

ARTIFICIAL INTELLIGENCE AND LEGAL PERSONHOOD: PERSPECTIVES IN BRAZILIAN CORPORATE LAW¹

INTELIGÊNCIA ARTIFICIAL E PERSONALIDADE JURÍDICA: PERSPECTIVAS NO DIREITO SOCIETÁRIO BRASILEIRO

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Abstract

This article is focused on the impact of Artificial Intelligence (AI) on the legal sector. The premise is that positive law can adapt to new phenomena concerning the juridical agency of AI, assuming, as a hypothesis, that Brazilian Sociedade Limitada could grant AI a de facto legal personality. It uses legal methodology of comprehensive-propositional type, engaging in inductive-deductive reasoning. The work critically analyses data from primary and secondary direct sources. The first part is dedicated to making general points about AI. To face the new challenges, in Europe, the discussions are moving in the direction of granting legal personhood to AI. In the second part, Prof. Shawn Bayern's theory emerges as an alternative. According to him, it is possible to use an American LLC to encapsulate autonomous systems, letting them act juridically through this legal entity. Subsequently, Bayern's proposition is analyzed from the perspective of Brazilian corporate law, reaching the conclusion that the pace of technological innovations will soon lead to similar legal structures in Brazil.

Keywords: Commercial Law; Corporate Law; Artificial Intelligence; Law & Technology; Legal Personhood.

Table of contents: 1. Introduction; 2. General remarks about AI and the Law; 3. Bayern's proposition of using the LLC to de facto grant personality to AI; 4. From the creation of the Sociedade Limitada to the Brazilian Civil Code of 2002: a

¹ This article was written in Portuguese in 2021 and originally published in 2022 at volume 13 of the *Revista Internacional CONSINTER de Direito*. This version comprises a mere translation of the original text. Given to the dramatic changes in scenario in the last five years, both in technical and in legal issues concerning AI, some opinions and data expressed here may be and certainly are outdated. To access the original text, written in Portuguese, see: CHAVES, Natália Cristina; COLOMBI, Henry. *Inteligência Artificial e Personalidade Jurídica: perspectivas no direito societário brasileiro*. *Revista Internacional CONSINTER de Direito*, vol. 13, Vila Nova de Gaia, 2022. The translation was made manually; the AI tool *Gemini*® was used only for suggestions of grammar and vocabulary.

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contractualist view; 5. EIRELI and single-partner societies: the path towards an institutionalist view; 6. A dialogue with Bayern's proposition; 7. Conclusion; 8. References.

1 INTRODUCTION

The technological advance from the last few decades is unprecedented. Since law mirrors society, even though its reflections are somewhat distorted, it's undeniable that the technological revolution impacts on legal structures. The emerging use of artificial intelligence (AI) both in everyday life and in business transactions is, probably, the crucial point of this process.

Since AI is the capability of a machine to imitate human rationality⁴, there is a profound moral and legal controversy regarding which should and which should not be its legal status. This article aims to analyse this issue but, given that both the ethical debate and the legal debate are not yet fully mature, it focuses on a very specific point inside this debate: departing from Brazilian law, can an AI, somehow, act juridically without the need of a legal reform?

The following sections present the path towards a possible answer, departing from the hypothesis that the juridical structure of the Brazilian LLC, the "Sociedade Limitada" (LTDA), could suit this purpose.

2 GENERAL REMARKS ABOUT AI AND THE LAW

To avoid fighting windmills as giants, using Cervantes' metaphor, before reflecting about the legal implications of AI, it is necessary to first understand its definition. According to Yunhe Pan, AI's classic concept was established more than sixty years ago, in 1956, in a conference at Dartmouth College (USA). The conference assembled the then most renowned scholars of Information Theory, such as J. McCarthy, M. L. Minsky, H. Simon, A. Newell e C. E. Shannon. For them, AI could be defined as: "the ability of machines to understand, think, and learn in a similar way to human beings"⁵.

From that conference on, many things have changed. After an initial excitement, the studies on the topic of AI have not achieved the projected impact. At least not until the beginning of the XXIst Century. The massification of the internet allowed the access to the amount of information needed for the autonomous machine learning due to the crossing of data in the network⁶. By interacting with big data, according to Yunhe Pan, AI has become "AI 2.0". In this perspective, AI can still be defined as "the ability of machines to understand, think, and learn in a similar way to

⁴ According to private law tradition, this rationality is precisely the fundamental characteristic of a person, which enables them to exercise rights and be subjected to legal relations. WEINRIB, Ernst J., *The Idea of Private Law*, 2^a ed., New York, Oxford University Press, 2012.

⁵ PAN, Yunhe, "Heading toward artificial intelligence 2.0", *Engineering*, Beijing, n. 2, 2016, pp. 409-413, p. 410.

⁶ *Idem*.

human beings”, but now it is qualified and enhanced by the unlimitedness of data and possibilities of an hyperconnected reality⁷.

In a more analytical perspective, Gabriel Hallevy identifies the attributes needed for an entity to be considered as “intelligent”. To him, there are five attributes to be considered: communications, internal knowledge, objective-driven behaviour and creativity. Hallevy explains the meaning of these attributes in his text *The Criminal Liability of Artificial Intelligence Entities - from Science Fiction to Legal Social Control*⁸. Summarizing the author’s main ideas, an AI could be understood as a machine that, especially via big data, can communicate, know itself, know the world, chase objectives and create, behaving in a certain way like a human being.

