

Ai And Legal Personhood: Perspectives In Brazilian Corporate Law

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Abstract

This article is focused on the impact of Artificial Intelligence (AI) on the legal sector. 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. In the sequence, Bayern's proposition is analyzed from the perspective of Brazilian LLC law, showing that the pace of technological innovations will soon lead to similar legal structures in Brazil.

Keywords

Corporate Law; Artificial Intelligence; Legal Personhood.

Introduction

The technological advances in the last few decades are unprecedented. As law is a mirror of society, even though a distorted one, it is undeniable that the technological revolution somehow impacts on legal structures. The increasing use of Artificial Intelligence (AI), both in the daily life of common people and in commercial transactions, probably is one of the most crucial points of this process.

Since AI represents the capability of a machine to mimic the rationality of a human being³⁴, it (AI) creates a deep moral and juridical conundrum about what should or should not be its legal *status*.

This article is dedicated to analyzing this legal issue. Nonetheless, assuming that the ethical, constitutional and public law debate about AI is not well developed, this study is focused on a very circumscribed problem: from the perspective of Brazilian law, can AI somehow act juridically without the need of a legal reform?

In the sequence, the path to the answer is presented.

2. General Considerations About Ai And The Law

Before thinking about the legal implications of AI arrival, it is necessary to comprehend its concept, to avoid fighting windmills as if they were giants, using Cervantes's metaphor. Yunhe Pan argues that the classic concept of AI was established more than sixty years ago, in 1956, in a conference held in Dartmouth College (USA). This conference was attended by the most famous scholars of Information Theory then, such as J. McCarthy, M. L. Minsky, H. Simon, A. Newell and C. E. Shannon. According to them, Artificial Intelligence could be

³⁴ This rationality is precisely the fundamental characteristic of a person in order to exercise rights and to be subject of obligations in accordance with private law tradition. (WEINRIB, Ernst. J. *The Idea of Private Law*. 2 ed. Oxford: Oxford University Press, 2012).

defined as “*the ability of machine understand, think and learn in a similar way of human beings*”³⁵.

From that conference on, too many things have changed. After the initial fuzz about the topics discussed over there, studies about AI did not cause the expected impact until the beginning of the XXIth Century. The massification of the internet provided a sufficient amount of data needed for autonomous machine learning through network data-crossing³⁶. As described by Yunhe Pan, the AI, interacting with *big data*, has become “AI 2.0”. It still can be conceptualized as “*the ability of machine understand, think and learn in a similar way of human beings*”³⁷, but now AI is qualified and potentialized by the infinitude of data and possibilities of hyperconnected reality³⁸.

In a more analytical approach, Gabriel Hallevy identifies the attributes required for an entity to be considered intelligent. In consonance with this author, there are five attributes that could be enlisted: communication, internal knowledge, external knowledge, goal-driven behavior 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*³⁹. Summarizing

35 PAN, Yunhe. Heading toward artificial intelligence 2.0. *Engineering*, Pequim, n. 2, p. 409-413, 2016. p. 410.

36 PAN, Yunhe. Heading toward artificial intelligence 2.0. *Engineering*, Pequim, n. 2, p. 409-413, 2016.

37 PAN, Yunhe. Heading toward artificial intelligence 2.0. *Engineering*, Pequim, n. 2, p. 409-413, 2016. p. 410.

38 PAN, Yunhe. Heading toward artificial intelligence 2.0. *Engineering*, Pequim, n. 2, p. 409-413, 2016.

39 “There are five attributes that one would expect an intelligent entity to have. The first is communication. One can communicate with an intelligent entity. The easier is to communicate with an entity, the more intelligent the entity seems. One can communicate with a dog, but not about Einstein’s theory of relativity. [...] The second is internal knowledge. An intelligent entity is expected to have some knowledge about itself. The third is external knowledge. An intelligent entity is expected to know about the outside world, to learn about it, and utilize the information. The four is goal-driven behaviour. The fifth is creativity. An intelligent entity is expected to have some degree of creativity”. (HALLEVY, Gabriel. *The criminal liability of artificial intelligence entities - from science fiction to legal social control*. *Akron Intellectual Property Journal*,

the author's key ideas, an AI could be understood as a machine that, especially through big data, can communicate, knows itself, knows the world, pursues goals and creates, behaving like human beings.

Once the theoretical departure is explained, the assumption that AI is today a reality is obvious. In fact, AI is present in the internet of things, autonomous cars, medical diagnosis systems, stock exchange, drones, maps, social media, along with others⁴⁰. What was considered eccentricity a few years ago, more suitable to science fiction, today is noticed in every detail of daily life, something common. This technological innovation raises some legal issues which cannot be ignored by legal professionals (scholar or practical). The multiplication of AI uses in everyday business, mainly in the market, poses new challenges for the law.

To illustrate the variety of legal problems concerning the use of AI, some stories are worth telling. In 1981, in Japan, a worker of a motorcycle industry was killed by an AI robot who thought the man was a threat to its mission. In 2015, a German worker was killed in similar circumstances in an electric motors' producing line. The reasons for the AI violent behavior remain unknown. In 2016, a semi-autonomous vehicle was involved in a fatal accident, even though the investigation ended up not implying that the AI system was responsible for the tragedy. In the same year, in California, a security robot in a shopping center has accidentally stumbled into a toddler, hurting it slightly⁴¹. As can be seen, juridical concerns about AI are no longer a far-fetched Asimov's romance.

