Chapter 11

Automation of registry´s office in digital democracy age: the proceeding of registry officer in times of digital certification, metadata, and blockchain

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ABSTRACT
The present study analyzes, from the point of view of the implementation of technological mechanisms in extrajudicial notaries, which are the advantages or disadvantages of digital certification and "blockchain" technology in the era of digital democracy. The starting point was questioning whether the technology would pose risks to the existence of the positions of Notaries and Registrars. In addition, we sought to understand the need to implement technology as a way to reduce bureaucracy in real estate transactions and how it can be implemented. The objective of the research is to know the advantages and disadvantages of implementing the technology in land registry offices. It was concluded that technology cannot represent a disruptive potential to the current property registration system, but it can alleviate existing problems. The research was established through bibliographic methodology, with a qualitative approach and theoretical nature.

Keywords: Registry Office, Technological standardization, Blockchain, Digital certification.

1 INTRODUCTION

The history of public records in Brazil, especially the real estate registry, is very old, transposed from the Portuguese era, and had few procedural changes, as everything was done in the physical environment and with little reference, until the arrival of technology. This generated expectations of greater changes in property registration in Brazil, as many procedures are being virtualized and the market trend is to continue this technological development, making notary acts electronic.

The need for virtualization of some state acts stems from the unimaginable perpetuation of the anachronistic contradiction: one cannot adopt procedures from the beginning of the 20th century when living in the 21st century, the latter marked by the attempt of technology to reduce costs and make it more efficient citizens' trust in the state.

The reductionism of the citizen's role in the act of voting is an element that justifies the crisis of the representative democracy system, that is, the crisis of the relationship of trust between the Administration and the administration, precisely because the popular will is represented by third parties. In addition to simplifying acts of private life, technology has been expanding society-State interaction, opening room for discussion about the possibility of digital democracy promoting greater individual action in conducting the democratic process. (GOLDSCHMIDT; REIS, 2019).

For example, for citizens to have their Work and Social Security Card issued (CTPS), it is no longer required that workers gather their documents, go to an agency, withdraw a form, wait to be called, and, from then on, he will be attended to, in the end, still having to wait days to receive a document that makes his work formalized. Currently, with a job proposal and not having a CTPS, the person entering the job market does not need to be discouraged by the old bureaucracy of issuing the document, nor go to the informality: just access the official website of the Federal Government, fill in your data and receive, in the same act, the digital CTPS, with the same legal validity as the physical one.

Similar reasoning can be extended to other acts of private life, such as buying and selling a property. The bureaucracy should be minimal, necessary only to guarantee the "jus imperium" of the laws and the control of the legality of the acts performed. Bureaucratic mechanisms can never, in the 21st century, represent a procrastination delay capable of delaying real estate transactions and ending up, ultimately, discouraging economic development.

It seems that it is in this vein that the new legislator is guided. Gradually, the legislator encourages the use of technological means in favor of stimulating economic development and in condemning the bureaucratization of simple procedures that are part of the acts of a real estate transaction. So much so that the gov.br Platform began to provide the possibility of digital signature (art. 6 of Decree No. 10.543/2020), which does not require notarization.

This chain of changes recently culminated in Law n. 14,382/2022, which deals more precisely with electronic public records, an opportunity that brought important innovations related to real estate records.

Among these technological innovations, we have “tokenization” and “blockchain”, which were studied in this research from the perspective of application in Brazilian real estate registries.

Despite the virtualization of the Judiciary and other State institutions, the reasons why Brazilian notary offices still predominantly use physical resources are questioned, when technological devices guarantee more security for data storage and greater agility in the provision of services.

Given this, the general objective of the research was to analyze the possibility of handling technology in Brazilian Real Estate Registry Offices, with emphasis on the performance of professionals in the registry sector. The specific objectives are to understand whether or not the implementation of new technologies represents a tendency towards the extinction of the position of Registry Officer and to analyze how the technological apparatus can increase citizen participation in the pursuit of their rights.

The research was carried out using a bibliographic procedure, revolving around the scientific material already published, and under an approach of the qualitative method and the exploratory methodological nature.

