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Application of Kleros´ Decentralized Dispute Resolution Technology To Conflicts Arising From Tenancy Agreements

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Abstract

This paper explores the application of Kleros' decentralized dispute resolution technology to conflicts arising from tenancy agreements in Argentina. Based on a diagnosis of the structural characteristics of the tenancy market—characterized by its massiveness, informality, and low degree of judicialization—a comprehensive model is proposed that articulates legal and technological tools to formalize contracts, safeguard guarantees through Escrow, and resolve disputes efficiently and transparently. The legal feasibility of using Kleros within the Argentine regulatory framework is analyzed to develop a comprehensive integration proposal, ranging from automated drafting of rental agreements to the resolution of any possible dispute by Kleros courts. The benefits of the model for improving access to justice, reducing judicial system overload, and empowering parties in contexts of contractual imbalance are also considered. Finally, its potential scalability to other jurisdictions and sectors is discussed.

Keywords:

Kleros, dispute resolution, tenancy agreements, arbitration, escrow, landlord-tenant conflicts.

Glossary

CDCV: Consumer and Neighborhood Disputes Court
CCCN: Civil and Commercial Code of the Nation

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I. Introduction

In Argentina, as in many other countries, renting is a very common phenomenon, with a large number of people renting, especially in large cities. By 2023, it was estimated that there were more than three million renter households in Argentina.[1] In that same year, the tenancy rate in major urban areas was 22.6%, and in the remaining urban areas, 20.3%. [2]. In addition, the growth of renting has been remarkable over the last 15 years. [3] At the same time, hundreds of thousands of other people rent for commercial purposes.

Although the tenancy agreement is a relationship between private individuals, given its impact on the right of access to housing and urban planning, the State has long regulated this type of commercial relationship. Although currently tenancy agreements are governed solely by the provisions of the relevant chapter of the Civil and Commercial Code of the Nation (CCCN), beyond the Lease Agreement itself, at different times in history, there were complementary laws, such as the tenancy Law (Law No. 27,551), which modified the minimum or maximum requirements or established additional rules.

Moreover, tenancy relations exist between all kinds of citizens, with varying levels of education and different degrees of understanding of the legal relationship they enter into. While the most cautious ones seek advice and sign tenancy agreements with clauses that foresee different scenarios that may arise during the relationship, many others do not even sign tenancy agreements, limiting themselves to maintaining "verbal" agreements. The latter generally occurs between those who already know each other or have a third person in common, because no real estate agent (usually responsible for drafting the Contract) intervened and/or due to lack of knowledge or resources to sign a written agreement.

The truth is that, in all cases, the parties to a tenancy agreement experience a series of tensions or disputes during the relationship, which rarely reach the courts. This is especially true when there is no written contract. This is mainly due to the fact that these are conflicts of low economic value, so there is little incentive to pay lawyers fees and go through the judicial process, which in Argentina is notoriously slow and tedious. However, the non-resolution of problems between landlords and tenants by an impartial third party further strains the relationship and, in some cases, exacerbates conflicts as tensions increase due to fear of being negatively affected.

Under these circumstances, Kleros emerges as a reliable, agile, and serious alternative for resolving conflicts arising from rental relationships, offering a new tool available to all landlords and tenants to arbitrate conflicts between them. Furthermore, given the characteristics of the conflicts that arise between landlords and tenants—sufficiently massive and, at the same time, of low or moderate

economic value—they are well suited to be resolved through Kleros.

As a result of implementing Kleros to resolve disputes between landlords and tenants, a series of benefits stand out: (i) reducing the workload of the courts (for those cases in which conflicts reach the courts); (ii) providing citizens with a channel -until now almost non-existent-[4] to resolve these matters, (ii) and, furthermore, prevent the more powerful Party from benefiting from the lack of incentives to bring such a case to court.

This paper proposes a practical integration of Kleros technology into tenancy agreements in Argentina. To this end, first, the legal and practical characteristics governing these commercial relationships, as well as the most common conflicts, are described. Then, a detailed design of an infrastructure on Kleros is proposed that allows for the drafting of tenancy agreements, the custody of guarantees, and the resolution of disputes, addressing technical and legal aspects of the process. Finally, it reflects on future developments and the potential scalability of the proposed model to other jurisdictions and sectors.

II. The Tenancy Agreement

1. Legal framework

In Argentina the legal relationship between the parties to a tenancy agreement -landlord and tenant- is primarily governed by what was agreed between the Parties in the Tenancy Agreement. This means that, although the civil and commercial code—CCCN—has a chapter on Tenancy Agreements as a sub-type within the category of contracts, where certain minimum requirements are demanded for this type of contracting (Articles 1187 to 1226), the norm is freedom of contract (Article 958). In other words, the relationship between the Parties is governed by what they agree upon in the Tenancy Agreement, and the rules provided by the CCCN in the corresponding chapter are supplementary to the will of the parties, unless their mode of expression, content, or context indicates them to be of a mandatory nature (Article 962).