Akron, vol. 4, iss. 2, 2010. p. 6).

40 For an overview of the multiple uses of AI daily: 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.

41 Those cases are narrated in: CHAVES, Natália Cristina. *Inteligência Artificial: os novos rumos da responsabilidade civil*. In: GONÇALVES, Anabela Susana de Sousa et al. (Coords.). *Direito civil contemporâneo*. Braga: CONPEDI, 2017. p. 68.

With the objective of addressing this problem, especially regarding damages caused by AI functioning (civil liability), the European Parliament has recently recommended the Commission of Civil Law Rules on Robotics to study granting legal personhood to certain types of AI⁴². This proposition of creating somehow a *sui iuris* kind of e-person, nonetheless, raises a series of ethical implications, which were severely criticized by some scholars. According to them, the recommendations are a big step to solve what they consider, until now, minor legal issues⁴³.

3. Bayern's Proposition On Using Llc To de Facto Personalizing Ai

As the European directives tend to solve liabilities' problems by creating a new hypothesis of legal personality, the e-person, another way of dealing with the problem, with less ethical conundrum, could be considered: using corporate law to *de facto* empower AI to act juridically. This is exactly the proposition of Prof. Shawn Bayern, expressed in his article called *The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems*, which was published in 2015 in *Stanford Technology Law Review*⁴⁴.

Bayern starts his analysis by pointing out that in American law AI formally lacks legal personhood. Notwithstanding, it is undeniable, the author remarks, that artificially intelligent mechanisms are

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

43 The creation of an e-person was harshly criticized by the Portuguese Scholar Mafalda Miranda Barbosa in her article: BARBOSA, Mafalda Miranda. *Inteligência Artificial, e-persons e direito: desafios e perspectivas*. *Revista Jurídica Luso-Brasileira*, Lisbon, y. 3, n. 6, pp. 1475-1503, 2017.

44 This section of the article is a summary of the insights registered in: BAYERN, Shawn. *The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems*. *Stanford Technology Law Review*. Palo Alto, iss. 19, p. 93-112, 2015. Information or insights diverse of this source will be directly referenced in notes.

physically capable of making decisions, performing actions, and so on. In his line of thoughts, considering AI a legal person is not a matter of physical impossibility, but only a question of legal recognition.

The fact that American law has not expressly granted legal personhood to AI does not implicate, though, that autonomous decision-making entities cannot *de facto* operate legally in a similar way as corporations do. At least in the realms of Private Law, this is true. AI can, *de facto*, by its own decisions (and, as long as it could be conceived, by its own “will”) make promises, accept proposals and, in this process, acquire property. All that AI needs is a legal receptacle to encapsulate it, a role that a corporation could play. To be more specific, in American corporate law, a Limited Liability Company (LLC) could be used for this purpose⁴⁵.

American corporate law was traditionally strict in legal terms. That’s why Bayern refers to LLC regulations as “*modern business-entity law*”. The legal landscape changed. The Uniform Limited Liability Company Act (ULLCA), first edited in 1994, has gathered legal provisions concerning LLC from different American States in the late XXth Century. In 2006, another effort was made, focused on the purpose of standardizing States’ law, turning LLC regulations more flexible⁴⁶. The new version of LLCA has been called RULLCA and the latest adjustments were done in 2013.

To avoid misunderstandings, it is important to remark that uniform acts are not laws *stricto sensu*, but uniformization models designed by a commission of notorious jurists to inspire States’ laws to endorse it⁴⁷. In the US, differently from Brazil, where a federal law

45 It is important to clarify that Prof. Bayern’s strategy was based on the provisions of RULLCA and not on any American State’s legislation.

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

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

regulates in a uniform manner the terms of Brazilian LLC, this field is occupied by States, which have their own laws. Concerning the RULLCA, till recently it was internalized only by 19 of the 50 US States. Despite this fact, the advantage of the LLC models points out to its fast expansion to the remaining States⁴⁸. That's why, with regards to comparative law, using RULLCA as a standard for LLC regulations in the US is more accurate than using a specific law from an American State.

Essentially there are two documents related to LLC formation. The first one is the certificate of organization, or the articles of organization. It is the filling document for an LLC. It includes the mandatory clauses for an LLC according to the applicable State's law. The second one is the operating agreement, which is the "*foundational contract among the entity's owners*"⁴⁹, a creature of contract. By this model, the company's members are free to customize the LLC's terms. More than that, the flexibility of the operating agreement in RULLCA made it even possible for the members to determine that all the functioning features of an LLC could be undertaken by an AI. At least, it is Prof. Bayern's understanding.

The author himself recognizes that, in a first moment, the AI needs a human being or a recognized legal person to file the papers and draw the operating agreement for the LLC. But from that moment on, since the LLC is legally constituted, the founding member could step out of the company and by translating the provisions of the operating agreement into an algorithmic language, the AI could keep operating autonomously.