The virtualization of administrative requirements does not seem to represent a disruptive potential to the already established two-phase system; technology intends to reduce mechanical work and ratify the importance of the legal professional to manage the demands of notaries, such as analysis of the patrimonial

extension that must fall under a writ of attachment or the interpretation of a more complex contract that demands more time for analysis of legality requirements.

2 PERSPECTIVE OF TECHNOLOGY AS A WAY TO DYNAMISE THE BRAZILIAN REGISTRY OFFICE SYSTEM AND TO GUARANTEE THE RIGHTS OF SERVICE USERS

If the alternative models for inserting the citizen in the contours of public life are allied to the current democratic (representative) regime, society's trust in politics would potentially be rescued, especially with the planning of the use of technology in favor of the exercise and inspection of rights. Furthermore, old debates about the more inclusive democratic model (representative democracy or direct democracy) would be overcome.

> From this perspective, there is currently the talk of so-called Blockchain technology as a promising way to regain society's trust in politics. This technology works through complex mathematical and cryptographic processes, allowing the creation of networks that record financial transactions 100% fraud-proof. However, such blockchain networks are not limited to ensuring the integrity of financial transactions, **but can also be used for other purposes, such as votes, notary records, and contracts, and creating more efficient systems**. (GOLDSCHMIDT; REIS, 2019, p. 185 – 186, emphasis added).

According to Goldschmidt and Reis (2019), the greatest example of the potential of technological devices in favor of the democratic regime was the Arab Spring. This social movement, which relied on wide adherence to information and communication technological resources by those interested in putting an end to the dictatorial regime, made dictatorial States recognize the potential threat of technology and, therefore, cut off access to social networks.

Faced with the Brazilian legal reality, at the beginning of the 21st century, technological resources changed how legal professionals worked with legal proceedings. Before, it was necessary to take the printed petition to the judicial notary to register it in a process, and the judge had to insert a seal of authenticity next to the signature, when, for example, issuing a warrant. Today, the lawyer can petition with a digital signature and can even extract a receipt from the petition protocol and access the case files from his cell phone; and the judge no longer needs to prove the authenticity of his signature, especially because of the security represented by digital certification.

In the beginning, this judicial paradigm needed regulation, and the legislation that regulates the computerization of the judicial process was published at the end of 2006 (Law nº 11.419/2006). The implementation of technology, as an auxiliary tool in the legal field, arrived late in Brazil and, as a result, is not yet a reality in all spheres of the legal universe.

Despite the gradual efforts regarding the adoption of digital tools, the Brazilian real estate registration system is still predominantly physical. It must be said that the Brazilian notarial and registration systems are intrinsically related to the Judiciary, the latter already computerized. Therein lies a mismatch: if the Federal Constitution of 1988 stipulates that the registry activity is carried out privately, by a delegation

of the Public Power and under the supervision of the Judiciary (art. 236, "caput" and §1, of CRFB/88), and the registration of the acts of the Public Power, including the Judiciary Power, occurs predominantly by electronic means, there would be no reason for the registry office activity to be enclosed in a physical medium.

It is worth considering that the proposal to automate the public services provided in Brazilian real estate registries is not recent. Likewise, legislative production in this sense is not recent either, despite the evident technological dissonance between extrajudicial services. For example, since 2007, the city of São Paulo has been using the Digital Certificate of Real Estate Registration, which is an online service developed by the Association of Real Estate Registrars of São Paulo (Arisp), which aims to issue registration and property certificate electronically.

> Since 2007, the entity has offered, in addition to the digital certificate, services such as online enrollment and electronic consultation, **which reduce by up to 30% the movement in the real estate registry offices in the capital of São Paulo, since these requests can be made entirely over the internet.** The digital certificate can be used to draw up public deeds, real estate financing contracts, and public and private documents in general. According to the president of Arisp, Flauzilino Araújo dos Santos, a member of the Advisory Board of camara-e.net, among the various advantages of the service are agility in the process and security, since the certificate is immune to fraud. 'For **the digital certificate we use digital certification, which is extremely secure and guarantees that the electronic signature is in fact from the person who signed** it, he explained during the meeting of real estate registrars, held in São Paulo. (CARTÓRIOS [...], 2011, p.3, emphasis added).

