KLEROS

Legal Viability of Decentralized Justice in the Dominican Republic: Application of Kleros in Different Economic Sectors

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ABSTRACT

This research examines the legal viability of applying the decentralized dispute resolution protocol Kleros in the Dominican Republic, with a focus on the insurance, consumer, and telecommunications sectors. Through an exhaustive analysis, the study demonstrates that Kleros, as a justice system based on blockchain, smart contracts, and game theory, can be validly integrated into the Dominican legal framework both in purely decentralized environments (*via smart contract*) and in traditional legal contexts (*via recognition of jurisdiction*). The investigation first provides a conceptual and technological characterization of the protocol, from the dual perspectives of decentralized economy law (*web3-law*) and traditional law (*trad-law*), outlining its technical structure, operational dynamics, and procedural logic. Secondly, it analyzes the Dominican legal framework applicable to smart contracts and digital means of dispute resolution, emphasizing Kleros's compatibility with fundamental principles of civil law and with various specialized regulations. Finally, the research presents concrete implementation proposals for the selected economic sectors, grounded in both viable normative models and statistical analyses that reveal the high volume of disputes and the pressing need for institutional modernization. The study concludes that Kleros represents a technologically advanced and legally feasible solution which, in convergence with existing legal structures, can enhance efficiency, expediency, and impartiality in dispute resolution, thereby contributing to the progressive transformation of the Dominican justice system in the digital age.

Keywords: Decentralized Justice; Dominican Republic; Kleros; Dispute Resolution; Arbitration; Economic Sectors; Smart Contracts; Blockchain Technology; Web3-Law; Trad-Law.

TABLE OF CONTENTS

INTRODUCTION

In today's legal landscape, where technological innovation is reshaping the ways in which legal relationships are understood, formed, and executed, it has become increasingly imperative to explore new methods of administering justice that meet the demands of a digitized, global, and interconnected society. The proliferation of electronic transactions, the rise of smart contracts, and the expansion of decentralized platforms have overwhelmed traditional conflict resolution mechanisms, leaving various economic sectors exposed to inefficiency, procedural delays, and the high structural costs of conventional systems. Against this backdrop, the present research proposes a rigorous and comprehensive analysis of the legal and practical feasibility of integrating Kleros—a decentralized dispute resolution protocol based on blockchain technology—into the Dominican Republic's legal framework, with particular emphasis on the insurance, consumer, and telecommunications sectors. The aim of this inquiry is not only to demonstrate the legal compatibility of the Kleros ecosystem with the national legal order but also to project its functionality as an auxiliary tool capable of enhancing sectoral justice through progressively integrable and legally valid mechanisms.

The general objective of this research is to determine the legal viability of the Kleros protocol as a decentralized dispute resolution mechanism in the Dominican Republic, under the premise that its strategic implementation could improve the speed, transparency, impartiality, and efficiency of justice delivery. In line with this objective, the study will pursue the following specific goals: to provide an in-depth explanation of Kleros from conceptual, technological, and doctrinal perspectives; to identify the existing national legal framework applicable to smart contracts and decentralized dispute resolution protocols; to analyze legally viable models for integrating Kleros within both decentralized and traditional systems; to apply this analytical framework to three key economic sectors; and to substantiate the relevance of its adoption by presenting statistical data that reveal the volume of disputes managed by sectoral authorities and the pressing need to introduce technological justice mechanisms that offer greater effectiveness.

The structure of the research will unfold in three main chapters, each conceived as an integral unit articulated in a logical and argumentative progression with the others. The first chapter aims to provide an introductory and technical overview of the protocol. Its first section will present a conceptual analysis from three theoretical dimensions: first, examining Kleros as a decentralized ODR platform, highlighting its nature as a collaborative system of participatory justice without a central authority; second, analyzing the protocol through the lens of web3-law, emphasizing its algorithmic architecture, automation via smart contracts, and cryptoeconomic governance; and third, exploring the mechanism from a trad-law perspective, arguing for its full insertion as an auxiliary tool compatible with the

principles of traditional justice. The chapter's second section will address the technological structure and operational logic of Kleros, breaking down its core components: blockchain technology, smart contracts, smart contract platforms, decentralized autonomous organizations (DAOs), the staking of the PNK token, the crowdjury system, and the application of game theory through Thomas Schelling's focal point logic. It will describe the complete dispute resolution process—from conflict initiation, random jury selection, and decentralized anonymous deliberation, to the issuance and enforcement of the verdict—all underpinned by mechanisms ensuring on-chain transparency, impartiality, and auditability. Finally, the chapter's third section will present and contrast the two integration modalities of Kleros: integration via smart contract, native to the blockchain environment, and integration via recognition of jurisdiction, envisioned as the primary adoption method within traditional legal systems. The latter will be developed with emphasis on its applicability in a variety of settings, including traditional arbitration, judicial branch, public institutions, and private institutions, paving the way for realistic implementation in the Dominican context.

The second chapter will serve as the normative core of the research, aiming to determine whether smart contracts and decentralized dispute resolution mechanisms are legally admissible under current Dominican law. The first section will focus on the legal framework applicable to smart contracts, based on the Dominican Civil Code and Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures. It will establish that smart contracts do not constitute a new contractual type but rather an electronic means of executing agreements validly formed under the principle of contractual autonomy, and that their effectiveness is governed by the same conditions that apply to traditional contract validity. Parallels will be drawn between smart contracts and civil law constructs such as conditional obligations and deposit contracts, thus anchoring their operation to already recognized legal institutions. Moreover, it will be demonstrated that the digital nature of smart contracts does not diminish their legal effectiveness, as Law 126-02 grants evidentiary value, formal validity, and binding force to digital documents, electronic signatures, and data messages—thereby meeting legal requirements of written form, authenticity, and informed consent.

The second section of this chapter will assess the direct applicability of the Kleros protocol within the national legal context. It will argue that integration into the decentralized economy is legally permissible, thanks to general principles of private law such as contractual autonomy, which allows parties to freely agree on alternative dispute resolution mechanisms, and the absence of prohibitive regulations. Likewise, it will be argued that integration into traditional legal contexts is feasible through the formal recognition of Kleros's jurisdiction by authorities or institutions. This section will conclude with a methodological reflection that transitions the reader toward the next chapter, which will present

sectoral implementation models grounded in both legal reasoning and statistical evidence.

The third and final chapter will constitute the empirical application core of the study, presenting a sectoral analysis of Kleros implementation in three strategic sectors of the Dominican economy: insurance, consumer, and telecommunications. The first section will examine Kleros's application in the insurance sector, particularly in dispute resolution processes overseen by the Superintendency of Insurance of the Dominican Republic (SIS). It will analyze the sector's legal framework, identify applicable regulatory foundations, and propose a hybrid integration model via recognition of jurisdiction, whereby SIS could use verdicts rendered by decentralized juries as technical input for administrative decisions. The second section will study the consumer sector, detailing the operational structure of the National Institute for the Protection of Consumer Rights (PROCONSUMIDOR), and proposing a procedural sequence in which Kleros would serve as an auxiliary court whose decision could be incorporated and formalized by the agency through a final resolution. The third section will address the telecommunications sector, referencing the administrative procedure regulated by the Dominican Institute of Telecommunications (INDOTEL), and proposing a complementary justice model in which Kleros would serve as an intermediate stage for substantive dispute assessment, while INDOTEL would retain responsibility for procedural structuring and final homologation of verdicts. Each of these sections will provide a legal, institutional, and statistical breakdown evidencing the relevance of applying a decentralized justice protocol in light of the volume of disputes handled by the institutions. It will also demonstrate the practical viability of the tool by projecting its use cases in both trad-law and web3-law contexts. The chapter will conclude with an analysis of the legal and socio-economic impacts of implementing Kleros, considering both normative challenges and the structural opportunities it presents for the institutional modernization of dispute resolution in the Dominican Republic.

CHAPTER I: KLEROS AS A DECENTRALIZED DISPUTE RESOLUTION ECOSYSTEM

Prior to undertaking focused studies on legal feasibility and implementation, it is deemed appropriate for the present research to carry out, by way of introduction, an exploration of the Kleros protocol as a decentralized dispute resolution ecosystem. To this end, the analysis will begin with a conceptual examination from three distinct perspectives: first, a (i) general perspective; second, a perspective grounded in (ii) web3-law, or the law of the decentralized economy; and third, a perspective focused on (iii) trad-law, or traditional law.

Subsequently, a detailed breakdown of the technological structure of Kleros will be presented, accompanied by an explanation of the operational function of each component. This serves a preparatory purpose, as the ultimate objective of the section is to clarify—at a general level—the roles of the main technological elements within the justice protocol under study. This breakdown will include, among other components: (i) blockchain technology, (ii) smart contracts, (iii) smart contract platforms, (iv) staking, and (v) game theory.

Finally, the third and last part of this section will consist of an in-depth study of the two existing modalities of Kleros integration as of the time of writing: (i) integration via smart contract, aligned with web3-law, and (ii) integration via recognition of jurisdiction, aligned with trad-law.

1.1 CONCEPTUAL ANALYSIS

General Perspective: Kleros as a decentralized ODR platform

Commencing this conceptual analysis, it is important to first clarify that Kleros is, above all, a decentralized online dispute resolution (ODR) protocol. Unlike traditional online arbitration systems, which are administered by a centralized authority, Kleros operates as an open and collaborative platform. According to one of its official definitions, Kleros is an open-source online dispute resolution protocol that leverages blockchain technology and crowdsourcing to resolve conflicts fairly[1]. This means that, in principle, anyone in the community may participate as a juror and that decisions are not rendered by a single authority, but rather by the collective intelligence of its users. In this regard, Kleros is situated within the

[1] *Kleros* [online]. Available from: https://kleros.io/es/about/

emerging domain of decentralized justice, understood as an innovative system of dispute resolution built on blockchain and collective intelligence[2].

Kleros has been described as the first functional decentralized justice system, specifically designed for the Internet[3] and the transactions of the global digital economy. Its central objective is to provide a fast, accessible, and transparent dispute resolution mechanism in response to the growing number of online conflicts driven by the accelerated globalization and digitalization of commercial relationships. In fact, it is estimated that between three and five percent of online transactions result in disputes—over seven hundred million cases in 2015[4] alone—highlighting the urgent need for more efficient and innovative ODR methods for the future. In this precise context, Kleros emerges with the mission of enabling access to justice and individual freedom[5] through technological tools, positioning itself as a key player in the digital transformation of the legal world.

With regard to its principles and basic operation, Kleros draws inspiration from historical models of citizen juries, adapting them to the digital age. The name "Kleros" itself has Greek origins, referencing the random selection mechanism for jurors used in Ancient Athens[6]. Following this spirit, the protocol ensures that jurors are randomly selected from a global community of voluntary users, thereby avoiding bias and guaranteeing impartiality in the selection process. Any dispute may be submitted to Kleros either through a smart contract or via jurisdictional recognition of the platform, after which a panel of anonymous[7] citizen jurors is assigned to the case—highlighting that, although jurors are anonymous at the time of this writing, in version 2.0 of Kleros, the courts may be configured to require jurors to undergo an identity verification process, and even credential verification, through the use of SoulBound Tokens (SBTs). The disputing parties then present their evidence and arguments online, after which the jurors deliberate and independently render a verdict. To promote honest participation, jurors are compensated for their service and are subject to economic incentives that encourage decisions grounded in truth and evidence.

The result is a dispute resolution system that delivers decisions in a swift, cost-effective, reliable, and decentralized[8] manner—without recourse to state

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[2] AST, Federico. Kleros and the Birth of Decentralized Justice [online]. *Kleros Blog*. November 11, 2019. Available from: https://blog.kleros.io/blockchain-y-el-nacimiento-de-la-justicia-descentralizada/

[3] MOLINA C., David. Will New Technologies Extinguish the Arbitral System? Kleros: A Look at the Future of International Arbitration [online]. *Kluwer Arbitration Blog*. September 30, 2020. Available from: https://arbitrationblog.kluwerarbitration.com/2020/09/30/las-nuevas-tecnologias-extinguiran-el-sistema-arbitral-kleros-una-mirada-al-futuro-del-arbitraje-internacional/

[4] AST, Federico. Kleros and the Birth of Decentralized Justice [online]. *Kleros Blog*. November 11, 2019. Available from: https://blog.kleros.io/blockchain-y-el-nacimiento-de-la-justicia-descentralizada/

[5] *Kleros* [online]. Available from: https://kleros.io/es/about/

[6] AST, Federico. Kleros and the Birth of Decentralized Justice [online]. *Kleros Blog*. November 11, 2019. Available from: https://blog.kleros.io/blockchain-y-el-nacimiento-de-la-justicia-descentralizada/

[7] Kleros FAQ [online]. *Kleros Docs. April 2025*. Available from: https://docs.kleros.io/kleros-faq#can-you-really-trust-a-decision-made-by-a-bunch-of-anonymous-people-on-the-internetv

[8] LESAEGE, Clément, et al. Kleros Whitepaper "Short Paper v1.0.7". *kleros.io [online]. September 2019, p. 1* Available from: https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf

courts or traditional arbitration services. In sum, from a general perspective, Kleros may be conceived as a next-generation ODR platform, powered by mass collaboration (crowdsourcing) and blockchain technology, whose mission is to democratize access to justice in digital environments. Its foundational principles of openness, transparency, and technical neutrality are designed to ensure that disputes are resolved fairly and incorruptibly, strengthening trust in transactions within the new digital economy and optimizing processes in traditional legal settings.

Web3-Law Perspective: Kleros in the context of the decentralized economy

From the perspective of "web3-law", or the law of the decentralized economy, Kleros may be defined as a decision-making protocol[9] deeply rooted in the logic of smart contracts and crypto-economics. In technical terms, Kleros is a decentralized application (DApp) built on the Ethereum[10] blockchain. However, it is important to consider that (i) the protocol also operates on the Gnosis network, and (ii) its version 2.0—currently in beta—has been developed on the Arbitrum layer 2 solution. This latest development means that decisions rendered by Kleros courts on that network will also be enforceable[11] across other blockchain networks, thereby expanding its capacity for integration and jurisdictional reach within decentralized environments. All of the above implies that the entire arbitration process—from juror selection to the issuance of a ruling—is automated through self-executing smart contracts, with no human intermediaries administering the procedure. Kleros functions as a decentralized third party[12] that arbitrates disputes in any type of agreement, whether simple or complex, through immutable computer code. The foundational principles of blockchain technology ensure that, once the rules of the game are encoded, they are applied consistently and transparently, while decentralization guarantees that no central authority can manipulate the process or outcome.

In practice, when two parties incorporate Kleros into an agreement (exempli gratia, by including a compromissory clause[13] within an arbitrable[14] smart contract), any dispute that arises is automatically referred to Kleros's arbitrator[15] smart contract. This contract randomly selects jurors registered in the relevant court, collects their votes, and enforces the majority decision. For instance, if there are funds held in escrow, the smart contract will release the payment to the prevailing party as soon as Kleros's verdict is finalized—all autonomously and transparently recorded on the

[9] Ibid.
[10] Ibid., p. 3.
[11] P, Jean. Kleros 2.0 Beta is Here: Get Started [online]. *Kleros Blog. November 14, 2024.* Available from: https://blog.kleros.io/kleros-2-0-beta-is-here-get-started/
[12] LESAEGE, Clément, et al. Kleros Whitepaper "Short Paper v1.0.7". *kleros.io [online]. September 2019, p. 1.* Available from: https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf
[13] Ibid., p. 3.
[14] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io [online]. 2021, p. 5.* Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf
[15] Ibid.

blockchain. This level of automation allows decisions to be enforced instantaneously and without external coercion, drastically reducing both costs and resolution time.

A fundamental feature of Kleros is its strategic integration of cryptographic tokens into its operational design. Participation in the system is mediated by a native cryptoasset called Pinakion (PNK), which performs a threefold function: it serves as an (i) incentive mechanism for jurors, as a (ii) safeguard against attacks, and as a (iii) governance tool for the platform[16]. Users who wish to serve as jurors must stake[17] a certain amount of PNK tokens in the specialized court where they intend to participate. The more tokens they stake, the higher their probability[18] of being randomly selected for a case—although they risk losing their tokens if their decisions diverge significantly from the consensus.

This crypto-incentive mechanism is based on game theory and is designed to foster honest and accurate judgments. After jurors cast their votes, the system rewards those who voted in alignment with the majority verdict—presumably the correct one—and may penalize those who voted incoherently[19] or dishonestly. In other words, the protocol creates a Schelling scheme where the most coordinated and reasonable decision—the "focal point" according to Thomas Schelling's theory—tends to prevail, aligning jurors' economic interest with the issuance of fair [20] and evidence-based decisions. This novel model of algorithmic justice combines cryptography, decentralized networks, and economic mechanisms to ensure the integrity of the dispute resolution process. Kleros itself encapsulates this design principle by affirming that blockchain technology and game theory are combined to deliver fast, affordable, and impartial decisions through crypto-economics[21].

To fully comprehend Kleros from the standpoint of web3-law, however, it is necessary to define what is meant by the law of the decentralized economy and how it differs from traditional law. Web3-law refers to the emerging body of norms, mechanisms, principles, and arrangements that govern interactions within decentralized ecosystems based on blockchain technology, smart contracts, decentralized autonomous organizations (DAOs), and cryptoassets. Unlike classical law, which are generally confined to territorial jurisdictions and enforced by state authorities, web3-law is transnational, self-governing, and encoded.

In web3 platforms, many of the rules of the game are embedded in code—that is, smart contracts automatically define obligations and consequences, executing them without the need for judicial intervention. This phenomenon is often

[16] PNK Token [online]. *Kleros Docs. January 2025.* Available from: https://docs.kleros.io/pnk-token
[17] LESAEGE, Clément, et al. Kleros Whitepaper "Short Paper v1.0.7". *kleros.io* [online]. September 2019, p. 4. Available from: https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf
[18] Ibid.
[19] Ibid., p. 8
[20] Ibid.
[21] *Kleros* [online]. Available from: https://kleros.io

conceptualized under the term "*Lex Cryptographia*", which refers to a stateless global legal order—a wholly novel system of rules administered by self-executing smart contracts and decentralized autonomous organizations[22]. Indeed, Lex Cryptographia operates independently of any external authority or intermediary[23], illustrating how, in the web3 world, it is the protocol itself—and the community maintaining it—that ensures rule enforcement, rather than the coercive power of a given state.

The distinguishing foundations of web3-law can be summarized along three main axes: (i) structural decentralization, (ii) automation, and (iii) mathematical trust as a substitute for institutional trust. First, decentralization implies that no single sovereign entity has control over the platform, with authority distributed among network participants and nodes. Second, automation via smart contracts ensures that many decisions and executions occur immediately and according to predetermined logic, limiting discretion and, theoretically, reducing the risk of fraud or human manipulation. Third, the security and validity of transactions are ensured by cryptography and network consensus, rather than by notaries, judges, or law enforcement officials.

This does not mean that web3-law discards all human or traditional legal elements, but it does significantly redefine their roles. User communities can act as de facto governors and judges within decentralized applications. Kleros precisely exemplifies this paradigm by empowering global users to serve as jurors and enforcing their verdicts through code, without the intervention of national courts. In summary, from the standpoint of the decentralized economy, Kleros functions as an autonomous justice system that embodies the "*Code is Law*" vision within the realm of dispute resolution. It forms part of a broader movement toward the creation of decentralized legal infrastructures that run parallel to state law—architectures designed specifically for the age of open networks and cryptocurrencies.