Bayern sustains that an AI could be "*encapsulated*" by an LLC under US uniform law according to the following steps:

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

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

(1) an individual member creates a member-managed LLC, filing the appropriate paperwork with the state; (2) the individual [...] 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 [...]; (4) the individual transfers ownership of any relevant physical apparatus of the autonomous system to the LLC; (5) the sole member withdraws from the LLC, leaving the LLC without any members⁵⁰.

Bayern concludes, then, that after these measures have been taken, “[t]he 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”⁵¹.

According to Bayern, the provision of RULLCA’s §701 (a)(3)⁵², which provides that if an LLC lacks members for the time-lapse of ninety days it must be extinguished, is not an obstacle to his proposition. This rule, the author argues, is not mandatory, but merely a default rule to be used only if the operating agreement is silent concerning the period that an LLC could operate without members. *Ex positis*, Bayern sustains that nothing positively determined in RULLCA could be an impeditive to the use of LLC as a recipient for AI to act juridically.

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

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

52 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. *Uniform Limited Liability Company Act* (2006). Chicago, 2006.

The advantage of Bayern's proposition is that it does not demand any legal reform in the perspective of American corporate law. As it is known, the legislative process comprises several steps and is often seen to be moving at a slow pace, and the results are not always effective. Moreover, the recognition of e-personalities by a statute, such as it seems to be the next move in European directives, necessarily makes things more complex than they could be. The entitlement of personhood means not only providing possibilities of owning property, making agreements and being responsible for its own acts but also raises ethical issues, matters of fundamental constitutional rights and questions to public law.

In this incipient moment, limiting discussion about AI to corporate law, without immediately granting it legal personhood, postpones the ethical, constitutional and public law debate to a further moment, when, hopefully, those issues will be better addressed.

Bayern's strategic proposition has spread beyond the borders of American legal debate. In 2017, Shawn Bayern himself and other European legal scholars, funded by St. Gallen University, in Switzerland, developed a study about the suitability of this strategy to 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* in *Hastings Science and Technology Law Journal*⁵³.

None of the three above corporate law systems appeared to have a legal entity with the same flexibility of the American LLC, although good perspectives were found in German limited liability company, the GmbH (*Gesellschaft mit beschränkter Haftung*), the British limited liability partnership, the LLP, and, to a lesser extent, in the Swiss foundation, the *Stiftung*.

53 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, p. 135-161, summer 2017.

If the effort of adapting Bayern's proposition to different legal systems was somehow fruitful, we could make the same effort concerning Brazilian law. Could this proposition be also suitable for corporate law in Brazil? Indeed, questioning the application of Bayern's proposition to other legal systems, as the Brazilian one, was, in fact, the very objective of his work:

[...], 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'.⁵⁴.

In the following topics, the application (or not) of Bayern's proposition to the Brazilian legal system will be examined. For this purpose, the Brazilian LLC will be taken as a reference.

4. From The Creation Of Brazilian Llc To The Civil Code Of 2002: a Contractual View

Just as the US, Brazil has its own type of LLC as a corporate entity, the so-called "*Sociedade Limitada*". As a matter of fact, the Brazilian LLC has an older and more stable tradition in comparison with US corporate law. If LLC in the US is a product of the late XXth Century, Brazil, inspired in German law, has incorporated the figure of LLC more than one hundred years ago, with the edition of the Decree

54 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, p. 135-161, summer 2017. p. 136.

n. 3.708, from January 10th of 1919. The Decree has regulated the Brazilian LLC for more than eighty years, until the Brazilian Civil Code of 2002 came into force in 2003⁵⁵.

The Brazilian Decree n. 3.708 was an answer to the need of the bourgeoisie (more flexibility, less bureaucracy and limited liability for all the members).

The main feature of a Brazilian LLC is its flexibility. Its founding act is a declaration of will which allows the members the freedom to contract with one another upon whatever terms they consider are best suited to their business, as long as these terms do not collide with mandatory requirements of law.

Here we can see some similitudes between the American LLC as established by RULLCA and the traditional Brazilian LLC. Said that, if it is thinkable, according to Prof. Bayern's insight, that the LLC operating agreement makes it possible for an American LLC "encapsulates" AI in a way that it can autonomously act juridically, can the Brazilian LLC's constitutional document do the same?

The similarities between American LLC and Brazilian LLC concerning its flexibility seem to indicate a positive answer. Nonetheless, a safe opinion on the matter depends on a closer analysis of the LLC regulation of the Brazilian Civil Code and its legal interpretation.

The main difficulty about using LLC to encapsulate AI in Brazil is the admission or not of a company without members. In fact, the Brazilian Civil Code does not refer to an LLC without members. The LLC's legal provisions govern the company's members, their internal relationship and their interaction with the legal entity. According to article 981 of the Brazilian Civil Code, companies are defined as a

55 This overview of BRAZILIAN LLC in Brazil is based on: CHAVES, Natália Cristina. *Casamento, divórcio e empresa: questões societárias e patrimoniais*. Belo Horizonte: D'Plácido, 2018. part 1, chapter 1: "Panorama das Sociedades Limitadas no Brasil". p. 27-52.

contract, an agreement celebrated between two or more people who reciprocally undertake to contribute, with goods or services, to the exercise of economic activity and the sharing of the results. So, the Brazilian LLC, under the provisions of the Civil Code, is traditionally seen from the perspective of a contract⁵⁶. Even though the association of LLC with the contractual view is *parti pris* in Brazilian corporate law, having its constitutional act received the name of “contract” since the edition of the Decree n. 3.708/1919, the theorization about the contractualism in corporate law as it is now known in Brazil was imported from mid XXth Century Italian doctrine⁵⁷.