A brief summary of the CCCN rules regarding the Tenancy Agreement is provided as follows. Article 1187 of the CCCN defines a Tenancy Agreement as a contract by which one party (lessor) agrees to grant the temporary use and enjoyment of a thing to another (lessee), who undertakes to pay a price in money for that use. The contract must be made in writing (Article 1188) and its object can be a movable or immovable thing. The CCCN also provides for the purpose that must be given to the leased property, in case it has not been agreed upon in the contract (Article 1194). Furthermore, this rule determines that the parties can freely agree on the amounts and currency delivered as a guarantee or security deposit, and the manner in which they will be returned at the end of the relationship, as well as the frequency of payment, although it cannot be less than monthly (Article 1196).

With regard to the duration of the rental agreement, the CCCN establishes both a minimum and maximum term for cases in which the parties have not established this in their rental agreement (Articles 1197 and 1198). With regard to the currency of payment and price adjustment, the CCCN stipulates that rents may be established in legal tender or foreign currency, at the discretion of the parties, and that the parties may also agree to adjust the value of rents using the index of their choice (Article 1199).

As for the effects of the lease, the CCCN stipulates the obligations of the parties (Articles 1200-1210). For example, for the landlord to deliver the property and maintain it in a condition suitable for the agreed use, and for the tenant, not to change the purpose, keep the property in good condition, pay the agreed rent, and return the property on the agreed date. The Code also regulates the regime of improvements made to the rented property, if any (Articles 1211 and 1212).

The CCCN establishes the ways in which the tenancy agreement can be terminated—the fulfillment of the agreed term, the maximum term established by the Code, or early termination (Article 1217)— as well as the rules for the continuation of a concluded tenancy agreement (Article 1218). Regarding early termination, the CCCN provides for the cases in which each party may terminate the contract.

Finally, the CCCN stipulates the effects of the termination of the tenancy agreement: payment demand, restitution of the property, or judicial eviction action (Articles 1222 and 1223). The expiration and/or renewal of the guarantee (Article 1225) and the tenant's right of retention (Article 1226) are also regulated.

2. Common practices

In practice, when signing a tenancy contract, the parties not only abide by what is stipulated by law but also by customs. For this reason, certain common practices in the Argentine tenancy market are detailed below.

A first important matter is the involvement of real estate agents, who often act as intermediaries in rental transactions. In general, this party manages the promotion of the property and participates in the negotiation of the contract conditions. Real estate brokers can also be responsible for verifying guarantees and assisting with drafting the contract to comply with applicable laws. In a few cases, this intermediaries monitor the execution of the contract and/or are responsible for the administration of the property, such as collecting rents.
However, real estate agents are not parties to the agreement and, therefore, do not assume formal duties or obligations. In this sense, in the vast majority of cases, real estate agencies do not intervene in any way when conflicts arise between the parties after the signing of the contract.

In Argentina, the commission that a real estate broker can charge is mainly regulated by local norms, that is, by the laws of each jurisdiction (province or Autonomous City of Buenos Aires), since the regulation of real estate brokerage is a competence delegated to local governments. In some cases, the norms set caps on real estate commissions and also specify which party and in what proportion should cover this expense. For example, in the City of Buenos Aires, for housing, only the landlord pays up to 4.15%. For properties rented for commercial use, the cap is 10% (5% each). In the Province of Buenos Aires, the law requires the commission to be 1–2% per party, although one can take responsibility for the total. In Córdoba, the maximum is 5%. For commercial, the usual is 10% in total (each party pays 50%). In provinces like Mendoza, Misiones, San Juan, etc., there are specific caps, generally on the total value of the contract. There are also provinces without regulation (Catamarca, Chaco, etc.), which leave the commission to free agreement; although in practice, the tenant usually pays it. [5] The truth is that this is an additional expense for the Parties, and that its payment does not cover any

type of dispute resolution service in the event that conflicts arise during the execution of the contract.

Another important matter is the guarantees required from the tenant, either in the form of property or a direct family member's endorsement. Besides, additional guarantees are often required, such as a surety insurance, proof of income (the tenant's own salary receipt, or that of a third party with a salary receipt or real estate property). In addition, a one-month security deposit is usually required in advance.

For cases where properties are part of the horizontal property regime, the so-called "maintenance fund" is another common practice—and lacking clear normative support—that generates tensions between landlords and tenants in Argentina. It refers to an additional sum of money to the monthly rent, required by some consortiums [6], with the argument of anticipating future repairs, arrangements, or improvements to the property. The main legal and practical problem with this fund is the ambiguity of its purpose. Since it is not clearly defined whether it is intended for ordinary expenses (to be paid by the tenant) or extraordinary expenses (to be paid by the landlord), tensions often arise over who should pay this fund. In general, the "maintenance fund" is a figure created by consortium administrators and not expressly provided for in the Horizontal Property Regulations and, therefore, even less so in rental contracts.

