

An analysis of the "reflexive modernization" and the "risk society": The risk of the application of "artificial intelligence" in the drafts of brazilian judicial decisions



<https://doi.org/10.56238/sevened2023.006-045>

Alexandre Freire Pimentel

Master's degree (1997) and Doctor (2003) in Law from the Recife Law School (FDR-UFPE); with Post-Doctorate from the University of Salamanca (USAL-Spain - Scholarship from CAPES-FUNDAÇÃO CAROLINA - 2011-2); Professor of Civil Procedural Law and Digital Law at the Catholic University of Pernambuco (Undergraduate and PPGD) and at the Faculty of Law of Recife (FDR-UFPE). He works in Civil Procedural Law, Computer Law and Logic. Titular Judge in Recife/PE.

LATTES: <http://lattes.cnpq.br/6955582727797003>

Bruno Manoel Viana de Araújo

PhD in International Law - Universitat de València (Spain). Professor of International and Constitutional Law at the University of Pernambuco – UPE. Lawyer.

LATTES: <http://lattes.cnpq.br/7463703912356626>

E-mail: bruno.viana@upe.br

Michelle Fernanda Martins

Doctor student in Law and Society (Unilasalle). CAPES Scholarship Holder. Master's Degree in Law and Society (Unilasalle). Specialist in Public Law (IDC) and Post-Graduate in Digital Technologies Applied to Education (Ulbra). Lawyer. Professor of Law at Ulbra.

LATTES: <http://lattes.cnpq.br/9016447165755989>

E-mail: michifm@gmail.com

Thiago Mota Maciel

Master's student, graduated from the Catholic University of Pernambuco. Specialization in Notarial and Registry Law, in Public Law with research in Extrajudicial Conflict Resolution, Specialist in Philosophy and Human

Rights (IBF). Student of the Degree in Computing at the Federal Rural University of Pernambuco. Notary and Registrar.

LATTES: <http://lattes.cnpq.br/3481932337213490>

E-mail: thiago-mota-maciel@hotmail.com

ABSTRACT

This scientific article seeks to analyze the risks of the application of artificial intelligence in the drafts of Brazilian judicial decisions in the context of reflexive modernization and risk society. Through the deductive method and an exploratory research, the concepts of reflexive modernization and risk society were analyzed. The concept of artificial intelligence and its applications were also explored. Finally, the risks of the application of artificial intelligence in the drafts of Brazilian judicial decisions were studied, as well as an overview of artificial intelligence projects in this sense in Brazilian courts. The methodology adopted was the literature review, through legislation, scientific articles, doctrine and specialized journals. In the end, it was concluded that it is essential to respect the ethics, governance and transparency guidelines established by Resolution 332 of the National Council of Justice. It was also concluded that, for the effectiveness of transparency, it is essential that the codes of the algorithms are open source and available to any and all citizens, as well as that the application of artificial intelligence occurs through supervised learning.

Keywords: Architecture of choice, Machine learning, Resolution 332 of the National Council of Justice.

1 INTRODUCTION

The concept of "Reflexive Modernization" arises from the thought of sociologists Ulrich Beck, Anthony Giddens and Scott Lash, and brings the representation of contemporary society, which is characterized by a reflexivity that allows the (re)invention of modernity and industrial society.



Reflexive modernization brings the idea that other modernities are possible, and that there is not only an industrial society, and this occurs due to the transformations that exist in society, which will also bring a process of crisis and consequences. Reflexive modernization is also represented by active criticism and self-confrontation, which is to say that it becomes a subject to itself, and begins to analyze its own threats.

This reflexive modernization leads to the emergence of the "risk society", which is characterized by being self-critical, and by being one where we analyze not only the construction of a building, but the construction of all the components of the building, which can represent risks and threats.

Within this context of reflexive modernization and risk society, the application of artificial intelligence – which already existed in industrial society – intensifies, and now has applications in various areas of our daily lives, including chatbot services for customers from stores to dating apps.

One of the places where the application of artificial intelligence begins to intensify is in the Judiciary, with the objective of optimizing the jurisdictional provision, which brings us the need for observation, considering that it occupies the central role in the subsystem of law, which has the function of stabilizing the normative expectations of individuals, and that there may be risks in its use.

Through these thoughts, this scientific article questions the risks of applying artificial intelligence in the drafts of judicial decisions of Brazilian courts.

Therefore, as a general objective, it is intended to analyze the risks of the use of artificial intelligence in judicial decisions in the context of reflexive modernization and the risk society. For this, the deductive method and exploratory research will be used.

The methodology used is bibliographic research, with research in legislation, scientific articles, doctrine and specialized journals.

The first section of the article deals with the concepts of reflexive modernization and risk society. In the second section, we will discuss what the application of artificial intelligence consists of, what is the difference between machine learning and deep learning, and what are its main applications. Finally, in the third section, the risks of the application of artificial intelligence in Brazilian judicial decisions will be addressed, and an overview of the current Brazilian situation will be outlined.

2 REFLEXIVE MODERNIZATION AND THE RISK SOCIETY

The book "Reflexive Modernization" originally arises from an idea of Ulrich Beck, who realized, during a stay of Scott Lash in Germany, that his works had points in common and, later, that the work of Anthony Giddens also had several points converging with theirs.

This book brings some main concepts: (a) the idea of reflexive modernization; (b) the notion of detraditionalization and the importance of tradition in cosmopolitanism; (c) the preoccupation with



ecological issues - the question of what is "natural" and what is "social"; (d) the notion of risk in modern culture - the questioning of the "as if" -; (e) the discussion between the paralysis of political will, the world of developed reflexivity, and active critique (BECK; GIDDENS; LASH, 2012, p. 7-10).

In this article, the issues of reflexive modernization and the notion of risk in contemporary culture will be addressed.

2.1 "REFLEXIVE MODERNIZATION"

Beck (2012, p. 12), when describing reflexive modernization, explains that not every society is born of pain, saying that reflexive modernization comes from the development and conflict of the risk society, meaning the possibility of a creative (self)destruction for an entire era: that of the industrial society. Destruction does not come from the revolution, but from the victory of Western modernization.