According to Assad (2016), the legal framework for electronic property registration was Provisional Measure No. 459/2009, later converted into Law No. 11,977/2009, which established the Minha Casa Minha Vida program. The researchers Andrade and Barbosa (2016) share this same line of understanding when they consider that law as establishing the electronic registration system for public records. By this law, all Brazilian extrajudicial services remained obliged to adopt an electronic registration system, with a dual purpose: reception of titles and provision of certificates in electronic means, in all observing the guidelines launched by the Brazilian Infrastructure of Public Keys (ICP-Brasil).

Sometime later, Decree nº 8.764/2016 instituted the National Territorial Information Management System (Sinter), designed to integrate data produced in the property registration offices with the fiscal data of the federative entities.

3 APPLICATION OF COGNITIVE COMPUTING SYSTEMS IN REAL ESTATE REGISTRY OFFICES

On November 1, 2021, the Internal Affairs Department of the Court of Justice of the State of Rio Grande do Sul launched Provision nº 38/2021[1], disciplining the conditions under which Notary Publics could draw up public deeds to exchange real estate with the use of "tokens". This is the first evidence, in Brazil, of the recognition of "tokenization" in real estate transactions.

[1] Full Provision No. 38/2021/TJRS: https://www.tjrs.jus.br/static/2021/11/Provimento-038-2021-CGJ.pdf

Given this panorama, the heterogeneity in the conduct of the registration administrative service in Brazil is perceptible. On the one hand, there are notary offices that have already implemented "tokenization" in real estate legal transactions, as in the paradigmatic case of Rio Grande do Sul; on the other hand, there are those who use little technological resources to provide the service. Despite the operational discrepancies between notary offices, Provision No. 89/2019 of the National Council of Justice encourages notary activities to begin to use electronic means, otherwise, see:

> Art. 8 The Electronic Property Registration System - SREI aims to **universalize** the activities of public real estate registration, the adoption of corporate governance of the services of property registrations, and the **institution of the electronic property registration system provided for in art.** 37 of Law no. 11,977/2009.
> § 1 The SREI must guarantee the security of information and the continuity of the provision of the public property registration service, observing the technical standards, and legal and regulatory criteria, and promoting the **interconnection of services**.
> § 2 In the interconnection of all units of the real estate registration service, the SREI must provide for the **interoperability of the databases, with such data remaining in the real estate registration offices** under the custody and preservation of the respective officials. (BRASIL. CNJ, 2019, new emphasis).

According to Miranda (2017), there are three stages of computerization of Real Estate Registry Offices: non-computerized notaries, which are those whose computer system may even exist, but is not used in a relevant way; partially computerized registry offices, where enrollments are digitized and indexes are stored electronically, for example; and fully computerized registry offices. The latter are those that have bookkeeping both electronically and physically means and the computer system understands the registration situations, that is, the algorithm helps the registrar in carrying out manual work.

According to the aforementioned author's lesson, the cognitive informational system can perform four functions for the real estate registry: hybrid qualification, publicity, research, and migration.

It can be said that the qualification is the set of steps by which the computer system analyzes the status of the title that is intended to be registered or endorsed and, in the end, issues a report to the registration officer, indicating in detail, in a specific report, whether that title finds aptitude to be registered or annotated.

The first stage of the hybrid qualification is to understand the title and the registration act to be practiced:

> A cognitive computing system can understand the natural language used in the registration acts of the registry office (enrollments, transcripts, auxiliary records, etc.) and in the titles presented (writs, judgment letters, sharing formalities, deeds, etc.). In this way, the system can understand what potential legal and registration changes the title intends to carry out (whether legal transactions, constrictive acts or any other activity that can be entered) and, after identifying the potentially affected registration acts, it is also able to read and analyze them, to understand the current situation of the object of the registration acts. (MIRANDA, 2017, p. 86).

The second stage of the hybrid qualification is based on a triple analysis that cognitive computing carries out after understanding the title and its corresponding registration act: verification of the title requirements; verification of compliance with requirements and, finally, routine checks as to the authenticity of documents and certificates.

