ODR systems for platforms such as Upwork and Rover, it has also been a central player in the public sector in designing ODR systems for family divorce cases via the Rechtwijzer platform,225 property tax appeals in the United States and Canada, and no-fault arbitration cases (the AAA New York No Fault Insurance ADR Center).226 Tyler Technologies is the largest software company operating in the United States in the local government sector.227 It was founded in 1966 and since 1997 has focused on providing software-based solutions for local government.228 Tyler Technologies services over 15,000 local government offices, including courts and school districts.229 Nine hundred counties across the United States have incorporated Tyler Technologies's court management and online filing system.230 The acquisition of Modria by Tyler Technologies allows Tyler to incorporate Modria into its software and offer its clients an additional layer of options to manage court cases and increase the odds of efficient resolution.231

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In this perspective, Katsch and Riftkin's thesis of seeing technology as a fourth party (added to the other parties of lawsuits)[56] may come into prominence, since the incorporation of ODR systems directly into lawsuits has a transformational impact on the scope and nature of the approaches adopted by procedural law and courts in general to dispute resolution and their own interaction with the parties[57]. It replaced some of the existing functions of courts, such as case management and referral of cases to ADRs, freeing up resources for more targeted human intervention by the courts. In addition, the fourth party added more functions to court, providing resources for self-help and problem diagnosis.

Such *incorporation of technology into procedure* (ODR and legal process) may even represent a new step towards the idea of the multi-door model introduced in the famous study by Sanders.[58] As Quek Anderson points out, based on Sorabji:

> Sander envisaged such a courthouse performing the role of screening cases and matching the particular dispute to the most appropriate dispute resolution process. However, the advent of ODR has modified the architecture of court system from a multi-door courthouse to a seamless end-to-end process. As English commentator Sorabji noted, the future Online Solutions Court in England is designed as a "sequential multi-door courthouse", as the court is no longer matching a dispute to a process but arranging for disputes to move through different processes in stages.[59]

The use of ODR incorporated into the courts introduces new perspectives, especially if they prioritize due process with a focus on transparency and informed participation, allow for opt-out (self-exclusion of the ODR phase in specific cases)

Tyler Technologies has an impressive court diagnosis tool,232 which plugs into its e-filing tool.233 By integrating ODR into these tools, the court creates a one-stop shop for intake and diagnosis, enhancing case resolution and closure.234 The platform will be implemented across a range of case types, including family, workplace, and debt, each of which will require its own specific process design.235 The large number of courts and scale of cases handled by Tyler Technologies will accelerate the platform's machine learning in this setting.236 Tyler Technologies's Vice President of Online Dispute Resolution, Colin Rule, projects that within ten years, seventy-five percent of civil cases will be resolved through this type of online process, with only the very complex and high value cases requiring more traditional face-to-face resolution.237 Modria's acquisition indicates that Tyler is a firm believer in the potential of ODR, specifically in the court setting and in the public sector more generally.." RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. *American University Law Review*, vol. 67. 2017. p. 201-202.

56. KATSCH, Etha, RIFKIN, J. Online Dispute Resolution: Resolving Conflicts in Cyberspace. USA: Wiley Publishing, 2001.
57. QUEK ANDERSON, Dorcas. The Convergence of ADR and ODR in the Courts: The Impact on Access to Justice. C*ivil Justice Quarterly,* Vol. 38. n. 1, 2019, p. 126-143.
58. SANDER, Frank. Varieties of Dispute Processing*. The Pound Conference: perspectives on justice in the future.* Minnesota: West Publishing Company. 1979.
59. SORABJI, John. The Online Solutions Court – a Multi-Door Courthouse for the 21st Century. *Civil Justice Quarterly*. Vol. 36, n. 1, 2017, p. 86 -100.

and enable the participation of human facilitators to provide live assistance when required by the parties[60] (unlike previous private platforms that start from different assumptions, as indicated above).

Although I do not believe in the romantic (albeit possible)[61] perception that technology can level the procedural field between habitual sophisticated litigants and occasional litigants (because, as I have already argued in other venues[62], the evident trend is to expand informational inequality), if courts properly understand the nature of the technological interaction involved and focus on equality between the parties and due process, then the risks can be mitigated.

As an example, faced with a default rate between 80 and 90% in debt collection, the State of New York, through its Permanent Commission on Access to Justice, developed a pilot ODR project with the courts and relying on the participation of the American Bar Association (ABA). But even with the aim of reducing defaults, i.e. satisfying creditors, the project has as a core tenet the preservation of consumer's rights and the reduction of power imbalances in negotiations.[63]

4. FINAL CONSIDERATIONS

The hypothesis presented hereunder, i.e. that of *incorporating technology to legal procedure* as a means of procedural adaptation beyond traditional approaches, may represent one of the virtuous chapters of the technological shift in procedural law.