It was due mainly to the influence of Tullio Ascarelli that contractual theories were spread in Brazil⁵⁸. Ascarelli, against the institutionalist view⁵⁹, developed the concept of plurilateral contract, stating a cooperative behavior among partners to achieve a common goal⁶⁰.

The contractual view of the Brazilian LLC can be inferred not only from the referred article 981 but also from other Civil Code’s provisions. For instance, article 1.052 limits the members’ liability to the payment of the quotas subscribed. However, all partners are jointly liable for the complete payment of the corporate capital⁶¹.

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

57 SALOMÃO FILHO, Calixto. *O novo direito societário*. 4^a ed. São Paulo: Malheiros, 2011. p. 28-31.

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

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

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

61 The original version of this article is reproduced in the following text: “Na sociedade limitada, a responsabilidade de cada sócio é restrita ao valor de suas quotas, mas todos respondem solidariamente pela integralização do capital social”. In free translation: “In the LLC each member’s liability is limited to the value of its own quotas, but all of them are responsible for the payment of the corporate capital”.

Article 1.053 states that the legal provisions of the Simple Company (which has a contractual structure *par excellence*), are subsidiarily applicable to the Brazilian LLC⁶². Due to this, article 997, which disciplines the constitution of the Simple Company, applies to the Brazilian LLC, establishing that “*The company is constituted by a written contract, in public or private form, which, in addition to the clauses stipulated by the parties, will mention: [...]*”⁶³.

Following article 1.053 of the Civil Code, the subsequent articles cover the member’s quotas, company’s administration, general meetings, partial corporate dissolution and, finally, causes of extinction. Concerning the total dissolution causes, it is worth noting that until recently the absence of more than one member was considered a cause of total dissolution of a Brazilian LLC, according to article 1.033, item IV, of the Civil Code, applicable to this type of company. This item expressly commands: “*the company shall be dissolved when occur: [...] IV – the absence of a plurality of members for the time-lapse of one hundred and eighty days*”⁶⁴.

Considering all these legal provisions, the companies’ contractual view seems to be endorsed by the Brazilian legal system. From this perspective, thinking of Brazilian LLC without any members would be a *contraditio in terminis*. Nevertheless, at least in one hypothetical circumstance, this situation will be applied.

Assuming that all the members of a specific Brazilian LLC are dead (in an airplane accident, for example) and that the company is managed by a no partner administrator who keeps the business

62 In the original text: “Art. 1.053. A sociedade limitada rege-se, nas omissões deste Capítulo, pelas normas da sociedade simples”. In free translation: “Art. 1.053. The LLC is governed, in the omissions of this chapter, by the rules of the simple company”.

63 Free translation. In the original text: “Art. 997. A sociedade constitui-se mediante contrato escrito, particular ou público, que, além de cláusulas estipuladas pelas partes, mencionará:[...]”.

64 Free translation. In the original text: “Art. 1.033. Dissolve-se a sociedade quando ocorrer: [...] IV - a falta de pluralidade de sócios, não reconstituída no prazo de cento e oitenta dias”.

moving on. Are the acts practiced by the administrator after the members' death, legally valid? Does the LLC need to be immediately dissolved?

It is true, according to Brazilian succession law, that all the possession of a deceased one passes on to its heirs immediately (article 1.784 of the Civil Code⁶⁵). However, even admitting that patrimonial rights regarding the member's quotas in the Brazilian LLC are immediately transferred to the heirs, the attribute of *being a member* does not automatically pass on. An amendment to the constitutional act is necessary.

Although the situation above shall be considered unusual, it could really happen. Unfortunately, there is no specific reference in the Brazilian legal system concerning this practical problem.

The company's contractual view does not offer a satisfactory solution. However, the legal landscape started changing in 2011, with the introduction of the individual limited liability enterprise (EIRELI). It meant a significant step in the direction of the institutionalist view of corporate law. In this new scenario, a company with no-member is more palpable.

5. Eireli And Single-member Companies: a Path To An Institutional View

The institutionalist view of corporate law was developed in reaction to what Ascarelli called a "*traditional approach*" to a contractual view. The institutionalist ideas rendered the first fruits in Germany during the inter-war period. The concerns about the tragic economic crisis that ended up feeding the Nazi catastrophe made

⁶⁵ Free translated as: "Art. 1.784. Once the succession is opened, inheritance is passed on, therefore, to legitimate heirs and to testamentary ones". In the official text: "Art. 1.784. Aberta a sucessão, a herança transmite-se, desde logo, aos herdeiros legítimos e testamentários".

jurists then sensible to the importance of corporations not only as a tool for private thriving, but also as a fundamental asset to a country's economic stability. In this sense, the relevance of a corporation, far beyond a mere contract (an agreement celebrated between the parties), was emphatically remarked by the doctrine⁶⁶.