The last stage of qualification is the issuance of a requirements verification report, "indicating not only whether or not the requirement was met, but also where the information is found in the document. " (MIRANDA, 2017, p. 91). The idea is to reduce the exhausting task on the part of a legal professional and help him manage his service time with activities that demand greater legal analysis.

It is noticed that this qualification model reduces the mechanical work (and of little intellectual effort) of the scribes and registrars, but it is hybrid because it does not exclude human interference. After all, the verification of the qualification remains the responsibility of the system user, that is, of the legal professional who oversees automated acts.

3 REGISTRY AUTOMATION MODELS: NEED FOR STANDARDIZATION AND DESIRED EFFECTS

Didactically, three reasons can be established for the need to standardize computerization among Property Registry Offices: 1) security of digitized information; 2) satisfaction indexes of the served public; 3) integration of the extrajudicial service with the Internal Affairs of the respective Court of Justice and with the Public Treasury database.

3.1 SECURITY OF DIGITIZED INFORMATION

When dealing with real estate matters (but not restricted to it), the expression of the will of a capable person corresponds to his valid signature. It is valid because it is not enough for the user of the service to affix his signature to the particular document he intends to publish; the signature needs to be recognized, and the State delegates to the notary (traditionally known as "notary") the task of declaring the recognition of the signature. It is for this reason that signature recognition is one of the most used notary services.

Among the various forms of signature recognition listed by Duarte (2018), two deserve to be highlighted: signature recognition for authenticity and similarity. Effectively, the recognition of the signature can occur both by authenticity, when the signature is performed in the presence of the notary, and by similarity, when the notary compares the signature of the sheets, stored in the office, and declares that it corresponds to that contained in the title presented to him.

Despite the requirements imposed on the notary for the notarization of signatures, the possibility of fraud is undeniable, hence why digitization increases the security of the administrative procedure. That is to say, with digital certification, the chances of a third party defrauding a contract and, to that extent, nullifying the public deed is minimal. By the way, the use of metadata is the principle of security sought by digital certification. Elucidating the concept of metadata:

> (...) it is possible to use the metaphor of an ordinary letter. Thus, while the data would be the content of the correspondence, the metadata would be information about that letter: the type of paper used, the size of the envelope, the sender and recipient data, the date and place of posting, the DNA traces and fingerprints found on the letter, the type and color of ink used to write the letter, the size and weight of the correspondence, the number of letters and words, traces of substances impregnated in the paper, information about any other similar correspondence in the postal system, name of the postman who made the delivery, etc.
> Metadata is not a novelty in the digital age — after all, catalog files of books in a library are also metadata —, but their quantity, type, and analysis capacity only acquired their current relevance due to advances in information technology. And, with this greater amount and power of analysis, **metadata became capable of informing more than the data itself**. (NETO; MORAIS; BEZERRA, 2017, p. 191, emphasis added).

When talking about digital certification, the first idea that emerges is the electronic signature, already widely used in Brazilian legal proceedings. Some contracts are already signed with an electronic signature. There is a difference, however, between the terms "electronic signature" and "digital signature", including authenticity.

According to Andrade and Barbosa (2016), an electronic signature is a genre, while a digital signature is one of the types of electronic signature. These researchers clarify that a digitized signature (scanned reproduction of the handwritten signature), when inserted in a document, is a kind of electronic signature, but it is not a digital signature. They also maintain that case law censures the guarantee of the authenticity of a digitized signature.

Of the safest electronic signatures, the digital signature is currently the fastest and most practical, despite using highly complex cryptographic elements that guarantee the identity of the person signing. Therefore, the digital signature is endowed with authenticity, reliability, and non-repudiation. You don't just need a password to digitally sign a document, as the digital signature is only validated by digital certificates ("smart card" or "token").

The Brazilian Public Key Infrastructure (ICP-Brasil) is the central certifying authority, with administrative competence to issue digital certificates and identify citizens and their acts in the digital environment. ICP-Brasil was instituted by Provisional Measure No. 2,200-2/01 and received several criticisms.