Ulrich Beck explains that if simple modernization represents "the disembodiment and, second, the reincorporation of traditional social forms by industrial social forms," reflexive modernization means "the reincorporation of industrial social forms by another modernity" (BECK, 2012, p. 13). The sociologist goes on to explain that:

Thus, by virtue of its inherent dynamism, modern society is doing away with its class formations, social strata, occupation, gender roles, nuclear family, agriculture, business sectors and, of course, also with the prerequisites and continuous forms of techno-economic progress. This new stage, in which progress can turn into self-destruction, in which one type of modernization destroys another and modifies it, is what I call the stage of reflexive modernization (BECK, 2012, p. 13)

Therefore, it is not the crisis of capitalism that produces the new social form, but its victory, meaning that the new society does not always come from pain. Ulrich Beck sets aside the antagonism between Marxists and functionalists, and points out that what propels us into a new era is intense economic growth, rapid technification, and greater job security. She exemplifies this change through the participation of women in the labor market, stating that, although all political parties support this decision, it entails a revolution in the conventional occupational, political and private orders, explaining that the reflexive modernization of industrial society occurs silently and unnoticed by sociologists (BECK, 2012, p. 14-15).

Reflexive modernization, while representing a dynamism of development, can also bring opposite consequences:

In various cultural groups and continents this is associated with nationalism, mass poverty, religious fundamentalism of various factions and creeds, economic crises, ecological crises, possibly wars and revolutions, not forgetting the states of emergency produced by major catastrophes – that is, in the strictest sense, the dynamism of the risk society. (BECK, 2012, p. 16)



In short, at the same time that the dynamism of the development and conflict of the risk society creates a new society, it also generates negative consequences. At the same time, although reflexive modernization is distinct from the categories of patterns of social change - crisis, social transformation and revolutions - this does not mean that it cannot coincide with them, even favoring and overlapping them (BECK, 2012, p. 16).

And it is within this context, of reflexive modernization, that it becomes essential to understand the emergence of the risk society, which will be addressed in the next sub-item.

2.2 THE "RISK SOCIETY"

Ulrick Beck (2012, p. 17) points out that reflexive modernization leads to the emergence of the risk society, with two major highlights:

- (i) effects and self-threats are systematically produced, but are not at the center of political conflicts or public issues;
- (ii) the dangers of industrial society come to dominate political debates and conflicts, both public and private. And the institutions of industrial society become legitimizers and producers of threats that they cannot control.

Such emphasis is important to be brought here, because although the Judiciary starts to adopt mechanisms of the reflexive society, such as the incorporation of algorithms and artificial intelligence in its decisions, it still works and uses decision-making processes based on industrial society, which generates several conflicts and clashes, which will be addressed in the third section of this article.

The concept of reflexive modernization does not represent reflection, but self-confrontation. The migration from the "industrial society" to the "risk society" happens in a compulsive, unwanted and unnoticed way through processes of autonomous modernization, "which are blind and deaf to their own effects and threats" (BECK, 2012, p. 2012). One of the examples that can be cited here is the possible obsolescence of jobs due to the automation of work, according to a report by the Massachusetts Institute of Technology (MIT), which points out that 47% of jobs are at high risk of becoming obsolete due to automation by 2030, which represents 800 million fewer jobs for the working class (MIT, 2019), without thinking or planning solutions to such problems.

In the Brazilian context, when analyzing the Federal Government's Multiannual Plan (PPA) 2020-2023, it can be seen that there is a guideline for innovation and development of new technologies, especially in the area of the public sector and health, but there is no guideline or any forecast for the reestablishment of jobs that will be lost due to new technologies. (BRAZIL, 2021).

What happens with the risk society is that the conflicts of distribution of goods (incomes, jobs, social insurance - industrial society) end up being obscured by conflicts over the distribution of "harms", as when the risks of producing goods through "nuclear and chemical megatechnology, genetic



research, threats to the environment, supermilitarization and growing misery" are discussed. According to Beck, "The definition of danger is always a cognitive and social construction" (BECK, 2012, p. 18). The sociologist also points out that the risk society brings transformations in three areas of reference:

(i) resources of nature and culture: this area of transformation applies to non-human nature as well as to human culture, when, for example, the construction of the nuclear family and the sex-based order that existed in industrial society, in which the wife's domestic work was what allowed the husband's wage labor, is dissipated. even if it was not recognized as work (BECK, 2012, p. 20).

2) threats and problems produced by society: the threats and problems produced by society go beyond the social ideas of security, so that the belief in the social order is shaken, which has repercussions in areas such as law, science and business, but mainly in political action and decision-making (BECK, 2012, p. 20);

3) Collective and group-specific sources of meaning, such as class consciousness or belief in progress, suffer from exhaustion, disintegration, and disenchantment: people must live with a wide variety of different and mutually contradictory global and personal risks, and are subjected to make choices every day. People are freed from the certainties of industrial society, and placed in the "turbulence of the global risk society", starting to live with "a wide variety of different and mutually contradictory global and personal risks" (BECK, 2012, p. 20-21), being condemned to individualization:

"Individualization" means, first, the disembodiment, and second, the reincorporation of the ways of life of industrial society by other new modes, in which individuals must produce, represent, and accommodate their own biographies. Hence the word "individualization." Disembodiment and reincorporation (in Giddens' words) do not occur by chance, either individually, voluntarily or by various kinds of historical conditions, but rather at the same time and under the general conditions of the *welfare state*, in the developed society of industrial labor, as has been developing since the 1960s in many industrial countries of the West. (BECK, 2012, p. 29-30)

In the society of reflexive modernization, "Individualization and globalization are, in fact, two sides of the same process of reflexive modernization" (BECK, 2012, p. 31), because at the same time that the certainties of industrial society are undone, global interdependencies arise.

Risk is a contingency phenomenon that arises from the complexity of modern society. Ulrich Beck explains that, in late modernity, the social production of wealth is accompanied by the social production of risk, so that the problems arising from the production, definition and distribution of scientific-technological risks end up overlapping with the problems and distributive conflicts of the scarcity society (BECK, 2011, p.23).