3. Conflicts that could be resolved through Kleros

In light of the above, the main conflicts that arise between landlords and tenants are the following:

a. **Property conditions and responsibility for repairs and improvements:** The tenant claims that the property has defects (humidity, leaks, electrical problems) that the landlord does not repair. The landlord claims that the damage was caused by the tenant's improper use. Or, the tenant makes unauthorized improvements and then seeks compensation.

b. **Rent payment:** delays or lack of payment, increases if clauses are unclear or exceed what is permitted by law, and disagreement over interest for late payment.

c. **Payment of other concepts:** additional funds (reserve or maintenance) and common expenses, in cases where there is a dispute over who should cover them.

d. **Disputes over notice periods and penalties for early termination:** Several elements can generate conflictive situations, such as the minimum period required from the moment of signing to be able to terminate, the notice period—in due time and form—penalties (and whether legal limits are

respected), and ambiguous clauses on this matter.

e. **Security deposit:** As explained in section II.1, the security deposit in tenancy agreements is a widely used figure in Argentine contractual practice, with legal basis in the CCCN. It is a sum of money that the tenant delivers to the landlord at the beginning of the contract, as a guarantee of the tenant's fulfillment of their obligations, especially: the return of the property in good condition, the payment of services, expenses or pending repairs, or any other economic damage that may arise from the contract. It is a monetary, non-real guarantee, and cannot be considered part of the rent, nor should it be used as the last month's payment, unless expressly agreed upon. Given that, in the vast majority of cases, it is the landlord who keeps the deposit, tensions and discretions can arise regarding its return to the tenant at the end of the contract, if applicable.

Currently, the tensions and conflicts arising from the above issues do not often find a solution in the Argentine judicial system. As anticipated, the lack of conflict resolution between the parties to the tenancy agreement in court is the result of several factors: the complexity of the judicial process, associated costs, the duration of cases, and the lack of knowledge of rights and obligations on the part of landlords and tenants. In addition, there is a perception of imbalance in the contractual relationship, where landlords often have more power and resources, which can discourage tenants from seeking legal remedies. In this context, Kleros' fully decentralized arbitration system, designed to ensure fairness, impartiality, and efficiency, offers an innovative solution as an accessible, agile, and secure means of resolving disputes that may arise between landlords and tenants.

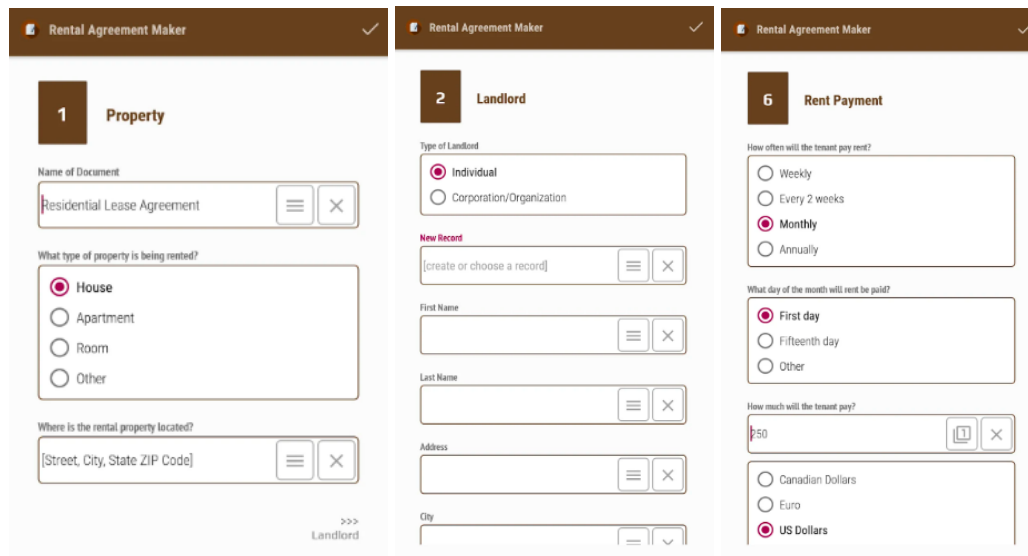# III. **Kleros:** A new justice service for landlords and tenants

We will now explore how Kleros can become a suitable and efficient means for resolving tenancy disputes. To this end, taking into account the local context, both at the regulatory level and industry practices (as set out in Section II), it is proposed to make available to the Parties a service comprising the components outlined below.

1. Application for drafting tenancy agreements

Kleros is an "opt-in" system, meaning the parties must explicitly choose to have their dispute resolved through Kleros. To achieve this, smart contracts must designate Kleros as the arbitrator. However, in Argentina, the average citizen involved in a tenancy relationship does not use this type of smart contract. For this reason, we must rethink the system to enable and encourage the use of Kleros in the field of study.

In line with the above, first, it is proposed to build an application on Kleros that offers tenancy agreements templates for the Parties to complete and, as a result, obtain a consensual contract, adapted to their particular situation -and that of the property- and that complies with the legal system (hereinafter, the "App"). As an example, templates found on platforms such as Rental, Lease & Rental Agreement Maker, More App, among others, can be considered.

The added value of what is proposed in this paper is that, additionally to what these platforms already offer, as anticipated, the templates would be found within the same platform from which the Escrow and the Kleros dispute resolution mechanism can be accessed. This, of course, facilitates the user experience, who can find everything—the entire process, from the drafting of the Tenancy Agreement to the resolution of a possible dispute—in the same place.