A very similar perspective of this one proposed by Hallevy was used by the European Parliament when it made a call to its Commission of Civil Law Rules on Robotics to elaborate a common concept of AI. To instruct the Commission’s work, the Parliament set out the following directives, defining as AI the devices that embed the following characteristics: “a) the acquisition of autonomy through sensors and/or by exchanging data with its environment (inter-connectivity) and the trading and analysing of those data; b) self-learning from experience and by interaction (optional criterion); c) at least a minor physical support; d) the adaptation of its behaviour and actions to the environment; e) absence of life in the biological sense”⁹.

Having established the theoretical ground, it is possible to affirm that, nowadays, AI is a tangible reality. Indeed, technological innovation with one or more of the abovementioned attributes are present in the internet of things, autonomous vehicles, medical diagnosis systems, stock exchange markets, drones, maps, social media *etc*¹⁰. What some years ago was considered an eccentricity, prone to science fiction, nowadays is perceptible in details of everyday life, is something ordinary. These technological innovations entail some questions that cannot be ignored by lawyers (academics or practitioners). The spread of its uses in business poses new challenges to the law.

To illustrate the variety of legal problems concerning the use of AI, it is worth telling some stories. In 1981, in Japan, a worker of a motorcycle factory was killed by an intelligent robot that considered the man a threat to its mission. In 2015, a German worker was killed in similar circumstances in a line of production of electric engines. The reason behind the violent behaviour of those devices remains

⁷ *Idem*.

⁸ HALLEVY, Gabriel, “The criminal liability of artificial intelligence entities - from science fiction to legal social control”, *Akron Intellectual Property Journal*, Akron, vol. 4, n. 2, 2010, p. 6.

⁹ EUROPEAN PARLIAMENT, *Resolution of 16 February 2017 with recommendations to the commission on civil law rules on robotics*, Brussels, 2017.

¹⁰ SOUZA, Carlos Affonso Pereira de; OLIVEIRA, Jordan Vinícius de, “Sobre os ombros de robôs? A inteligência artificial entre fascínios e desilusões” in FRAZÃO, Ana, MULHOLLAND, Caitlin, *Inteligência artificial e direito: ética, regulação e responsabilidade*, São Paulo, Revista dos Tribunais, 2019.

unknown. In 2016, a semiautonomous vehicle was entangled in a fatal accident, even though the investigation was inconclusive whether the IA system has been responsible for the tragedy. In the same year, in California, a security robot of a shopping mall accidentally ran over a young child, hurting it lightly¹¹. As it is demonstrated, legal concerns regarding AI are not an unlikely Asimov novel anymore.

To address this problem, especially concerning the damages caused by intelligent devices (civil liability), the European Parliament, recently, recommended the Commission on Civil Law Rules on Robotics to study the possibility of granting legal personhood to certain kinds of AI¹². The proposition of the creation of a *sui juris* type of *e-person*, nonetheless, raises serious ethical implications, and was severely criticised by some scholars. To them, the recommendations are a too big of a step to solve what they considered, until now, lesser legal issues¹³.

3 BAYERN'S PROPOSITION OF USING THE LLC TO DE FACTO GRANT PERSONALITY TO AI

While European directives tend to solve liability issues creating a new hypothesis of legal personality, the *e-person*, another way to deal with the problem, with much less ethical controversies, could be considered: to use corporate law to *de facto* grant powers to AI to act juridically. This is precisely the proposition of Shawn Bayern, as expressed in his article *The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems*, published in 2015 in the *Stanford Technology Law Review*¹⁴.

Bayern starts his analysis clarifying that, in American Law, AI formally lacks legal personality. Despite this fact, the author emphasises that it is undeniable that artificially intelligent devices can make decisions, perform actions and so on. In this line of thought, to consider AI a legal person is not something that is in the realm of physical (im)possibility, but just a matter of legal recognition.

For Bayern, the fact that American Law does not attribute, expressly, legal personality to AI does not imply that entities that make autonomous decisions cannot *de facto* operate juridically in a similar way that companies do. It would make sense at least in private law. A device equipped with AI could, in practice, by its own decision (and, in what could be conceived as its own "will"), make promises, accept proposals and, in this process, acquire property. The only thing needed would

¹¹ CHAVES, Natália Cristina, "Inteligência Artificial: os novos rumos da responsabilidade civil", in GONÇALVES, Anabela Susana de Sousa *et al.*, coord, *Direito civil contemporâneo*, Braga, CONPEDI, 2017, p. 68.

¹² EUROPEAN PARLIAMENT, *Resolution of 16 February 2017 with recommendations to the commission on civil law rules on robotics*, Brussels, 2017.

¹³ BARBOSA, Mafalda Miranda, "Inteligência Artificial, e-persons e direito: desafios e perspectivas", *Revista Jurídica Luso-Brasileira*, Lisboa, ano 3, n. 6, 2017, p. 1475-1503.

¹⁴ BAYERN, Shawn, "The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems", *Stanford Technology Law Review*, Palo Alto, vol. 19, 2015, p. 93-112.

be a legal receptacle to encapsulate it. This is the role that, according to Bayern, a company could perform. More precisely, in American Corporate Law, a Limited Liability Company (LLC) could fit this purpose.

It is worth clarifying that American corporate law was traditionally strict, legally speaking. But at the end of the XXth Century, the legal landscape changed. The Uniform Limited Liability Company Act (ULLCA), first edited in 1994, assembled provisions concerning the LLC of different American States. In 2006, another effort was made in order to uniformise and make LLC regulations more flexible across the different states' law¹⁵. This new version of the norm was labelled the Revised Uniform Limited Liability Company Act (RULLCA) and its last adjustments were made in 2013.