The sociologist states that the risks of industrial society belong to another era, and that current risks, such as the dangers of highly developed chemical and atomic productive forces, cannot be based on the categories and foundations belonging to industrial society (BECK, 2011, p.26-27). Thus, Ulrich Beck builds his argument on five theses:

- (i) in the most advanced stage of development of the productive forces, risks differ from wealth, and can produce irreversible and invisible risks, appearing only from the scientific or anti-scientific knowledge that one has of them. This makes the instruments and positions of risk definitions "key positions in socio-political terms" (BECK, 2011, p. 27);
- (ii) with the distribution and increase *of risks, social situations of threat appear; which, although they accompany the inequality of social classes*, bring a different logic, because here there is a "boomerang effect", since not even the rich and powerful are free from risks, which end up returning to those who produced them. The risks of modernity are associated with ecological devaluations and expropriations, which go directly against the interest of profit and property. In addition, there are international differences between the Third World countries and the industrial countries, as well as between the industrial countries themselves. As pollutants are universal and supranational, it is necessary to sign and implement international agreements (BECK, 2011, p. 27);
- (iii) the expansion and commodification of risks do not break with capitalism, but, on the contrary, take it to another level, because the "Risks of modernization are *big business*.", being "the insatiable needs that economists have always sought." Hunger and needs can be satisfied, but "civilizational risks are a *bottomless, endless, infinite, self-producing barrel of needs*" (BECK, 2011, p. 28);
- (iv) while riches may come to be possessed, risks affect us in terms of civilization. What happens is that "in situations related to class or social strata, consciousness is determined by existence, while in situations of threat, it is *consciousness that determines existence*." This makes knowledge in the risk society of great political relevance, that is, a theory of the emergence and dissemination of knowledge about risks is necessary (BECK, 2011, p. 28);
- (v) the risks that become socially recognized bring an "explosive political ingredient", because what was apolitical becomes political, and the example of the discussions around deforestation can be cited. Not only the health problems of nature and human beings are discussed, but also social, economic and political collateral effects, such as "market losses, depreciation of capital, bureaucratic controls of business decisions, opening of new markets, astronomical costs, lawsuits, loss of prestige", which ends up demonstrating the *political potential of catastrophes*. It is, therefore, important to highlight that risk



prevention can generate a whole reorganization of power and responsibility, because "The risk society is a catastrophic society. In it, the state of exception threatens to become normality" (BECK, 2011, p. 28), which is why the knowledge and discussion of the rich in reflexive modernization becomes indispensable.

Having made this general overview of reflexive modernization and the risk society, we will now analyze what artificial intelligence consists of, in order to subsequently address the risks of using artificial intelligence in the suggestion of draft judicial decisions.

3 ARTIFICIAL INTELLIGENCE

Over the past few years, artificial intelligence (AI) has been increasingly present in our lives, in all areas and in all aspects. However, although it is becoming more and more present, understanding what it consists of is not an easy task.

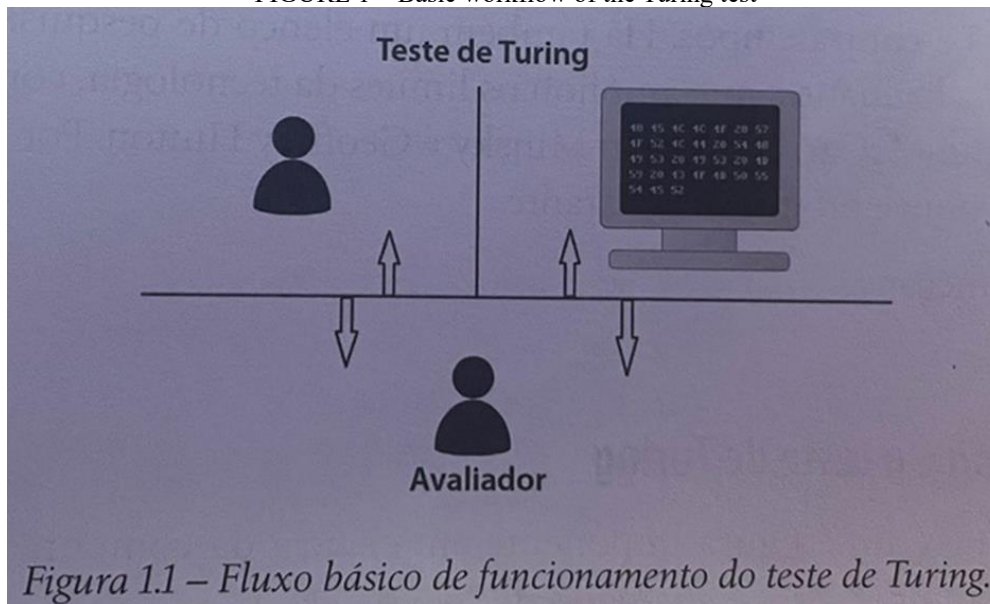
3.1 WHAT IS ARTIFICIAL INTELLIGENCE (AI)

A key figure for understanding AI is Alan Turing, considered the "father of artificial intelligence", who created the famous "Turing test", which consists of a game with three participants - two humans and a computer. In this test, the evaluator – who is a human – asks questions of the other two (the computer and the other human) to try to determine who is the computer and who is human. In the event that it is not possible to make this distinction, there is a presumption that the computer is intelligent (TAULLI, 2020, p. 17).

The idea is not to analyze whether the machine is conscious or knows something, but rather whether it can process a large amount of information, interpret speech, and communicate with other human beings. Turing's prediction was that a machine would pass its test near the turn of the century, however it is now known that this happened before prediction (TAULLI, 2020, p. 18).