Images taken from Rentalfor illustrative purposes

The template will allow users to complete each section of a tenancy agreement, including: (1) Location; (2) Date; (3) Parties and addresses for notifications and summons; (4) Object, meaning the correct identification of the property; (5) Applicable rules for dispute resolution (e.g., in Argentina, the CCCN and the contract itself); (6) Purpose: residential or commercial; (7) Term; (8) Price and Adjustment (index,period, and notice); (9) Date and method of payment; (10) Default -automatic or not- and penalty; (11) Transferability or prohibition thereof; (12) Guarantee -Real estate title, bank guarantee, surety bond, personal guarantee of the tenant, pay stub, income certificate, etc.; (13) Parties´obligations (e.g., paying expenses, etc.) with possibility to add custom clauses. (14) Repairs; (15) Deposit -directly connected to the Escrow; (16) Inventory; (17) Default - Lack of payment; (18) First month payment (clause connected to the Escrow); (19) Termination -handover of keys; (20) Early termination; (21) Renewal; (22) Tax matters; (23) Dispute resolution clause; (24) Informed consent; and/or any other clause that the Parties wish to incorporate.

The idea is for the App to be programmed so that the options selected by the user when creating their Contract determine the options that appear in the subsequent tabs of the template. For example, the first option could be to select the country where the property is located, as this will probably determine the laws that govern the tenancy agreement and, therefore, the content of subsequent clauses of the contract (i.e., the subsequent tabs of the template).
Finally, the App will convert the information provided by the parties into a fully formatted tenancy agreement with a user-friendly structure and clear terms for both parties. The platform should support digital signatures to offer a comprehensive service and ensure that the parties' intentions are embedded in the contract and readily available to the Kleros Court as part of its operating system.

The App could also have other interesting and very practical features. For example, it could have the ability to notify the parties of each step of the process, such as the publication of the award and the possibility of appeal.

Providing users with automated forms that are legally compliant and flexible enough to adapt to specific party needs will be highly beneficial to the public. In addition, this setup offers an advantage beyond those listed in the Introduction (Section I): by offering ordinary people a practical way to formalize their commercial relationships, the App will enhance legal certainty (by improving clarity, evidentiary support, predictability, and reducing the risk of arbitrariness or abuse in contractual dealings).

2. Kleros Escrow

The second component of the proposed infrastructure is the Kleros´ Escrow service. This product is a secure, decentralized escrow Dapp that can be used for any exchange of goods, assets, or services based on Ethereum. Because of the latter—the use of Ethereum—the implementation of a FIAT money ramp is proposed in section III.4.

Kleros Escrow is a decentralized custody platform that protects blockchain transactions between unknown parties—and therefore lacking mutual trust—combining smart contract automation with Kleros' decentralized arbitration system to provide security in this type of trustless transaction for digital commerce. A smart contract holds funds from a transaction and releases them under three circumstances: (i) automatic execution: on an arbitrary date determined by the parties if there are no pending negotiations or disputes; (ii) if the party who sent the money to escrow confirms the release of the funds—direct payment/refund or settlement—; or (iii) if a dispute is initiated and Kleros orders the release of the funds.

Escrow can be used to carry out P2P cryptocurrency exchange transactions or to pay for any other type of service. For services in general, the terms of the agreement must be detailed, and in the case of long or complex contracts, it is even suggested to use the same document or copy it again.

- Upload an **Agreement Document** detailing the specifics of the agreement between the parties or manually type in the terms in the Contract Information section

Therefore, the proposal is that the application through which the lease agreement is created be connected to the Escrow, thus allowing the security deposit commonly required from the tenant to be held in custody by the Escrow. [7]

The terms of the Tenancy Agreement should be automatically replicated in the Escrow without the need for the Parties to repeat this step. This information will be essential for Kleros jurors to use as input in the event of a dispute. Remember, the Escrow allows either party to activate Kleros' decentralized arbitration mechanism in the event of a dispute, so that a randomly selected impartial jury can analyze the evidence and decide who is right. Based on the jury's decision, the Escrow releases the funds to the appropriate party, thus ensuring a transparent resolution without the need for traditional intermediaries.

However, before reaching a dispute resolution through the Kleros Courts, it is very interesting to consider that Kleros Escrow also offers the possibility for the Parties to negotiate with the aim of reaching an agreement. This means that when the Parties are partially in disagreement, either Party may make an offer of the amount to be settled, and the other Party may make a counteroffer with a different amount to be settled or accept the offer. If accepted, the funds are distributed automatically. If there is no agreement, either Party may initiate the dispute in the Kleros Court.

Applying the mechanism described above to the case of the security deposit, if, for example, the property suffers damage and the parties cannot agree on compensation, the owner can initiate legal proceedings to claim part of the deposit. The tenant could also initiate legal proceedings if, for example, the owner considers that part of the security deposit should be used to cover certain costs once the contractual relationship has ended, such as painting the property or

repairing furniture, and the tenant does not agree. However, before going to court, the parties may negotiate to reach an agreement. For example, assuming that the tenant considers that the painting of the property was the landlord's responsibility but that the damage to the furniture was certainly his responsibility, he could make an offer for the landlord to keep part of the deposit and the rest to be returned to him. In other words, the parties could freely agree on this type of partial payment or reimbursement and thus avoid going to court to have their dispute resolved by a third party.