The contours of the institutionalist view were well synthesized and spread by the French jurist and sociologist Maurice Hauriou. One of the key names of France's public law, Hauriou has written an essay about corporate institutions that have deeply impacted the debate regarding corporate law. This essay has influenced even Brazilian jurists, such as Fran Martins⁶⁷. Hauriou defined three elements of the corporate institution:

We already know that there are three elements of any corporate institution: 1) the idea of a work to be done in a social group; 2) the power organized to perform this idea; 3) the communitary manifestations which are produced in the social group regarding the idea and its performance⁶⁸.

The institutionalist view, as theorized by the German jurists and by Hauriou, focuses on the corporations' social role. The importance of a company, as an LLC, for instance, extends beyond the interests and even the presence of its member. It resides, precisely, in the social role that this legal entity performs, creating wealth, providing jobs, fostering innovation, and so on.

66 SALOMÃO FILHO, Calixto. *O novo direito societário*. 4^a ed. São Paulo: Malheiros, 2011. p. 32-34.

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

68 Free translation. In the original text from the Italian edition: "*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*". (HAURIOU, Maurice. *Teoria dell'istituzione e della fondazione*. Trasl. Widar Cesarini Sforza. Milan: Giuffrè, 1967. p. 14).

In the Brazilian legal scenario, Prof. Calixto Salomão Filho, Full Professor of Commercial Law at the University of São Paulo, has long sustained, with broad repercussion, that the current comprehension of corporate law in Brazil must not be restricted to a mere contractual view. For the author, even in Brazilian law and despite the first impression of the Civil Code, a corporation is more than the sum of its members.

Salomão Filho proposes in his well-known works that corporate law should abandon its contractual original view, turning to an institutional view. It would be unfair to reduce the author's perspective to the strict institutionalism developed in Germany during the inter-war period, which conceived the corporation solely as a social tool⁶⁹. As a matter of fact, Salomão Filho refers to his theory as *organizational*, and not properly *institutionalist*. Nonetheless, even though Prof. Salomão Filho's contemporary view is capable to avoid the common criticism addressed to classical institutionalism, his theory's premises and institutionalism are very much alike. The author himself recognizes it: "*the organizational theory, when well applied, is not a return to the individualism of the contractualists, but, in fact, is a step forward towards institutionalism in the defense of public interest*"⁷⁰.

This remark is not a critic of Prof. Salomão Filho's work. On the contrary, the institutionalist view, in the more contemporary perspective sustained by Salomão Filho, can be a powerful tool to solve serious legal issues concerning corporate law, such as the use of an LLC as a legal receptacle of AI.

69 This paragraph is a summary of Prof. Calixto Salomão Filho's ideas published in the book: SALOMÃO FILHO, Calixto. *O novo direito societário*. 4^a ed. São Paulo: Malheiros, 2011. p. 27-51.

70 Free translation. In the original text: "*a teoria organizativa, quando bem aplicada, não é um retorno ao individualismo dos contratualistas, mas sim um passo avante em relação ao institucionalismo na defesa do interesse público*". SALOMÃO FILHO, Calixto. *O novo direito societário*. 4^a ed. São Paulo: Malheiros, 2011. p. 52.

In the Brazilian legal system, the path to the institutionalist view began to be covered in a more significant way in 2011, with the introduction of a legal entity constituted of a sole member: the EIRELI. Although this legal person wasn't defined as a company, it remained (and still is) halfway between that legal structure (a company) and an individual businessman, distancing from the contractual approach.

The EIRELI was incorporated in the article 980-A of the Brazilian Civil Code by the Federal Law n. 12.441 of 2011. Its doctrinal formulation is deeply controversial⁷¹. Despite not being a company or a corporation, this new legal entity, owned by one sole person (natural or legal) is governed, in the omissions of the article 980-A of the Brazilian Civil Code, by the rules of the Brazilian LLC. So, the responsibility of the sole member is limited. However, unlike the Brazilian LLC, an EIRELI requires a capital of at least a hundred minimum wages.

After the EIRELI, came the single-member law firms. This legal person was incorporated by Federal Law n. 13.247 of 2016 in the Brazilian Bar Statute (Federal Law 8.906/1994) to authorize individual lawyers to create a legal person to exercise its legal activities. With regards to the single-member law firm, the legislation has considered this new entity as a type of company, moving a little further in the direction of the institutionalist view.

If it is impossible for one person to celebrate an agreement with itself and, even though, this sole person can create an EIRELI or even constitute a single-member law firm, those entities are not contractual in nature. That is why their creation by law represented a break with the contractual perspective.

This paradigm shift was accelerated with the acceptance of a Brazilian LLC composed of a sole member. This possibility was

71 GONÇALVES, Oksandro. EIRELI - Empresa Individual de Responsabilidade Limitada. In: Celso Fernandes Campilongo, Alvaro de Azevedo Gonzaga e André Luiz Freire (Coords.). *Enciclopédia jurídica da PUC-SP*. Issue: Direito Comercial. Fábio Ulhoa Coelho, Marcus Elidius Michelli de Almeida (Issue coords.). São Paulo: Pontifícia Universidade Católica de São Paulo, 2017.

incorporated in the Brazilian legal system by Federal Law 13.874/2019, which added two paragraphs to article 1.052 of the Civil Code⁷². This proposition introduced, in the legal text of the Civil Code, an element of the institutionalist theory, since it is unthinkable, in a contractual perspective, to found a company with just one member.