FIGURE 1 – Basic workflow of the Turing test



Fonte: Taulli (2020, p. 18)

It is important to note that there are controversies about the Turing test, saying that it can be manipulated, with its strongest criticism being the "Chinese room argument", presented in the text "*Minds, Brains and Programs*" ("Minds, Brains, and Programs"), by John Searle. In this article, the author suggests that a person can be in a room and not understand the Chinese language, but have instruction manuals that provide easy rules for translation, which will make the person outside the room think that this person speaks Chinese, although he does not (SEARLE, 1980, p. 3). In this sense, Searle explains:

From an external point of view, in the view of someone who reads my answers, the answers in Chinese and English are equally satisfactory. But in the case of the Chinese language, I get answers by manipulating formal symbols in Chinese, without meaning. As far as Chinese is concerned, I simply behaved like a computer; I performed computational operations based on formally specified elements. For the purposes of the Chinese language, I am simply an instantiation of a computer program (1980, p. 4)

What is verified by this test is that the execution of the singularity does not mean natural intelligence. Artificial intelligence works by creating *inputs* and *outputs*, while the mind is not just a machine of *inputs* and *outputs*.

John Searle rejects any form of functionalism within the "Philosophy of Mind", arguing that reducing human intelligence to a computer program is a categorical error, as it does not include the factor of understanding the human mind.

Searle, in creating the "Chinese room argument," also drew the distinction between strong and weak AI:

According to AI in the weak sense, the computer's primary value for the study of the mind lies in the fact that it provides us with an extremely powerful tool. For example, it allows us to



formulate and test hypotheses more rigorously and accurately than before. But according to AI in the strong sense, the computer is not merely an instrument for the study of the mind. Much more than that, the properly programmed computer is a mind, in the sense that if they are given the right programs they can be said to understand and that they have other cognitive states. According to AI in the strong sense, since the programmed computer has cognitive states, programs are not mere instruments that enable us to test psychological explanations: programs constitute the explanations themselves (SEARLE, 1980, p. 2)

Strong AI is the one that occurs when the machine can understand what is happening, being able to have emotions and creativity - an example would be the *DeepMind*, from Google, and even resemble human consciousness. Weak AI is one that performs pattern matching and is intended for specific tasks – its examples are Siri/Apple and Alexa/Amazon. Currently, artificial intelligence is in the early stages of weak AI (TAULLI, 2020, p. 19-20).

To understand artificial intelligence, it is essential to understand its two main categories: *machine learning* and *deep learning*. The first example of *machine learning* was a computer checkers game by Arthur L. Samuel. Through this game, it was possible to understand how *machine learning* works, because there was a computer that could learn and improve the data without having explicitly programmed it, that is, the computer was trained to make accurate predictions. In summary, Samuel created "a list of commands that followed a logical flow of execution" (TAULLI, 2020, p. 35).

In general, a *machine learning* algorithm involves a correlation between data, which can be strong or weak, and it is not necessarily causality. Today, *machine learning* can have several applications such as: predictive maintenance, employee recruitment, customer experience, finance, customer service, dating, among others. Another necessary approach to consider is *deep learning*, which involves more sophisticated models that find features in data. (TAULLI, 2020, p. 68-72).

To understand what *deep learning is*, it's essential to distinguish it from *machine learning*. Tom Taulli brings the example of having thousands of photos of animals and wanting to create an algorithm to find the horses. Machine learning won't analyze the photos themselves, but the data must be labeled, so it will be trained through a process called "supervised learning." No matter how good the results are, they will be far from perfect. In *deep learning*, on the other hand, these problems can be solved, as there is an analysis of all the data - pixel by pixel - which later finds relationships through a neural network that mimics the human brain (TAULLI, 2020, p. 97).

According to Tom Taulli (2020, p. 98), "Deep learning technology is a subfield of machine learning," which allows "the processing of huge amounts of data to find relationships and patterns that humans are often unable to detect." *Deep learning* is currently in the early stages of development and commercialization (TAULLI, 2020).

Juarez Freitas and Thomas Bellini Freitas (2020, p. 31-33) explain different modalities of *machine learning*:



(a) supervised learning: there is a supervisor, who can be either a human or another AI, who assists in the classification of data. There is both *the input* - the data to be examined - and *the output* - classifications of the data -. (FREITAS; FREITAS, 2020, p. 31).

(b) unsupervised learning: there is no supervisor, and AI has to deal with raw data, without any classification. There is the *input*, but not the *output*. Should AI establish the categories. (FREITAS; FREITAS, 2020, p. 30-31).

(c) reinforcement learning: occurs when AI relates to the environment, learning through a series of trials and errors. The AI itself brings feedback to itself, making it possible to understand which actions brought better results and which could be avoided. One example is the game AlphaGo Zero, in which the AI was not given information about the experienced players, but learned to play with itself, through trial and error. (FREITAS; FREITAS, 2020, p. 32).

(d) deep learning: AI learns similar to how human neural networks work. (FREITAS; FREITAS, 2020, p. 32).

(e) Recurrent Neural Network (RCN): sequential neural network information is used, for example, speech processing, in which it is necessary to understand the entire context of a sentence in order to understand each isolated word. The sequence plays a key role. (FREITAS; FREITAS, 2020, p. 32).

(f) Convolutional Neural Network (CNN): works by inspiring human neurons, and can share parameters, have sparse interactions and equivalent representations. One example is facial recognition. (FREITAS; FREITAS, 2020, p. 33).

Finally, to establish a semantic proposal, according to Juarez Freitas and Thomas Bellini Freitas (2020, p. 30), it is possible to say that "artificial intelligence (AI) is an adaptable, relatively autonomous, algorithmic system that emulates human decision-making".