This "pre-arbitration" process is characterized by the flexibility and freedom that Kleros offers so that the Parties can reach formal, clear agreements that are adaptable to each particular case. It is essential to note that Kleros Escrow also includes time limits for these agreements to be finalized in order to prevent either Party from blocking negotiations indefinitely.

3. Kleros dispute resolution platform

The Court is the central engine of the Kleros portfolio of services and products. It is a dispute resolution protocol that provides arbitration for the type of subjective disputes -those that Smart Contracts alone cannot resolve. To do this, a randomly selected group of jurors is assigned to each case and asked to vote in order to determine a fair and legitimate verdict.

While Kleros was originally designed for decentralized applications (dApps) to route their disputes to the Kleros Court, the service can also be used by traditional (non-dApp) applications. In other words, Kleros offers a "justice-as-a-service" solution that integrates easily with other institutions, allowing businesses, governments, and other organizations to resolve disputes without having to deal with the complexity inherent in using cryptocurrencies or smart contracts.

This means that traditional platforms can take advantage of Kleros' benefits, such as efficiency, transparency, and cost reduction, without requiring specialized blockchain knowledge. In this light, it is proposed that disputes arising from tenancy agreements be referred to Kleros Court for resolution.

As previously stated, while Kleros Court fits naturally within Web3 and DAO ecosystems, it is also well-suited to real-world disputes, particularly those with high frequency and low to medium monetary value, such as e-commerce transactions, freelance work, insurance claims, or consumer issues—contexts where traditional mechanisms may be too slow or expensive. It is considered that Kleros offers a faster and more affordable alternative that ensures procedural fairness and integrity, making it a strong candidate for application in the lease agreement use case explored in this paper. [8]

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Accordingly, continuing with the proposed framework, the App used to draft tenancy agreements should also enable the parties—through a single click—to refer their disputes directly to Kleros Court.

4. FIAT on ramp aggregator

This section addresses another key challenge that this proposal seeks to resolve: increasing adoption of Kleros technology, particularly among individuals unfamiliar with cryptocurrencies. To overcome this obstacle, it is proposed that the front end of the tenancy contract App (Section III.3) be integrated with FIAT-to-crypto on-ramp services. Such technology already exists—for example, platforms like Transak, Belo, Ripio, and Buenbit. Even services like Web3Auth Wallet Services allow users to create a wallet without interacting with private keys, and enable, among other things, funding an account with a credit card.

Applied to this specific use case, the objective is to allow tenants to make security deposits via standard FIAT transfers, which would then be automatically converted into crypto by an integrated platform and sent to the Escrow. Once the dispute is resolved, and the Escrow releases the funds in favor of one of the parties, that party may use an off-ramp service to convert the crypto back to FIAT. Another use for this fiat-crypto ramp could be to give the Parties the possibility of funding the fee for an appeal. This feature greatly improves the user experience by eliminating the need for users to ever interact directly with crypto assets, unless they wish to—thereby broadening the potential user base of the product.

As illustrated, the infrastructure and processes described thus far effectively eliminate the need for real estate agents as intermediaries in many cases. This enables the parties to allocate funds previously spent on agent commissions toward arbitration fees, allowing them to bring disputes before Kleros Court if necessary, increasing access to justice.

IV. **Practical aspects of Kleros integration:** the adjudicating process

What follows is an analysis of the key elements of the Kleros dispute resolution mechanism as applied to tenancy agreement disputes.

1. Contract and Opt-in

As previously mentioned, Kleros operates on an "opt-in" basis, meaning that parties must explicitly agree to submit their dispute to Kleros for resolution. To this end, either smart contracts or tenancy agreements generated through the proposed App must designate Kleros as the arbitral body. In both cases, parties must express their consent by incorporating an arbitration clause into the contract. Below is a proposed model clause in english:

> *"Any dispute, disagreement, controversy, or claim of any nature arising out of or in connection with this Agreement—including, but not limited to, any matter related to its existence, interpretation, breach, validity, or termination—shall be submitted to Kleros and resolved by jurors of the Court designated to resolve disputes between landlords and tenants. The parties further consent that the resolution of the dispute shall be conducted in accordance with the policy in force at the aforementioned Court at the time the dispute is submitted. The parties agree that any verdict issued by Kleros juries may be appealed by either party within the time frame and in the manner provided for in the rules of the aforementioned policy, and that the final verdict, once the appeal has been resolved, shall be final and binding, with both parties undertaking to take all necessary measures to facilitate and comply with said determination. The arbitration process shall be conducted in Spanish, and the parties shall pay the arbitration fee in the manner and proportions determined by the Kleros protocol".*

> *Alternatively, if the parties expressly waive their right to appeal, the penultimate sentence of the clause should be replaced with one of the following: "The parties agree that any final verdict issued by Kleros jurors shall be final and binding, and they undertake to take all necessary measures to facilitate and comply with the jurors' determination."*

2. Evidence

Each party will be responsible for submitting relevant evidence. In a dispute over a tenancy agreement to be resolved by a Kleros jury, the parties may present various types of documentary, testimonial, and digital evidence, depending on the nature of the conflict.