Andrade and Barbosa (2016) add that the first criticism received was the fact that ICP-Brasil was edited by Provisional Measure, which is an act of the Chief Executive, subsequently submitted to the National Congress, reserved only for matters of relevance and urgency. Also according to these researchers, at the time of the publication of the norm, two projects were being processed, one including the OAB, whose proposal included the presentation of studies and discussions on public and private certification for about two years. Another criticism pointed to the dubious constitutionality of the norm and, as a result, the illegitimacy of this nuclear authority for recognizing digital identity.

That, by ontologically performing the same function of notary services regarding the presumption of legitimacy about authorship, there would be a clear violation of the material private competence for notary services (art. 236 of the Federal Constitution/1988).

In the words of Andrade and Barbosa (2016, p. 97), “just as a notary guarantees the authenticity of a document, the digital certificate is generated and signed by a trusted third party, linking a person, natural or legal, a process or a machine to a pair of cryptographic keys.”.

Despite the criticism, the digital signature is already used, even gradually, by extrajudicial services, without prejudice to the collected fees and the technical work of the notary.

> To recognize the signature electronically, the user must have a notarized digital certificate, which can be issued free of charge by the e-notary platform.
> In the procedure, the notary will identify the citizen, who will be linked to the certificate. The document is valid for three years.
> With the certificate in possession, through the same platform, it will be necessary to send the document that needs to have the signature recognized, indicate which people need to sign it, and then send the electronic signature.
> The last step is to forward the document to the final recipient. The service takes a few minutes and will have the same price as the physical act, done at the registry office counter. The value is set by state law in each of the states of the country. (CARTÓRIOS [...], 2022, p. 2).

The automation of notary offices cannot transform the two-phase procedure into a single step. On the contrary, the two-phase system continues to exist, but with the potential speed of the acts performed.

3.2 SATISFACTION RATES OF THE PUBLIC SERVED

The reduction of queues and waiting time for regularizing registration issues is what users of registration services most need because of the bureaucratic procedure, typical of the two-phase system of Brazilian real estate registration.

In general, the transfer of immovable property in Brazil requires the parties involved to draw up a public deed before a Notary Public and, after the signatures are recognized and the entire procedure is formalized, this title is taken to another notary, which is the Real Estate Registry Office, so that the procedure is finalized.

On the benefits of mechanization for service user satisfaction, SANTOS; LEHMANN; GRETTER, 2013, p. 242: “a simple property registration certificate can take several days to be delivered, while a computerized system can generate it upon request”.

When a title is presented to a Registry Officer, certain steps are taken by that representative of the State. This is how Aghiarian teaches (2015, p. 129):

> [...] the title for registration is presented, it will be pre-notated, at which time the provisional effectiveness of real rights will be attributed, while the conferring official, in the language of Real Estate Registries -, analyzes the formal regularity of the document presented, to make sure that it meets the typification requirements of article 221 of the LRP, prepared in the manner determined by Law no. 7,433/85 and its regulatory decree; or even, if the legal construction meets the various details of certainty regarding the people of the business, coherent meaning between the declared will and the typification of the business, as well as the individuation of the good or the burden (Law no. 4.591/64 or Law no. 6.766/ 79, among others).

According to the line of reasoning of digital certification, technological tools are promising for real estate businesses, since they guarantee reliability to contractors and reduce bureaucracy. This is because the automation of real estate services can make the procedure for verifying the requirements of the presented title faster.

3.3 INTEGRATION OF THE EXTRAJUDICIAL SERVICE WITH THE INTERNAL AFFAIRS OF THE RESPECTIVE COURT OF JUSTICE AND WITH THE PUBLIC TREASURY DATABASE

Registration activity is carried out privately, by a delegation of Public Power, and under the supervision of the Judiciary. This inspection is the responsibility of the Corregedoria of the respective Court of Justice in which the service is limited. For this reason, "the standardization of services in extrajudicial services facilitates contact with the Internal Affairs, which makes it faster to correct any distortions or failures in fulfilling the obligations of the registry offices.". (SANTOS; LEHMANN; GRETTER, 2013, p. 246).