According to Tom Taulli, machine learning has been around for decades, so it has several applications, presenting benefits, such as cost reduction, revenue opportunity, and risk monitoring (TAULLI, 2020, p. 70), presenting some of the main applications:

(i) predictive maintenance: it is possible to use sensors to predict when a system may fail, so that not only are costs reduced, but there is a decrease in downtime, and there is an increase in safety, which proves useful for sectors such as energy, agriculture, and construction (TAULLI, 2020, p. 70-71);

(ii) employee recruitment: machine learning has been used to help find candidates for job openings, as in the case of CarrerBuilder, which collects and analyzes jobs and resumes. The system also helps to create job descriptions by analysing industry and location (TAULLI, 2020, p. 71);



(iii) Customer experience: Customers often want a personalized experience, so machine learning takes the opportunity to collect data and see what actually works. Companies such as Uber and Amazon use this application (TAULLI, 2020, p. 71);

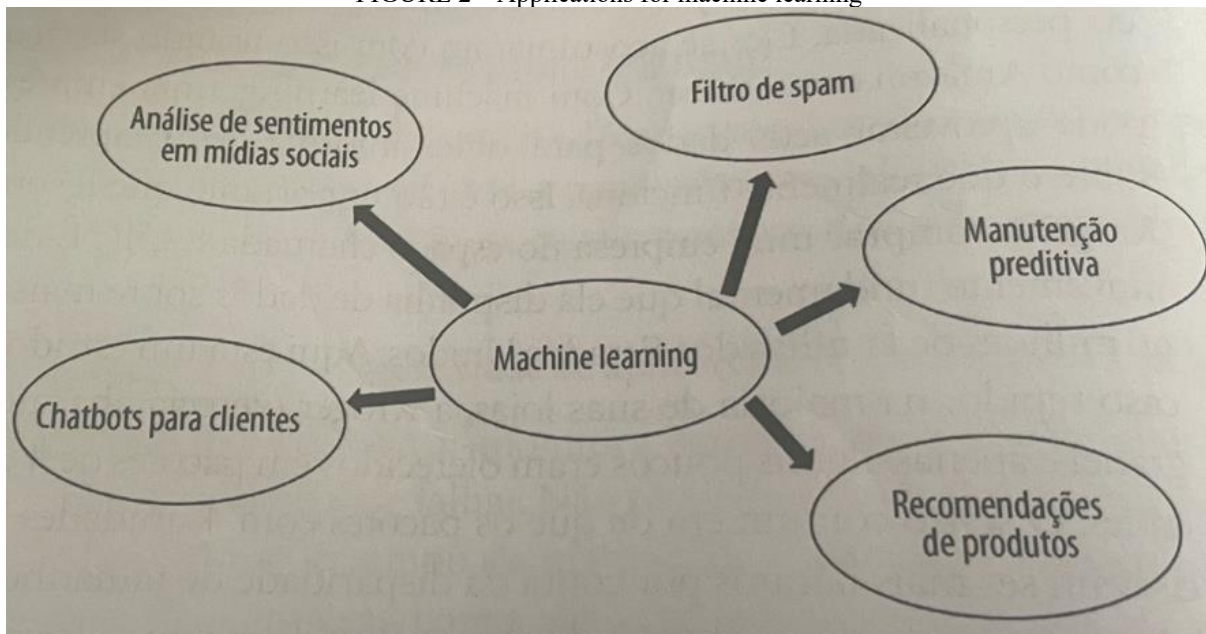
(iv) finances: machine learning can also find discrepancies in a company's revenue, and automate routine processes to reduce errors or to find suspicious or abnormal activities (TAULLI, 2020, p. 72);

(v) customer service: a very common use is chatbots, which automate interactions with customers (TAULLI, 2020, p. 72);

(vi) dating: machine learning is also present in dating apps, such as Tinder, which uses technology to improve matches. On a daily basis, the system labels more than 10 billion photos (TAULLI, 2020, p. 72).

There are also several other applications of artificial intelligence in reflexive modernization and in the risk society, in addition to those described here, which may raise some questions.

FIGURE 2 – Applications for machine learning



Fonte: Taulli (2020, p. 72)

One of the places where artificial intelligence has been used is in the Judiciary, which raises several debates and reflections, as there may be reflections on the fundamental rights of individuals, which will be addressed in the next section.



4 THE RISK OF THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN BRAZILIAN JUDICIAL DECISIONS

Law is a subsystem of society, which has the differentiated function of stabilizing the normative expectations of individuals (Luhmann, 1998). The law, although it has its operative enclosure, is cognitively open, thus allowing the exchange of the system with the environment, which is done by means of communication, on which the whole society is based.

Within the subsystem of law, it is important to know that judicial decisions occupy the center, while legislation occupies the periphery, which has the function of accommodating the constant irritation of the legal subsystem by the political subsystem (LUHMANN, 1991, p. 5; 7).

Another important conception to have is that all complexity needs to be reduced, and having the idea that the decision - including the judicial one - is a risk management. It should also be noted that there is a difference between what is a choice and between what is a decision.

In reflexive modernization and in the context of a post-traditional society, we are all subject to choosing how to be and how to act – the condemnation of individualization – so that even our vices become choices. However, although the choices represent autonomy, they generate irritation. Giddens explains that this can occur for three reasons: (i) choices would be blocked by unconscious emotions; (ii) the inevitability of routine – everyday life would become unbearable without routine -; (iii) lifestyle choices are limited by relationships of coercion or power, as there are often "factors that are beyond the reach of the individual or individuals they affect" (GIDDENS, 2011, p. 117-118).

While, in everyday life, we are obliged to make choices, "all areas of social activity come to be governed by decisions," which are usually made on the basis of one kind of knowledge or another and which represent a question of power (GIDDENS, 2011, p. 119):

Who makes these decisions, and how, is fundamentally a question of power. A decision, of course, is always someone's choice and, in general, all choices, even those of the poorest or seemingly powerless, suffer refraction from pre-existing power relations. [...] The examples are numerous and span the full range of social activity, from minuscule features of everyday life to global systems. (GIDDENS, 2011, p. 119)

Therefore, from the moment that judicial decisions start to use the specialized knowledge of algorithms, it becomes essential to debate where this knowledge comes from, and what power issues will be established here.

One of the major discussions, when it comes to access to justice, is the slowness of judicial provision. And one of the most pointed out and discussed solutions today is the application of artificial intelligence in the courts as a way to optimize judicial provision. It is believed that there is great potential in this solution, including bringing the law closer to the dynamism, speed and hyperconnectivity of today's world.



It is also worth mentioning that this proximity of law to technology is essential, and a way for law to continue to exist, without losing its functional differentiation, and being extremely important and relevant to today's society, in order to continue helping to resolve increasingly complex conflicts, which were not previously imagined. whether those arising from dilemmas existing in the Metaverse or the civil liability caused by autonomous vehicles, among other hypotheses.