The single-member LLC is incompatible with article 1.033, item IV, of the Civil Code, which, as said before, considers the absence of plurality of members a company's cause of compulsory dissolution⁷³. So, the creation of this single-member company implicated the tacit abrogation of this referred article in the field of LLC. This tacit abrogation of the only statutory command that determinates the extinction of a company in case of lack of plurality of members (and zero is obviously not plurality), makes it much easier granting AI a legal receptacle to exercise its activities in Brazil.

Returning to the point, in the theoretical perspective of corporate law as an institution, it would not be absurd to conceive an LLC without members to preserve the social function it performs. It is what Prof. Calixto Salomão Filho himself sustains:

Once the corporation is seen as an organization and not as a plurality of members it is pretty evident that the single-member corporation and the corporation without any member are admissible. In fact, it is in those structures that the contract which gives life to a corporation acquires

72 According to the first paragraph: “[...]§1º A sociedade limitada pode ser constituída por 1 (uma) ou mais pessoas”. Free translation: “[...] §1º The LLC can be constituted by one person or more”.

73 According to article 4º of Normative Instruction DREI n. 63/19, the article 1.033, item IV, of the Civil Code does not apply to single-member LLC. In the original text: “Não se aplica às sociedades limitadas, que estiverem em condição de unipessoalidade, o disposto no inciso IV do art. 1.033 do Código Civil”. (BRAZIL. Ministério da Economia. Normative Instruction DREI 63, 2019. Available at: <<http://www.mdic.gov.br>>. Accessed on 30 Jan. 2020).

its pure organizational value, meaning that it has by object only the structuring of a bundle of contracts⁷⁴.

So, according to this contemporary institutionalist view of corporate law, it is feasible to accept the theoretical existence of an AI encapsulated by a Brazilian LLC, which will continue to carry out the business, despite the absence of members.

6. A Dialogue With Bayern's Proposition

Even though the existence of companies without members are theoretically admissible in Brazilian corporate law, some difficulties regarding Prof. Sawn Bayern's proposition to "encapsulate" the AI by an LLC remains. Until this point, the only conceived hypothesis of a no-member company involves the decease of all members. So, if the only possibility of an autonomous system operates a Brazilian LLC is in the event of death (providing that all members are humans), the proposition should be almost ineffective, due to the low probability of happening.

The question is: is it possible to apply Prof. Bayern's proposition in other situations, in which all the members of a Brazilian LLC withdraw from a company? As surprisingly as it may seem, the proceedings for doing so were proposed a long time ago by João Eunápio Borges, a distinctive Brazilian corporate law scholar, Full Professor at the Federal University of Minas Gerais (UFMG). In 1967, he remarked on the possibility of a company ending up with no-member⁷⁵.

74 Free translation. In the original text: "*Uma vez vista a sociedade como organização e não como uma pluralidade de sócios é bastante evidente como tanto a sociedade unipessoal como a sociedade sem sócio são admissíveis. Aliás, é nessas estruturas que o contrato que dá vida à sociedade adquire seu valor organizativo puro, ou seja, passa a ter como objeto exclusivamente estruturar um feixe de contratos*". SALOMÃO FILHO, Calixto. *O novo direito societário*. 4^a ed. São Paulo: Malheiros, 2011. p. 50.

75 "[...] risking scandalizing many, I confidently take a step further in the way of institu-

Back then, Borges already defended the institutionalist comprehension of corporate law, based on mid XXth Century German theories. According to him, the relevance of the continuity of business justified its maintenance even if the company was reduced to one member or no member at all⁷⁶.

The scenery depicted by Borges about how a Brazilian LLC could get rid of all members by acquiring its own quotas is slightly different in contemporary Brazilian corporate law. In the past, article 8° of Decree n. 3.708/1919 expressly authorized the LLC to acquire its own quotas. Nonetheless, as previously said, when, in 2003, the Brazilian Civil Code entered into force, the Decree n. 3.708/1919 was revoked, and the new Code did not and still does not have a similar disposition.

The lacuna in the Civil Code has raised some doubts about the possibility of the LLC being a member of itself, negotiating with its own quotas. The Journey of Private Law, an assembly of legal scholars that enacts briefings about controversial questions in Brazilian Private law, has opined that “*the LLC can acquire its own quotas observing the*

tionalizing LLC; among us, it could occasionally exist, not only with a sole member, but without any member at all. The LLC can acquire its own quotas, according to article 8° of the Decree n. 3.708, quotas which the company can conserve with itself in order to ulterior cession or resale. There is not any juridical impossibility in the occurrence of such phenomenon: a LLC that, having acquired, observing legal formalities, all of its own quotas transforms itself in a company with no-members”. (BORGES, João Eunápio. Sociedade por quotas – liquidação. *Revista Forense*, São Paulo, y. 63, i. 763-764-765, v. 217, jan./mar. 1967). Free translation. In the original text: “[...] embora correndo o risco de escandalizar a muitos, dou convictamente um passo a mais no caminho da institucionalização da sociedade por quotas de responsabilidade limitada; entre nós ela poderá existir ocasionalmente, não apenas com sócio único. Mas sem qualquer sócio... Podendo ela adquirir as próprias quotas, nos termos do art. 8° do Decreto n. 3.708, quotas que ela pode conservar em carteira para ulterior cessão ou revenda, não existe juridicamente, nenhuma impossibilidade na ocorrência de tal fenômeno: uma sociedade por quotas de responsabilidade limitada que, havendo adquirido, com estrita observância de todas as formalidade legais, totalidade de suas quotas transformou-se em uma sociedade sem sócios”. (BORGES, João Eunápio. Sociedade por quotas – liquidação. *Revista Forense*, São Paulo, y. 63, i. 763-764-765, v. 217, jan./mar. 1967).