With public law, both notaries and registrars must supervise the legality of the acts performed, and the regular collection of taxes is one of them. Undeniably, the registry service is related to economic development, in the face of real estate speculation and changes in the market value of properties. Given the considerable value of the financial transactions that are presented in extrajudicial services, notaries and registrars must supervise the correct payment of the public tax, under penalty, including, joint and several liabilities.

Faced with the duty of accountability to the Public Treasury, Miranda (2017, p.95) proposes the following reflection:

> Let's imagine that the Federal Revenue Service, to verify possible fraud occurring in declarations of values below the real value in public deeds, asks the Real Estate Registry to inform all transfers of properties in which the transfer price is lower than the price of any previous transfer of the same property or less than R$X per square meter, if urban, or R$Y per hectare, if rural.

The conclusion drawn by the aforementioned researcher is that this type of request is simple and quick to respond to if the collection is properly structured. Otherwise, it would be unfeasible in a reasonable cost-benefit analysis. This is yet another element that confirms the need to use a cognitive computing system.

4 "*BLOCKCHAIN*" AND "*TOKENIZAÇÃO*" OF REAL ESTATE LEGAL BUSINESS: THE RELEVANCE OF THE PERFORMANCE OF LAW PROFESSIONALS IN THE NEW INFORMATION PARADIGM

Aghiarian (2015) explains that the principle of continuity represents the chain of titles and registrations, which acquires rights and their regular registration safe, at each transmission or constitution and extinction of real encumbrances, and accessories to the good.

This definition is very similar to the logic of the “blockchain”. “Blockchain” is a technology of the DTL type (“distributed ledger technology”), which arranges sequences of transactions in blocks, guaranteeing security to the user of this system. The best-known application of this tool is cryptocurrencies, especially “bitcoin”

From this comes the conviction that, in the not-so-distant future, the records made in the registry office will be virtualized from this perspective.

By terminology, “blockchain” is the combination of two English words: “block” (“block”) and “chain” (“chain”). They are, therefore, virtual blocks joined together. If one ceases to exist, the entire chain is compromised. All transactions take place virtually and it is almost impossible for fraud to occur.

According to Lamana Issler (2017), the record that is made, when validated, can no longer be deleted. Validation takes place by participating members of the network, called "peers" ("nodes"). If there is consensus between all or some previously determined nodes, the record will be made and can never be deleted again. Every operation is protected by digital signature cryptographic technologies, allowing the identification of the nodes that issue (issuers) and receive (receivers) the transactions.

Precisely for this reason, the "blockchain" has been heralded as a technological innovation capable of reducing fraud, corruption, errors, and costs arising from paper-intensive processes. In the public field, it has the potential to reformulate the relationship between government and citizens in terms of data sharing, transparency, and trust. (NETO; BRANDELLI, 2019).

With the “blockchain” technology, there is no need for such time-consuming procedures: the private key, which is a kind of “token”, the parties sign the agreement, so that it is unnecessary to occupy queues at the registry offices for the expression to be recognized of the will.

> Transactions using this technology are verifiable through the use of public key cryptography. Each user has two “keys”, one private, secret, like a personal and non-transferable password, and the other public, which can be shared with everyone and identifies the transactions carried out by that particular user. In addition, with public keys, anyone can verify that the transaction was signed with a private key, thus being an authentic exchange that becomes permanently registered, identified with date and time, and disclosed in the database which archives all records of transactions made, as if it were a large ledger, called a blockchain. (DENNY; PAULO; CASTRO, 2017, p. 131).

Adding to the debate, Nalini (2021) even reflects on the possibility that electronic registration carried out on the *“blockchain”*, characterized by being immutable and encrypted, would cause *“smart contracts*” to replace the security attributed to the figure of a registrar.

However, the position that seems more correct to us is that of Vecchi (2021, p. 94), who discusses the importance of the role of notaries and registrars, since it is not accepted that documentation in notary and registry services boils down to just “indestructible pieces, but which are endowed with important legal effects obtained by the prior qualification of these titles”.