To avoid misunderstandings, it is important to mention that the Uniform Acts are not statutes, but models of legal uniformization drafted by a commission of renowned scholars that inspire the state's legislation to endorse them¹⁶. In the United States of America – unlike Brazil, where federal legislation regulates corporate law in a uniform manner – corporate law is dictated by state law. Concerning RULLCA, until mid 2021, it has been incorporated by 21 of the 50 American states, although its advantages indicate a fast expansion to other states¹⁷. That is why, for matters of comparative law, to use RULLCA as a pattern of comparison to LLC regulations in the United States is more precise than adopting the specific legislation of any individual state.

Essentially, there are two documents that concern the incorporation of an LLC. The first one is the certificate of organization or articles of organization. It is the founding document of an LLC. It includes mandatory clauses for its formation that vary depending on the legislation of each state. The second one is the operating agreement, which represents the “foundational contract between the members of the entity”¹⁸. It is a document that has a contractual nature. By this model, the members of the entity are free to customize their LLC's terms. More than that, the flexibility of the operating agreement provided by RULLCA allows the members of an LLC to determine that all its functional aspects could be performed by an AI. This is, at least, Bayern's understanding.

The author concedes that, at first, a human being or a legal entity would be needed in order to submit its foundational terms and to draft the operating agreement. But, from then on, with the LLC legally established, the founding member could retreat from the corporation and, with the translation of the provisions

¹⁵ UNIFORM LAW COMMISSION, *Prefatory Note to ULLCA (2006)*, Chicago, 2006.

¹⁶ PARENTONI, Leonardo Netto; GONTIJO, Bruno Miranda, “Competência legislativa em Direito Societário: Sistemas brasileiro, norte-americano e comunitário europeu”, *Revista de Informação Legislativa*, Brasília, ano 53, n. 210, abr./jun. 2016, pp. 239-265, p. 245.

¹⁷ PARENTONI, Leonardo Netto, “Sociedade limitada: algumas das principais diferenças entre as legislações brasileira e estadunidense”, *Revista Opinião Jurídica*, Fortaleza, ano 17, n. 24, jan./abr. 2019, pp.72-98, p. 74.

¹⁸ UNIFORM LAW COMMISSION, *Prefatory Note to ULLCA (2006)*, Chicago, 2006, p. 2.

of the operating agreement to code, AI could continue to operate the corporation autonomously.

Based on American uniform law, Bayern argues that AI could be "encapsulated" by an LLC with the following procedure:

(1) an individual member creates a member-managed LLC, filing the appropriate paperwork with the state; (2) the individual (along, possibly, with the LLC, which is controlled by the sole member) enters into an operating agreement governing the conduct of the LLC; (3) the operating agreement specifies that the LLC will take actions as determined by an autonomous system, specifying terms or conditions as appropriate to achieve the autonomous system's legal goals; (4) the sole member withdraws from the LLC, leaving the LLC without any members¹⁹.

Bayern, then, concludes that, after those measures take place "the result is potentially a perpetual LLC, a new legal person, that requires no ongoing intervention from any preexisting legal person in order to maintain its status"²⁰. For him, the provision in RULLCA §701 (a)(3)²¹, which commands that if an LLC is without any members for a period of 90 days it must be extinguished, is not an obstacle to the proposition, it would be merely a default rule to be used if the operating agreement is silent regarding the period of time that the LLC can operate without any members. *Ex positis*, Bayern sustains that no rule whatsoever in the RULLCA is an obstacle to the use of the LLC as a legal receptacle of AI.

The advantage of Bayern proposition is that it does not require any legal reform in the perspective of American corporate law. As it is well known, the legislative process is complex and slow and the results are not always effective. More to the point, the recognition of an *e-personality* by statute, such as it is suggested by the European directives, make the problem way more complicated than it needs to be. Grant legal personality means not only allowing AI to accumulate private property, giving it the ability to make deals and be liable for its own actions, but also brings issues concerning ethics, fundamental rights and public law.

In this still very early moment, to limit the discussion concerning AI to corporate law, without granting it legal personality *per se* allows the ethical, constitutional and public law debate to be delayed to the future, when, hopefully, those questions could be better addressed.

¹⁹ BAYERN, Shawn, "The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems", *Stanford Technology Law Review*, Palo Alto, vol. 19, 2015, pp. 93-112, p. 101.

²⁰ *Idem*.

²¹ SECTION 701. EVENTS CAUSING DISSOLUTION. "(a) A limited liability company is dissolved, and its activities and affairs must be wound up, upon the occurrence of any of the following: [...] (3) the passage of 90 consecutive days during which the company has no members unless before the end of the period: (A) consent to admit at least one specified person as a member is given by transferees owning the rights to receive a majority of distributions as transferees at the time the consent is to be effective; and (B) at least one person becomes a member in accordance with the consent; [...]" . UNIFORM LAW COMMISSION, *Prefatory Note to ULLCA* (2006), Chicago, 2006.

This strategic proposition has spread beyond the American legal debate. In 2017, Shaw Bayern himself and other European legal scholars, funded by St. Gallen University in Switzerland, conducted a study about the compatibility of this strategy with German, Swiss and British legal systems. The conclusions of this working group were published in an article named *Company Law and Autonomous Systems: A Blueprint for Lawyers, Entrepreneurs, and Regulators*, by *Hastings Science and Technology Law Journal*²². The article concludes that none of those legal systems have a legal entity with the same flexibility as the American LLC, even though good perspectives were identified with the German GmbH (*Gesellschaft mit beschränkter Haftung*), the British LLP (*Limited Liability Partnership*) and, to a lesser degree, the Swiss *Stiftung*.