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

conditions of the Law of Business Corporations”⁷⁷ (Federal Law n. 6.404/76). At first, the National Department of Business Register and Integration (DREI) refused the idea of a Brazilian LLC acquiring its own quotas (Normative Instruction DREI n. 10/2013⁷⁸). In 2017, though, the DREI has changed its opinion, enacting the Normative Instruction DREI n. 38, which is still in force⁷⁹. This new Instruction, in its item 3.2.6.1, admits that Brazilian LLC can acquire its own quotas if its constitutional act provides that the company will be additionally governed by the rules of corporation, especially Federal Law n. 6.404/76⁸⁰.

Accepting that an LLC can acquire its own quotas, makes possible the adaptation of Prof. Bayern’s proposal to the Brazilian landscape.

This possibility is reinforced by the absence of a rule demanding the presence of members as a requirement for the company’s juridical validity after its creation. In fact, the existence of one or more members is just required for the constitution of the LLC, but not for its maintenance from then on.

Brazilian private law doctrine, influenced by the jurist Pontes de Miranda, usually segments the juridical acts (“*negócios jurídicos*”), such as the constitution of a company, in three steps: existence, validity and efficacy⁸¹. In this line of thought, a company needs a member-only to validly come into existence. After its creation, the referred company can exercise its activities, reaching juridical efficacy.

77 Free translation. In the original text: “*A sociedade limitada pode adquirir suas próprias quotas, observadas as condições estabelecidas na Lei das Sociedades por Ações*”. CONSELHO DA JUSTIÇA FEDERAL. IV Jornada de Direito Civil, *Enunciado 391*. Brasília, 2006.

78 BRAZIL. Ministério da Economia. *Normative Instruction DREI 10*, 2013. Available at: <<http://www.mdic.gov.br>>. Accessed on 30 Jan. 2020.

79 BRAZIL. Ministério da Economia. *Normative Instruction DREI 38*, 2017. Available at: <<http://www.mdic.gov.br>>. Accessed on 30 Jan. 2020.

80 In Private Law, what is not prohibited is permitted. So, even without this provision, in our opinion, the LLC could acquire its own quotas.

81 PONTES DE MIRANDA, Francisco Cavalcanti. *Tratado das Ações*. V. 1. São Paulo: RT, 1970. p. 4.

In addition, Brazilian corporate law is facing a movement towards the direction of more economic freedom. The Federal Law n. 13.874/2019, known as the Law of Economic Freedom, reduces state intervention in private businesses. One of its principles is the subsidiary and exceptional state intervention in the exercise of economic activities (article 2º, item III). The free will of parties plays an important role. In entrepreneurial business, party autonomy prevails over Brazilian business law, except in matters of public order (article 3º, item VIII).

Considering this movement and the absence of a rule prohibiting the maintenance of a company without a member or prohibiting the company as a member of itself, the application of Bayern's theory in Brazil becomes more tangible.

There is just one rule in Brazilian corporate law that seems to present somehow an obstacle to AI's maximum potential of acting juridically. Article 1.060 of the Brazilian Civil Code provides that the LLC administrator must be a *person* (a member or a non-member). Besides, article 997 of the same Code (which is applied to LLC) requires that the company must be managed by a natural person. There is some conundrum about this matter, especially because, in some situations, as in bankruptcy, per example, the company can be driven by a legal person⁸². The current position of the DREI, in the Normative Instruction n. 38 of 2017 (item 1.2.8, b), an LLC cannot be administrated by a legal person. But be that as it may, the requirement of a natural person to administrate an LLC, even if not a member, represents a substantial restriction to AI autonomy in a company, as it will not be able to manage.

On the other hand, this obstacle solves one of the crucial juridical problems of AI: responsibility⁸³. Ordinarily, the responsibility

82 Article 21 of Brazilian bankruptcy law provides that the judicial administrator can be a specialized legal person.

83 CHAVES, Natália Cristina. Inteligência Artificial: os novos rumos da responsabili-

for the AI acts will be taken by the LCC. As AI's commands will be juridically performed in the name of the LLC, the company will be responsible for any contractual or tortious damages that may occur under various conditions.

Nonetheless, it is undeniable that, in some cases, abuses can happen and measures must be taken in order to avoid that unjust damages remain unpaid. In this context, a human administrator can be the solution to the problem of liability.

In consonance with article 50 of the Brazilian Civil Code, Federal Law n. 13.874/2019⁸⁴⁸⁵, in case of abuse of legal personality, the

dade civil. In: GONÇALVES, Anabela Susana de Sousa *et al.* (Coords.). *Direito civil contemporâneo*. Braga: CONPEDI, 2017.