Concrete examples include, in addition to the tenancy agreement itself (which, being embedded in the system, would not need to be resubmitted by the parties):

a. **For non-payment disputes:** bank transfer receipts or other payment records (e.g., signed receipts), payment demands sent via email, WhatsApp, or certified notice letter, and screenshots of past payment history.

b. **For disputes regarding the condition of the property upon devolution:** photographs or videos showing the state of the property at the time of handover and after return, repair estimates, an initial inventory signed by both parties (if not included in the contract), or proof of repairs made by the tenant.

c. **For breach of contractual clauses (e.g., improper use, unauthorized sublease):** neighbor testimonies, listings on platforms such as Airbnb, security camera footage, or the building's bylaws or internal regulations (in case of condominium regimes).

d. **For early termination and penalties:** proof of termination date (e.g., email or message), penalty calculation, proof of prior notice, evidence of force majeure (such as medical certificates or unemployment), and communications with the landlord indicating tacit acceptance.

e. **For non-return of the security deposit:** evidence of the property's good condition, messages requesting the return of the deposit, evidence of damages or outstanding debts justifying its retention, or repair invoices.

Unlike other types of disputes (e.g., those involving minors), the subject matter of lease-related conflicts generally does not require strict confidentiality. As such, there is usually no need to invest resources in anonymizing the evidence. For this reason, the Contract will also include an informed consent section, explaining the transparency and publicity of the Kleros process, and the parties will give their consent.

3. Court and jury selection

Tenancy disputes can be resolved in the Consumer and Neighborhood Disputes Court ("CDCV", by its acronym in Spanish), which is part of the General Court in

Spanish within the broader Kleros Court system. Therefore, there is no need to create a new court. The CDCV is already designed to handle a wide range of low- to medium-complexity civil and commercial disputes, such as the case under study.

Currently, CDCV resolves cases that include—but are not limited to—contractual disputes, claims for damages, and consumer protection claims between users and businesses. Given the nature of these cases, arbitrators could perfectly resolve disputes arising from a tenancy relationship whose terms and conditions, as well as the applicable legal framework, are clearly defined in the Contract.
If the volume of such cases were to increase significantly over time, an alternative could be to create a dedicated subcourt within the CDCV to handle these specific matters. This specialized court could be named the "Special Court for Tenancy Disputes."

As for the selection of the jury, it should be carried out following the original mechanism proposed in the Kleros White Paper, that is, random selection. As previously mentioned, the skillset required to serve as a juror in the CDCV aligns well with the nature of lease contract disputes. These skills include: familiarity with basic consumer rights [9] , understanding of common practices in digital and decentralized environments, and the ability to critically and objectively assess the relevance and authenticity of submitted evidence.

However, for tenancy-related cases, additional qualifications should be required: an understanding of landlord-tenant relationships, knowledge of lease contracts, and, in particular, a solid grasp of Chapter 4 ("Lease") of Title IV (Contracts in Particular) of Argentina's Civil and Commercial Code (CCCN). These requirements could either be added to the CDCV's existing criteria or used to establish a more specialized court—such as the proposed "Special Court for Tenancy Disputes."
As for the number of jurors selected to resolve a dispute, the CDCV does not have a fixed standard. Rather, this number is determined at the time the dispute is created, based on the contract data. [10] Thus, the parties themselves may specify the number of jurors in the arbitration clause—keeping in mind that more jurors will increase the cost of the procedure. If this detail is omitted, it is recommended that the initial round include three jurors, which is the typical default in Kleros' standard process.

Finally, and in accordance with the model arbitration clause proposed earlier (Section IV.1), it is crucial to develop a specific court policy to guide the functioning of this product. This policy should establish: (i) the rules upon which jurors are expected to base their decisions (e.g., the relevant chapter of the CCCN or any future legislation that may replace it, and the lease agreement itself); and (ii) the method and proportions by which the parties must pay the arbitration fee (see Section IV.6).

4. Voting options and incentive system

In Kleros, jurors may be offered different voting options depending on the nature of the dispute and the policy of the court. For simpler cases, jurors are typically presented with binary options (e.g., Yes/No or A vs. B), allowing even small juries to reach meaningful outcomes efficiently. For more complex cases involving multiple variables, the system can be configured to offer multiple-choice options or even use mechanisms like scalar or pendulum arbitration to select among sets of outcomes.

Tenancy disputes are diverse in nature (see Section II.3) and depend heavily on the specific facts of each case. As a result, standardizing voting options for this product is difficult. A fixed binary vote such as Yes/No would not be sufficient to cover the variety of potential claims. Therefore, the proposal here is to allow each party to submit their proposed resolution (i.e., their specific claim), after which the jury will choose between: "Accept Claim A" or "Accept Claim B." This voting structure already exists in Kleros v2. It preserves the binary format—avoiding vote fragmentation—while accommodating the fact-intensive nature of tenancy disputes.