If this effort to adapt Bayern's proposition to different legal systems was, in some way, fruitful, it is possible to conceive a similar path concerning Brazilian law. Could the author's strategy also be compatible in some way with Brazilian Corporate Law? In fact, Bayern's last work aimed precisely at this goal of widening the possibilities of testing his model:

*[...] the paper lays out a template suggesting how existing laws might provide a potentially unexpected regulatory framework for autonomous systems, and to explore some legal consequences of this possibility. We do suggest that these considerations might spur others to consider the relevant provisions of their own national laws with a view to locating similar legal "spaces" that autonomous systems could "inhabit"*²³.

In the following topics, the (in)compatibility of Bayern's proposition with Brazilian Law will be tested. To this purpose, the Brazilian limited liability corporation, the *Sociedade Limitada* (LTDA) will be taken as reference of a relevant legal entity.

4 FROM THE CREATION OF THE "SOCIEDADE LIMITADA" TO THE BRAZILIAN CIVIL CODE OF 2002: A CONTRACTUALIST VIEW

Similarly to the United States, Brazil has its own kind of LLC as a corporate entity. It is called *Sociedade Limitada* (LTDA). In fact, Brazil has an even older and more established tradition of LLC-type corporations than the US. If in the US the LLC is a product of the end of the XXth Century, Brazil, inspired by German law, has created the LTDA more than a hundred years ago, with the Decree n. 3.708 of 1919. The aforementioned Decree regulated the so-called *Sociedades por Quotas de Responsabilidade Limitada* in Brazil for more than 80 years, until the Brazilian Civil Code of 2002 has come into force in 2003²⁴.

²² BAYERN, Shawn *et al.*, "Company Law and Autonomous Systems: A Blueprint for Lawyers, Entrepreneurs, and Regulators", *Hastings Science and Technology Law Journal*, San Francisco, vol. 9, n. 2, summer of 2017, p. 135-161.

²³ BAYERN, Shawn *et al.*, "Company Law and Autonomous Systems: A Blueprint for Lawyers, Entrepreneurs, and Regulators", *Hastings Science and Technology Law Journal*, San Francisco, vol. 9, n. 2, summer of 2017, p. 135-161, p. 136.

²⁴ CHAVES, Natália Cristina, *Casamento, divórcio e empresa: questões societárias e patrimoniais*, Belo Horizonte, D'Plácido, 2018, pp. 27-52.

The Decree n. 3.708 of 1919 was an answer to the needs of small and medium entrepreneurs (more flexibility, less bureaucracy and limitation of liability to all the partners). The main characteristic of Brazilian LTDA is its flexibility. Its founding document is a contract, a manifestation of will that allows the partners the freedom to contract with each other any terms that they deem fit to their business, provided that they are not in conflict with mandatory rules.

Some similarities can be perceived between the Brazilian LTDA and American LLC, as it is provided by RULLCA. Having said that, since it is possible, according to Bayern, that the operating agreement allows the American LLC to “encapsulate” an AI in a way that it can autonomously act in the legal aspect, could the contract of the Brazilian LTDA perform the same role?

The similarity between the American LLC and Brazilian LTDA, regarding its inherent flexibility, seems to suggest a positive answer. Nonetheless, a well-based opinion on the issue demands a deeper analysis of its rules, as it is established in the Brazilian Civil Code, and its legal interpretation.

Concerning the point, the main difficulty regarding the use of Brazilian LTDA in order to encapsulate an AI is whether Brazilian corporate law allows or not a company depleted of members. In fact, the Brazilian Civil Code does not refer to partnerless companies. The legal framework of the LTDA conceives the interactions between its partners and its relationship with the company. According to art. 981 of the Brazilian Civil Code, a company is defined as a contract, an agreement between two or more parties – the partners – which, reciprocally, promise to contribute with goods or services to the execution of an economic activity and to share its results. Then, the LTDA, under the rules of the Brazilian Civil Code, is traditionally perceived as a contract²⁵. Even though the association of the LTDA with a contractualist view is *parti pris* in Brazilian corporate law, having its founding document received the name of “contract” since the Decree n. 3.708 of 1919, the theory of contractualism in corporate law as it is now recognized in Brazil was imported from Italian literature of mid XXth Century²⁶.

It was mainly due to the influence of Tullio Ascarelli that contractualist theories were widespread in Brazil²⁷. Ascarelli²⁸ has developed the concept of “plurilateral contract”, which comprises a cooperative behaviour between parties to achieve a common goal²⁹.

The contractualist view of the LTDA can be inferred not only by reference to art. 981 of the Brazilian Civil Code, but also in other provisions across the code. For example, art. 1.052 limits the liability of partners to their share, but all partners are

²⁵ SALOMÃO FILHO, Calixto, *O novo direito societário*, 4ª ed., São Paulo, Malheiros, 2011, p. 38.

²⁶ SALOMÃO FILHO, Calixto, *O novo direito societário*, 4ª ed., São Paulo, Malheiros, 2011, pp. 28-31.

²⁷ BORBA, José Edwaldo Tavares, *Direito Societário*, 10ª ed., Rio de Janeiro, Renovar, 2007, p. 32.

²⁸ ASCARELLI, Tullio, *Problemas das sociedades anônimas e direito comparado*, 2ª ed., São Paulo, Saraiva, 1969, p. 265.

²⁹ ASCARELLI, Tullio, *Problemas das sociedades anônimas e direito comparado*, 2ª ed., São Paulo, Saraiva, 1969, p. 266.

jointly responsible for the sufficiency of the capital. In the same sense, art. 1.053 commands that the rules of the *Sociedade Simples*, a type of corporation that has contractual structure *par excellence*, are subsidiarily applied to the LTDA. For this reason, art. 991 of the Civil Code, which regulates the incorporation of the *Sociedade Simples* is also applied to the LTDA, and it determines that “the company is incorporated by a written contract, in particular or public instrument”.