Trad-Law Perspective: Kleros in the context of traditional law

From the standpoint of "trad-law", or traditional law, Kleros emerges as an innovative dispute resolution mechanism that is entirely viable in legal terms and functions as an auxiliary and complementary tool to conventional procedures. Rather than contravening existing legal structures, Kleros can be strategically integrated into traditional conflict resolution processes, contributing technological efficiency without undermining legal certainty. Its recognition may be achieved through consensual jurisdiction in legal agreements—exempli gratia, via contractual clauses that submit disputes to the Kleros protocol—or by

[22] BLASZCZYK, Matt. Smart Contracts, Lex Cryptographia, and Transnational Contract Theory. *SSRN* [online]. University of Michigan Law School, 2023, p. 2. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4319654
[23] AST, Federico, and DEFFAINS, Bruno. When Online Dispute Resolution Meets Blockchain: The Birth of Decentralized Justice. *Stanford Journal of Blockchain Law & Policy* [online], June 30, 2021. Available from: https://stanford-jblp.pubpub.org/pub/birth-of-decentralized-justice/release/1

incorporating it as a technological stage within conventional procedures supervised by official arbitrators or judges.

In all scenarios, Kleros does not seek to replace or displace legal authorities; on the contrary, it functions as a technical tool at the service of traditional justice, enhancing its mechanisms without altering the established normative hierarchy. By its very nature—a blockchain-based protocol that delivers arbitration services through information technologies[24], without requiring the physical presence of the parties in meetings or hearings—Kleros clearly falls within the concept of online dispute resolution (ODR), a category recognized by modern legal systems and international commercial law bodies such as UNCITRAL[25]. Far from instituting a parallel legal system, Kleros aligns with the global trend of leveraging technology to improve access to justice while remaining fully within the bounds of existing legal frameworks.

Kleros's legal viability is largely supported by the widespread acceptance of alternative dispute resolution (ADR) mechanisms in contemporary legal systems. Under the internationally recognized principle of party autonomy, contracting parties can validly agree to submit their disputes to a mechanism such as Kleros, thereby conferring jurisdiction over potential conflicts within the limits of the agreement. International arbitration law offers clear support for this possibility. The UNCITRAL Model Law on International Commercial Arbitration, for instance, defines arbitration broadly, encompassing both institutional arbitrations and ad hoc arbitrations not administered by a permanent entity[26]. From this perspective, the decentralized Kleros process legally qualifies as arbitration, or at least as an arbitral sui generis method under the ADR umbrella.

The fact that Kleros introduces novel features—such as the random selection of jurors via crowdsourcing, crypto-economic incentives to promote honest decisions, or blockchain-based procedural automation—does not preclude its legal classification as arbitration. While its technical specificities may differ from conventional arbitral practices, its essential structure remains identifiable as arbitral [27] in nature—simply implemented through digital means. Accordingly, none of Kleros's intrinsic characteristics exclude it from the accepted categories of ADR; on the contrary, both domestic and international legal frameworks are sufficiently flexible to accommodate it as a valid method, so long as party consent is present and procedural safeguards are respected.

A critical requirement for its full legal integration is that Kleros complies with the core principles of due process and fairness that govern dispute resolution. In this

[24] Is Kleros legally valid as arbitration? [online]. *Kleros Forum*. January 2020. Available from: https://forum.kleros.io/t/es-kleros-legalmente-valido-como-arbitraje/339
[25] 2017. Technical Notes on Online Dispute Resolution. United Nations Commission on International Trade Law (UNCITRAL). Available from: https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/v1700382_english_technical_notes_on_odr.pdf
[26] 1985. Model Law on International Commercial Arbitration. United Nations Commission on International Trade Law (UNCITRAL). Art. 2(a). Available from: https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/19-09955_e_ebook.pdf
[27] Is Kleros legally valid as arbitration? [online]. *Kleros Forum*. January 2020. Available from: https://forum.kleros.io/t/es-kleros-legalmente-valido-como-arbitraje/339

regard, Kleros demonstrates consistency with all essential procedural guarantees. Its procedural design incorporates key safeguards such as the independence and impartiality of juror selection, transparency at every stage of the proceeding, and the parties' opportunity to present arguments and evidence. Socio-legal studies have emphasized that Kleros adheres to the foundational principles of arbitral due process[28], including tribunal neutrality, proper jurisdiction, efficiency, accessibility, and above all, procedural fairness.

Indeed, Kleros's architecture has been conceived to meet ex ante the requirements of a fair hearing. Exempli gratia, the platform guarantees the voluntary participation of the parties and the objective selection of jurors, automates notification and evidence exchange, and operates under pre-established rules, thereby eliminating human arbitrariness. Thanks to this careful alignment with universal legal principles, a decision issued through Kleros does not suffer from procedural defects that would compromise its validity. On the contrary, it conforms to the structures and frameworks of legally binding arbitration, making it as robust as a decision from a classic arbitral tribunal.

The convergence between Kleros and traditional law becomes even more evident when one considers how the protocol can complement existing official procedures. One optimal pathway for incorporating Kleros is through standard arbitration clauses: in the exercise of their contractual autonomy, the parties may stipulate that any future disputes be resolved using the Kleros protocol, either independently or in conjunction with a traditional arbitrator. In this hybrid model, a conventional arbitrator may preside over the formal arbitration process to ensure compliance with legal formalities, while delegating the substantive decision to the decentralized Kleros jury. The resulting award, signed by the designated arbitrator but grounded in Kleros's technical verdict, would have the same legal character as any other arbitral award, and would therefore be recognizable and enforceable by national courts under applicable arbitration law and, if relevant, under the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

It is important to note that this approach has already undergone judicial scrutiny in practice. It has been demonstrated that even without special legal reforms, a blockchain-based justice mechanism such as Kleros can fit within the architecture of classical arbitration. In fact, a national court has recognized and enforced[29] an award substantially decided through Kleros, finding no conflict whatsoever with public policy. Thus, experience confirms that current legal systems provide avenues to give legal effect to resolutions derived from Kleros when they are channeled through appropriate procedural figures (e.g. a formal arbitral award) and due procedures are respected.

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[28] Is Kleros legally valid as arbitration? [online]. *Kleros Forum*. January 2020. Available from: https://forum.kleros.io/t/es-kleros-legalmente-valido-como-arbitraje/339
[29] VIRUES, Mauricio. How to Enforce Blockchain Dispute Resolution in Court? The Kleros Case in Mexico [online]. *Kleros. January 10, 2022.* Available from: https://blog.kleros.io/how-to-enforce-blockchain-dispute-resolution-in-court-the-kleros-case-in-mexico/

The key to achieving such harmonious integration lies in understanding Kleros not as a parallel justice system, but as a technological tool embedded within the existing dispute resolution framework. That is, Kleros should be viewed as a technical resource that parties may voluntarily designate as the decision-making instance[30]—just as they would select an arbitrator, an arbitral seat, or procedural rules. Far from claiming absolute autonomy, the protocol operates under the aegis of the arbitration agreement and in full compliance with existing legal norms, serving as specialized input that complements the work of the traditional decision-maker.

In this way, Kleros aligns with formal mechanisms and operates within the scope of arbitration, or other agreed-upon ADR method, contributing its technical advantages—speed, cost reduction, virtual execution, impartiality, and more—without deviating from the established legal channels. This conception enhances complementarity: technology is integrated into the legal process, and its outputs are incorporated through the decisions of traditional arbitrators or judges, who retain the authority to render enforceable judgments. Ultimately, Kleros enriches the range of options available to parties and legal professionals for conflict resolution, without demanding any waiver of guarantees or the ultimate intervention of the competent judicial or arbitral authority.

When viewed from the traditional legal perspective, the integration of Kleros appears not only possible but also highly beneficial for the justice system. Rather than challenging the legitimacy of the legal apparatus, Kleros strengthens it by offering an additional means to optimize dispute resolution—always in deference to the primacy of the law. Its measured implementation, in convergence and complementarity with existing institutions, makes it possible to modernize the administration of justice without compromising fundamental guarantees or undermining the authority of classical legal organs. As scholars have pointed out, discreetly[31] integrating dispute resolution technologies into traditional justice systems is an effective way to introduce innovation while respecting legality, contributing to increased legitimacy and future acceptance of these mechanisms.

Indeed, Kleros acts as a valid technical input that can inform and improve the official decisions of traditional arbitrators, state judges, public bodies, or even private business arbitration systems—all within the bounds of the existing legal framework and under judicial oversight. What thus emerges is a virtuous model of convergence between blockchain technology and traditional law. Kleros proves to be fully compatible with the legal order, offering technical support that enhances the efficiency and reach of justice without weakening its foundations. Far from displacing institutions, it strengthens them by equipping them with new tools to

[30] Ibid.
[31] VIRUES, Mauricio. How to Enforce Blockchain Dispute Resolution in Court? The Kleros Case in Mexico [online]. *Kleros. January 10, 2022.* Available from: https://blog.kleros.io/how-to-enforce-blockchain-dispute-resolution-in-court-the-kleros-case-in-mexico/

resolve disputes more swiftly, transparently, and cost-effectively—all in faithful compliance with the principles of the Rule of Law.

To conclude this conceptual analysis, it is suggested to understand that Kleros, within the context of traditional law, emerges as a strategic ally of justice. It is a complementary mechanism with proven legal viability, capable of legitimately integrating into existing processes and contributing to the improvement of conflict resolution, all without deviating from the guarantees, procedures, or authorities that uphold confidence in the current legal system.

1.2 TECHNOLOGICAL STRUCTURE AND OPERATIONAL FRAMEWORK

The effectiveness of Kleros as a decentralized justice system rests on a combination of interrelated technological inventions. At its core, Kleros is a decentralized dispute resolution protocol deployed through smart contracts on a public blockchain—specifically, the Ethereum blockchain. Accordingly, a full understanding of its operation requires an examination of its fundamental technical components: blockchain technology, smart contracts, Ethereum, as well as key concepts such as decentralized autonomous organizations (DAOs), the staking of the PNK token, open jury collaboration (crowdjury), and game-theoretic incentives structured around Thomas Schelling's focal point. What follows is an explanation of each of these referenced elements and their respective roles within the Kleros ecosystem, culminating in a clear depiction of how they integrate into a cohesive mechanism.

Blockchain Technology and Smart Contracts

The Kleros protocol is built on blockchain technology—an infrastructure that provides distributed, immutable, and trustless records. More specifically, a blockchain, or chain of blocks, can be defined as a distributed ledger technology or decentralized database that stores digital information in files, denominated blocks, with these blocks being cryptographically linked to each other[32]. Its core characteristic is immutability, or resistance to tampering, which is precisely possible due to the connection between blocks, which occurs by including the digital footprint, or hash, of the previous block within the new block. As a result, if any data in a block is altered, its digital footprint would also change—meaning that if someone attempts to arbitrarily modify information contained in any block, it would cause a domino effect, making the manipulation attempt completely evident within the network[33].

[32] Portafolio Polivalente. *Blockchain technology [online]. March 31, 2024.* Available from: https://www.instagram.com/p/C5MMeXqx0M0/
[33] Ibid.

In a contractual context, this immutability translates into the practical impossibility of unilaterally modifying terms already recorded on the chain. It is on this technological foundation that the renowned blockchain-based smart contracts are built—self-executing pieces of code that live within the blockchain. The classic concept of a smart contract was formulated by Nick Szabo in 1994, who described it as a computerized transaction protocol that executes the terms of a contract[34]. Its purpose is to automatically satisfy agreed conditions, minimize malicious or accidental exceptions, reduce the need for trusted intermediaries, and decrease monetary losses due to fraud, arbitration, or other risks[35]. In other words, a smart contract is a program that, once deployed on the blockchain, will automatically and verifiably enforce the contractual clauses agreed upon by the parties.

Smart Contract Platforms and Ethereum

For smart contracts to operate, they must be deployed on a blockchain platform capable of executing them. Ethereum was the pioneer in this field and serves as the platform on which the Kleros protocol is implemented. Ethereum may be defined as a globally decentralized, open-source computing infrastructure that runs programs known as smart contracts. It utilizes a blockchain to synchronize and store system state changes and employs a cryptocurrency called Ether (ETH) to quantify and pay for computational operations[36]. In the same vein, Ethereum can be understood as a network of computers or nodes[37] distributed across the globe that enables the deployment of smart contracts and the creation of decentralized applications (DApps), offering high availability, auditability, transparency, neutrality, and resistance to censorship[38]. From a legal standpoint, Ethereum provides lawyers and users with a means to transform legal agreements into self-executing code through blockchain-based smart contracts, thereby allowing the delegation of contractual compliance management to software[39]. Kleros has evidently leveraged these capabilities of Ethereum, as its developers have deployed a series of smart contracts on the network that collectively form the Kleros Court—the highest standard of an autonomous protocol that resolves disputes without the need for a central authority.

An important aspect of Kleros's architecture is how it integrates with other smart contracts. In its typical web3-law application, parties to an agreement can insert

[34] SZABO, Nick. Smart Contracts. *Phonetic Sciences, Universiteit van Amsterdam* [online]. 1994. Available from: https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart.contracts.html
[35] Ibid.
[36] ANTONOPOULOS, Andreas M., and WOOD, Dr. Gavin. Mastering Ethereum: building smart contracts and DApps. 1st ed. Sebastopol, CA: O'Reilly, 2018, p. 42. ISBN: 978-1-49197194-9
[37] Ethereum.org. *What is Ethereum?* [online]. Available from: https://ethereum.org/en/what-is-ethereum/
[38] ANTONOPOULOS, Andreas M., and WOOD, Dr. Gavin. Mastering Ethereum: building smart contracts and DApps. 1st ed. Sebastopol, CA: O'Reilly, 2018, p. 42. ISBN: 978-1-49197194-9
[39] DE FILIPPI, Primavera and WRIGHT, Aaron. *Blockchain and the law: the rule of code.* Cambridge, Massachusetts: Harvard University Press, 2018, p. 74. ISBN 9780674976429

into the code of an arbitrable[40] smart contract a compromissory clause[41] that designates Kleros's arbitrator[42] smart contract as the decision protocol in case of a dispute. This design transforms Kleros into a strategically embedded decentralized third party within the logic of the contract. Once a conflict arises (exempli gratia, regarding the fulfillment of an obligation in a service contract), the parties will have the opportunity to click an arbitration button[43], which would trigger the arbitration process and the subsequent submission of the dispute to the Kleros Court. In this way, thanks to the blockchain, the aforementioned process is automated[44] end-to-end: the case is escalated to Kleros, jurors are selected, evidence is evaluated, and finally, an official Kleros verdict is automatically incorporated into the smart contract, resolving the dispute and determining the fate of the contested matter (e.g. releasing or refunding funds). This entire sequence is verifiable and guaranteed by code on the Ethereum network.

Decentralization and DAOs

Kleros operates without central hierarchies or hand-picked judges; its governance is essentially community-driven and algorithmic. In this sense, Kleros aligns perfectly with the concept of a Decentralized Autonomous Organization (DAO). A DAO is, by definition, an enterprise or organization that functions without traditional hierarchical[45] management, governed instead by rules encoded in smart contracts. The Kleros protocol can be seen as a kind of judicial DAO, insofar as control over the protocol—and any proposed modifications—must necessarily be approved through a majority vote by token holders. It is important to note that token holders are not necessarily jurors, and that any individual may freely acquire tokens and participate in the governance of the DAO. Along the same lines, it is relevant to emphasize that the decisions rendered by the platform originate from a community of jurors who participate in accordance with predefined rules and are guided by economic incentives, rather than from a single centralized authority. In fact, Kleros is not only decentralized in its own design; it also provides dispute resolution services to other DAOs and blockchain-based projects[46] that require an impartial mechanism for resolving conflicts. In this order, Kleros has been described as a decentralized court system to which DAOs can appeal in order to resolve internal disputes fairly and autonomously, through juries composed of randomly[47] selected token holders. This

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[40] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io [online]. 2021, p. 5.* Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf
[41] LESAEGE, Clément, et al. Kleros Whitepaper "Short Paper v1.0.7". *kleros.io* online. September 2019, p. 3. Available from: https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf
[42] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io [online]. 2021, p. 5.* Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf
[43] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io [online]. 2021, p. 3.* Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf
[44] Ibid., p. 1
[45] ANTONOPOULOS, Andreas M. and WOOD, Dr. Gavin. Mastering Ethereum: building smart contracts and DApps. 1st ed. Sebastopol, CA: O'Reilly, 2018, Quick Glossary. ISBN: 978-1-49197194-9
[46] Partner Ecosystem [online]. *Kleros Notion.* Available from: https://kleros.notion.site/a44c2aaf03be4652bc2919f622a74255?v=f1a4924289c04bdd9d67dec50c18bd45
[47] How to Phase in a Governance Structure for DAOs [online]. *MontagueLaw.* Available from: https://montague.law/blog/phase-in-governance-structure-daos/

distributed structure provides impartiality and resilience, qualities inherent in a good foundational design, as no single entity can unilaterally manipulate rulings. This is precisely because decisions depend on a global network of independent participants.

PNK Token and Staking System

The core of Kleros's economic incentive system is the Pinakion (PNK) cryptoasset, an ERC-20 standard utility[48] token native to the justice protocol. As previously discussed, the PNK token fulfills several strategic roles within the platform. However, for the purpose of specialized study, this section will exclusively focus on the token's main functionalities that align with its role as an incentive mechanism for jurors.

First, the token represents participation rights: to be a Kleros juror, a user must acquire and deposit (stake) a certain amount of PNK in the specialized court of their interest. This locking or staking of assets serves both as an economic guarantee and as a criterion for random juror selection. Put simply, the more PNK tokens a user stakes in a given court, the greater their probability of being selected as a juror[49] in a case, as Kleros's algorithm selects jurors randomly with weighted consideration given to the size of the stake—while still ensuring that no individual can obtain absolute control over the system[50]. Secondly, the token functions as a risk and reward asset: once Kleros completes the arbitration process and issues a verdict, a determined percentage[51] of the PNK tokens staked by incoherent jurors is distributed in favor of coherent jurors. In other words, jurors whose votes diverge from the majority automatically lose a portion of their staked PNK, which is redistributed[52] to the benefit of the jurors who voted with the majority consensus.

This reward-and-penalty mechanism ensures that serving as a juror in Kleros entails direct economic consequences: jurors who render incoherent or dishonest decisions (i.e. those that deviate from consensus) are penalized, whereas those whose votes are consistent with the collective ruling receive a reward in the form of additional tokens, on top of their standard arbitration fees. In this way, the PNK token functions both as a ticket of entry to jury participation and as a moral-economic incentive for honest voting—safeguarding the protocol against malicious strategic behavior.

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[48] AST, Federico. Kleros Project & Token Sale Overview. *Medium* [online] April 25, 2018. Available from: https://medium.com/kleros/kleros-project-token-sale-overview-95ffaba71d94

[49] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io* [online]. 2021, p. 9. Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf

[50] CHAI, Ian. Blockchain-based Dispute Resolution on the Kleros Platform: Trial by Jury or Arbitration? *Science and Technology Law Review (STLR)* [online] October 22, 2019. Available from: https://journals.library.columbia.edu/index.php/stlr/blog/view/84

[51] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io* [online]. 2021, p. 20. Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf

[52] Ibid.

Open Jury Collaboration or Crowdjury System

Unlike traditional arbitration systems or state courts, in which judges or arbitrators are appointed by a central authority or chosen by the parties, Kleros employs a crowdsourcing[53] model for jury selection. Anyone in the world who meets the basic conditions—primarily, holding PNK tokens and staking them in a specific specialized court—can apply to serve as a juror. The selection of arbitrators is both random and decentralized[54] from this global pool of candidates, ensuring impartiality and diversity in the composition of the jury. In fact, Kleros organizes its jurisdiction into specialized[55] subcourts according to subject matter—exempli gratia, one subcourt may handle disputes over web design quality, another over e-commerce conflicts, another for insurance controversies, and so on.