However, it is questioned whether there would not be the possibility of violating the fundamental rights of those under jurisdiction, questioning what would be the ethical limits for the use of artificial intelligence by the courts, and whether it could not reproduce discrimination, thus representing risks of the application of artificial intelligence in judicial decisions.

As an example of the discriminatory bias that can be cited here is the case "State vs. Loomis," from the United States, in which Eric L. Loomis, when he was involved in a shooting and ran away from a traffic officer, was sentenced to six years in prison, without the right to parole, through an algorithmic analysis that found him a high-risk defendant, with a tendency toward violence and the potential for recidivism. The judge adhered to this understanding, without making any kind of explanation. The source code of the software that performed the analysis was protected by industrial secrecy. Loomis appealed to the Wisconsin Supreme Court to see what criteria led him to be considered a high-risk person, but the court denied the appeal, and ruled that the algorithm was protected by trade secrets. In the trial of the Loomis case, the issue of COMPAS bias against African Americans was raised, according to a report by the NGO ProPublica (CANTALI, ENGELMANN, 2021, p. 39-40; 47).

Such a discussion is inevitable, when there is much discussion about the supposed neutrality of algorithms, and what is the consequence that the use of algorithms can entail. It is relevant to highlight that the capitalist system exponentiates possible damages, as well as possible disrespect for fundamental rights, given that the control of these algorithms is in the hands of very few companies in the world that have control and development of these algorithms. These companies also don't want to share the code of these algorithms, as they argue that it would violate free competition between companies, and affect their business.

However, when the use of algorithms is made by the courts – which have the function of deciding based on the code of law / not law – and thus help the law to stabilize the normative expectations of the Law, it is extremely important that legal professionals understand the operation of this tool and can have access to it, to avoid algorithmic discrimination or that they act out of step with the law. Society and individuals who often place their hopes in the Judiciary to resolve their conflicts also have the right to understand how these tools work.

Fernanda Borghetti Cantali and Wilson Engelmann point out some risks of using automated court decisions:



(i) the first risk would be the algorithmic "black box", the opacity of the algorithms, so that it is not possible to conclude which internal processes (inputs) led to the result obtained (output), thus representing a lack of transparency (CANTALI, ENGELMANN, 2021, p. 51);

(ii) the second risk would be the "use of *biased data sets*", because "the algorithm is only as good as the data that feeds it. If there is imperfection in the data, the algorithms inherit these biases." When it comes to decision-making, this can bring perverse results, as people accept decisions without questioning the structure, and the use of algorithms presupposes a certain scientificity, generating criteria for decisions (CANTALI, ENGELMANN, 2021, p. 51);

(iii) the last risk is discriminatory, as algorithms learn, so that "If the data reflects an existing bias in society, it will repeat it" (CANTALI, ENGELMANN, 2021, p. 52).

It is still possible to analyze the risks of applying artificial intelligence in decisions through the five theses of Ulrich Beck's argument, which were addressed in the first section of this article:

(i) as risks produce irreversible risks, such as the possibility of enacting discriminatory decisions without being able to identify this, it is essential to define this risk, as well as the need for non-opacity in algorithms;

(ii) in the case of judicial decisions, there is also a "boomerang effect" of risks, as it affects not only the most vulnerable layers of society, but also the entire population, including even those who produced the algorithm or those who control it and, therefore, "hold the power";

(iii) the expansion and commodification of risks will not break with capitalism. On the contrary, technology companies will compete fiercely, and offer advantages to have their products acquired for the court, involving all this in a "big deal", so that the repercussion of the consequences will be enormous;

(iv) the knowledge of the risks becomes of great political relevance, as judicial decisions will have a direct impact on society, and on the existing relationships between individuals that are regulated by legislation, and thus will establish new "power relations";

(v) In addition to the risks themselves, collateral effects also need to be analyzed, such as, for example, future unemployment due to the lack of jobs or the impact on the environment through the unstoppable development of technologies.

In addition, there is something called "choice architecture" or "nudging", which is a kind of stimulus that can lead to changes in people's behavior in a predictable way without any option being



vetoed or there being a negative change (SUNSTEIN; THALER, 2019), as is the case, for example, of a physician who helps in the "architecture of choice" of the patient to opt for a certain treatment.

What can be seen, therefore, is that it is introducing a "nudging" in judicial decisions through the adoption of artificial intelligence projects, where there is a suggestion of decision by the magistrate without impeding other decisions, which apparently may appear to be an aid and a benefit. However, it is questioned whether there is not an ethical violation and whether there is an interference in the autonomy of the individual.

After this exposition on the risks of the application of artificial intelligence in judicial decisions, the scenario of the current situation of the use of artificial intelligence in Brazilian courts is established.

In the Brazilian context, there is still no regulation made through legislation on artificial intelligence in a broad sense, and there is Bill 21/2020, which seeks to establish a legal framework for artificial intelligence. However, in 2020, the National Council of Justice published Resolution 332, which "provides for ethics, transparency, and governance in the production and use of Artificial Intelligence in the Judiciary and provides other measures" (BRASIL, 2020).

Therefore, this regulation brings the rule that, in order for the use of algorithms to occur, it is essential that these three guidelines – ethics, transparency and governance – are respected.

In the words of Paulo Cezar Neves Junior, judicial governance is "the set of means and processes used for the Judiciary to exercise its self-government in order to better achieve its objectives and purposes, guaranteeing fundamental rights and pacifying society". The author also explains that this type of governance serves to ensure "the sustainability and transparency necessary to allow the monitoring, supervision and internal and social control of its activities". (JUNIOR, 2020, p. 241).