The articles that follow art. 1.053 of the Civil Code regulate shares, administration of the company, assemblies, partners’ recess and, finally, the extinction of the company. Concerning this last topic, it is worth noting that, until recently, the absence of the plurality of partners was considered a cause of extinction, according to the now repealed art. 1.033, IV, of the Civil Code, which stated: “the company is dissolved when occurs: [...] the lack of plurality of partners, when it is not recomposed within 180 days”. Nonetheless, with the introduction of the single-person LTDA, that will be further discussed ahead, this disposition is no longer applied to the LTDA. Lately, with the edition of Law n. 14.195 of 2021, the aforementioned art. 1.033, IV, was expressly repealed.

Taking into account all those provisions, at least in the creation and in the first steps of the rules applied to the LTDA by the Civil Code, the contractualist view of this corporative type was endorsed by the Brazilian legal system. In this perspective, to conceive a LTDA without partners would be a *contradictio in terminis*. Despite this fact, at least in hypothetical circumstances, such a situation could occur.

Suppose that all the partners in a specific LTDA die (in a plane crash, for example) and that the company in discussion is administered by a non-partner. Business could continue as usual even without partners, run by the administrator.

In this context, are the acts performed by said administrator valid after the death of the partners? Must the company be immediately dissolved?

It is a fact that, according to Brazilian inheritance law, all the assets of the deceased are immediately transferred to their heirs (art. 1.784 of the Civil Code). Despite that, even though the patrimonial aspects of the shares are in fact transmitted, the status of partner in a company is not automatically assigned. The modification of the company’s articles of incorporation is necessary for this purpose.

Even though the situation described above is unlikely, it can actually occur. However, there is not any direct rule in Brazilian law to address this practical issue.

The contractualist view does not offer a satisfactory answer. Yet, the legal landscape started to change in 2011, with the introduction of the *Empresa Individual de Responsabilidade Limitada* (EIRELI), a single-member entity incorporated as a legal entity. It has meant a significant step toward an institutionalist view of corporate law. In this new scenario, a partnerless company is something somewhat more tangible.

5 EIRELI AND SINGLE-PERSON COMPANIES: THE PATH TOWARDS AN INSTITUTIONALIST VIEW

The institutionalist view of corporate law was developed as a reaction to what Ascarelli called “the traditional approach” of a contractualist view. The institutionalist ideas first sprouted in Germany, during the inter-war period. The concerns related to the tragic economic crisis that fostered the nazi catastrophe made the lawyers of that time more sensitive to the importance of companies, not only as a tool for private enrichment, but also as a fundamental asset to the country’s economic stability. In this sense, the relevance of companies, way beyond a mere contract (an agreement between parties), was emphatically highlighted by legal literature³⁰.

The contours of the institutionalist view were well summarized and widespread by the French lawyer and sociologist Maurice Hauriou. Being one of the main names of French public law, Hauriou has written an essay on corporate institutions that deeply impacted the debate on corporate law. Said essay has even influenced Brazilian lawyers, such as Fran Martis³¹. Hauriou has defined three elements of a corporate institution:

*We already know that the elements of corporate institutions are three: 1) the idea of a work to be performed by a social group; 2) the organized power to the performance of such idea; 3) the communitary manifestations that are produced in the social group relating to the idea and its performance*³².

The institutionalist view, as theorized by the German lawyers and by Hauriou, highlighted the social role of the corporation. The importance of a company, such as the LTDA or the LLC, for example, extends beyond the interest and even the presence of its partners. It sits precisely in the social role that those entities perform, generating wealth, creating jobs, fostering innovation and so on

In Brazilian law, Calixto Salomão Filho, for a long time and with wide repercussions, argues that the current comprehension of corporate law in Brazil must not be restricted to a pure contractualist view. For the author, in Brazilian Law, in spite of the first impressions left by the Civil Code, a company is more than the collection of its partners.

Salomão Filho sustains, in his well-known work, that corporate law should abandon its initial contractualist view. It would be unfair to reduce the author’s perspective to a strict institutionalism, such as the one developed in Germany, that

³⁰ SALOMÃO FILHO, Calixto, *O novo direito societário*, 4ª ed., São Paulo, Malheiros, 2011, pp. 32-34.

³¹ CHAVES, Natália Cristina, *Casamento, divórcio e empresa: questões societárias e patrimoniais*, Belo Horizonte, D’Plácido, 2018, p. 45, note 63.

³² HAURIOU, Maurice, *Teoria dell’istituzione e della fondazione*, Trad. Widar Cesarini Sforza, Milano, Giuffrè, 1967, p. 14. Free translation from the italian version. In the original: “Già sappiamo che sono tre gli elementi di qualsiasi istituzione corporativa: 1) l’idea dell’opera da realizzare in un gruppo sociale; 2) il potere organizzato per la realizzazione di questa idea; 3) le manifestazioni comunitarie che si producono nel gruppo sociale in rapporto all’idea e alla sua realizzazione”.

faced the company only as a social tool³³. In fact, the author refers to his theory as being “organizational” and not properly “institutionalist”. Nonetheless, despite the fact that the contemporary vision proposed by Salomão Filho can avoid common criticism addressed to classic institutionalism, the premises of his theory are much like those of institutionalism. The author himself recognizes it affirming that “the organizational theory, when well applied, is not a return to the contractualists individualism, but a step forward compared to institutionalism in the defense of public interest”³⁴.