As previously explained, users self-nominate[56] in the subcourts of their choice—according to their area of expertise—by staking their PNK tokens therein. Once a dispute arises in a given subcourt, the protocol randomly selects the required number of jurors from among the eligible stakers. This open jury collaboration system, or crowdjury, leverages collective intelligence as well as the geographic and professional diversity of the broader community. Because there are no geographic or institutional barriers, Kleros democratizes access to the role of adjudicator, enabling a truly participatory model of justice. Additionally, the transparency inherent in blockchain technology reinforces trust in the process, as any interested party can publicly verify that the selection was random and that the procedure adhered strictly to the pre-coded rules.

Game Theory and Thomas Schelling's Focal Point

The proper functioning of Kleros relies heavily on a carefully designed system of incentives, grounded in principles of game theory. Specifically, Kleros is built upon the notion of the focal point, developed by Thomas Schelling. In game theory, a focal point—or Schelling point—is the equilibrium outcome to which players tend to converge naturally[57] when communication is not possible, because they perceive it as the most logical, outstanding, or obvious solution to the game.

Applied to a decentralized jury, this means that if each juror tries to anticipate how others will vote, all are likely to select the same answer that they deem to be the most coherent, reasonable, or fair, since that mutual anticipation makes such an answer the expected point of convergence. Because the Kleros protocol rewards jurors whose votes align with the majority and penalizes those who diverge, the

[53] Ibid., p. 1
[54] Ibid., p. 9
[55] Ibid., p. 8
[56] Ibid., p. 9
[57] CHAI, Ian. Blockchain-based Dispute Resolution on the Kleros Platform: Trial by Jury or Arbitration? *Science and Technology Law Review (STLR)* [online] October 22, 2019. Available from: https://journals.library.columbia.edu/index.php/stlr/blog/view/84

optimal strategy for any rational juror is to vote honestly, according to their genuine evaluation of the evidence, assuming (correctly) that others will do the same. In other words, the factual truth or the fair[58] resolution of the case becomes the focal point (Schelling Point) that coordinates jurors' expectations.

If a participant attempts to manipulate the outcome by voting incoherently, unfairly, or dishonestly (e.g. favoring a party without evidentiary basis), they are likely to find themselves in the minority and, as a result, lose part of their staked PNK—thereby discouraging such opportunistic behavior. Kleros's incentive framework, inspired by models such as SchellingCoin[59] proposed by Vitalik Buterin[60] , aligns individual interest with the collective: being honest and converging with the correct verdict becomes the economically rational strategy for each juror. In this way, game theory provides the backbone for enabling a globally distributed group of anonymous individuals to reach consistent and high-quality decisions—without the need for external coordination. It is also worth noting that the protocol incorporates additional safeguards (e.g. anonymity, conditional juror selection, tiered appeals to higher courts, token concentration limits, etc.) to mitigate risks such as bribery, collusion, incompetence, and Sybil attacks, thereby reinforcing the system's structural robustness.

Integration of Components and Holistic Functioning

Having understood its modular architecture, it is now possible to examine how the various components of the Kleros protocol integrate to form a technologically autonomous dispute resolution system. This integration is organized around a functional structure that ensures the continuous operability of the procedure—from the moment a dispute arises to the final notification of the decision rendered. The entire system relies on a robust technological foundation, supported by the Ethereum blockchain, which allows for the deployment and execution of smart contracts that automate each phase of the process. This infrastructure guarantees that all decisions and actions related to a given case are verifiable, immutable, and permanently accessible.

The process begins when a dispute is activated and formally accepted by one of the protocol's specialized courts. This activation entails the official submission of a conflict between two parties, along with the corresponding evidentiary materials, which may include documents, recordings, images, or other means supporting the parties' arguments and claims. All case data is stored securely and immutably for later analysis by a randomly selected panel of impartial jurors.

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[58] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io* [online]. 2021, p. 18. Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf

[59] Ibid., p. 2

[60] BUTERIN, Vitalik. Advanced Contract Programming Example: SchellingCoin [online]. *Ethereum Foundation Blog*. June 30, 2014. Available from: https://blog.ethereum.org/2014/06/30/advanced-contract-programming-example-schellingcoin

The selected jurors receive access to the full case file and are given a defined period of time in which to study the evidence, assess the arguments presented, and cast their individual votes. This deliberation stage is entirely autonomous—there is no collective discussion among jurors—which reinforces the independence of each juror's reasoning. Votes are submitted privately within the system, and the collective decision is established by majority rule. Once the voting period concludes, the protocol automatically determines the majority verdict, which then becomes the official resolution of the case and is formally communicated to the parties. Based on this outcome, the stipulated consequences are applied, either automatically in the decentralized context (web3-law) or with assistance in the traditional context (trad-law).

Simultaneously, the system distributes arbitration fees among the jurors who voted in alignment with the majority decision. These fees serve as direct compensation for their role in the process. Additionally, the protocol's economic design provides for a redistribution of the PNK tokens staked in the specialized court handling the case: jurors whose votes matched the majority receive an extra reward, while those who voted against the consensus may incur a partial loss of their deposit. This incentive scheme encourages rational decisions grounded in objective interpretation of the evidence and deters arbitrary or dishonest behavior.

Within this framework, the Kleros protocol seamlessly integrates blockchain technology, smart contracts, cryptoeconomic deposits, game theory, and distributed juror selection to form a functional justice gear, wherein each component operates in close coordination with the others. The entire process is publicly verifiable, without reliance on a central authority or institutional infrastructure, a detail that makes it a neutral system suitable for operation in diverse legal contexts.

By way of concluding this section, it is important to emphasize that Kleros's aforementioned neutral nature allows it to be incorporated into legal practice without regard to jurisdiction, through two distinct modes. On one hand, it can operate within the logic of smart contracts in purely decentralized systems; and, on the other hand, it can be recognized as an auxiliary or complementary mechanism in purely traditional systems. These integration modalities will be explored in the following section of this research.

1.3 MODES OF INTEGRATION

Now that the conceptual angles of the Kleros protocol—along with its technological structure and overall functionality—have been clearly established, it is deemed appropriate to proceed with a detailed exposition of its principal modes of integration within the specific domain of dispute resolution. First, the analysis will address integration via smart contract, a modality aligned with the web3-law

perspective; second, it will examine integration via recognition of jurisdiction, a modality aligned with the trad-law perspective.

More specifically, within the decentralized context, the analysis will explore the concept of the arbitrable smart contract, together with its complementary counterpart—the arbitrator smart contract—in order to ultimately describe the operational mechanics of the smart contract integration modality. As for the traditional context, the general logic underpinning the integration via recognition of jurisdiction will be explained, culminating—without claiming to be exhaustive—in a detailed discussion of how this model can be implemented across various legal scenarios, including (i) traditional arbitration, (ii) judicial branch, (iii) public sector institutions, and (iv) private sector institutions.

Integration via Smart Contract

The first mode of Kleros integration into dispute resolution processes aligns primarily with the web3-law approach and is implemented *via smart contract*[61], referencing a specific decision protocol within the foundational logic of a given blockchain transaction protocol. In other words, under this implementation model, a smart contract that anticipates the potential emergence of disputes—referred to as an *arbitrable*[62] *smart contract*—incorporates into its foundational code structure a sort of compromissory clause[63] that designates an *arbitrator*[64] *smart contract* (exempli gratia, a smart contract from the Kleros Court) as responsible for issuing a decision should a conflict arise between the parties involved.

In this manner, the self-executing program (arbitrable smart contract), upon detecting the activation of a dispute, automatically links to the decentralized arbitration protocol (Kleros Court), which operates under predetermined parameters. If a dispute does in fact arise concerning the execution of the contract, the protocol triggers a resolution process that culminates in an award issued by Kleros. This award is automatically enforced by the arbitrable smart contract itself, eliminating the need to resort to a conventional judicial forum for validation, recognition, homologation, or enforcement. This entire process unfolds without the need for human mediation, remaining *on-chain* within the logic and power of blockchain technology.

[61] 1. Dispute resolution integration plan [online]. *Kleros Docs*. April 2025. Available from: https://docs.kleros.io/integrations/types-of-integrations/1.-dispute-resolution-integration-plan
[62] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". In: *kleros.io [online]. 2021, p. 5.* Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf
[63] LESAEGE, Clément, et al. Kleros Whitepaper "Short Paper v1.0.7". *kleros.io* online. September 2019, p. 3. Available from: https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf
[64] LESAEGE, Clément, et al. Kleros Yellowpaper "Long Paper v2.0.2". *kleros.io [online]. 2021, p. 5.* Available from: https://kleros.io/static/yellowpaper_en-8ac96b06f39f19a6a28106cf624e3342.pdf

For this type of integration to be technically viable, the smart contracts involved must be developed in accordance with the ERC-792[65] arbitration standard on Ethereum. This standard provides the technical specifications necessary to ensure compatibility between the contract capable of giving rise to the dispute (arbitrable) and the contract that acts as the decision-making system (arbitrator). The interfaces defined by this standard—such as functions for dispute creation[66] or for reporting the outcome of an award[67]—facilitate direct and secure communication between both smart contracts. While it is unnecessary to delve into the finer points of smart contract development here, it is important to emphasize that this standard guarantees interoperability and legal certainty within the broader decentralized application ecosystem.

The insertion of this type of arbitration clause into the source code of a smart contract installs a fully decentralized and self-executing dispute resolution mechanism within the system itself. This transforms the entire operational framework into a justice environment with a high degree of legal certainty, in which enforcement of the arbitral award against the losing party is neither subject to delay nor avoidance. The outcome is executed automatically thanks to the functioning of blockchain technology. Consequently, this mode of integration is configured to not depend on institutional trust or third-party intervention, but rather relies entirely on the cryptographic properties and deterministic execution of the underlying chain. This logic eliminates traditional points of friction and uncertainty found in ordinary justice systems, replacing coercive enforcement mechanisms with automated systems rooted in pure computational code.

The modality examined above represents the highest expression of decentralization applied to justice, insofar as it enables the arbitral function to be embedded directly within the digital execution environment. In this way, justice does not merely accompany the contract—it is inscribed within its functional logic, thereby ensuring the issuance of decisions that are immediately enforceable, fully transparent, and highly resistant to censorship or manipulation attempts. In sum, integration via smart contract makes it possible to establish an environment in which dispute resolution occurs entirely on-chain, governed by the logical rules of self-executing code, with Kleros serving as an autonomous, impartial, and pre-designated arbitrator, agreed upon by the parties from the inception of the contract.

Integration via Recognition of Jurisdiction

The second mode of Kleros integration into dispute resolution processes aligns primarily with the trad-law approach and is implemented *via recognition of*

[65] ERC-792: Arbitration Standard [online]. *Kleros Docs*. April 2025. Available from: https://docs.kleros.io/developer/arbitration-development/erc-792-arbitration-standard
[66] Ibid.
[67] Ibid.

jurisdiction[68], whereby a given decision-making protocol is incorporated as an auxiliary or complementary mechanism within a traditional legal environment that involves *off-chain*[69] disputes. Unlike purely *on-chain* implementation, in this model the enforcement of the verdict is not automatically delegated to a programmed contract. Instead, a designated authority—whether personal or institutional—recognizes and internally validates the decisions issued by Kleros, formally incorporating them into its own dispute resolution process, albeit sometimes with a degree of discretion. This approach can be understood as an intermediate technological phase designed to optimize and modernize traditional dispute resolution systems by leveraging the advantages of decentralized justice without abandoning the existing legal framework.

This integration strategy is best conceived as a preparatory stage toward full decentralization. As increasingly autonomous systems of justice continue to evolve—ideally founded upon blockchain and smart contract technologies—it becomes feasible to promote a strategic adaptation of the traditional legal *modus operandi*. This enables decentralized dispute resolution mechanisms to be gradually incorporated into existing justice systems, without the need to wait for extensive legislative reform or profound shifts in socio-economic norms[70]. In effect, the discreet incorporation of decentralized resolution tools into conventional justice represents a pragmatic pathway for introducing technological benefits without radical legal changes, while simultaneously laying the groundwork for their legitimacy and eventual broader acceptance[71].

Integration via recognition of jurisdiction is justified by its significant advantages in terms of speed, efficiency, cost reduction, and enhanced impartiality. Rather than prolonging litigation with numerous hearings and bureaucratic procedures, authorities can, through Kleros, receive rulings within days[72], which may serve as the substantive basis—whether partially or wholly—for their official decisions. This results in considerable time optimization compared to the weeks or months typically required by conventional processes. Likewise, the implementation costs tend to be minimal, often amounting to just a few dozen dollars per case[73], representing substantial savings relative to the hundreds or even thousands of dollars ordinarily associated with traditional litigation. Moreover, the involvement of a decentralized jury composed of anonymous[74] peers, selected at random, undeniably contributes a higher degree of neutrality and impartiality to the

[68] 1. Dispute resolution integration plan [online]. *Kleros Docs*. April 2025. Available from: https://docs.kleros.io/integrations/types-of-integrations/1.-dispute-resolution-integration-plan
[69] Ibid.
[70] VIRUES, Mauricio. How to Enforce Blockchain Dispute Resolution in Court? The Kleros Case in Mexico [online]. *Kleros. January 10, 2022.* Available from: https://blog.kleros.io/how-to-enforce-blockchain-dispute-resolution-in-court-the-kleros-case-in-mexico/
[71] Ibid.
[72] AST, Federico, et al. Kleros Enterprise: Dispute Resolution for Companies and Governments [online]. *Kleros Blog*. June 12, 2024. Available from: https://blog.kleros.io/kleros-enterprise/
[73] Ibid.
[74] Kleros FAQ [online]. *Kleros Docs. April 2025*. Available from: https://docs.kleros.io/kleros-faq#can-you-really-trust-a-decision-made-by-a-bunch-of-anonymous-people-on-the-internetv

proceedings when compared to conventional systems, which are often susceptible to corruption. Ultimately, it is appropriate to view Kleros in this context as a strategic support mechanism that streamlines and enhances traditional legal proceedings, offering both authorities and litigants a markedly improved experience with the conventional justice system.

This versatile integration model can be implemented across a wide range of real-world legal scenarios, complementing and strengthening various traditional dispute resolution mechanisms, some of which will be analyzed in the following sections:

In *traditional arbitration*, the parties may contractually agree to use Kleros as a decentralized mechanism to determine the merits of the dispute, while conventional arbitrators conduct the formal proceedings and retain the final authority to issue a legally binding and definitive award. This hybrid[75] model is grounded in the principle of party autonomy in arbitration, whereby the disputing parties are free to decide how and before whom to resolve their disputes.

A landmark example occurred in Mexico, where in 2020, two individuals included in a lease agreement an arbitration clause expressly instructing the arbitrator to use the Kleros protocol to resolve the substantive[76] matter. Once the dispute arose, the appointed classical arbitrator conducted the initial proceedings (receiving the claim, the response, and the evidence) and then issued a sort of *terms of reference* to Kleros, requesting a decentralized jury to render a decision on the merits of the case based strictly on legal principles. Kleros analyzed the dispute and returned a verdict in favor of the lessor[77]. This verdict was incorporated by the classical arbitrator into the official arbitral award, which was signed and notified to the parties. The award—substantively determined by Kleros—was then submitted before a Mexican civil court for recognition and enforcement. After confirming that the arbitration clause and proceedings did not violate any mandatory legal provisions, the court fully recognized the validity of the award[78] and ordered its enforcement. Thus, for the first time[79] in history, a state judicial body gave effect to an arbitral award grounded in a decentralized technological tool.

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[75] 2017. Technical Notes on Online Dispute Resolution. United Nations Commission on International Trade Law (UNCITRAL). Available from: https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/v1700382_english_technical_notes_on_odr.pdf

[76] VIRUES C., Mauricio. Adapting Kleros as a Decentralized Dispute Resolution Tool for Civil Justice Systems: Theoretical Model and Application Case [online] p. 13. Research paper, 2022. Available from: https://cdn.kleros.link/ipfs/QmRNyeRQVpfP4xovAdZBjYQ3TrYFJP3YKjEKUoMLSnoXnH/Mauricio%20Virues%20Carrera%20-%20Reporte%20del%20Kleros%20Fellowship%20of%20Justice.pdf

[77] Ibid., p. 14

[78] VIRUES C., Mauricio. Adapting Kleros as a Decentralized Dispute Resolution Tool for Civil Justice Systems: Theoretical Model and Application Case [online] p. 15. Research paper, 2022. Available from: https://cdn.kleros.link/ipfs/QmRNyeRQVpfP4xovAdZBjYQ3TrYFJP3YKjEKUoMLSnoXnH/Mauricio%20Virues%20Carrera%20-%20Reporte%20del%20Kleros%20Fellowship%20of%20Justice.pdf

[79] VIRUES, Mauricio. How to Enforce Blockchain Dispute Resolution in Court? The Kleros Case in Mexico *Kleros*. January 10, 2022. Available from: https://blog.kleros.io/how-to-enforce-blockchain-dispute-resolution-in-court-the-kleros-case-in-mexico/

This pioneering case demonstrated that traditional arbitration can validly rely on Kleros without infringing upon the existing legal frameworks. The key lies in treating the protocol as a support mechanism voluntarily chosen by the parties within the framework of conventional arbitration, comparable to other permissible methods (exempli gratia, *ex aequo et bono* decisions or even pre-agreed random decision-making methods). Indeed, if legal systems such as Mexico's recognize the validity of resolving disputes by flipping a coin by mutual agreement[80], they can certainly allow parties to submit their decision-making to a far more sophisticated and rational system such as Kleros, pursuant to the principle of private autonomy. The Mexican experience is grounded precisely on that premise. By means of jurisdictional recognition and contractual clause, the parties integrated Kleros into a traditional commercial arbitration structure, and the State honored their will by upholding[81] the resulting award. This hybrid model combined the best of both worlds—decentralized infrastructure and traditional arbitral authority—establishing a brilliant precedent for convergence between blockchain technology and classical arbitration.

In the *judicial branch* sphere, Kleros can also serve as an auxiliary tool for state judges, especially in small claims courts or overburdened local magistrate courts dealing with simple cases. Far from representing an impermissible delegation of judicial authority, this is a form of controlled integration, via recognition of jurisdiction, whereby the judge refers certain matters to a designated Kleros jury to obtain a swift and impartial resolution proposal, which can later be used as a reference when rendering the final judgment.

A paradigmatic example is the pilot project implemented in the Province of Mendoza, Argentina, in 2024. The Supreme Court of Mendoza entered into a cooperation agreement with Kleros[82] to test decentralized dispute resolution in real legal files. In this pilot program, the Peace and Misdemeanor Court of Lavalle refers certain disputes (initially, neighborhood and consumer cases) to the Kleros protocol, having first anonymized[83] the parties' data. Kleros' citizen jurors then analyze the evidence and issue a reasoned decision, which is subsequently reviewed by the competent judge. The magistrate always retains final authority and may accept, in whole or in part, the arguments and verdict issued by Kleros in their ruling or disregard them if they are found to conflict with the applicable legal framework, thereby ensuring full compliance with the law[84].

[80] VIRUES C., Mauricio. Adapting Kleros as a Decentralized Dispute Resolution Tool for Civil Justice Systems: Theoretical Model and Application Case [online] p. 13. Research paper, 2022. Available from: https://cdn.kleros.link/ipfs/QmRNyeRQVpfP4xovAdZBjYQ3TrYFJP3YKjEKUoMLSnoXnH/Mauricio%20Virues%20Carrera%20-%20Reporte%20del%20Kleros%20Fellowship%20of%20Justice.pdf
[81] Ibid., p. 15
[82] P, Jean. Kleros and the Judicial Branch of Mendoza: Pioneers in Decentralized Justice [online]. *Kleros Blog*. October 10, 2024. Available from: https://blog.kleros.io/kleros-y-el-poder-judicial-de-mendoza-pioneros-en-justicia-descentralizada/
[83] Ibid.
[84] Ibid.