For example, in a dispute over a security deposit: suppose the landlord withholds $1,000, arguing that $500 should be retained due to a broken oven. The tenant, on the other hand, argues they should be refunded $800, as they estimate the repair should only cost $200. The two claims submitted to the court would then be: Landlord: "I retain $500 of the deposit." Tenant: "I am refunded $800 of the deposit." Jurors would assess the evidence—such as repair estimates—and select the more reasonable claim. This mechanism also incentivizes parties to submit honest and proportionate claims. Overstating a loss could result in losing the case to the more balanced counterclaim.

On the other hand, jurors will have the same economic incentive to vote honestly as they do in other courts: the reward they receive in pinakions (PNKs) if another member of the jury voted inconsistently—or, on the negative side, the loss of their stake if they vote incorrectly—in addition to the arbitration fee in Ethereum [11].

5. Appeal

One of the main advantages of using Kleros as a dispute resolution system is that it mitigates the unnecessary delays typical of traditional court processes. Therefore, for the use case at hand, it is proposed that if the losing party chooses to appeal the decision, the same procedural rules that apply to other Kleros cases should also govern.

This approach entails progressively increasing the number of jurors at each appellate level, which in turn raises the arbitration cost. As a result, the rising cost of subsequent rounds acts as a deterrent to frivolous or strategic appeals aimed at

harming the other party or delaying final resolution.

Nevertheless, the parties to a tenancy agreement may expressly waive the right to appeal within the Kleros process, provided that such waiver is mutually agreed upon and clearly stated in the contract. In such cases, their will must be respected.

6. Arbitration fee

Kleros jurors have an economic incentive to participate in the arbitration process: they receive compensation for their work. Jurors whose votes align with the final decision—the majority ruling—are rewarded. This compensation consists of the arbitration fee (in ETH) and a redistribution of Pinakion (PNK) tokens among the jurors.

For the tenancy dispute product proposed in this paper, the arbitration fee could be structured as follows: At the initial stage, both parties must contribute 50% of the platform-determined arbitration fee. If one party fails to make the payment, the other party is deemed the winner by default. When both parties deposit the required amount, the prevailing party will be reimbursed at the conclusion of the process.

In the event of an appeal, the same mechanism applies. However, in addition to their share of the appeal fee, the appealing party must deposit an extra amount. This additional sum is transferred to the prevailing party as a further incentive for procedural economy. This system discourages baseless or malicious appeals intended solely to burden the opposing party or delay case resolution [12].

V. Compliance and enforceability of the award

Once a case is resolved, the parties receive a final decision from Kleros. For the system to function effectively, it must be possible to enforce the tribunal's decision—either through an integrated mechanism in the case of smart contracts, or manually when on-chain execution is not feasible. Naturally, automatic enforcement is more effective in ensuring compliance.

In this regard, for disputes concerning security deposits, the scheme outlined in Section III.2—wherein the Escrow holds the guarantee—offers an ideal structure to ensure enforceability. The Escrow releases funds according to the jury's decision. Everything occurs on-chain, making it impossible for parties to breach the decision, since the funds are locked and held by the Escrow.

Therefore, ideally, parties should, whenever possible—and given that many of these disputes will involve financial matters—ensure that the disputed amount is deposited into the Escrow. For example, if the dispute concerns who should pay for maintenance fees, both parties should escrow the disputed amount to secure compliance with the ruling.

For this mechanism to work, it is essential that the parties commit to it contractually. This commitment should be included in the arbitration clause, and the system should be designed to prevent the dispute from proceeding unless the funds are properly escrowed. However, this does not resolve every issue: once funds are released, it remains the parties' responsibility to use them as intended. For instance, if the dispute concerns who should pay for a repair and the prevailing party receives the funds but uses them for a different purpose or fails to carry out the repair, there is nothing Kleros' on-chain system can do to enforce compliance. A similar limitation applies to disputes that concern non-monetary obligations. In such cases, Escrow enforcement is not possible.

This brings us to a critical category of tenancy-related conflicts:evictions for non-payment. These matters are particularly sensitive—especially when the property is residential—and Kleros cannot enforce an eviction order. As such, it may be prudent to exclude eviction disputes from Kleros' jurisdiction. However, this is a central issue in tenancy relationships, and there is already at least one foreign [precedent](#) in which an arbitration award governed by the Kleros protocol on this matter was recognized and enforced.

Therefore, both for this type of dispute and for the recognition and enforcement of other types of awards, the next challenge is to work on this issue in order to reach

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an agreement with the Argentine judicial system to achieve the recognition and enforcement of Kleros awards in Argentina in cases where there is no automatic enforcement or where the losing party reaches the court to seek to overturn the award. [13].

VI. Potential future developments

Finally, it is interesting to note that the Kleros App proposed in this paper opens the door to a new industry, with a new set of clients. For example, Web 2.0 companies such as [Zonaprop](#), [Booking](#) and [Airbnb](#). These three platforms offer properties for rent, either for longer periods, intended as residential properties, or for temporary use, such as tourism or business travel.