This observation is not a criticism of the author’s work. On the contrary, the institutionalist view, in the contemporary version sustained by Salomão Filho, can be a powerful tool to solve serious legal issues concerning corporate law, such as the use of a LTDA as a legal receptacle of AI.

In Brazilian law, the path toward an institutionalist view started in the most significant way in 2011, with the introduction of a legal person formed by a single member: the EIRELI. Even though this legal person is not categorized as a company, it is located in the middle between this legal structure (company) and the individual entrepreneur, distancing itself from the contractualist approach.

The EIRELI was included in the Brazilian Civil Code in its art. 980-A by the Law n. 12.441 of 2011. Its theoretical formulation is deeply controverted³⁵. Although the EIRELI is not a company, it is owned by a single person – natural or legal – and is regulated, in the omission of art. 980-A of the Civil Code, by the rules of the LTDA. Then, the legal responsibility of its owner is limited. This limitation is reinforced by §7º of art. 980-A, included in 2019, that commands: “only the assets of the firm are subject to the debts of the EIRELI”. However, unlike the LTDA, the EIRELI needs, in order to be incorporated, a minimum capital of 100 minimum wages.

After the EIRELI, the single-person law firms were created. This type of company was included in the Statute of the Brazilian Bar (Law n. 8.906 of 1994), in 2016, by Law n. 13.247 of 2016, with the objective of allowing autonomous lawyers to create a legal entity to perform their activities. Concerning the single-person law firm, the law created this entity as a company, moving a step further toward an institutionalist view of corporate law.

It is impossible for someone to celebrate a contract with themselves. Despite this, a single person can create an EIRELI or incorporate a single-person law firm. So, those entities distance themselves from the contractualist view and their admission by the law represent a break in the contractualist perspective on corporate law.

³³ SALOMÃO FILHO, Calixto, *O novo direito societário*, 4ª ed., São Paulo, Malheiros, 2011, pp. 27-51.

³⁴ SALOMÃO FILHO, Calixto, *O novo direito societário*, 4ª ed., São Paulo, Malheiros, 2011, p. 52.

³⁵ GONÇALVES, Oksandro, “EIRELI - Empresa Individual de Responsabilidade Limitada”, in CAMPILONGO, Celso Fernandes *et al.*, coord., *Enciclopédia jurídica da PUC-SP*, São Paulo, Pontifícia Universidade Católica de São Paulo, 2017.

This paradigmatic change was accelerated by the acceptance of the single-partner LTDA. This possibility was included in the Brazilian legal system by the Law n. 13.874 of 2019, that included two paragraphs in art. 1.052 of the Civil Code³⁶. It represented the adoption of an element of the institutionalist view, since it is unthinkable, in the contractualist perspective, the incorporation of a society with a single partner.

The LTDA became incompatible with the command of art. 1.033, IV, of the Civil Code, which, as mentioned, deemed the absence of the plurality of partners a cause of mandatory dissolution of the company. Then, the creation of single-partner LTDA implied the tacit abrogation of the mentioned rule, at least with respect to the LTDA. This tacit abrogation became definitive since the Law n. 14.195 of 2021, that expressly repealed art. 1.033, IV, of the Civil Code. The fact that the only legal rule that commanded the dissolution of companies in case of loss of plurality of partners was repealed (and 0 is, absolutely, a situation of lack of plurality) makes it possible to grant AI, at least as a hypothesis, a “legal receptacle” to perform its activities in Brazilian law.

More to the point: departing from an institutionalist view of LTDA, it is possible, at least *in thesis*, to conceive it deprived of its partners, in order to preserve the social function that it performs. The lessons of Calixto Salomão Filho are valuable to the argument:

Once the company is seen as an organization and not a plurality of partners, it is evident that both the single-partner company and the company depleted of partners are admissible. By the way, it is in those structures that the contact that bring the company into life acquire pure organizational value, in other words, its only objective becomes to structure a recollection of contracts³⁷.

So, according to this contemporary institutionalist view of corporate law, it is plausible to accept, in theory, the existence of an AI encapsulated by a LTDA, that will keep performing economic activities, despite the lack of partners.

6 A DIALOGUE WITH BAYERN'S PROPOSITION

Although the existence of a partnerless company may be theoretically admissible under Brazilian corporate law, some difficulties concerning Shawn Bayern's proposition to “encapsulate” an AI using a LTDA remain. Until now, the only conceived hypothesis of a partnerless company assumes the death of all its partners. Then, if the only possibility for an autonomous system to run by itself a LTDA is in the event of the death of all partners (assuming all of them are physically existing persons), the proposition is practically ineffective, since its occurrence is unlikely.

³⁶ According to the first paragraph: “[...]§1º The “sociedade limitada” may be formed by 1 (one) or more persons”.

³⁷ SALOMÃO FILHO, Calixto, *O novo direito societário*, 4ª ed., São Paulo, Malheiros, 2011, p. 50.

The question posed is the following: is it possible to apply Bayern's proposition in other situations, such as the recess of all the partners from a company? Extraordinarily, que proceeding to do so was suggested long ago, by João Eunápio Borges, a renowned scholar of corporate law in Brazil, Full Professor of Commercial Law at the Federal University of Minas Gerais. In 1967, the author remarked on the possibility of a company being depleted of all its members. Quote:

[...] even running the risk of causing scandal to many, I take, with conviction, a step forward in the path of the institutionalization of the LTDA; between us it can exist occasionally, not only with a single partner, but without any partner... Since it can acquire its own shares, as commanded by art. 8º of Decree n. 3.708, shares that it can preserve for ulterior assignment or sale, there is no legal impediment in the occurrence of the following phenomenon: a LTDA, having acquired, in accordance with all legal formalities, the entirety of its shares, turn itself into a partnerless company³⁸.