This combined approach successfully resolved a pilot case based on a simulated traffic accident[85], yielding highly encouraging results[86]. The Kleros jurors unanimously reached the same conclusion as the judge in the actual case[87], assigning shared responsibility to the parties. The experiment revealed several tangible benefits: legitimacy, by proving that a decentralized jury can reason comparably to a traditional court; speed, by resolving in days what typically takes months; cost-efficiency, by drastically reducing resource usage; and innovation, by opening the door to blockchain arbitration mechanisms in an overwhelmed traditional justice system. Following the pilot's success, Mendoza authorities are exploring the expansion of the model to more complex cases (e.g. financial consumer matters) and even the incorporation of local jurors into the Kleros protocol to strengthen community engagement in the decisions[88]. The Mendoza collaboration clearly illustrates how judicial authorities can gradually integrate Kleros as a strategic support tool, maintaining their sovereign function of rendering justice while leveraging collective intelligence and blockchain technology to enhance the quality and efficiency of their rulings.

In *public institutions* such as superintendencies, consumer protection agencies, or other regulatory bodies that adjudicate disputes through administrative proceedings, Kleros can likewise serve as an auxiliary decision-making system. These entities frequently act as quasi-judicial bodies in highly specialized disputes, such as those between insured parties and insurance companies, between consumers and suppliers of goods and services, or between users and entities in the financial sector. Integration via recognition of jurisdiction in this context would entail the public institution acknowledging Kleros as an external arbitral forum to which specific disputes may be referred, with the aim of obtaining a neutral substantive decision that can serve as the basis for the institution's official resolution. For instance, a superintendency could delegate the resolution of specialized disputes it handles to a designated Kleros court (e.g. the Kleros Insurance Court[89]), such that the public body would only need to receive the decentralized jury's verdict and incorporate it, after verifying its consistency with the applicable sectoral regulations, into its final administrative decision.

In doing so, the institution achieves significant procedural optimization, reducing time and costs while ensuring impartiality—without relinquishing its original competence. Although this model is still emerging, it is worth recalling, as previously noted, that there are already records of successful public-sector[90]

[85] Ibid.
[86] Case Details #357 [online]. *Kleros Lemon*. Available from: https://lemon.kleros.io/es/case/357?ref=blog.kleros.io
[87] Iurix Online - Dossier File. In: *Judicial Branch of the Province of Mendoza* [online] Available from: http://sic.jus.mendoza.gov.ar:8180/iurix-online/public/ficha.xhtml?paramId=13-07231263-9&ref=blog.kleros.io#
[88] P, Jean. Kleros and the Judicial Branch of Mendoza: Pioneers in Decentralized Justice [online]. *Kleros Blog*. October 10, 2024. Available from: https://blog.kleros.io/kleros-y-el-poder-judicial-de-mendoza-pioneros-en-justicia-descentralizada/
[89] LESAEGE, Clément, et al. Kleros Whitepaper "Short Paper v1.0.7". *kleros.io* [online]. September 2019, p. 10. Available from: https://kleros.io/static/whitepaper_en-8bd3a0480b45c39899787e17049ded26.pdf
[90] P, Jean. Kleros and the Judicial Branch of Mendoza: Pioneers in Decentralized Justice [online]. *Kleros Blog*. October 10, 2024. Available from: https://blog.kleros.io/kleros-y-el-poder-judicial-de-mendoza-pioneros-en-justicia-descentralizada/

implementations of Kleros. This reinforces the notion that the projection of more just, participatory, and efficient decisions by state bodies requires little justification to be formally realized. Without a doubt, this type of integration could democratize and bring transparency to traditionally slow administrative procedures, positioning Kleros as a technological ally of public entities in the effective protection of rights—always under legal supervision.

In *private institutions* such as chambers of commerce, corporations, associations, and similar entities, Kleros can be implemented as an internal auxiliary arbitration system. Many of these private organizations already possess internal mechanisms for resolving disputes that arise in the course of their activities, with clients, or among their members. These are often handled by traditional arbitrators, internal dispute resolution departments, or ethics committees. Through the recognition of Kleros' jurisdiction, such institutions can add a modern layer of decentralization to their processes. For example, a chamber of commerce could offer disputing parties the option of having a Kleros jury panel determine the merits of the commercial dispute between them. The resulting decision would then be reviewed by the chamber's governing body or arbitral commission, thereby converting it into a formal award or a binding recommendation, as applicable, without the chamber losing its final authority. This framework enhances objectivity and innovation in institutional private arbitration while significantly reducing operational burdens and procedural costs.

As for the practical implementation of this structure, it is worth noting that fintech companies have already begun to use Kleros to address user complaints. Exempli gratia, the platform Lemon Cash integrated a system whereby, if a user is dissatisfied with the support response, the case is escalated to Kleros, and the company commits to abiding by the impartial verdict issued by the jurors[91]. The outcome of this implementation has been very positive: over 90%[92] of users continued using the service even when Kleros' decision was unfavorable to them, thanks to the trust generated by an independent and transparent arbitration process. In sum, private institutions that adopt Kleros as an auxiliary mechanism obtain faster and more reliable resolutions, improve client and member satisfaction and retention, and still retain the ultimate authority to enforce or formalize decisions within the framework of applicable rules.

In conclusion, the modalities for integrating Kleros include both endogenous embedding within the code of smart contracts and exogenous adoption by authorities through jurisdictional recognition. The former, aligned with the web3 paradigm, embodies a vision of justice that is inherent to the blockchain—automatic and autonomous. The latter, rooted in traditional legal systems, offers a pathway for convergence between decentralized justice and

[91] AST, Federico, et al. Kleros Enterprise: Dispute Resolution for Companies and Governments [online]. *Kleros Blog*. June 12, 2024. Available from: https://blog.kleros.io/kleros-enterprise/
[92] Ibid.

existing legal structures, with Kleros serving as a technological component under the supervision of arbitrators, judges, or administrative bodies. Far from being mutually exclusive, both approaches are complementary in the pursuit of a more efficient and incorruptible justice system. While smart contract integration fosters the evolution of fully decentralized ecosystems, jurisdictional recognition integration allows that innovation to be progressively integrated into today's legal reality—validating it in practice and paving the way for its broader acceptance.

CHAPTER II: LEGAL VIABILITY OF KLEROS AS A DECENTRALIZED DISPUTE RESOLUTION ECOSYSTEM IN THE DOMINICAN REPUBLIC

After having shed sufficient light on the conceptual edges, technological structure, operational framework, and principal integration modalities of the Kleros protocol in the context of dispute resolution, it is now appropriate for the present research to begin developing studies on the legal viability of this ecosystem within the Dominican Republic. Specifically, the first stage will involve an assessment of the applicability of smart contracts in the Dominican legal system, identifying the relevant legal framework governing these foundational tools and outlining the specific norms that support their validity and enforceability within the country. In a second, composite stage, the analysis will first examine the web3-law viability of Kleros by identifying and unpacking the legal framework that underpins the applicability of the protocol within the decentralized economy of the Dominican Republic. Following this, the reader will be introduced to the necessarily focused character of any trad-law regulatory support study, while concurrently being redirected to the third chapter of the research, a section that will effectively develop a regulatory support analysis confined exclusively to one traditional legal implementation scenario.

2.1 LEGAL FRAMEWORK APPLICABLE TO SMART CONTRACTS IN THE DOMINICAN REPUBLIC

Structural Viability: Regulations supporting the applicability of smart contracts in the Dominican Republic

(i) Civil Code of the Dominican Republic

To begin with, it is essential to clarify that a smart contract is not a novel type of contract, but rather an electronic tool that automatically executes what is already traditionally understood as a contract under Dominican law. Specifically, from the perspective of Article 1101 of the Dominican Civil Code, a smart contract is an electronic tool that automatically executes a "mutual agreement by which one or more persons obligate themselves to one or more others to give, do, or not do something"[93]. Similarly, according to the jurisprudence of the Supreme Court of the

[93] Dominican Republic. Civil Code. Article 1101. *Dalis*. 2019 Revision. ISBN: 978-9945-606-24-9.

Dominican Republic, a smart contract constitutes an electronic tool that automatically executes a "meeting of wills that creates obligations"[94].

This reality should prompt the formation of a holistic criterion, recognizing that the fate of a smart contract is inseparable from the fate of the underlying agreement executed by the parties, and that the rules applicable to smart contracts are the same fundamental rules that apply to traditional contracts under Dominican law. In other words, it is correct to understand that both instruments are subject to the same principles, the same grounds for nullity, and the same procedural frameworks for judicial support and dispute resolution. Accordingly, exempli gratia, if a given agreement is deemed invalid, the effects produced by the smart contract that executed it would likewise lack legal validity.

Delving deeper into the analysis, it is pertinent to emphasize that the validity of using smart contracts as tools for the automated execution of certain contractual obligations is based on the same principle that grants parties the freedom to agree on whatever they wish, provided they respect the Dominican legal system, good customs, and public order: the *principle of autonomy of the will*. The Civil Code details the binding force of obligations, stating that "legally formed agreements have the force of law for those who have entered into them"[95]. This provision gives contractual agreements the force of law and, by extension, underpins the legal viability of using smart contracts, provided the parties have duly agreed to their use.

With regard to the fundamental rules on nullity—as previously introduced—it is a sound and consistent criterion that any smart contract designed to execute, whether partially or entirely, the content of a void agreement is also subject to nullity. Specifically, if the underlying agreement presents deficiencies with respect to (i) the consent of the parties, (ii) their legal capacity, (iii) the existence of a determinate object, or (iv) the existence of a lawful cause—these being the essential conditions for the validity of agreements in the Dominican Republic[96] —then the execution and effects generated by the smart contract would likewise be entirely susceptible to nullification.

To illustrate, if the agreement represented wholly or partially by a smart contract suffers from a defect of consent[97], exempli gratia, due to fraud (dolo)[98], then the agreement would be invalid, and the effects of its execution through the smart contract would likewise lack legal validity. This is precisely why the clauses embedded in a smart contract's code must stem from a genuine and valid meeting of the minds; otherwise, the affected party could successfully challenge the

[94] SUBERO ISA, Jorge A. *The contract and quasi-contracts: General theory of obligations in Dominican law.* Santo Domingo: Editora Corripio, 2007, p. 31. ISBN: 717357672
[95] Dominican Republic. Civil Code. Article 1134. *Dalis*. 2019 Revision. ISBN: 978-9945-606-24-9.
[96] Dominican Republic. Civil Code. Article 1108. *Dalis*. 2019 Revision. ISBN: 978-9945-606-24-9.
[97] Ibid.
[98] Ibid. Article 1109

execution's effects by seeking nullity of the underlying agreement through judicial or private channels.

Even when smart contracts replace or entirely eclipse formal written agreements, they do not operate in a legal vacuum. While they may automate payments and transfers of valuable assets, smart contracts do not eliminate the need for parties to consent to the agreements they encode. The underlying promises must first be negotiated and then translated into code. For a contractual relationship to arise through a smart contract, the parties must still manifest their assent to the terms, typically by means of a digital signature. If a dispute arises regarding whether the smart contract accurately reflects the parties' intent or whether one party breached the agreement, the parties retain the right to initiate legal proceedings—whether public or private. Ultimately, courts retain jurisdiction over the legal effects of smart contracts. They will interpret the underlying code in accordance with long-standing contractual principles, and, if necessary, with the assistance of experts. If a court determines that one of the parties has breached its contractual obligations, it retains the authority to award damages to compensate the injured parties[99].

This final fragment masterfully develops a key point raised earlier but not yet elaborated: that both the agreement and the execution mechanism are governed by the same legal standards on judicial support and dispute resolution. As becomes evident, disputes arising within the framework of smart contracts are, in principle, subject to resolution in the same manner as traditional contractual conflicts, with access available to both the ordinary judicial route and alternative dispute resolution mechanisms. Along the same lines, it is reiterated that courts retain jurisdiction over the legal effects of smart contracts and that the only challenge lies in interpreting the underlying code and verifying its consistency with established contractual principles—a task that, if complex, may be resolved through expert testimony. At this point, it is worth noting that although the traditional channels remain available for resolving smart contract disputes, the practical effectiveness of these procedures may be limited, which explains the growing relevance and adoption of specialized justice solutions such as the Kleros Court.

Concluding the analysis of the relationship between smart contracts and the Dominican Civil Code, it is necessary to highlight two key legal analogies that are of particular importance to this research. The first concerns the conceptual affinity between smart contracts and the doctrine of conditional obligations; the second involves the similarity between smart contract escrow accounts and the traditional concept of deposit contracts. Upon closer examination of these parallels, it becomes clear that the Civil Code provides strong doctrinal support for both structures, revealing that the legal essence of smart contracts and escrow accounts is far from novel within Dominican law.

[99] DE FILIPPI, Primavera, and WRIGHT, Aaron. *Blockchain and the Law: The Rule of Code*. Cambridge, Massachusetts: Harvard University Press, 2018, p. 78. ISBN 9780674976429.

Regarding the first point, the Civil Code states that “an obligation is conditional when it is made to depend on a future and uncertain event, either suspending its effects until that event occurs, or rendering it void depending on whether or not it takes place”[100]. This article explains, in technical terms, that certain obligations become enforceable—or cease to be enforceable—only if a specific event is verified, such event constituting the sine qua non condition for the very existence or extinction of the obligation.

Extrapolating this to the subject of smart contracts, it is accurate to understand that these tools execute what is encoded within them only if the specified future and uncertain event—central to the underlying transaction—is verified. For instance, the classic example would be the insertion of sufficient money into a vending machine in order to release the product; a more contemporary example would be the actual delivery of a specific good that was purchased, which then triggers the release of the funds to complete the payment.

Smart contracts are also empowering individuals to conduct peer-to-peer (P2P) transactions on decentralized e-commerce platforms that operate independently of centralized intermediaries (such as eBay or Craigslist). These services rely on blockchain technology and smart contracts to manage payment for goods and use human oracles to address potential issues that may arise during the transaction. In these decentralized markets, sellers list their goods on the blockchain, providing product descriptions and prices. Interested buyers send funds to a virtual escrow account implemented through a smart contract (often a multisig account), which autonomously holds and manages the deposited funds. If the transaction proceeds as expected and the buyer receives the item, they issue a digitally signed blockchain message instructing the escrow account to release the purchase price to the seller. Conversely, if a dispute arises regarding the quality or delivery of the item, a human oracle intervenes to examine the facts and determine which party should receive the deposited funds[101].

This final fragment serves not only as a powerful illustration of the earlier arguments, but also introduces the second key analogy—between smart contract escrow accounts and the legal concept of deposit contracts as defined in the Dominican Civil Code. Essentially, they embody the same operation: “an act by which one party receives an object from another with the obligation to safeguard and return it in its original state”[102], the only difference being the environment in which they operate. Smart contract escrow accounts function exclusively in a digital setting, while traditional deposit contracts apply across all valid legal contexts, without restriction to the digital realm. In conclusion, it is worth emphasizing that the integration of human oracles in decentralized e-commerce platforms to

[100] Dominican Republic. Civil Code. Article 1168. *Dalis*. 2019 Revision. ISBN: 978-9945-606-24-9
[101] DE FILIPPI, Primavera, and WRIGHT, Aaron. *Blockchain and the Law: The Rule of Code*. Cambridge, Massachusetts: Harvard University Press, 2018, p. 76. ISBN 9780674976429
[102] Dominican Republic. Civil Code. Article 1915. *Dalis*. 2019 Revision. ISBN: 978-9945-606-24-9

address potential business disputes represents a perfect example of Kleros Court implementation, given the equivalence between Kleros' decentralized jurors and the human oracles described.

(ii) Law No. 126-02 on Electronic Commerce, Documents and Digital Signatures of the Dominican Republic

Shifting the focus slightly, it is now time to analyze the legal recognition and legal weight afforded to the electronic nature of smart contracts in the Dominican Republic. In other words, this section undertakes a review of the most relevant legal considerations connected to the digital nature inherent to the central object of this study, breaking them down and examining them in light of the most specialized national legislation on the matter to date: Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures. More specifically, this section outlines how said law grants legal recognition to digital documents, confers evidentiary admissibility and probative force to such documents, validates digital signatures, and establishes the legal effectiveness of rights conferred or obligations acquired by means of digital documents.

With regard to the first point—the legal recognition of digital documents and data messages—the law establishes that "no legal effect, validity, or enforceability shall be denied to any information solely on the grounds that it is in the form of a digital document or data message"[103]. In other words, this provision eliminates any possibility of challenging the validity of a digital document merely because of its digital format, thereby discrediting any argument that seeks to diminish the legal weight of a legally relevant act or item of evidence simply for being digital. In the context of smart contracts, it would therefore be impossible to invalidate an agreement solely on the grounds that it exists only in digital form—an argument which, incidentally, is legally unfounded, as the digital form is not one of the essential requirements for the validity of contracts under Dominican law.

In the same vein, the law further establishes that whenever a written form is required for a piece of information, the digital form is fully valid to meet such a requirement[104]. In the context of smart contracts, this provision becomes particularly relevant in light of certain types of contractual clauses that must be evidenced in writing to be valid, exempli gratia, the compromissory or arbitration clause, which constitutes an agreement to arbitrate between the parties—and such agreement must be in writing[105] to be enforceable.

Regarding the second point—the admissibility and probative force of digital documents—the law states that "digital documents and data messages shall be

[103] Dominican Republic. Law 126-02 on Electronic Commerce, Documents, and Digital Signatures, dated September 4, 2002. Article 4.
[104] Ibid. Article 5
[105] Dominican Republic. Law 489-08 on Commercial Arbitration, dated December 19, 2008. Article 10, paragraph 2.

admissible as evidence and shall have the same probative value granted to private instruments under the Civil Code and the Code of Civil Procedure"[106]. In other words, digital documents are legally deemed to possess the same evidentiary weight as privately signed documents. In civil matters, it is well established that many legal relationships must be proven in writing, with a high standard of evidentiary reliability. Specifically, when a contract involves an amount exceeding thirty pesos, the principle of written proof applies, requiring the execution of either a notarial act or a private instrument, with no admissibility of testimonial evidence [107]. In the context of smart contracts, this is of paramount importance because it confirms that the codified version of legal prose is fully admissible and carries probative force equivalent to that of a private instrument when it comes to proving the existence of a contractual relationship between the parties.

Concerning the third point—the validity of digital signatures—Article 6 of the law provides that "when any legal provision requires a signature or prescribes consequences in its absence, that requirement shall be deemed satisfied with respect to a digital document or data message, provided that the document or message has been digitally signed and the digital signature complies with the requirements set forth in this law"[108]. In other words, the article recognizes the legal validity of any expression of consent made via digital signature, provided that such signature is not defective and meets the validity requirements stipulated by Law No. 126-02. The following analysis will briefly examine these statutory requirements and assess the degree to which the digital signature mechanism used in smart contracts complies with them.

The law states that the use of a digital signature shall have the same force and legal effect as a handwritten signature if it meets the following criteria: (1) it is unique to the individual using it; (2) it is verifiable; (3) it is under the exclusive control of the individual using it; (4) it is linked to the relevant digital document or data message in such a manner that any alteration invalidates the signature; and (5) it complies with the regulations adopted by the Executive Branch[109].

In light of the foregoing, and taking as reference—as discussed in previous sections—the first smart contract platform, which also serves as the foundation upon which the Kleros Court was built, it is accurate to state that the digital signature algorithm used in Ethereum is the Elliptic Curve Digital Signature Algorithm (ECDSA), which is based on public-private key pairs[110]. Within Ethereum, digital signatures serve three primary functions. First, they prove that the holder of the private key—implicitly, the account owner—has authorized a transaction or contract execution. Second, they ensure non-repudiation: the authorization is

[106] Dominican Republic. Law 126-02 on Electronic Commerce, Documents and Digital Signatures, dated September 4, 2002. Article 9.
[107] Dominican Republic. Civil Code. Article 1341. *Dalis*. 2019 Revision. ISBN: 978-9945-606-24-9
[108] Dominican Republic. Law 126-02 on Electronic Commerce, Documents and Digital Signatures, dated September 4, 2002. Article 6.
[109] Ibid. Article 31.
[110] ANTONOPOULOS, Andreas M., and WOOD, Gavin. Mastering Ethereum: Building Smart Contracts and DApps. 1st ed. Sebastopol, CA: O'Reilly, 2018, p. 225. ISBN: 978-1-49197194-9

undeniable. Third, the signature ensures that the transaction data has not and cannot be altered after signing[111]. Based on this fragment, it is clear that requirements 1, 3, and 4 are inherently satisfied by ECDSA, as the signature is unique to the account owner, under their exclusive control, and ensures data integrity by invalidating any post-signature modifications.