In his studies, the aforementioned author describes the example of Georgia:

> The blockchain implementation measure has brought a boost to Georgia's property title registration system, which comes from a history of land conflicts and widespread corruption within the system. We observe that the **project did not replace the Registry, managed by the state agency of that country, but it was configured as an instrument to add security to the existing system,** plagued by the falsification of documents related to land ownership.
> The citizen can initiate the **process of uploading a transaction to the network before the corresponding administrative authority or before any notary, sends it to the private blockchain called Exonum**. We note that here when transporting the transaction to the private blockchain, **the state authority analyzes the documentation making a legal qualification.** (VECCHI, 2021, p. 110, new emphasis).

The system of Brazilian registry offices can be classified into a document registration system and rights registration system. In the first, the declaration of nullity of an act harms all the others, in a "domino effect" ("nemo dat quod non-habet"). In the second, the registered titles are independent, so that the correction or nullity of an act in no way affects the others, in a "guillotine effect". Faced with the possibility of rectifying the registration acts, the use of the "blockchain" really seems to have no shelter, because this technology, focusing on the security of the events, only exists if all the acts remain properly chained.

Peiró and Garcia (2019) understand that technology should be nothing more than a tool, and the adoption of the "blockchain" would represent a disruptive effect on the way Real Estate Registries have worked. They support this point of view by the *"blockchain"* architecture itself, which is insensitive to the principle of priority: if the logic of the real estate registration system follows the maxim "first in the registry, first in the right", the *"blockchain"* differs from this logic.

The insertion order of the new blocks in the chain occurs from the solution of a mathematical problem, and not from the effective presentation of the extrajudicial title. In this technological tool, "the order is not based on the chronology of the presentations, but on the different speeds of the nodes looking for a solution to the problem (the average validation time is 10 minutes). " (PEIRO; GARCIA, 2019, p. 327).

Adding to the criticism, the understanding of Neto and Brandeli (2019) points out that the property right is refractory to the use of the *"blockchain"*. According to these researchers, the solution based on this system, in addition to not having the ability to replace the official property system, cannot even be aligned with it.

Despite expressing an understanding contrary to the application of the "blockchain" to the rights registration system, the aforementioned researchers recognize the benefits of this technology to the document registration system, let's see:

> On the one hand, the blockchain, due to the characteristics seen above, can reduce transaction costs regarding the custody and conservation of documents.
> In this sense, it can be used by public records as a technology able to improve their efficiency in the conservation of registration information.
> In the United States of America, for example, where there is a real estate registration system for titles, and, as a result, it is practically mandatory to take out insurance to guarantee the transaction, despite the registration, it is speculated that blockchain technology can improve the existing legal framework and save costs by reducing title insurance premiums paid in the United States to title insurance. As explained, title insurance is used to protect homebuyers against damage caused by

> defects in title deeds. Goldman Sachs bank assesses that thanks to the greater efficiency resulting from less use of shabby records made on paper by multiple users of the system and the reduction of risk derived from its greater security network, real estate records made in distributed ledgers could generate savings of around US$ 2 to 4 billion per year (NETO; BRANDELLI, 2019, p. 77, italics in the original).

As mentioned earlier, in November 2021, in the city of Porto Alegre/RS, the registration of property was registered, with the exchange of a "*token",* under the intermediation of the company Netspace. In research on the case, Diniz and Ferreira (2021, p. 5) elucidate how the procedure works:

> The real estate tokenization model proposed by the company Netspace, exchanged in the original act of the process, is as follows: 1) The owner accesses the company's website and requests the digitization of the property owned by him; 2) The owner and the company sign an exchange deed, whereby the company receives ownership of the property that will become digital property; 3) In this act, the owner pays the ITBI due to the municipality and the costs of the deed; 4) Next, the owner also pays the costs of registering the deed at the property registry office. After the registration, the aforementioned company acquires effective ownership of the property; 5) Once the property has been "digitized", the company registers the transaction and the digital property on the blockchain in the name of the former owner, who will only have the digital property, represented by a token.