84 “Art. 50. In case of abuse of legal personality, characterized by deviance of function, patrimonial confusion, the judge may, by requirement of the interested party or the public attorney office, when its intervention is required, pierce the corporate veil in order that the effects of certain and determined duties be extended to the particular belongings of the administrators or members who were directly or indirectly beneficiaries of the abuse.

§ 1º With regard to this article, deviance of function is the use of the legal personality with the purpose of damaging creditors or practicing unlawful acts of any kind.

§ 2º Patrimonial confusion means the absence of factual discrimination between the belongings of the legal persons and its members, such as:

I - frequent performance of the obligations of the members or administrators by the legal person, vice versa;

II - transferring of assets and liabilities without actual counterpart, except for proportionally insignificant amounts;

III - other acts of noncompliance related to patrimonial autonomy”.

85 Free translation. In the original text: “Art. 50. *Em caso de abuso da personalidade jurídica, caracterizado pelo desvio de finalidade ou pela confusão patrimonial, pode o juiz, a requerimento da parte, ou do Ministério Público quando lhe couber intervir no processo, desconsiderá-la para que os efeitos de certas e determinadas relações de obrigações sejam estendidos aos bens particulares de administradores ou de sócios da pessoa jurídica beneficiados direta ou indiretamente pelo abuso. (Redação dada pela Lei nº 13.874, de 2019) § 1º Para os fins do disposto neste artigo, desvio de finalidade é a utilização da pessoa jurídica com o propósito de lesar credores e para a prática de atos ilícitos de qualquer natureza. (Incluído pela Lei nº 13.874, de 2019) § 2º Entende-se por confusão patrimonial a ausência de separação de fato entre os patrimônios, caracterizada por: (Incluído pela Lei nº 13.874, de 2019) I - cumprimento repetitivo pela sociedade de obrigações do sócio ou do administrador ou vice-versa; (Incluído pela Lei nº 13.874, de 2019) II - transferência de ativos ou de passivos sem efetivas contraprestações, exceto os de valor proporcionalmente insignificante; e (Incluído pela Lei nº 13.874, de 2019) III - outros atos de descumprimento da autonomia patrimonial. (Incluído*

liability for unlawful acts can be extended to the particular belongings of the administrator.

So, even if the company has no member or even if it is a member of itself, operated, in both cases, by an autonomous system, any damage that a person may suffer due to an unlawful act will be compensated (by the company or the administrator).

These provisions (articles 1.060 and 50 of the Civil Code) can be considered a safety measure, the well-known “human-in-the-loop” solution. In other words, even though recognizing the AI autonomy, at some point, a human being intervenes to avoid further damages.

Conclusion

As seen above, due to technological improvements, the use of AI in daily life increases and poses new challenges for the law.

In order to address these challenges, especially in the field of liability for tortious incidents, in Europe, the discussions regarding AI are moving in the direction of granting it legal personhood, creating a type of an e-person. However, the creation of an e-person raises problems regarding ethics, constitutional fundamental rights and public law.

In this context, Prof. Shawn Bayern’s theory emerges as an alternative to the European solution. The theory suggests the use of an American LLC to encapsulate autonomous systems, letting them act juridically through this legal entity, without the need for a law reform.

Starting from this theory, Bayern’s proposition was analyzed from the perspective of Brazilian LLC law. The latest legal reforms implemented in this field, especially the creation of a single-member Brazilian LLC, showed a movement from a contractual view to an institutionalist one. This new paradigm made possible, at least

pela Lei nº 13.874, de 2019”.

in theory, the dialogue between Prof. Shawn Bayern's theory and Brazilian legislation.

As a conclusion, Brazilian LLC law gives the non-human autonomous systems the opportunity to become, in Bayern's words, their "*own instrumentality*" to operate under existing law. In fact, there is no statutory impediment to the adoption of Bayern's thesis in Brazilian corporate law.

Although the application of Bayern's theory in Brazil is just conceptual, in the near future legal structures as those conceived by Prof. Shawn Bayern will be seen.

This point of view is certainly not exempt from criticism. In 2018, Prof. Lynn LoPucki, Distinguished Professor of UCLA, has published an article called *Algorithmic Entities*, in Washington University Law Review, calling attention to the danger that the creation of an AI-run corporation could represent to humankind, given to the difficulty of governmental control, its propensity for wrongdoing and the virtual impossibility of its deterrence⁸⁶.

This sort of criticism has its value and, even though, it can show the path for future *lege ferenda* adaptations, it does not invalidate the juridical correction of Bayern's proposition. Its ideological background, nonetheless, resembles much of that apocalyptic fear that always rises against any kind of innovation.

Some splashes of this fear are already experimented in Brazilian recent legal projects which are being processed in the Senate (numbers 5691/2019 and 5051/2019). These projects establish, as principles of AI regulation, the gradual incorporation, the constant human supervision and even the subsidiary nature of AI regarding the human process of decision-making. Those legal propositions have already been severely criticized by Daniel Becker, Isabela Ferrari and Bernardo Araujo as a perfect example of a "*law of fear*", identified by

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

Cass Sunstein as those rules edited in a hurry to address the worries of the people⁸⁷.

At the end of the day, the evolution turns out to be inevitable and all this apocalyptical fear represents nothing more than a pointless angst. As Yuval Noah Harari said 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 worlds⁸⁸.

Why deny reality? It “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”⁸⁹.

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