As for requirement 2—verifiability—it is accurate to understand that "to verify the signature, one must have the signature (r and s), the serialized transaction, and the public key corresponding to the private key used to create the signature. Essentially, signature verification means that—only the owner of the private key that generated this public key could have produced this signature on this transaction. The signature verification algorithm takes the message (i.e. a hash of the transaction for our purposes), the signer's public key, and the signature (r and s values), and returns true if the signature is valid for that message and public key"[112]. Based on this excerpt, it is evident that the signature under analysis is indeed verifiable, as the technical procedure described above can be fully executed. With only requirement 5 remaining—the one referring to compliance with the regulations adopted by the Executive Branch—it is not unreasonable to assert presumed compliance, since otherwise, if the signature in question were not in accordance with such regulations, it is highly likely that other signatures which equally meet the other four requirements would also fail to comply with requirement number 5, thereby introducing inconsistency into the system.

Lastly, regarding the fourth point—the legal effectiveness of conferring rights or acquiring obligations via digital documents—Article 28 of the law stipulates that when a right is granted to a specific person (and no other), or when a person acquires an obligation, and the law requires that such act take effect only through the use or transmission of a paper-based document, that requirement shall be deemed satisfied if the right or obligation is transferred via one or more digital documents or data messages, provided that a reliable method is used to ensure the uniqueness of such documents or messages[113]. In other words, this provision eliminates the possibility of escaping liability by alleging improper transmission via digital documentation, thereby granting full legal recognition to the transfer of rights and obligations carried out through the use of smart contracts.

[111] Ibid.
[112] Ibid., p. 227
[113] Dominican Republic. Law 126-02 on Electronic Commerce, Documents and Digital Signatures, September 4, 2002. Article 28.

2.2 LEGAL FRAMEWORK APPLICABLE TO KLEROS IN THE DOMINICAN REPUBLIC

Web3-Law Viability: Regulations supporting the applicability of Kleros within the decentralized economy context of the Dominican Republic

(i) Law No. 489-08 on Commercial Arbitration of the Dominican Republic

Beginning with the analysis of the legal support provided by the Dominican legislation specialized in commercial arbitration to the Kleros Court, it is appropriate to address the validity of integrating a decentralized decision-making protocol as an arbitration agreement. The applicable legislation establishes that the arbitration agreement "is an agreement by which the parties decide to submit to arbitration all or certain disputes that have arisen or may arise between them in respect of a defined legal relationship, whether contractual or non-contractual. The arbitration agreement may take the form of an arbitration clause in a contract or the form of an independent agreement"[114]. Based on this, the validity of integrating the Kleros protocol as an arbitration agreement in the Dominican Republic becomes evident, since—as previously examined—the parties incorporate it into the code of a given arbitrable smart contract in the form of an arbitration or compromissory clause, with the specific aim of submitting to arbitration any dispute that may arise within the framework of the contractual relationship.

As to the requirement that the arbitration agreement be in writing, the law considers as written any agreement recorded in a "document signed by the parties or in an exchange of letters, faxes, telegrams, emails, or other telecommunications that provide evidence of the agreement and are accessible for future reference in electronic, optical, or other form"[115]. Considering—as previously established—that smart contracts are digitally signed[116] by the parties (valid consent) and leave an immutable, publicly accessible digital record due to their native existence on the blockchain, it is therefore accurate to affirm that the integration of the Kleros protocol as an arbitration agreement fully satisfies the requirement of being in writing. In the same vein, and regarding whether an arbitration agreement contained in an electronic document—or any of the other aforementioned forms[117] —is deemed incorporated into the agreement between the parties, it is proper to interpret that it is indeed incorporated, as explicitly provided in Article 10.3 of the law under analysis.

Shifting the focus slightly—now that sufficient clarity has been established regarding the validity and binding nature of integrating the Kleros protocol as an

[114] Dominican Republic. Law 489-08 on Commercial Arbitration, December 19, 2008. Article 10, paragraph 1.
[115] Ibid., paragraph 2
[116] DE FILIPPI, Primavera, and WRIGHT, Aaron. *Blockchain and the Law: The Rule of Code.* Cambridge, Massachusetts: Harvard University Press, 2018, p. 78 ISBN 9780674976429
[117] Dominican Republic. Law 489-08 on Commercial Arbitration, December 19, 2008. Article 10, paragraph 3.

arbitration agreement—it is appropriate to begin an analysis of the legal concept of the arbitral award in the context of the Kleros Court. At the outset, it is accurate to understand an award as "a decision rendered by an arbitral tribunal that resolves the substantive dispute submitted to the arbitral process"[118]. Based on this doctrinal contribution, and taking into account the scarcity of an express definition of award in laws and international conventions, it becomes indisputable that a decision resulting from an arbitration process fully conducted by Kleros' decentralized jurors qualifies as an arbitral award—precisely because it is rendered by an arbitral tribunal and because it resolves the substantive dispute submitted to arbitration.

Within the same context, it is highly pertinent to note that there is a significant distinction between the award rendered in a traditional arbitration proceeding and the award rendered in an arbitration process fully conducted by Kleros' decentralized jurors—specifically with regard to the type of effect each produces. In detail, it is accurate to understand that awards arising from traditional arbitration proceedings, whether institutional or ad-hoc, do not generate an automatic effect, whereas awards issued through arbitration processes fully driven by Kleros' decentralized jurors do produce an automatic effect. In other words, the former—provided they meet the necessary legal requirements—are considered enforceable, while the latter are considered *executed*. This distinction arises from the fact that the latter involve decisions directly determining the outcome of one or more cryptoassets present on-chain, which are subject to the control of the arbitrators.

By way of illustration, consider a case involving the online sale of a book through a smart contract, in which the seller's side is found to have fraudulently delivered the wrong item. If this dispute were to be resolved through a traditional arbitration process (assuming such a route were effective), once a decision is rendered recognizing a credit in favor of the buyer, the latter would, in principle, hold an *enforceable award*—that is, an award susceptible to execution. In contrast, if the same dispute were resolved through an arbitration process fully driven by Kleros' decentralized jurors, once a decision is rendered recognizing a credit in favor of the buyer, the latter would hold an *executed award*—that is, an award that, by design, automatically enforced the credit balance in favor of the buyer. Exempli gratia, if the buyer is Alice and the arbitral tribunal—operated entirely by Kleros' decentralized jurors—rules in Alice's favor[119], this translates into a direct instruction to the smart contract to transfer[120] the escrowed funds for the benefit of Alice.

In the practice of the Kleros Court, jurors—after reviewing the evidence and providing justification for their decisions—have the ability to vote in favor of either

[118] SILVA S., Jorge A. *Mexican International Commercial Arbitration* [online] 1st ed. Ciudad Juárez, Chihuahua: Autonomous University of Ciudad Juárez. June 2015, p. 68 ISBN: 968-6287-17-15. Available from: https://gc.scalahed.com/recursos/files/r161r/w24358w/Arbitrajecomercialinternacionalmexicano.pdf

[119]

[120] Ibid.

party by clicking the corresponding box that indicates such preference[121]. These boxes may, on one hand, instruct the smart contract to deposit a specific cryptoasset or set of cryptoassets into Alice's cryptographic address[122]—should she be deemed the prevailing party—or, on the other hand, instruct the smart contract to deposit the specified cryptoasset or cryptoassets into Bob's cryptographic address[123]—should he be declared the winner.

Ultimately, the above analysis seeks to clarify why it is unnecessary for awards rendered through Kleros decentralized arbitration processes to meet the traditional enforceability requirements applicable to awards rendered through conventional arbitration. This is because the former are executed automatically by the smart contract itself. In detail, and based on the foregoing, it is not unreasonable to conclude that the exequatur requirement, typically applicable to awards derived from ad-hoc arbitration proceedings, is entirely unnecessary to awards rendered by Kleros decentralized jurors. In these latter cases, the notion of lack of coercive force is non-existent—quite the contrary. Whereas in the traditional ad-hoc setting an award requires support from state courts to ensure effective enforcement, in the web3 scenario of the Kleros Court, awards require no such support, as they are imposed automatically on the losing party through self-executing code.

(ii) Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures of the Dominican Republic

Commencing the analysis of the legal support provided by Dominican legislation specialized in electronic commerce, digital documents, and digital signatures as it pertains to the Kleros Court, it is appropriate to address the issue of the admissibility and evidentiary value of digital documents and data messages. As previously discussed, decentralized Kleros jurors must examine evidence before justifying and issuing arbitral awards. It is accurate to state that such evidence is submitted to the tribunal in digital format—specifically, via blockchain. This situation may give rise to doubts among legal scholars regarding the validity, admissibility, and probative value of evidence submitted entirely in digital form. For this reason, it is pertinent to clarify that, based on Article 9 of Law No. 126-02, digital documents and data messages are fully admissible as means of evidence and are granted the same probative value as private instruments under the Civil Code and the Code of Civil Procedure[124]. Accordingly, and in view of the foregoing, it is clearly evident that the submission of digital evidentiary material via blockchain is entirely valid within the context of arbitration proceedings fully conducted by decentralized Kleros jurors.

[121] Ibid., p. 4
[122] Ibid., p. 6
[123] Ibid.
[124] Dominican Republic. Law 126-02 on Electronic Commerce, Digital Documents and Digital Signatures, dated September 4, 2002. Article 9.

Regarding the requirement of originality for evidentiary digital material submitted via blockchain before the Kleros Court, it is legally sound to consider this requirement met, provided that (i) there is a reliable guarantee that the integrity of the information has been preserved[125], and (ii) the information can be presented upon request by any interested party[126], as expressly provided in Article 7, paragraphs (a) and (b) of Law No. 126-02. Analyzing these conditions in light of the previously discussed characteristics of blockchain technology, it is first appropriate to affirm that blockchain immutability guarantees the integrity of any data recorded in the chain. Second, the blockchain ledger stores information without restricting future access, thus allowing for subsequent consultation and presentation upon request. In the same vein, and elaborating on the requirement of integrity for evidentiary digital material submitted via blockchain to the Kleros Court, it is important to recognize that the information contained in a digital document or data message is deemed to maintain its integrity if it has remained complete and unaltered, except for the inclusion of any endorsement or changes inherent to the communication, filing, or presentation process[127]. Based on this principle, and once again recalling the immutable nature of blockchain technology, it bears repeating that blockchain constitutes a database that is highly resistant to manipulation. This resilience—enabled by cryptographic security systems—ensures that any information recorded on the blockchain remains complete and unaltered from the moment of its entry. This technical safeguard translates into a submission of evidentiary material that is fully preserved in its integrity within the context of arbitration proceedings conducted entirely by decentralized Kleros jurors.

Trad-Law Viability: Regulations supporting the applicability of Kleros within the traditional legal context of the Dominican Republic

When assessing the legal framework applicable to the Kleros Court within the context of traditional law in the Dominican Republic, it is essential to recall—as previously discussed in earlier sections—that the spectrum of potential legal implementation scenarios is as broad and varied as the law and strategic considerations allow; in other words, extremely extensive. This reality significantly complicates the development of a regulatory support study capable of covering or functioning across the general landscape, given that each traditional implementation scenario requires the observance of distinct legislative pieces.

In this regard, and consequently, it is both reasonable and methodologically sound to adopt the criterion of limiting any regulatory support study to a single traditional implementation scenario. By favoring specificity and rejecting generality, the legal analysis becomes finite, effective, focused, and functional. In accordance with this guiding rationale, it is now appropriate to redirect the reader to the following chapter of this research, wherein a practical-commercial analysis of Kleros

[125] Dominican Republic. Law 126-02 on Electronic Commerce, Digital Documents and Digital Signatures, dated September 4, 2002. Article 7, paragraph a
[126] Ibid., Article 7, paragraph b
[127] Ibid. Article 8

implementation will be conducted. This next chapter will include, among other elements related to the decentralized economy, a regulatory support study circumscribed to a single traditional implementation scenario—specifically, to the trad-law scenario of public institutions.

CHAPTER III: APPLICATION AND EFFECTS OF KLEROS AS A DECENTRALIZED DISPUTE RESOLUTION ECOSYSTEM IN DIFFERENT ECONOMIC SECTORS OF THE DOMINICAN REPUBLIC

On Statistical Analysis

In order to accurately and effectively project the application of Kleros as a decentralized dispute resolution ecosystem in the Dominican Republic, it is essential to first note that a statistical analysis was conducted to identify the economic sectors with the highest volume of disputes nationwide. Specifically, a broad-based field investigation was carried out to obtain updated information on the number of conflicts arising in each sector, the mechanisms by which they are resolved, the procedures in place, the applicable regulations, and other relevant elements. Accordingly, conflict volume has been adopted as the primary metric for selecting and evaluating three specific sectors, whose statistical data clearly demonstrate that they consistently register the highest number of disputes in the country and whose management calls for significantly greater procedural efficiency. The order in which the sectors are presented in this research does not imply any form of hierarchy or prioritization.

The purpose of this field research and statistical compilation is to ground and contextualize the study within the specific realities of the Dominican Republic, thereby enabling a targeted and contemporaneous projection of Kleros implementation. In this regard, it is important to bear in mind that the Dominican Republic is a relatively small jurisdiction in which each economic sector is overseen by a centralized public authority endowed with the regulatory mandate to establish sector-specific norms and ensure the effective resolution of conflicts that arise among its participants. The analysis in this chapter is developed from the standpoint of these regulatory bodies—not from the perspective of the disputing parties. Consequently, all legal assessments, proposals, and projected effects are focused on the public institutions that govern the identified economic sectors, which are envisioned as potential allies and managers of the dispute resolution processes that concern them, using the Kleros Court.

On the one hand, as a result of the study, the following economic sectors have been identified as particularly well-suited for the application of Kleros: the (i) insurance sector, the (ii) consumer sector, and the (iii) telecommunications sector. Each of these sectors, through its respective governing body, possesses a robust institutional infrastructure and a legal framework compatible with the implementation of Kleros. To specify the authorities in question: in the case of the insurance sector, the analysis will refer to the Superintendency of Insurance (Superintendencia de Seguros, SIS); for the consumer sector, the National Institute for the Protection of Consumer Rights (Instituto Nacional de Protección de los Derechos del Consumidor, PROCONSUMIDOR); and for the telecommunications sector, the Dominican Institute of Telecommunications (Instituto Dominicano de las Telecomunicaciones, INDOTEL). On the other hand, regarding the statistical data gathered, formal requests were made through the official communication channels of each regulatory body to obtain information for the years 2022, 2023, and 2024. The data requested included the number of disputes recorded, the principal types of conflicts, the procedural steps followed in internal resolution processes, the actors involved, the approximate cost per case, and the average time required for full resolution.

[SEE APPENDED CHARTS][128]

On Sectoral Analysis

The following section—subsequent to the preliminary study of public-institutional regulatory support—will address the aforementioned economic sectors individually, conducting for each a normative support analysis specifically circumscribed to the trad-law implementation scenario of public institutions. In a detailed manner, the legal pathway for integrating Kleros into the dispute resolution processes specific to each governing entity will be presented, with particular emphasis on the special regulations that enable the effective application of Kleros and ensure its compatibility and coexistence with the prevailing legal framework once implemented and in operational use. In the same analytical vein, a practical-commercial assessment will be developed for each economic sector. This will begin with a presentation of the statistical findings derived from the field research conducted, followed by the projection of two practical case studies—one aligned with the trad-law context and the other with the web3-law context. Through this dual-case approach, the research aims to clearly demonstrate and visualize both the pertinence and the practical viability of applying Kleros within the framework of the economic sectors under study.

Preliminary study of public-institutional regulatory support

[128] APPENDIX I and APPENDIX II

Prior to examining the special legislative instruments that govern each economic sector—and as has been indirectly addressed in previous sections—it is important to clarify that the Dominican legal system includes two overarching regulatory frameworks that uphold the public-institutional use of Kleros as a valid dispute resolution mechanism, as well as the use of digital-format documentation. On the one hand, there is Law No. 489-08 on Commercial Arbitration, which may serve as legal support across all identified sectors, with no limitations other than those expressly established by the law itself. This is because each sector is subject to dispute resolution through arbitration or other alternative methods. On the other hand, Law No. 126-02 on Electronic Commerce, Documents and Digital Signatures may also serve as legal support in each of the sectors under study, although the present investigation will concentrate specifically on the legal validity of digital documents—without fully addressing the issues of electronic commerce and digital signatures [see suggested analysis on the validity of digital signatures in *chapter 2.1.*(ii)]. Notably, each sector possesses its own regulations, none of which prohibit the use of digital alternatives for service facilitation or, more specifically, for the resolution of disputes arising from their respective activities.

Regarding Law No. 489-08 on Commercial Arbitration, Article 2 provides that disputes involving matters of free disposition and transaction, including those involving the State, may be submitted to arbitration[129]. Pursuant to this provision, it can be inferred that disputes arising in sectors such as insurance, consumer, and telecommunications are suitable for resolution through arbitration, given that the issues they encompass are inherently negotiable and, therefore, freely disposable by the parties involved.

In the same vein, Article 4 of the law differentiates between ad-hoc arbitration and institutional arbitration. While ad-hoc arbitration allows the parties to define their own procedural rules[130], institutional arbitration is governed by the rules of a particular arbitration center[131]. In scenarios where sectoral institutions collaborate with Kleros to resolve disputes, the ad-hoc option is the most appropriate. It allows the sectoral entity to design its own procedural framework—particularly regarding interaction with users and claimants—while integrating Kleros to adjudicate the substance of the dispute. Nonetheless, although the sectoral entity may design the procedural architecture, Kleros would manage essential components of the arbitration process, including the composition of the tribunal, commencement of proceedings, evidentiary assessment, legal reasoning, and notification of the verdict. This synergy aims to optimize both efficiency and impartiality by combining the flexibility of ad-hoc arbitration with the specialized infrastructure of Kleros.

Moreover, Article 6 of the law affirms the validity of transmitting or notifying documents related to arbitration proceedings in digital format—either through

[129] Dominican Republic. Law 489-08 on Commercial Arbitration, Article 2.1.
[130] Ibid. Article 4.1.a
[131] Ibid. Article 4.1.b

digital documents or data messages—provided such methods ensure the transmission and receipt of communications, leaving verifiable records thereof[132]. It further states that such digital documents may be validly used as means of proof[133] in the proceeding. This legal provision is critical, as it legitimizes the transmission of documentation through the Kleros protocol for conflict resolution within the relevant sectors. Consequently, the entities involved need only focus on establishing robust mechanisms for verifying the authenticity and validity of the digital documentation circulating through the platform, thereby safeguarding legal certainty and the integrity of the arbitration process.

Law No. 107-13 on the Rights of Persons in Their Relations with the Administration and on Administrative Procedure emerges as a crucial complementary pillar that grants sectoral entities the legal authority to integrate and utilize Kleros within their alternative dispute resolution systems. This law is essential because it enshrines the administrative principles that confer upon such entities the power to act within the bounds of current regulations. By exercising this administrative power, the adoption of a tool such as Kleros aligns with the essential principles of efficiency, facilitation, and procedural swiftness—principles expressly enshrined in Law 107-13 and central to the institutional-legal framework of the Dominican Republic. In essence, the implementation of Kleros is not only legitimized by this law but also contributes directly to the realization of a more agile, accessible, and efficient administrative procedure.