In that time, João Eunápio Borges already defended the institutionalist view of corporate law, based on German theories of the mid-XXth Century. According to him, the relevance of the continuity of the business justified the maintaining of the company, even if it only count one partner or, more, even if does not count any³⁹.

The hypothesis drafted by João Eunápio Borges regarding how a LTDA could get rid of all its partners by acquiring all of its shares is different in contemporary corporate law in Brazil. In the past, art. 8º of the Decree n. 3.708 of 1919 expressly authorized a LTDA to acquire its own shares. However, the Civil Code of 2002 has repealed the aforementioned Decree and does not have any similar rule.

The gap in the Civil Code has caused some doubt regarding the possibility of a LTDA acquiring its own shares. In the IV Journey of Civil Law, a favourable opinion was given, as can be seen in the Enunciado 391, that recommends: "the LTDA can acquire its own shares, respecting the condition set by the Law of Companies"⁴⁰. The Department of Commercial Registry (DREI), in turn, initially refused the idea, as provided by the Normative Instruction 10 of 2013⁴¹. But in 2017 DREI has changed its opinion, editing Normative Instruction n. 38 of 2017⁴². In this Normative Instruction, as commanded in item 3.2.6.1, it is admitted that a LTDA can acquire its shares, provided that its document of incorporation calls for de

³⁸ BORGES, João Eunápio, "Sociedade por quotas – liquidação", *Revista Forense*, São Paulo, ano 63, vol. 763-764-765, jan./mar. 1967, v. 217.

³⁹ CHAVES, Natália Cristina, "O menor empresário na sociedade limitada unipessoal", *Revista de Direito Empresarial*, Curitiba, jan./jun. 2005, n. 3, p. 143.

⁴⁰ CONSELHO DA JUSTIÇA FEDERAL, IV Jornada de Direito Civil, *Enunciado 391*, Brasília, 2006.

⁴¹ BRASIL, Ministério da Economia, *Instrução Normativa DREI 10*, 2013, Link: <https://www.gov.br/economia/pt-br/assuntos/drei/legislacao/instrucoes-normativas-revogadas-drei>, Accessed on 15 Jan. 2021.

⁴² BRASIL, Ministério da Economia, *Instrução Normativa DREI 10*, 2013, Link: <https://www.gov.br/economia/pt-br/assuntos/drei/legislacao/instrucoes-normativas-revogadas-drei>, Accessed on 15 Jan. 2021.

suppletive regency of Law n. 6.404 of 1976 (the Law of Companies). The Normative Instruction 81 of 2020, currently in force, has kept this understanding⁴³.

Admitting that a LTDA can acquire its own shares, it is possible to adapt Shawn Bayern's proposition to Brazilian legal landscape.

This possibility was reinforced by the absence of a rule demanding the presence of partners as a requisite of regularity of a company after its incorporation. In fact, the existence of one or more partners is only necessary for the incorporation of the LTDA, but not for its maintenance thereon.

Private law legal theory in Brazil, influenced by the scholar Pontes de Miranda, usually, referring to legal acts, such as the incorporation of a LTDA, mentions three plans: existence, validity and efficacy⁴⁴. In this perspective, a LTDA only needs its partners to be incorporated. After its incorporation, it can perform its activities autonomously, with legal efficacy.

More to the point, Brazilian corporate law is now facing a movement of enhanced economic freedom. Law n. 13.874 of 2019, known as the "Economic Freedom Bill", proposes the reduction of statal intervention in private matters. In this line of thought, one of its principles is the one of subsidiarity and exceptionality of state intervention in the exercise of economic activities (art. 2º, III). The autonomy of the will of the parties play an important role. In business agreements, the autonomy of the parties prevails over legal rules of Commercial Law, except those mandatory rules of public policy (art. 3º, VIII)⁴⁵.

Considering this tendency and the absence of a mandatory rule prohibiting a partnerless company to be maintained and prohibiting a company to be its own member, Bayern's theory becomes more tangible in Brazil.

There is only one rule that seems to be some kind of an obstacle to the maximum potential of legal agency of an IA in Brazilian corporate law. Art. 1.060 of the Brazilian Civil Code commands that the administrator of a LTDA must be a "person", either partner or not. Besides that, art. 997 of the same Code, which applies to the LTDA, commands that a company must be administered by a "natural person". There is some controversy regarding this theme, given that, occasionally, such during insolvency, the company may be administered by a legal person. DREI's current position, in the Normative Instruction 81 of 2020, is that the LTDA cannot be administered by a legal person. But, be as it may, the requisite of the presence of a natural person responsible for the administration of a LTDA, even if this person is not a partner of the company, is a significant restriction of the autonomy of an AI in a company, given that it cannot administer it.

⁴³ BRASIL, Ministério da Economia, *Instrução Normativa DREI 10*, 2013, Link: <https://www.gov.br/economia/pt-br/assuntos/drei/legislacao/instrucoes-normativas-revogadas-drei>, Accessed on 15 Jan. 2021.

⁴⁴ PONTES DE MIRANDA, Francisco Cavalcanti, *Tratado das Ações*, vol. 1, São Paulo, RT, 1970, p. 4.

⁴⁵ Concerning the intimate relation between free initiative and the structural scheme of LTDA, see the opinions of Castanhato and Abdulmassih. CASTANHATO Camila, ABDULMASSIH, Thiago Brazolin, "Sociedades Limitadas e Livre-Iniciativa: Concretização dos Ditames da Constituição Federal de 1988", *Revista Internacional Consinter De Direito*, ano 2, n. 3, 2016, DOI: 10.19135/revista.consinter.00003.19.