Indeed, all companies and protocols with a large user base experience conflicts with their customers, whether between users or between a user and the company itself. Although attempts have been made to address this problem through customer service teams (which are often biased and expensive) or by outsourcing issues to traditional justice systems (which often involves considerable time and expense), traditional justice has not adapted sufficiently to resolve these types of conflicts. This is where Kleros could provide fair outcomes at a reasonable cost and time. [14]

Furthermore, the product proposed in this work is clearly extensible to other jurisdictions, as long as the App templates take into account the legal differences, uses, and customs for tenancy contracts in each country where this technology is intended to be implemented.

VII. Conclusions

Tenancy agreements present a particular combination of massiveness, informality, and conflictivity that the Argentine justice system fails to address efficiently. This inefficiency creates a resolution gap that, in many cases, leaves parties without tools to assert their rights or defend themselves against abuses. In this context, the incorporation of decentralized technologies, such as the Kleros dispute resolution platform, offers a viable, agile, and transparent alternative.

Throughout this work, it has been demonstrated that Kleros not only allows for the resolution of low-value disputes with reduced costs and time, but can also contribute to formalizing legal relationships currently governed by informality or verbal agreements. Through an App that allows for the generation of contracts adapted to the Argentine legal framework, connected to fund custody services, and with the ability to activate the Kleros arbitration mechanism in the event of a dispute, a comprehensive infrastructure is created aimed at providing greater legal certainty to the parties.

Furthermore, the model's compatibility with the Argentine legal framework was demonstrated, while technical solutions were proposed to overcome barriers such as the lack of awareness of cryptocurrencies and the complexity of smart contracts. Finally, the potential for expanding the proposed product to other jurisdictions and tenancy markets, such as digital intermediation platforms, was highlighted. Ultimately, the case study developed here demonstrates how blockchain technology can provide concrete solutions to everyday problems, generating more accessible, efficient, and accessible justice mechanisms for citizens.

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[6] In the context of horizontal property, the consortium is the legal entity formed by all the owners of the functional units (floors, apartments, premises, etc.) of a building or group of buildings. This legal entity is responsible for the administration, maintenance, and upkeep of the common areas of the property. In other words, the consortium is the entity that represents all the owners and makes decisions on matters affecting the building as a whole, such as the management of funds, the contracting of services (doorman, cleaning, etc.), and the execution of necessary works.

[7] Kleros Short Paper v1.0.7 Clement Lesaege, Federico Ast, and William George September 2019. p. 13. https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf.

[8] Kleros for Enterprise. https://docs.kleros.io/products/enterprise.

[9] Although Kleros presents itself as a decentralized alternative to traditional justice and the country's legal system, it does not operate in a legal vacuum. On the contrary, it must consider and, to the extent possible, align itself with the laws and regulations applicable in the territory where it seeks to operate. In this sense, it is important to keep in mind that in Argentina not every dispute can be submitted to arbitration. Article 1651 of the CCCN specifically excludes disputes related to consumer law. And, while not every tenancy relationship should be considered a consumer relationship—in fact, most are not—this could arise when the landlord acts as a regular supplier (for example, a real estate agency or a person who regularly rents several properties) and, at the same time, the tenant is a consumer, that is, an individual who rents the property for personal, family, or domestic use (Articles 1 and 2 of the Consumer Protection Law (Law 24,240). In these cases, the Consumer Protection Law applies, which has public policy rules and protects the weaker party in the contract. However, Argentine jurisprudence and doctrine have imposed limitations if there is a consumer relationship: A prior arbitration clause (i.e., one agreed upon in the contract) is not valid unless strict requirements are met: the consumer has given his or her free and informed consent, the arbitration does not imply a waiver of inalienable rights, and the arbitration tribunal guarantees due process and fairness. In other words, if it is a consumer case, Kleros could theoretically be used to resolve a tenancy dispute if the tenant expressly agrees to submit the case to Kleros after the dispute has arisen.

[10] The user that generates the dispute (in this case, landlord or tenant) specifies in extradata how many votes (i.e. jury seats) there will be in the initial round. 1. Typical value: In most cases, it is set to 3 jurors/votes (github.com). 2. First round: That number of jurors is randomly selected from among those who have staked in the subcourt. 3. Appeals: If a party appeals, the next round recruits more jurors, typically following the formula:new = 2 × previous + 1(e.g.: 3 → 7 → 15 → 31). This continues up to a pre-configured limit or until the appeal must jump to the higher court (General Court) if a certain threshold is exceeded (parameter jurorsForCourtJump) (blog.kleros.io, blog.kleros.io).

[11] Kleros White Paper, section 4.2.1. "The Token: Pinakion (PNK)"

[12] Kleros White Paper, section 4.4. "Arbitration Fees"

[13] For further information on the recognition and enforcement of Kleros awards in Argentina see: https://abogados.com.ar/hacia-un-nuevo-modelo-de-resolucion-de-conflictos-la-justicia-descentralizada/31711#_ftn9.

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