The legal field is faced today with the nearly unlimited possibilities brought by technology and especially with the use of AI, paramount among which the automatic querying and analysis of conflict data that will enable the detection of trends and patterns that were previously unidentifiable and unsearchable in unstructured databases of countless litigants and lawsuits.[64] Such standards include important lessons about citizens in conflict, their habits, strategies (including bad faith) and, even, the prevention of new disputes through the adoption of existing procedural techniques and the design of new ones adapted/transformed by technology.

60. QUEK ANDERSON, Dorcas. Ethical concerns in court-connected online dispute resolution. cit. p. 32-33.
61. And as has also been defended by some big names in the field: See RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. cit. p. 209.
62. NUNES, Dierle; MEDEIROS, Nathalia. Inteligência artificial — litigantes habituais e eventuais. *Revista Consultor Jurídico*. Available (in Portuguese) at: [https://www.conjur.com.br/2018-nov-20/opiniao-tecnologia-direito-litigantes-habitual-eventuais].

NUNES, Dierle; BAHIA, Alexandre; PEDRON, Flávio. *Teoria Geral do Processo: com comentários da virada tecnológica do direito processual*.

63. RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. cit. p. 199.
64. RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. cit. p. 205.

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The purpose of this work was merely to shine a light on some possibilities for use of the technologies driving the aforementioned technological shit in procedural law and their use by legaltechs and the "new online courts"[65]. The proposal is to create the necessary interest the topic deserves, building on the fascination for possible uses and possibilities it has already garnered from a currently small (but noteworthy) portion of the courts and the legal profession.; and to do so, obviously, seeking to establish the necessary counterpoints and the need for normative control of the use of these technologies with transparency and accountability.

As can be seen throughout this article, technology is not without its risks; quite the contrary. The belief in its neutrality underestimates: a) issues with data collection and processing; b) opacity and the lack of accountability and explainability of automated judgments;[66] c) and the risks of widening the gap between habitual and casual litigants, just to mention a few issues.

Finally, one should be aware of the dangers of the *irrational rejectionism* of the technological shift phenomenon[67] those less fond of technology may be prone to display. Whether we like it or not, we find ourselves on an unstoppable trajectory.

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65. "In actuality, there are courts that currently operate online. In July 2016, the United Kingdom court system announced a radical reform: £730 million would be allocated to revolutionize the technology of the British court system, a major component of which would be the institution of a new online court charged with addressing small claims of up to £25,000. Several months earlier, another online court was introduced in British Columbia in the form of a tribunal, established through legislation, mandating an online avenue for small claims of up to Can$5000 and "strata," certain neighbor-related, claims. In the Netherlands, a platform called Rechtwijzer until recently allowed divorcing couples and disputing neighbors to resolve their cases online. In addition, a few dozen U.S. state courts have successfully implemented Matterhorn software for the online processing of outstanding warrant cases and traffic violations. Also, a pilot of online proceedings for debt collection cases is being devised for the New York court system. What these and other courts have done is remarkable. Instead of refining existing court procedures through technology, they have developed novel processes that draw on the unique qualities of digital technology; such novel processes rely on new tools, involve new actors, and fulfill new goals." RABINOVICH-EINY, Orna; KATSH, Ethan. The new new courts. *American University Law Review*, vol. 67. 2017. p. 166-167.
66. As pointed out by Annette Zimmermann, Elena Di Rosa and Hochan Kim: "Structural injustice thus yields biased data through a variety of mechanisms – prominently including under- and overrepresentation – and worrisome feedback loops result. Even if the quality control problems associated with an algorithm's decision rules were resolved, we would be left with a more fundamental problem: these systems would still be learning from and relying on data born out of conditions of pervasive and long-standing injustice.[...] Algorithmic bias is not a purely technical problem for researchers and tech practitioners; we must recognize it as a moral and political problem in which all of us—as democratic citizens—have a stake. Responsibility cannot simply be offloaded and outsourced to tech developers and private corporations." ZIMMERMANN, Annette; DI ROSA, Elena; KIM, Hochan. Technology Can't Fix Algorithmic Injustice. *Boston review*. 2020. Accessible at: [http://bostonreview.net/science-nature-politics/annette-zimmermann-elena-di-rosa-hochan-kim-technology-cant-fix-algorithmic#.Xhhc5XocwTI.facebook].
67. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 44.

The transformation brought by the new technologies used in law[68] in the coming years must be studied rigorously by lawyers, not be rejected as if it could be stopped. Failure to do so may lead to the implementation of such mechanisms being guided purely by market perspectives and those privileged by informational asymmetry.

68. SUSSKIND, Richard. *Online courts and the future of justice*. Oxford: Oxford University Press, 2019. p. 41.