On the other hand, this obstacle solves a crucial legal problem: that of the responsibility⁴⁶. Ordinarily, the responsibility for the acts of the AI will fall to the company that encapsulates it. Since its commands are legally executed in the name of the LTDA, it is the company that will be liable in damages (contractual or tortious) that may occur under a variety of circumstances.

Nonetheless, it is undeniable that, in some cases, abuses may occur, and measures must be taken to avoid unfair damages being left uncompensated. In this context, the presence of an administrator that is a human being might solve the issue of responsibility.

According to art. 50 of the Civil Code, as redacted by Law n. 13.874 of 2019, in cases of abuse in legal personhood, the responsibility by unlawful acts can be expanded to the assets of the administrator.

So, even if the LTDA has no partner, being operated by an autonomous system, any damage that a third party may suffer caused by unlawful acts can be compensated, by the company itself, ordinarily, or by the administrator, in case of abuse of legal personhood.

Those provisions (art. 1.060 and 50 of the Civil Code) can be considered a safety measure. It is the well-known strategy of the human-in-the-loop. In other words, even if the autonomy of AI is recognized, at some point, a human being intervenes to avoid additional damage.

7 CONCLUSION

As it was demonstrated above, with the advances experienced lately, the use of technological innovation that embed one or more attributes of AI has grown and it poses new challenges to the law.

In order to give some answers to those challenges, especially in the field of civil liability, in Europe, the discussion concerning AI is developing in the sense of granting legal personhood to those entities, creating a kind of *e-personality*. However, this strategy raises problems in the fields of ethics, fundamental rights and public law in general.

In this context, Shawn Bayern's proposition appears as an alternative to the European solution. The author suggests that American LLC could be used to encapsulate autonomous systems, allowing them to act legally through those legal entities, without the need of any legal reform.

Departing from this lens of analysis, Bayern's proposition is analysed in the perspective of Brazilian law, regarding the LTDA. Recent legal reform in this area, especially the admission of the single-partner LTDA, has shown a movement towards abandoning the contractualist view in corporate law in favour of an institutionalist perspective. In this new paradigm, at least in theory, the dialogue

⁴⁶ CHAVES, Natália Cristina, "Inteligência Artificial: os novos rumos da responsabilidade civil", in GONÇALVES, Anabela Susana de Sousa *et al.*, coord, *Direito civil contemporâneo*, Braga, CONPEDI, 2017.

between Bayern's proposition and Brazilian law is possible, given that the main element needed to allow AI to act juridically through a LTDA is the possibility of the legal system to allow the operation of a partnerless company.

Concluding, Brazilian LTDA offers autonomous systems the opportunity to become, in Bayern's own words, "its own instrumentality" to operate under current legislation. In fact, there is no legal obstacle to the adoption of Bayern's thesis to Brazilian corporate law. In fact, conceding that it is possible that a LTDA be created and, then, be depleted of all its partners (by death or by the acquisition of all shares by the LTDA itself), the legal receptacle for AI is created.

Even though the application of this thesis in Brazilian law is, now, only conceptual, it is plausible that, in a near future, AI structures "encapsulated" by LTDA will be observed in legal reality.

This point of view is certainly not free from its critics. In 2018, Lynn LoPucki, Professor at UCLA, has published a paper called *Algorithmic Entities*, in the *Washington University Law Review*, warning against the perils that the creation of companies run by AI may represent to humankind, given the difficulty in governmental regulation, the inclination of those structures to disregard the law and the impossibility of prevention via incentives⁴⁷.

Those remarks are valid and, even though they show paths of *de lege ferenda* adaptations, they do not challenge the legal solidity of Bayern's proposition. The ideological background of those arguments shows much of the apocalyptic fear that always rises against all kinds of innovation.

Some reflexes of this fear are already observed in recent legal reform propositions that are being analysed by the Brazilian Senate (Bills n. 5691 of 2019 and 5051 of 2019). Those propositions suggest, as principles of AI, the gradual incorporation of constant human supervision and even the subsidiary nature of AI in relation to human will in decision making processes. Those legal reform propositions were severely criticised by Daniel Becker, Isabela Ferrari and Bernardo Araújo⁴⁸ as perfect examples of "laws of fear", identified by Cass Sunstein as norms edited in a hurry, aimed to address the fear of the people.

In the end, evolution is inevitable and all this apocalyptic fear represents nothing more than a pointless anguish of the being. As said by Yuval Noah Harari, in *Sapiens*:

*Unless some nuclear or ecological catastrophe intervenes, so goes the story, the pace of technological development will soon lead to the replacement of Homo Sapiens by completely different beings who possess not only different physiques, but also very different cognitive and emotional worlds*⁴⁹.

⁴⁷ LOPUCKI, Lynn M. Algorithmic entities, *Washington University Law Review*, St. Louis, vol. 95, n. 4, 2018, p. 887-953.

⁴⁸ BECKER, Daniel; FERRARI, Isabela; ARAUJO, Daniel, "Regulation against the machine: críticas ao PL que busca regular inteligência artificial no Brasil", *Boletim JOTA, Caderno de Tecnologia*, São Paulo, 2019.

⁴⁹ HARARI, Yuval Noah, *Sapiens: a brief history of humankind*, Toronto, Penguin Random House, 2014, p. 412.

Why deny reality? It is “[...] is naïve to imagine that we might simply hit the brakes and stop the scientific projects that are upgrading *Homo Sapiens* into a different kind of being”⁵⁰.

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