As for Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures, it is worth emphasizing that Article 1 establishes the general applicability of its provisions to all information presented in digital document or data message format [134], thereby laying the foundation for the legal validity of electronic interactions. Expanding on its scope, Article 2 clarifies key definitions. It defines a digital document as information encoded in digital form, stored on a logical or physical medium, and generated by electronic, photolithographic, optical, or similar methods, which represents acts, facts, or data of legal significance[135]. Similarly, the same article defines a data message as any information created, sent, received, stored, or communicated by electronic, optical, or similar means. This category includes a broad range of digital tools, including—but not limited to—electronic data interchange (EDI), email, telegrams, telex, and telefax[136]. These definitions are critical because they afford legal recognition to a wide variety of electronic communications and records, all of which are vital to the development of digital commerce and procedures in the country.

[132] Dominican Republic. Law 489-08 on Commercial Arbitration, Article 6.b.
[133] Ibid.
[134] Dominican Republic. Law 126-02 on Electronic Commerce, Documents and Digital Signatures, Article 1.
[135] Ibid. Article 2.b
[136] Ibid. Article 2.c

Based on the foregoing definitions, it is evident that the information and documentation generated via Kleros fully fall within the legal categories of digital documents and data messages. This grants their use in various sectors explicit legal protection. More importantly, Article 4 of the same law reinforces this recognition by establishing that such types of information and documentation must be granted full legal effect, including validity and probative value[137] within the Dominican legal system. In essence, this legislation validates the integration of Kleros as a reliable and legally binding tool for the management of data and evidence.

In closing this section, it is essential to highlight that Dominican legislation confers full legal validity to digital documents and data messages, even when a specific rule requires a document or act to be in written form. This validation is especially relevant in the context of Law No. 489-08 on Commercial Arbitration, which—regarding form and content—stipulates that every arbitral award or decision must be made in writing[138]. Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures resolves this apparent tension by explicitly establishing that if any rule requires information to be in writing, that requirement is fully satisfied by the presentation of a digital document or data message[139]. Consequently, and in line with earlier analyses, it is recommended to interpret that the implementation of Kleros in arbitral proceedings under the Dominican legal framework is not only compatible with this requirement, but fully compliant with the written-form requirement, thereby ensuring the legality and validity of its rendered decisions.

3.1 INSURANCE SECTOR

Statistical and public-institutional regulatory support study / Insurance Sector

This analysis explores the viability of integrating the Kleros Court as a decentralized dispute resolution protocol within the legal framework governing the insurance sector of the Dominican Republic. To this end, it provides a comprehensive examination of Law No. 146-02 on Insurance and Bonds, supplemented by the complementary legislation: Law No. 489-08 on Commercial Arbitration and Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures, which together furnish the necessary regulatory scaffolding. The study also assesses the current role of the Superintendency of Insurance (SIS) in dispute management and the arbitration procedures in place, relying on recent statistical data to contextualize and demonstrate the relevance of its implementation. Within this scenario, the argument is made that Kleros has significant potential to reduce the time, cost, and institutional burden associated with dispute resolution, through a decentralized arbitration model that could be integrated via recognition of its

[137] Ibid. Article 4
[138] Dominican Republic. Law 489-08 on Commercial Arbitration. Article 6.2.
[139] Dominican Republic. Law 126-02 on Electronic Commerce, Documents, and Digital Signatures. Article 5.

jurisdiction. The analysis will demonstrate Kleros' full compatibility with Dominican legal requirements. Finally, the study concludes with practical case studies illustrating Kleros' applicability in both trad-law and web3-law contexts. These case studies aim to showcase how it can provide a significantly more efficient arbitration solution—ultimately contributing to a substantial increase in legal certainty within the Dominican insurance sector.

Section XII of Law No. 146-02 on Insurance and Bonds of the Dominican Republic addresses all matters related to arbitration in the insurance sector. It stipulates that disputes may be resolved either through traditional arbitration between parties or by referring the dispute to the Superintendency of Insurance (SIS) for appropriate handling. Field data confirms that SIS currently manages all insurance arbitration processes in practice. However, this does not preclude policyholders and insurers from opting for traditional arbitration independent of SIS involvement, under the governance of the national commercial arbitration law.

Statistical data collected for this research indicate that the Superintendency of Insurance handled 602 disputes in 2022, 426 in 2023, and 661 in 2024—totaling 1,689 cases over three years[140]. This high volume underscores the significant workload borne by SIS, raising questions about its procedural efficiency and capacity to handle multiple simultaneous cases compared to the potential efficiency of Kleros. Moreover, the data show that vehicle insurance disputes constitute the majority of cases, reflecting substantial societal impact given the prevalence of vehicular activity in the Dominican Republic. The statistics also reveal variability in average resolution times and indicate that SIS currently does not offer a fully online service for conflict case handling.

Based on these results, it is apparent that Kleros could raise the global effective resolution rate to above 95%, since decisions issued through the protocol are reached in far shorter time frames—often within a week—and at minimal operational cost due to the automation of critical functions such as juror assignment, evidence evaluation, and issuance of reasoned awards. Indeed, this characteristic speed coupled with quality would allow recurrent vehicle insurance disputes to be resolved at scale in minimal time, thus enhancing insured parties' protection and establishing an efficient sector-wide response mechanism.

Returning to the regulatory framework, Article 105 of Law No. 146-02 on Insurance and Bonds mandates arbitration[141] for any dispute or difference arising under an insurance policy, requiring arbitration as the primary resolution method. This places a legal obligation on both policyholders and insurers to arbitrate, with SIS responsible for managing such cases—unless the parties elect to engage an external arbitration. The use of Kleros, as a protocol facilitating arbitration

[140] Information request number: SAIP-SIP-000-113621
[141] Dominican Republic. Law 146-02 on Insurance and Bonds. Article 105.

management, would enable parties to comply more precisely and securely with this legal requirement—via arbitration administratively overseen by SIS and substantively adjudicated by the Kleros Court—ensuring procedural efficiency and timeliness while aiding the sector in reducing traditional dispute resolution times and costs.

Delving deeper into public-institution arbitration, Articles 109, 110, and 238 of Law No. 146-02 empower SIS to act as a conflict manager and resolve disputes involving insurers, reinsurers, policyholders, beneficiaries, and intermediaries[142]. Under the legal presumption that what is not prohibited is permitted, SIS is neither restricted nor barred from choosing or recommending Kleros to effectively discharge its statutory mandate. Exempli gratia, while the law allows SIS 30 days[143] to issue a decision on a dispute, the integration of Kleros into its conventional resolution process could substantially shorten that period, delivering fair, binding decisions to sector participants in minimal time.

Arbitration administered by a public institution falls within the modality of integration via recognition of jurisdiction—as it has the potential for the decision to be homologated by an authority that grants it validity in accordance with the current legislation. Implementing Kleros as a dispute resolution mechanism in the Dominican insurance sector represents a strategic opportunity to modernize and optimize dispute handling between policyholders and insurers. By enabling parties to submit the merits of their disputes to a decentralized, transparent, and efficient system, substantial reductions in time and cost are attainable compared to traditional arbitration structured by the institution. When decisions rendered through Kleros are subsequently verified and recognized by SIS—via institutional channels or an internal arbitral authority—the legal security of the process is strengthened, and an innovative model of digital justice is consolidated. This approach enhances user experience and trust in the system while alleviating traditional conflict-resolution channels and aligning the insurance sector with emerging technological standards and the principles of timeliness, fairness, and efficiency mandated by existing legislation.

Under such a model, instead of SIS or directly involved parties exhausting the dispute resolution and evidentiary process internally, they may channel that phase to a Kleros sub-court specialized in insurance. There, a randomized peer jury—selected via verifiable, manipulation-resistant cryptographic algorithms—evaluates the evidence submitted by the parties through a digital interface and issues a decision recorded on the blockchain as an immutable and publicly accessible data message. Moreover, the technical standardization of procedures ensures direct interoperability with SIS's digital case management systems, allowing the Kleros award to be automatically integrated as a substantive

[142] Ibid. Article 238.u
[143] Ibid. Article 110

foundation of the final administrative act, subject to conformity verification under sector-specific regulations.

In conclusion, integration of Kleros via jurisdictional recognition within the insurance sector of the Dominican Republic represents a hybrid-technical architecture that channels the advantages of decentralized technology into the traditional functioning of the insurance ecosystem—fully in compliance with current legal frameworks. This trad-law approach introduces Kleros as a strategic, interoperable decision-making auxiliary within the formal resolution process of entities such as the Superintendency of Insurance (SIS), with the latter retaining ultimate competence or authority to verify and validate the awards issued.

Trad-Law Practical Approach

Below is a practical and schematic example of the arbitration process administered by the Superintendency of Insurance (SIS), integrating the Kleros Court as an auxiliary decision-making protocol, in accordance with the provisions of Law No. 146-02 on Insurance and Bonds:

STAGE I / Preliminary

1. *Filing of the dispute:* The interested party submits the dispute to the SIS, attaching the supporting evidence.

2. *Case file preparation:* The SIS gathers all relevant information related to the dispute and proceeds with the preparation of evidence.

3. *Drafting of the terms of reference:* The SIS coordinates the drafting of the terms of reference together with the parties, outlining the details of the dispute (parties, cause, claims, etc.)

4. *Referral to Kleros:* The SIS transmits the complete case file and the terms of reference to Kleros.
   -Specialized legal entities such as the Kleros Cooperative could collaborate with the motorization of this preliminary stage-

STAGE II / Resolutive

5. *Receipt of the case file:* Kleros receives the case file and issues an official acknowledgment of receipt to the SIS.

6. *Resolution and deliberation:* Kleros proceeds with the selection of jurors and the evaluation of evidence; the jurors analyze the dispute and cast their

votes.

7. *Arbitral decision:* Kleros provides the reasoning for the decision and notifies the SIS.

STAGE III / Conclusive

8. *Receipt and review of the decision:* The SIS receives and conducts a discretionary evaluation of Kleros's decision.

9. *Final resolution:* The SIS issues a final reasoned decision in accordance with the law, which may adopt and reference the arguments presented in the Kleros decision.

10. *Closure of the case file:* The SIS notifies the parties of its final decision and proceeds with the formal closure of the case file.

Web3-Law Practical Approach

A notable real-world use case within the web3 environment applied to the insurance sector is the deployment of blockchain-based parametric[144] flight delay or cancellation insurance, such as that offered by the decentralized insurance protocol Etherisc[145]. This solution enables users to receive instant[146] compensation in the event that a flight is delayed by 45 minutes or more[147], with the indemnity being executed automatically by a smart contract upon verification of the qualifying event.

Case of conflict: A Dominican citizen purchases a parametric insurance policy via smart contract, covering flight delays or cancellations, which entitles her to compensation equivalent to 25% of the price she paid for her airline ticket, in the event that a delay exceeding 45 minutes or a cancellation is verified. Indeed, her flight is delayed by more than one hour; however, several days pass and the compensation—which should have been automatically executed or paid by the smart contract—is not received.

Conflict raised: Submission of incorrect information to the smart contract. Specifically, the input of an inaccurate flight departure time by a misconfigured oracle clock.

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[144] Etherisc. *Buy parametric blockchain insurance* [online] Available from: https://etherisc.com/buy?_gl=1*d5s2qe*_up*MQ..*_ga*MTg0ODU2ODM4OC4xNzE5OTcwNzE0*_ga_X8PRQ5P64T*MTcxOTk3MDcxMy4xLjEuMTcxOTk3MDkxMC4wLjAuMA

[145] Etherisc. *Etherisc Flight Delay Protection*[online]. Available from: https://flightdelay.app/apply

[146] DeFi Insurance: The Next Generation of Insurance [online]. *Hedera*. Available from: https://hedera.com/learning/decentralized-finance/defi-insurance

[147] Etherisc Blog. First Blockchain-based App to Insure Your Next Flight Against Delays. *Medium* [online]. July 23, 2018. Available from: https://blog.etherisc.com/first-blockchain-based-app-to-insure-your-next-flight-against-delays-10f53b38ad2d

Particular reality of the decentralized economy that makes the idea of bringing the dispute before state courts or alternative resolution methods utopian: Moderate amounts, considering the idea of accepting the financial impropriety of paying high attorney or arbitrator fees in an attempt to recover what was lost.

Web3 solution: The web3 solution to this case, through the application of Kleros, lies in the parties having agreed—within the arbitrable smart contract—to include an arbitration clause referring to the Kleros arbitrator smart contract, enabling it to act as a decision-making protocol for resolving the dispute.

3.2 CONSUMER SECTOR

Statistical and public-institutional regulatory support study / Consumer Sector

This section analyzes the legal viability of integrating the Kleros decentralized justice system into the regulatory framework for consumer protection in the Dominican Republic, specifically assessing its compatibility with Law No. 358-05 on the Protection of Consumer or User Rights and its Arbitration Regulation, as well as with complementary laws No. 489-08 on Commercial Arbitration and No. 126-02 on Electronic Commerce, Documents, and Digital Signatures. These complementary laws provide the necessary regulatory scaffolding. Fundamental principles of consumer arbitration, such as efficiency and celerity, which are replicated in Kleros, are identified, thereby opening the possibility of its adoption by the managing entity, the National Institute for the Protection of Consumer Rights (PROCONSUMIDOR). Based on statistical data regarding the high volume of disputes handled by this public institution, the pertinence and urgency of integrating more agile and scalable solutions such as the Kleros Court is proposed. Lastly, the analysis is consolidated with the presentation of practical cases illustrating the applicability of Kleros, both in the trad-law and web3-law contexts. This case study aims to demonstrate its ability to offer a significantly more efficient arbitral solution which, ultimately, would result in a substantial increase in legal certainty within the Dominican Republic's consumer sector.

In the Dominican Republic, ProConsumidor is the central entity in the consumer sector responsible for resolving claims and disputes related to the protection of consumer rights. As previously noted, the governing legal framework for this sector is General Law No. 358-05 on the Protection of Consumer or User Rights, which establishes the legal framework governing relationships between providers and consumers, ensuring legal certainty and equity within the sector, and which also includes provisions regarding the appropriate resolution of arising disputes.

According to statistical data obtained for this research, ProConsumidor handled a total of 2,312 disputes in 2022, 3,245 in 2023, and 3,524 in 2024, amounting to a total

of 9,081 disputes over the last three years[148]. These numbers, when compared to the insurance and telecommunications sectors, show that the consumer sector accounts for the highest number of disputes in the national market, under the responsibility of the National Institute for the Protection of Consumer Rights (PROCONSUMIDOR). Nevertheless, it is valid to question both the effectiveness of its current resolution mechanisms and its capacity to manage a high volume of cases simultaneously and within appropriate timeframes. This limitation becomes even more apparent when contrasted with the operational efficiency that the strategic integration of a decentralized justice model like Kleros could offer.

Based on the results yielded by the statistics, it can be determined that the application of Kleros could raise the overall effective resolution rate in the consumer sector to levels above 90%, given that decisions within the protocol are made in significantly shorter periods—even less than a week—at minimal operational cost, thanks to the automation of key tasks such as the appointment of jurors, the examination of evidentiary materials, and the issuance of reasoned awards. Considering that ProConsumidor managed a total of 9,081 disputes between 2022 and 2024, making it the body with the highest conflict volume when compared to the insurance and telecommunications sectors, it is reasonable to accept that its traditional structure faces challenges related to effectiveness and simultaneous case resolution. In this context, the integration of Kleros would enable the scalable and efficient processing of this high volume of disputes, ensuring greater guarantees for consumers and consolidating a more agile and reliable response system in the area of consumer protection.

Regarding the analysis of special legislation, it is correct to note that Chapter XII of Law No. 358-05 addresses part of the arbitration framework in the consumer sector, presenting it as a legal option for users or consumers to resolve disputes, provided that such disputes do not involve infractions affecting the public interest[149]. According to the information obtained and confirmed during the field study conducted for this research, it is currently ProConsumidor who manages all arbitration procedures in consumer matters in practice; however, this does not preclude consumers and users from opting for traditional arbitration governed purely by the national commercial arbitration law.

In order to properly conduct arbitration processes, the Governing Council of ProConsumidor issued a regulation establishing the consumer arbitration system. This regulation sets forth guidelines related to the purpose and scope of this type of alternative dispute resolution method, arbitration instances, requirements for the arbitration agreement, evidence management, proceedings, and arbitral award, as well as other necessary measures for the proper organization and operation of the system. Chapter III of said regulation presents a section on consumer arbitration

[148] Information request number: SAIP-SIP-000-113541
[149] Dominican Republic. General Law 358-05 on the Protection of the Rights of Consumers or Users. Article 130.

that outlines the nature of arbitration in this sector, emphasizing the principles of neutrality and simplicity[150]—principles that can be perfectly adopted by Kleros, even supplemented by others such as celerity and reliability.

Chapter IV of the regulation provides the directives and requirements for initiating the arbitration procedure once the user or consumer wishes to trigger it. Before ProConsumidor can utilize the Kleros Court for the substantive portion of a consumer arbitration process, the provisions of Article 11 of the regulation must be complied with, as this information[151] will serve as the basis for initiating the procedure and preparing the case file prior to referral to the protocol. From the standpoint of material compatibility, Article 15 of ProConsumidor's arbitration regulation establishes the principles[152] governing consumer arbitration, among which are equality, contradiction, and hearing. These tenets find functional equivalents in Kleros' institutional design, as the principles of equality, contradiction, and hearing are guaranteed through a hybrid procedural structure that allows each party to submit evidence and present arguments via ProConsumidor, which are then evaluated by independent jurors via Kleros who act based on coherent majority, not on hierarchical authority.

Undoubtedly, the coexistence of ProConsumidor's Arbitration Regulation and the decentralized arbitration system of the Kleros Court can be consolidated through the structuring of a novel hybrid dispute resolution procedure that involves, on the one hand, the participation of the Kleros protocol—integrated via recognition of jurisdiction—to resolve substantive matters, and on the other hand, the participation of ProConsumidor in handling procedural aspects, in full observance and compliance with legal requirements. Specifically, it is correct to understand that this model requires the homologation of the award issued by Kleros within the procedure established by the regulation, through a validity certification issued by ProConsumidor's Executive Directorate[153] confirming that the procedure followed respected the principles of neutrality, due process, enforceability, and so forth. In such a case, the Kleros award could be incorporated as the equivalent of an award issued by a traditional arbitral panel, generating binding effects by virtue of its substantive content, under the principle of functional equivalence.

This type of interoperability does not require regulatory amendments, as once the Kleros Court renders its decision, ProConsumidor retains its powers and responsibilities with respect to the overall open procedure, particularly regarding the administrative assessment of the results generated by the protocol. Openness to these public-institutional modernization initiatives would be consistent with the mandates of technological innovation and e-government established in Law No. 126-02, which recognizes the legal validity of electronic contracts and documents,

[150] Regulation establishing the Consumer Conciliation and Arbitration System. Article 8.
[151] Ibid. Article 11
[152] Regulation establishing the Consumer Conciliation and Arbitration System. Article 15.
[153] Dominican Republic. General Law 358-05 on the Protection of Consumer or User Rights. Article 19.k.

as well as of alternative dispute resolution methods incorporated into digital environments. Moreover, it aligns with the principle of administrative efficiency, according to which public administration may adopt appropriate technological means that ensure better service delivery to citizens, provided legality and public interest are respected.

Indubitably, the application of Kleros allows ProConsumidor to partially externalize the decision-making process, delegating the substantive component of the analysis of simple or repetitive cases to a system of impartial jurors, thereby reducing wait times, relieving internal channels, and improving perceptions of transparency. At the same time, this technical delegation does not undermine the administrative or legal sovereignty of the State, since the protocol's outcome would be assimilated into the final decision to be issued via administrative act by the institution.