It is necessary to clarify that the "*token",* an instrument of the agreement, is not the digital certificate. In this case, the "*token*" is an object representing real estate, which exists outside the digital world. The goods transacted in the chain itself are digital assets, like cryptocurrencies. Like the "*blockchain*", the *"tokenization"* of real estate receives criticism:

> Therefore, the tokenization of real estate business and, let it be said, not the ownership of immovable property, of Real Estate Rights, although it can be used, serves to carry out business at the obligatory, contractual level, to whomever consciously intends to assume the bonuses and the encumbrances arising from virtual assets, knowing that it will not remain because there is a real right link with any property, which, incidentally, remained elucidated by the understanding of the General Justice Department through Provision No. 38/2021.
> That is, this is the key point, of distinction, concerning tokenization and real estate business: what is seen as possible is the tokenization of contractual rights, such as, for example, credit and even possible debts, all of which on the obligatory level, which, incidentally, can be subject to the assignment of rights precisely through the logic of tokenization; but not of real rights over real estate, which depend on a complex and solemn act, that is, both the execution of a public deed and the execution of the respective registration with the registration of the property so that there is a transfer of ownership (unlike what happens with property furniture, which is transferred by simple tradition). (BURLET; TRINDADE; VECCHIO, 2021, p. 167).

It can be seen, therefore, that not even a high-tech apparatus, which is the *"blockchain*", had the power to remove legal professionals from the real estate area, but only to bring more security to legal relations.

5 CONCLUDING REMARKS

Given the above, it is inferred that automation is not a recent idea for some Brazilian registry offices and needs to be standardized concerning others, especially due to Provision No. 89/2019 of the National Council of Justice. The said provision is contrary to the heterogeneity of registry services and aims at

establishing the Electronic Property Registration System as a form of universalization, interconnection of services, and interoperability of databases.

As was found, about cognitive computing systems, notary offices can be classified into three categories: non-computerized notary offices, partially computerized notary offices, and fully computerized notary offices. The outstanding feature of this last type of notary is the use of an algorithm to assist the registrar in carrying out manual work and, mainly, in managing hybrid qualification. The qualification is hybrid because the computational means help in understanding the registration situations (annotation or registration) and in issuing an informative report to the registrar (if the title can be annotated or registered), but are unable to exclude the legal analysis of the registrar regarding the information provided by the machine.

Despite the fear that it causes to a portion of registration professionals, the implementation of computerization in the real estate registration sector meets the need for the dynamism that guides business relations, so that the adoption of the informative computational system represents a supporting element to the effective performance of the work of the Registry Officers, without replacing this profession.

In the Information Age, the progress of technological evolution is seen as supporting the legal professional. As evidenced, human action is not hampered, and the function of the registrar becomes more reserved for legal analysis than the mechanical analysis of completing formalities.

Regarding the *"blockchain"*, it is concluded that these technological tools have advantages for the document registration system, that is, for notary services. Even in these cases, it appears that mechanization serves as an instrument to increase security, but does not replace the registration system. Greater proof of this statement is the case of Georgia, where the citizen can send data in the virtual block to be recorded, but this does not dispense with the intervention of the public authority to analyze the documentation and make it legal qualification.

Unlike the United States of America, where the "blockchain" serves to reduce the costs of contracting insurance to guarantee the preservation of the real estate system, this resource has disadvantages for the Brazilian registration system. As this tool values the security of linked acts, it is impossible to rectify a registration act without compromising the virtual block. Furthermore, this technology offends the principle of priority, because the order in which the titles to be registered are presented is of little importance, but the mathematical solution that the system assigns to join the information to the chain. However, the possibility of this tool being used to protect and organize the notarial system is recognized.

Regarding *"tokenization",* it is concluded that despite its use in a real estate transaction that took place in Rio Grande do Sul, there is no support for any real right since the transfer of ownership is still subject to the drawing up of a public deed and the execution of the registration with the registration of the property. Notwithstanding this, it is concluded that this technological tool can be used to assign obligatory rights, such as credit.

Finally, the advantages of using digital certification in the Registry Offices are summarized in the security of the registered information, guarantee provided by the metadata; speed in carrying out intermediary acts, which increases the satisfaction of service users; and integration of extrajudicial services with the Internal Affairs of the respective Court of Justice and the Public Treasury database.

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