On transparency, Article 8 of Resolution No. 332 explains that it consists of in:

Article 8 For the purposes of this Resolution, transparency consists of:

I – responsible disclosure, considering the sensitivity of judicial data;

II – indication of the objectives and results intended by the use of the Artificial Intelligence model;

III – documentation of the identified risks and indication of information security and control instruments to cope with them;

IV – possibility of identifying the reason in case of damage caused by the Artificial Intelligence tool;

V – presentation of the mechanisms for auditing and certification of good practices;

VI – provision of a satisfactory explanation that can be audited by human authority regarding any proposal for a decision presented by the Artificial Intelligence model, especially when it is of a judicial nature. (BRASIL, 2020)

As for ethics, the Resolution does not provide any conceptualization. However, the European Union White Paper lays down the following guidelines:

- a. it should be legal and comply with all applicable laws and regulations;
- b. it should be ethical and safeguard compliance with ethical principles and values; and



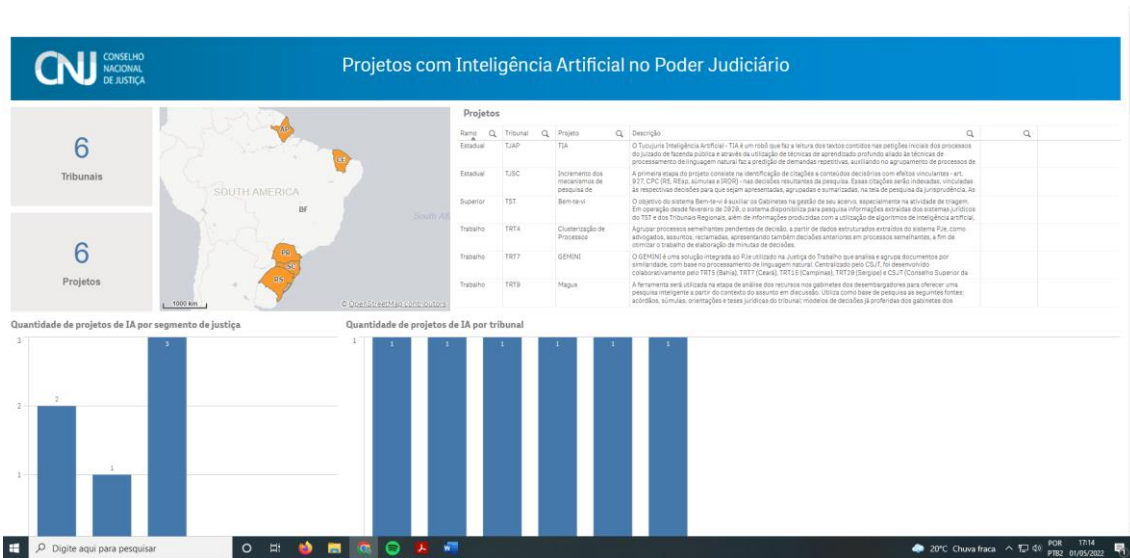
c. it should be robust, from both a technical and a societal viewpoint, as AI systems can cause unintentional harm, despite good intentions. (LARSSON, 2020)¹

In addition to these ethical guidelines, the group of experts that discussed the White Paper stipulates four principles that would be the basis of trustworthy artificial intelligence: "(1) Respect for human autonomy; (2) Prevention of harm; (3) Fairness; and (4) Explicability" (² LARSSON, 2020).

The option to use the concept of ethical guidelines adopted by the European Union is justified because Brazil's recent legislation on technology follows in a very similar way to European legislation, such as the General Data Protection Law (LGPD).

Having made these general considerations, we now analyze which artificial intelligence projects exist in Brazilian courts.

When analyzing the CNJ's Analytical Panel of Artificial Intelligence Projects, when introducing "decisions" and "decision" in the search, it is possible to find six results: 1) Magus – TRT9; 2) Increments of the jurisprudence search engine with artificial intelligence – TJSC; 3) Process clustering – TRT4; 4) GEMINI – TRT7; 5) Bem-te-vi (TST); 6) TIA (TJAP):



The "Increments of the jurisprudence search engine with artificial intelligence" is a project of the Court of Justice of Santa Catarina, which has two stages: (i) in the first, the identification of

¹ "1. must be legal and comply with all applicable laws and regulations; 2. Must be ethical and safeguard compliance with ethical principles and values; and 3. it must be robust, both from a technical and societal point of view, as AI systems can cause unintended harm despite good intentions." (Author's translation)

² (1) Respect for human autonomy; (2) Prevention of damage; (3) Justice; and (4) Explainability. (Author's translation)



citations to decisional content with binding effects; (ii) identify a paradigm decision in the results of the jurisprudence search.

The "Clustering of Processes", a project developed within the scope of TRT4, groups similar processes, based on data extracted from the PJe, a system used in the Labor Courts, and also presents decisions of similar processes, seeking to optimize the work of drafting decisions.

GEMINI, a TRT7 project, groups documents by similarity based on PJE data. It also makes it easier to distribute the process stack to employees, and locate decisions in other similar processes.

Bem-te-vi, a TST project, is an assistant in screening activities, using supervised learning algorithms, more specifically XGBoost, whose outputs are related to the decisions of the TST Ministers. It is also described that a predictive model is made. It is also informed that all the technologies used are open source, and that the server may or may not follow the suggestion given by the system.

The TIA, used by the Court of Justice of Amapá (TJAP), through deep learning techniques, predicts repetitive demands, grouping processes of the same nature. After the robot talks about what the petition is about, the user decides whether or not to accept the robot's decision.

In summary, these six projects, with searches in research data from previous decisions, will suggest decisions or elaborate draft decisions that may or may not be used by the magistrate, clearly consisting of an "architecture of choice", which may represent a perhaps obscure "freedom", so that it is questioned whether there would not be a violation of the independence of judges.

It is also questioned and pointed out the risk of decisions always remaining the same, without any innovation of understanding or reflection, because there is only a self-reproduction of what has already been decided, without external stimuli, in order to allow the cognitive opening for exchange with the environment.

In addition, the use of algorithms can provide a partial representation of society and individual cases, which can compromise the principles of equal treatment before the law and non-discrimination. And there is even greater concern about fair trial and parity of arms, when the algorithms' data, training, and structure are not available.

Therefore, for the use of algorithms by courts in judicial decisions, in order to improve the efficiency of judicial provision, it is essential to have transparency and publicity of the tools used and, therefore, that the algorithm codes are open source and available to any and all citizens. It is also essential that artificial intelligence is used through supervised learning. In addition, of course, ethical limits are respected, and governance guidelines are obeyed.