Trad-Law Practical Approach

Below is a practical and schematic example of the arbitration process managed by the National Institute for the Protection of Consumer Rights (PROCONSUMIDOR), integrating the Kleros Court as an auxiliary decision-making protocol, in accordance with the General Law for the Protection of Consumer or User Rights No. 358-05 and the Regulation establishing the Consumer Conciliation and Arbitration System (hereinafter, the "Regulation"):

STAGE I / Preliminary

1. *Request for arbitration:* The consumer or user submits a request for arbitration to the Executive Director of ProConsumidor, attaching supporting evidence, complying with the requirements set forth in Article 11 of the Regulation.

2. *Notice of arbitration request:* The Executive Director of ProConsumidor admits the arbitration request and notifies the respondent party in accordance with Article 14 of the Regulation.

3. *Case file preparation:* ProConsumidor gathers all relevant information related to the dispute and proceeds with the preparation of evidence.

4. *Drafting of the terms of reference:* ProConsumidor coordinates the drafting of the terms of reference together with the parties, outlining the details of the dispute (parties, cause, claims, etc.)

5. *Referral to Kleros:* ProConsumidor transmits the complete case file and the terms of reference to Kleros.

-Specialized legal entities such as the Kleros Cooperative could collaborate with the motorization of this preliminary stage-

STAGE II / Resolutive

6. *Receipt of the case file:* Kleros receives the case file and issues an official acknowledgment of receipt to ProConsumidor.

7. *Resolution and deliberation:* Kleros proceeds with the selection of jurors and the evaluation of evidence; the jurors analyze the dispute and cast their votes.

8. *Arbitral decision:* Kleros provides the reasoning for the decision and notifies ProConsumidor.

STAGE III / Conclusive

9. *Receipt and review of the decision:* ProConsumidor receives and conducts a discretionary evaluation of Kleros's decision; to be assumed by arbitrators endorsed by the Governing Council.

10. *Final resolution:* ProConsumidor issues a final reasoned decision in accordance with the law, which may adopt and reference the arguments presented in the Kleros decision, taking into account the provisions of Articles 21 and 23 of the Regulation.

11. *Closure of the case file:* The Executive Directorate of ProConsumidor notifies the parties of the decision and proceeds with the formal closure of the case file.

Web3-Law Practical Approach

Among the cases observed in the web3 context for the consumer sector, a real-world example would be the exhibition of a specific digital art collection via an NFT online marketplace, such as the Genesis Collection[154] presented by the popular Dominican artist Poteleche on OpenSea. Through this platform, it becomes possible to acquire, via smart contract, one of the artist's digital artworks along with a personal or virtual meeting with Poteleche himself, during which he promises to draw a black and white ink and pencil version on paper[155] of the purchased piece as a physical counterpart.

[154] OpenSea. *Poteleche Genesis Collection.* [online] Available from: https://opensea.io/es/collection/poteleche-genesis-collection
[155] Ibid.

Case of conflict: A Dominican citizen acquires a digital artwork via smart contract from the first NFT collection of a Brazilian art laboratory, Carvão Labs, which allegedly has six years of experience replicating works of globally renowned painters using charcoal techniques. As part of the purchase promises, they offered the shipment of the original physical version, 8.27 x 11.67 inches, of the acquired digital artwork, which was the main reason the Dominican citizen purchased the NFT for the equivalent of US$260.00. After the payment was processed, the NFT transferred, and the one-month maximum delivery period for the physical version expired, the citizen realizes that the purchase promises were false, that the exact location of Carvão Labs is unknown, and that the person responsible for the Brazilian laboratory hides behind the pseudonym Gordon daSilva Goner, thus having no idea where or to whom to direct the claim.

Conflict raised: Submission of incorrect information to the smart contract. In the current NFT context, smart contracts transfer the non-fungible token and the total purchase price regardless of any attached purchase promises. Based on this reality, if a specific NFT purchase includes certain promises, and the smart contract transfers the full payment amount based solely on the information confirming the NFT's existence and deliverability on-chain, it is prudent to consider such information as inaccurate. It would be confirming the fulfillment of all agreed-upon conditions for payment, which is detached from reality due to the non-fulfillment of the purchase promises.

Particular reality of the decentralized economy that makes the idea of bringing the dispute before state courts or alternative resolution methods utopian: Operational pseudonymity, considering the fact that the exact location of the Brazilian laboratory and the real identity of the responsible party are unknown, with only a supposed name and a cryptographic address as reference. From this perspective, it is prudent to accept that resorting to traditional justice mechanisms to pursue an unidentified individual hiding behind pure pseudonyms would be procedurally impractical. Similarly, in this specific case, the phenomenon of moderate amounts is present, making it financially unreasonable to incur high attorney or arbitrator fees with the unlikely goal of recovering a modest sum of, say, US$130.00 (representing 50% of the purchase value attributable to the promises made).

Web3 solution: The implementation of an arbitration clause referring to the Kleros arbitrator smart contract, to act as a decision-making protocol for resolving the dispute—directly integrated into the arbitrable smart contract governing the NFT purchase—would allow the total payment to be conditioned on the effective verification of the fulfillment of the purchase promises, such as the physical delivery of the artwork, as evaluated by randomly selected jurors. In the face of the seller's pseudonymity and the practical impossibility of identifying or locating them through traditional means, and considering the low economic value in dispute,

Kleros offers an efficient, transparent, and economically accessible pathway to submit the controversy to a global algorithmic jurisdiction. There, evidence can be evaluated on-chain, and the arbitral decision may trigger automatic effects—for instance, executing a full or partial reversal of the payment.

3.3 TELECOMMUNICATIONS SECTOR

Statistical and public-institutional regulatory support study / Telecommunications Sector

This section analyzes the legal viability of integrating the decentralized justice system Kleros into the regulatory framework of the telecommunications sector in the Dominican Republic, particularly within the dispute resolution processes managed by the Dominican Institute of Telecommunications (INDOTEL). Based on statistical data regarding the volume of disputes handled by the institution and the study of the General Telecommunications Law No. 153-98, the Dispute Resolution Regulation, and its amendments, it is projected that Kleros could be used as an auxiliary tool in the stage of Complaint Appeals (Recursos de Queja - RDQ), while respecting the structure of the Collegiate Bodies and the procedural guarantees currently in force. In the same vein, it is argued that this integration would improve the system's efficiency, traceability, and accessibility, without compromising the sovereignty of the regulatory body. As a closing element, the analysis is consolidated with the presentation of practical cases that illustrate the applicability of Kleros, both in the context of trad-law and web3-law. This case study seeks to demonstrate Kleros' capacity to offer a significantly more efficient arbitral solution, ultimately leading to a substantial increase in legal certainty within the Dominican telecommunications sector.

The Dominican legal framework regarding dispute resolution between users and public telecommunications service providers is primarily governed by the General Telecommunications Law No. 153-98 and the Regulation for the Resolution of Disputes Between Users and Telecommunications Service Providers, including its modifications. In essence, both address aspects related to arbitration and establish that to carry out this alternative method within INDOTEL, the so-called Collegiate Bodies serve as the internal structure legally empowered to hear and resolve disagreements between users and providers, and to manage everything related to arbitration and other dispute resolution mechanisms. With regard to the strategic application of Kleros, it is legally feasible as long as it respects this institutional design and the procedural guarantees established by the current regulatory framework, particularly those concerning the principle of administrative legality, effective user protection, and procedural interoperability.

According to the statistical data gathered for this research, INDOTEL handled a total of 309 disputes in 2022, 219 in 2023, and 464 in 2024, resulting in a total of 992

disputes over the past three years[156]. These figures show that the sector in question currently manages a real volume of conflict cases. Furthermore, the statistics reveal that the average time to resolve a dispute—after exhausting all internal stages—can extend up to 45 business days, that INDOTEL does not currently have a fully online dispute resolution system implemented, and that up to three internal units may be involved when a dispute escalates within the institution. In this light, it is pertinent to question the effectiveness, scope, and simultaneous response capacity of the regulatory body, especially when compared to the operational efficiency that a novel institutional dispute resolution model powered by Kleros can provide.

Beginning the analysis of special regulations, it is worth highlighting Article 2 of the Regulation for the Resolution of Disputes Between Users and Telecommunications Service Providers, which clearly states that its scope includes both the regulation of internal complaint procedures between users and providers[157] and the intervention of the regulatory body when users' rights are violated[158]. This framework makes it conceivable that, within the design of institutional intervention in accordance with INDOTEL's functions, innovative digital platforms could be enabled to manage the arbitral component more efficiently, while maintaining administrative sovereignty over the proceedings. This possibility is further reinforced by the principles of promptness and effectiveness established in Law No. 107-13 on the Rights of Individuals in Their Relations with the Public Administration, particularly the obligation to optimize time use[159] and promote the use of information technologies to eliminate unjustified delays[160].

In this same vein, the existence of the Collegiate Bodies as an administrative body competent to manage arbitration—regulated by Chapter VI of the Regulation for the Resolution of Disputes and composed in accordance with the Functional Organic Regulation and the requirements of Law No. 153-98—constitutes a normative space open to potential technological reengineering. This is especially relevant considering that INDOTEL's Governing Council retains the authority to regulate, supervise, and amend procedures to ensure greater effectiveness in dispute resolution. Accordingly, a strategic alliance with the decentralized dispute resolution system Kleros could be considered, allowing it to manage the deliberative components of the arbitral process under the parameters and standards of the regulatory body.

Moreover, Resolution No. 073-2024, which refers to the procedure for reviewing the list of eligible candidates to form the Collegiate Bodies and the authority of the Governing Council to exclude or appoint their members, shows that the decision-making element of the system is not legally bound to a rigid or immutable

[156] Information request number: SAIP-SIP-000-113620
[157] Regulations for the Resolution of Controversies between Users and Providers of Public Telecommunications Services. Art. 2.1.a.
[158] Ibid. Art. 2.1.b
[159] Law 107-13 on the Rights of Individuals in their Dealings with the Administration and Administrative Procedure. Art. 3.19.
[160] Ibid. Art. 3.6

structure. On the contrary, it allows for adaptations as long as they respect due process guarantees and the principle of impartiality. Therefore, the incorporation of a decentralized justice platform such as Kleros into the institutional arbitration process—duly audited, parameterized, and supervised by the Collegiate Bodies unit—could be executed in an auxiliary capacity without the central authority relinquishing its final sovereignty.

Moving forward, it is important to note that the dispute resolution regulation classifies different types of sector disputes to assign the appropriate resolution method. For example, there is the Pre-Formalization Case (CPF), described as the phase prior to the formalization of a Complaint Appeal (RDQ)[161], and the RDQ itself, defined as the mechanism initiated when no favorable agreement is reached between the user and provider or when the provider fails to respond within the established timeframe for CPF resolution[162]. Referring again to the statistical data collected, it is suggested to understand that once a RDQ is received by INDOTEL, it is first registered with the User Services Department (DAU), then transferred to the Complaints and Conciliation Department, and subsequently forwarded to the Collegiate Bodies Unit. In light of this, when applying Kleros, it is important to take into account that the type of dispute eligible for the protocol is the RDQ, and that a CPF must first be initiated, so that INDOTEL can maintain the traceability required by the regulation.

From this, it is evident that Kleros would be introduced at a specific stage in the dispute resolution pipeline. Given the high socio-economic impact of the sector, the regulation seeks to ensure that there is prior dialogue among market participants and that costs remain concentrated on sector development. Nevertheless, the use of Kleros in the context of RDQs may yield a higher level of resolution and satisfaction than INDOTEL's internal pre-formalization process, due to Kleros' efficiency in terms of time and cost. The number of reliable and decisive outcomes produced by Kleros in minimal time may exceed those resulting from the traditional preliminary process, possibly with better assessment of evidentiary elements.

A potential coexistence between the current Regulation for the Resolution of Disputes Between Users and Telecommunications Service Providers and Kleros could materialize through the delegation of specific phases of the resolution process to the decentralized infrastructure, while INDOTEL retains its power of verification, validation, and final legal oversight. For instance, users who have exhausted the channel with the provider and failed to achieve satisfactory administrative conciliation may opt to have the case referred to Kleros' arbitration module; in such a case, the jury selection and resolution algorithm would be audited by INDOTEL, and the decision parameters would be set according to user

[161] Regulations for the Resolution of Controversies between Users and Providers of Public Telecommunications Services. Art. 1.9.
[162] Ibid. Art. 22.1

protection regulations. The Referral Act, as defined in Article 1 of the Regulation, could be hashed and digitally transmitted to the decentralized system to ensure its integrity and traceability. This would not imply delegating the issuance of administrative decisions to a non-state entity, as the verdict generated could be homologated by INDOTEL through a final administrative act.

From all this, it can be established that integrating Kleros as a dispute resolution protocol is not only compatible with the powers and prerogatives of the Collegiate Bodies under current regulations, but its implementation also promises to significantly optimize conflict management. When a Kleros decision is executed, several key benefits materialize. First, since Article 30 of the Regulation for the Resolution of Disputes Between Users and Telecommunications Service Providers requires that RDQ evaluations be conducted in writing[163], Kleros' decision—being a digital document or data message—fully satisfies this requirement, in accordance with Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures. Second, Article 31 of the same Regulation establishes a 15-day response period from the time the case is formally accepted[164]. Thanks to the efficiency inherent to Kleros, this period could be drastically reduced to approximately five days, representing over a 60% reduction in the legally stipulated timeframe. This acceleration greatly enhances the efficiency and speed of the resolution process. Finally, Article 34 of the Regulation provides for the homologation of decisions issued by the Collegiate Bodies, which must be submitted to the Executive Director of INDOTEL for approval within five days[165]. Accordingly, the decision resulting from Kleros could be homologated by INDOTEL's Executive Director, thereby consolidating the binding application of this decentralized justice protocol within a traditional legal implementation scenario.

Ultimately, this hybrid model would be consistent with the institutional mission of the regulatory body, which is to ensure efficiency, continuity, transparency, and quality in telecommunications services, while promoting technological innovations that guarantee effective access to dispute resolution mechanisms. In this regard, the Kleros platform would become a technical-legal instrument under state supervision—not an institutional substitute—operating within the powers granted by the General Telecommunications Law and the regulatory provisions of the competent authority. Without a doubt, the telecommunications sector of the Dominican Republic possesses a robust dispute resolution structure that, with the application of Kleros, would allow the country to strengthen its user protection system, reduce operational burdens, and facilitate access to justice for traditionally excluded segments, thus advancing toward a more open, inclusive, and technologically resilient regulatory architecture.

[163] Ibid. Art. 30.1
[164] Ibid. Art. 31.1
[165] Ibid. Art. 34.1.

Trad-Law Practical Approach

Below is a practical and schematic example of the arbitration process managed by the Dominican Institute of Telecommunications (INDOTEL), integrating the Kleros Court as an auxiliary decision-making protocol, in accordance with the General Telecommunications Law No. 153-98 and Resolution No. 091-2020 of the Governing Council, which issues the Regulation for the Resolution of Disputes Between Users and Public Telecommunications Service Providers and its amendments (hereinafter, the "Regulation"):

STAGE I / Preliminary

1. *Filing of Complaint Appeal (RDQ):* The Complaint Appeal is filed and jurisdiction is given to the Collegiate Bodies.

2. *Case file preparation:* The Collegiate Bodies Unit gathers all relevant information related to the dispute and proceeds with the preparation of evidence.

3. *Drafting of the terms of reference:* The Collegiate Bodies Unit coordinates the drafting of the terms of reference together with the parties, outlining the details of the dispute (parties, cause, claims, etc.)

4. *Referral to Kleros:* Collegiate Bodies Unit transmits the complete case file and the terms of reference to Kleros.
   -Specialized legal entities such as the Kleros Cooperative could collaborate with the motorization of this preliminary stage-

STAGE II / Resolutive

5. *Receipt of the case file:* Kleros receives the case file and provides acknowledgment of receipt to INDOTEL through the Collegiate Bodies Unit.
6. *Resolution and deliberation:* Kleros proceeds with the selection of jurors and the evaluation of evidence; the jurors analyze the dispute and cast their votes.

7. *Arbitral decision:* Kleros provides the reasoning for the decision and notifies INDOTEL through the Collegiate Bodies Unit.

STAGE III / Conclusive

8. *Receipt and review of the decision:* The Collegiate Bodies Unit receives and conducts a discretionary evaluation of Kleros's decision, in accordance with Article 30 of the Regulation.

9. *Final resolution:* The Collegiate Bodies Unit issues a final reasoned decision in accordance with the law, which may adopt and reference the arguments presented in the Kleros decision, in accordance with Articles 31 and 33 of the Regulation.

10. *Homologation of the Collegiate Bodies' decision:* The decision issued by the Collegiate Bodies is homologated by the Executive Director of INDOTEL, in accordance with Article 34 of the Regulation.

11. *Closure of the case file:* The Collegiate Bodies Unit notifies the parties of its final decision, in accordance with Article 38 of the Regulation. The formal closure of the case file then proceeds.

Web3-Law Practical Approach

Among the cases observed in the web3 context for the telecommunications sector, one potential use case could involve a fully online eSIMs provider—similar to the e-commerce platform Bitrefill[166] but in a completely decentralized version—that offers various international internet access plans purchasable via smart contract using crypto assets.

Case of conflict: A Dominican citizen acquires, through a smart contract, an eSIM intended to provide internet access during an upcoming trip to the United States, specifically 60GB of mobile data limited to 30 days. Unfortunately, after three days of activation in the United States, internet access is permanently interrupted, leaving the user disconnected.

Conflict raised: Incorrect translation of legal prose into code. Specifically, a material programming error in the smart contract that drastically reduced the number of days of internet access.

Particular reality of the decentralized economy that makes the idea of bringing the dispute before state courts or alternative resolution methods utopian: Moderate amounts, considering the idea of accepting the financial impropriety of paying high attorney or arbitrator fees in an attempt to recover what was lost.

Web3 solution: The web3 solution to this scenario, through the application of Kleros, lies in the parties having agreed in the arbitrable smart contract to include an

[166] Bitrefill. *GO BORDERLESS WITH ESIMS* [online]. Available from: https://www.bitrefill.com/do/en/esims/

arbitration clause referencing the Kleros arbitrator smart contract, enabling it to act as a decision-making protocol to resolve the dispute.

3.4 IMPACTS AND EFFECTS

The sectoral analysis developed above has clearly revealed a significant institutional overload, which undermines each sector's capacity to provide agile and effective responses to the many disputes that arise. This prevailing situation demands a profound reengineering of traditional institutional methods for dispute resolution. In this context, the central argument justifying the implementation of the Kleros protocol in the consumer, insurance, and telecommunications sectors of the Dominican Republic lies precisely in the high and persistent volume of disputes that characterizes these economic areas. Accordingly, as previously discussed, the use of Kleros is proposed as a strategic auxiliary solution, operating under the modality of jurisdictional recognition. This approach would allow the integration of its advanced technology into existing justice systems, without violating the current legal framework or usurping the competencies of state institutions. In this way, Kleros would be positioned as a vital complementary mechanism for relieving congestion and optimizing dispute resolution processes, while preserving institutional structure and legal certainty within these economic sectors.

A key legal element to highlight is that the regulatory frameworks governing dispute resolution in the three sectors evaluated in this research explicitly permit arbitration as a pre-judicial method of dispute resolution. This demonstrates that the spirit of the Dominican legislator is to facilitate quick, fair, valid, and effective solutions for parties within these sectors—without the burdens of formal litigation—given their significant contribution to the national economy. The ultimate goal is to ensure that the financial and human resources of regulatory agencies are invested in sectoral development, rather than consumed by lengthy and costly proceedings. Therefore, the application of Kleros to resolve disputes arising in these sectors contributes directly to realizing this vision of procedural efficiency and aligns with the intent of Dominican sector-specific regulation.