5 FINAL THOUGHTS

Through this article, it was possible to perceive that contemporary society today is characterized by a "reflexive modernization", a society that arose from the victory of capitalism, and that condemns us to individualization, in the same way that it self-examines and confronts itself, by analyzing its own threats.

"Reflexive modernization" entails the emergence of the "risk society", which brings with it a society in which threats and risks are produced all the time, but which end up not becoming the center of the debate, although they are debated. The discussion of society's distributive conflicts – income, jobs and social security – end up being obscured by the discussion of the harms of megatechnology.

Within this context of reflexive modernization and risk society, the use of technology expands and even artificial intelligence has several applications in different areas of society, which is why it is necessary to understand it. It can be said, succinctly, that artificial intelligence is a system of algorithms that adapts, enjoys autonomy, and that emulates human decision-making.

One of the places where artificial intelligence is used is in the Judiciary, which occupies the central role in the subsystem of law, which has the function of stabilizing the normative expectations of individuals. Such a discussion gains importance and prominence from the moment that AI is also introduced to suggest drafts of judicial decisions, as several risks begin to emerge.

In the current Brazilian panorama, there are six artificial intelligence projects in Brazilian courts that suggest decisions: 1) Magus – TRT9; 2) Increments of the jurisprudence search engine with artificial intelligence – TJSC; 3) Process clustering – TRT4; 4) GEMINI – TRT7; 5) Bem-te-vi (TST); 6) TIA (TJAP).

The risks of applying AI to suggest draft court decisions include: (i) the algorithmic "black box" – the opacity of algorithms and the absence of transparency; (ii) the use of biased databases, without questioning the structure of the decision; (iii) the risk of discriminatory decisions; (iv) the violation of the judge's ethical autonomy, from the moment stimuli are used to change his behavior without being aware of it.

It was verified that Resolution 332 of the CNJ establishes three guidelines for the use of AI in Brazilian courts in order to minimize these risks: (i) transparency; (ii) ethics; (iii) governance. It is essential that these guidelines are respected and observed. With regard to transparency, it should be noted that it is essential that the codes used in judicial decisions are open, in order to avoid the application of discriminatory biases. Another factor that is also essential is that the artificial intelligence to be used by the courts is the one that occurs through supervised learning.

However, as these are recent issues, these are initial perceptions, which require further research and analysis, but it is essential to be aware of these risks, in order to exercise the self-confrontation and reflexivity of reflexive modernization and the risk society.



REFERENCES

BECK, Ulrich; GIDDENS, Anthony; LASH, Scott. Modernização reflexiva: política, tradição e estética na ordem social moderna. Tradução de Magda Lopes. São Paulo: Editora Unesp, 2012.

BECK, Ulrich. Sociedade de risco: rumo a uma outra modernidade. Tradução de Sebastião Nascimento. São Paulo: Editora 34, 2011. 2ª Edição.

BRASIL. CNJ. Resolução nº 332, de 21 de agosto de 2020. Disponível em: <<https://www.anoreg.org.br/site/wpcontent/uploads/2020/08/Resoluc%CC%A7a%CC%83o-332-CNJ.pdf>>. Acesso em: 12 ago. 2022.

BRASIL. Lei Nº 13.971, de 27 de dezembro de 2019. Dispõe sobre o Plano Plurianual para o período 2020/2023. Diário Oficial [da] República Federativa do Brasil. Brasília, DF, de dezembro de 2019; 198º da Independência e 131º da República.

BRASIL. Senado Federal. Projeto de Lei do Senado de nº 21 de 2020. Estabelece fundamentos, princípios e diretrizes para o desenvolvimento e a aplicação da inteligência artificial no Brasil; e dá outras providências. Disponível em: <<https://legis.senado.leg.br/sdleg-getter/documento?dm=9063365&ts=1656528542410&disposition=inline>>. Acesso em: 12 ago 2022.

CANTALI, Fernanda Borghetti; ENGELMANN, Wilson. Do não cognitivismo dos homens ao não cognitivismo das máquinas: percursos para o uso de decisões judiciais automatizadas.. Revista Jurídica Portucalense, v. -, p. 35, 2021.

FREITAS, Juarez; FREITAS, Thomas Bellini. Direito e inteligência artificial: em defesa do humano. 1. reimpressão. Belo Horizonte: Fórum, 2020.

JUNIOR, Paulo Cezar Neves. Judiciário 5.0: Inovação, Governança, Usucentrismo, Sustentabilidade e Segurança Jurídica. São Paulo: Blucher, 2020.

LARSSON, Stefan. On the Governance of Artificial Intelligence through Ethics Guidelines. Disponível em: <https://ec.europa.eu/info/sites/default/files/commissionwhite-paper-artificial-intelligence-feb2020_pt.pdf> Acesso em: 10 dez. 2021

LUHMANN, Niklas. A posição dos tribunais no sistema jurídico. 1991. Disponível em: <<https://pt.scribd.com/document/290097195/Niklas-Luhmann-A-Posicao-Dos-Tribunais-No-Sistema-Juridico>> . Acesso em: 12 ago 2022.

LUHMANN, Niklas. El derecho de la sociedad. Tradução de Javier Torres Nafarrate. Mexico: Universidad Iberoamericana, 1998

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT) The Work of the Future: Shaping Technology and Institutions. Relatório. 2019.

SEARLE, John. Mentas, Cérebros e Programas. Disponível em: <<https://opessoa.fflch.usp.br/sites/opessoa.fflch.usp.br/files/Searle-Port-2.pdf>> Acesso em: 25 jul. 2022.

SUNSTEIN, Cass R; THALER, Richard H. Nudge: como tomar melhores decisões sobre saúde, dinheiro e felicidade. Tradução Ângelo Lessa. 1ª edição. Rio de Janeiro: Objetiva, 2019.



TAULLI, Tom. Introdução à Inteligência Artificial - Uma abordagem não técnica. 1 ed. São Paulo: Novatec Editora Ltda, 2020.