From both a substantive and procedural perspective, the implementation of Kleros in the insurance, consumer, and telecommunications sectors enhances and safeguards multiple fundamental rights of the parties involved. Among these are the rights to due process, effective judicial protection, equality of arms, expeditious administration of justice, and non-discriminatory access to dispute resolution mechanisms—all pillars of the Dominican legal order. Furthermore, jury selection in Kleros through a randomized process guarantees impartiality and fairness in the composition of the decision-making panel. The digital and decentralized nature of Kleros not only reinforces the principle of efficiency, but also operates through transparent, auditable, and technologically neutral procedures. This unique combination of features intrinsically strengthens the guarantees of impartiality and

traceability throughout each phase of the decision-making process, thereby raising the standard of accessible justice.

The implementation of Kleros promises substantial optimization of administrative procedures by allowing for the automatic incorporation of its decisions into institutional case files. This would be achieved through semantic interoperability and digital authentication, two factors that dramatically reduce document-handling friction and reinforce the electronic chain of custody for resolutions. In practice, this integration translates into a significant reduction in case processing times—from weeks to mere days—as well as the automation of procedural stages and comprehensive digitalization of files, awards, and evidentiary material. These operational improvements lead to a faster, more cost-effective, and more efficient dispute resolution system for both citizens and businesses. Despite these clear advantages, it is prudent to consider some of the challenges inherent to this transformation. One potential drawback lies in the need for technical training for public officials and users, who would need to become familiar with the platform. Moreover, interoperability with existing administrative systems could present an initial hurdle. However, these limitations are entirely surmountable through the implementation of appropriate training policies, support from domain specialists, and the development of progressive institutional adoption protocols—thus ensuring a smooth and successful transition to a more modern and efficient justice model.

In the same vein, the decentralized nature of Kleros eliminates the single point of failure associated with centralized servers, which allows the system to remain operational even in the face of institutional or technological contingencies. This technical robustness is crucial to ensuring service continuity in high-volume dispute environments. Moreover, every procedural element in Kleros—such as evidence, pleadings, votes, and awards—is encrypted, stored in decentralized systems, and referenced via unique hashes. This model prevents unauthorized alterations to documents, ensures the authenticity of records, and enables public institutions to rely on digital evidence with full probative value, in accordance with Law No. 126-02 on Electronic Commerce, Documents, and Digital Signatures. Additionally, the use of digital signatures ensures the integrity and traceability of all procedural records.

On another front, it is important to identify the broader effects of implementing Kleros. Economically, it would reduce public expenditure on dispute management, allow public entities to better allocate their human and financial resources, and stimulate the development of the national legal-tech ecosystem. In the broader conflict-resolution system, it would represent a significant step toward the digital standardization of procedures, fostering hybrid models of public governance supported by distributed ledger technologies. The Dominican Republic would thus

move closer to a much more modern, transparent, and efficient administration of justice, aligned with international standards for digital justice.

Undoubtedly, arbitration through Kleros is not only more cost-effective but also safer and more verifiable thanks to its blockchain foundation. Awards issued by Kleros can be recognized under current law, granting them operational legal force. Its design ensures effective access, security, traceability, and impartiality, even in low-value disputes or those involving pseudonymous parties. Furthermore, the adoption of Kleros by institutions such as the Superintendency of Insurance (SIS), the National Institute for Consumer Rights Protection (PROCONSUMIDOR), and the Dominican Institute of Telecommunications (INDOTEL) would drive a structural transformation toward more accessible and efficient justice. Costs and delays would be reduced, citizen participation would be increased, and a new model of digital governance would emerge, grounded in algorithmic transparency and traceability.

It can thus be stated that the implementation of the Kleros Court represents a transformative solution for the insurance, consumer, and telecommunications sectors in the Dominican Republic. Kleros not only acts as a strategic partner in ensuring regulatory compliance with arbitration frameworks, but also plays a decisive role in reducing the procedural burden arising from disputes within these sectors. Its adoption reinforces the exercise of fundamental rights, including the right to defense, the right to be heard, and access to transparent, traceable, and enforceable justice. Simultaneously, it promotes adherence to procedural and substantive legal principles that enhance the credibility of the system. By enabling the issuance of binding decisions in record time, Kleros provides the system with a level of speed, security, and trust that surpasses current standards of traditional arbitration, marking a major advance in the efficiency and reliability of conflict resolution.

Kleros is fully compatible with the Dominican legal framework on arbitration, as it complies with the fundamental requirements set forth in the applicable legal system. Its operation does not violate any substantive or procedural provision and is supported by the legal recognition of digital means for the formation, processing, and evidencing of legal acts, as established in Law No. 126-02. Although its web3-law awards are self-executing, the trad-law model permits their homologation by national authorities within the classical legal system, thus endowing them with enforceability and procedural effect. This possibility solidifies the legal viability of Kleros as an auxiliary tool within traditional arbitration practice in the Dominican Republic, ensuring both formal legality and practical effectiveness of its decisions.

In conclusion, after a comprehensive analysis of the points presented, it is recommended that the strategic integration of the Kleros Court into the traditional mechanisms of Dominican justice not be interpreted as a rupture of the current

legal system, but rather as a functional and modernizing extension thereof. This synergy optimizes existing dispute resolution mechanisms by injecting efficiency and agility—without requiring radical structural reform. The adoption of Kleros, driven by the growing and sustained volume of disputes across multiple economic sectors, stands as a solution that is not only legally viable and admissible, but also socially necessary to strengthen access to more expeditious and reliable justice.

CONCLUSION

In light of the conceptual, legal, technical, and empirical development presented throughout this research, it can be asserted—firmly and with a high degree of certainty—that the application of the Kleros protocol as a decentralized dispute resolution ecosystem is not only legally viable within the current legal framework of the Dominican Republic, but also represents a highly functional and strategically beneficial solution for those economic sectors in the country that are currently overwhelmed by a significant volume of disputes. Far from contradicting the national legal order, Kleros emerges as a legitimate auxiliary tool that aligns with fundamental legal principles, reinforcing procedural safeguards and serving as a catalyst for efficiency, transparency, and accessibility in the administration of justice.

Beginning with the initial discussion in chapter one, a robust theoretical framework was established to understand Kleros as a legal-technological structure of decentralized justice. The conceptual analysis was developed across three planes—general, web3-law, and trad-law—which not only allowed for a clear definition of the legal nature of the protocol but also clarified its multifunctional and adaptive character. From a general perspective, Kleros was characterized as a next-generation online dispute resolution (ODR) platform, grounded in principles of algorithmic transparency and collective governance, disrupting the vertical logic of traditional arbitration. In the realm of decentralized economy law, Kleros was shown to embody the architecture of Lex Cryptographia, functioning as a codified instance of autonomous justice that replaces institutional coercion with economic incentives and cryptographic validation. Lastly, from the traditional legal perspective, it was argued that the protocol can serve as a complementary resolution mechanism in conventional proceedings, fully compatible with the principles of equity, due process, and party autonomy. This tripartite vision endowed the research with a comprehensive interpretive lens, transcending the boundaries between emerging legal paradigms and classical legal institutions, thereby laying the groundwork for a deep and coherent understanding of Kleros as a legal-technological phenomenon.

Following the conceptual analysis, the study proceeded to a detailed breakdown of the protocol's technological structure, examining the modular architecture upon which Kleros is built, with special attention to the roles of blockchain technology, smart contracts, smart contract platforms, the PNK token, decentralized autonomous organizations (DAOs), the open participation model via staking, and the incorporation of game theory principles—specifically Thomas Schelling's focal point logic—as a structural element to ensure consistent and fair verdicts. It was demonstrated that this architecture enables fully verifiable, intermediary-free, and manipulation-resistant arbitration proceedings, positioning Kleros as a technologically autonomous system capable of functioning in both on-chain settings and traditional institutional environments.

The final section of chapter one presented the two integration modalities of the protocol: integration via smart contract, oriented toward web3 environments, and integration via recognition of jurisdiction, aimed at traditional structures. The former was analyzed as a purely automated resolution modality, wherein disputes are settled through coded mechanisms that automatically execute the arbitral verdict on the blockchain. The latter was developed with particular emphasis given its applicability to the Dominican context, where the institutional structure remains anchored in hierarchical decision-making models. It was established that, through voluntary and controlled recognition of Kleros decisions by arbitrators, judges, administrative bodies, or private entities—without limitation—the protocol may be integrated as an auxiliary stage in the decision-making process without requiring major legal reforms or abandonment of state jurisdiction.

Chapter two transitioned into the Dominican legal framework, with the purpose of verifying the legal validity of smart contracts and, by extension, the legitimacy of using systems like Kleros. The first section explored the relationship between smart contracts and the Dominican Civil Code, establishing that the tool in question does not constitute an autonomous contractual category, but rather a technical means of executing agreements which, provided they meet the essential requirements of validity—consent, capacity, object, and cause—produce full legal effects. Analogous civil figures, such as conditional obligations and deposit contracts, were analyzed and found to offer structural foundations legitimizing the functional logic of smart contracts and automated escrow accounts. The second section focused on Law No. 126-02 on Electronic Commerce, Documents and Digital Signatures, identifying its provisions as solid regulatory support recognizing the validity, enforceability, evidentiary strength, and legal effectiveness of digital documents, electronic signatures, and data messages, thereby satisfying the formal requirements of both contract law and evidentiary procedural law. This section confirmed that the Dominican legal environment not only permits the existence of smart contracts, but also recognizes as legally valid the decisions rendered in decentralized digital environments, so long as due process guarantees are observed.

In its second axis, the chapter addressed the legal viability of the Kleros protocol in the Dominican Republic directly, demonstrating that both in the realm of private autonomy and within sector-specific regulation, there is ample legal space for its progressive implementation. In the context of decentralized economy, it was concluded that integration via smart contract is fully viable under existing laws such as Law No. 489-08 on Commercial Arbitration and the aforementioned Law No. 126-02. Within the traditional legal framework, the study redirected the reader to a focused normative analysis that concluded that integration via recognition of jurisdiction is likewise fully viable and represents the optimal entry point for incorporating Kleros into the Dominican legal ecosystem. This is because it allows Kleros to be used as a technical support instrument within already regulated

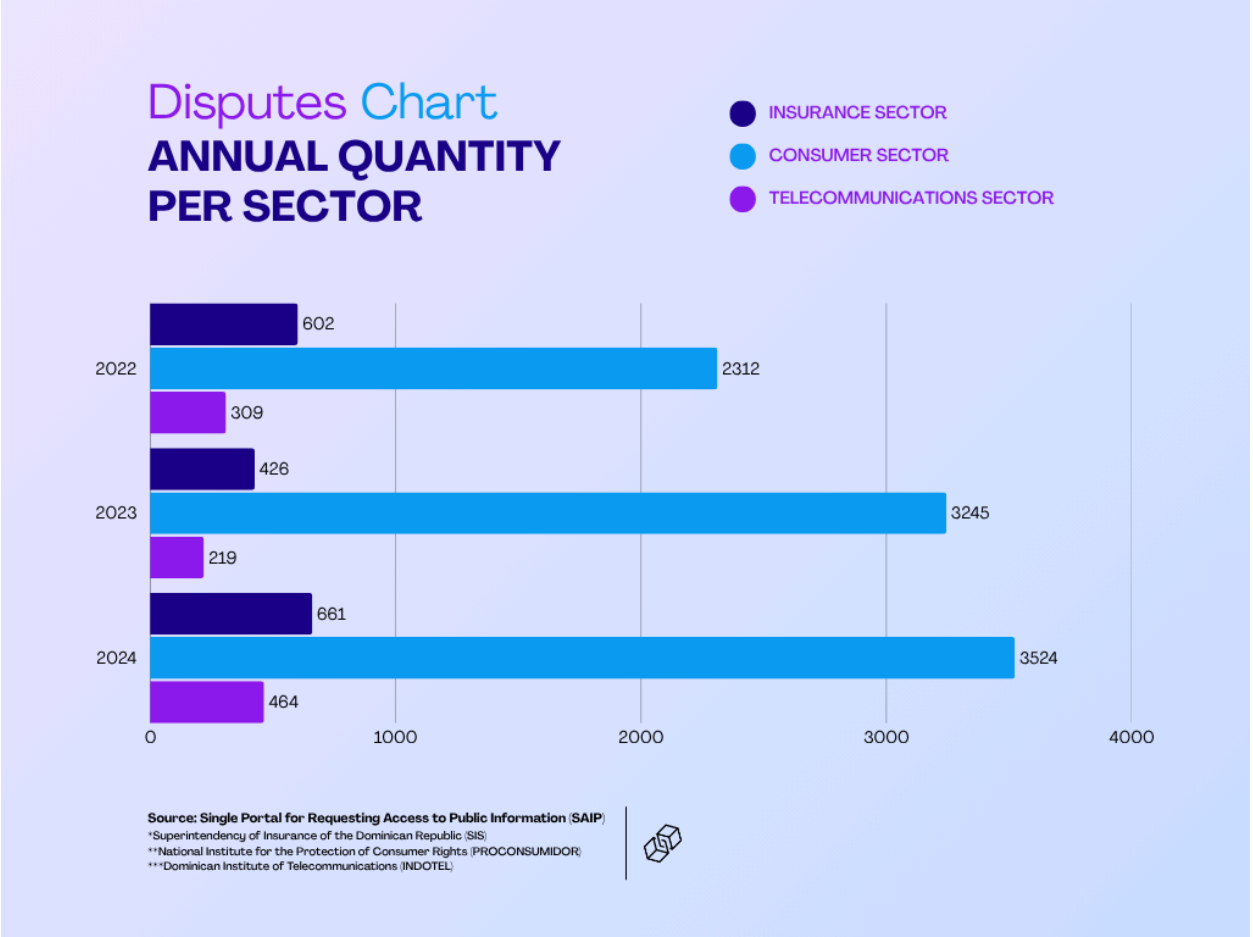
procedures, without displacing the authority or legal standards governing dispute resolution in the national legal system.

Chapter three constituted the empirical application of the previously conceptualized models. Its first three sections analyzed, separately, the insurance, consumer, and telecommunications sectors, offering for each one both trad-law and web3-law approaches, a statistical study demonstrating the volume of disputes and relevance of the model, and a normative analysis of their arbitration or administrative frameworks, culminating in a concrete proposal for incorporating the Kleros protocol. In the insurance sector, it was demonstrated that the Superintendency of Insurance of the Dominican Republic (SIS) could rely on Kleros as a substantive decision-making stage, channeling its verdicts into the administrative acts it issues in claims or arbitration processes. In the consumer sector, it was shown that the National Institute for the Protection of Consumer Rights (PROCONSUMIDOR), in accordance with the regulation governing its conciliation and arbitration system, may refer disputes to Kleros' decentralized juries and adopt their decisions as the basis for its final resolutions. In the telecommunications sector, the study demonstrated that the Dominican Institute of Telecommunications (INDOTEL) could optimize the operations of its collegiate bodies by incorporating Kleros as the substantive decision-maker, leaving those bodies with only the procedural formalization and final ratification. The chapter concluded by projecting the positive institutional impacts of implementing Kleros—an essential decision that would modernize the country's entire dispute resolution apparatus.

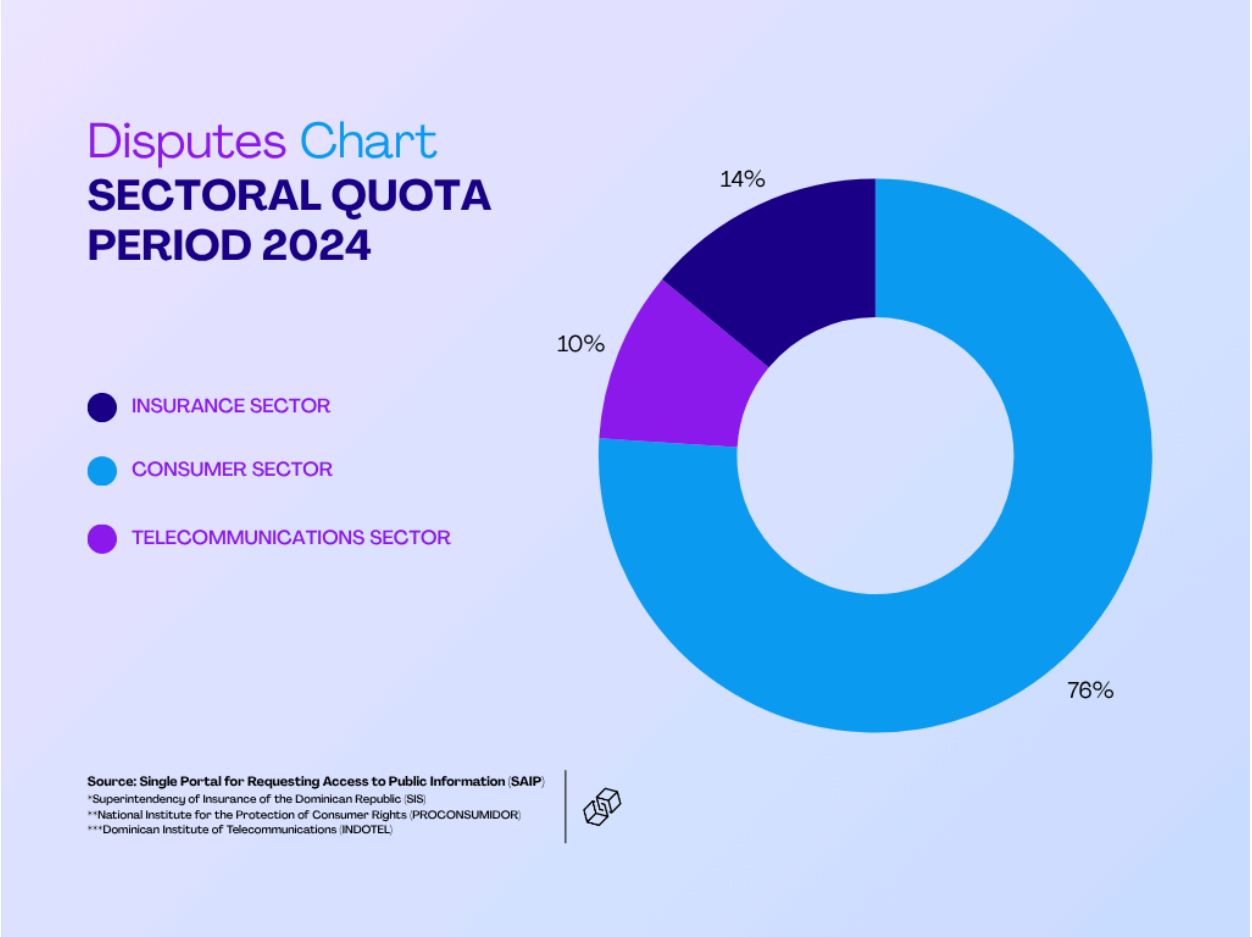
Ultimately, this research fully achieved its objectives by demonstrating that the Kleros protocol can be incorporated into the Dominican Republic's legal framework in a legitimate, efficient, and beneficial manner. The convergence of doctrinal foundations, national legal norms, technological architecture, and empirical data supports the claim that Kleros not only fits within the legal system, but can also play a leading role in the evolution of conflict resolution mechanisms in the country. Its implementation, far from constituting an institutional rupture, stands as a legitimate pathway for transforming Dominican justice from within, introducing an innovative tool that enhances impartiality, optimizes resources, empowers users, and democratizes access to fair decisions. At the intersection of law and technology, this research sets a precedent and outlines a realistic path for the gradual adoption of decentralized justice in the Dominican Republic of the 21st century.

APPENDICES

[APPENDIX I]



[APPENDIX II]


Disputes Chart
SECTORAL QUOTA
PERIOD 2024
INSURANCE SECTOR
CONSUMER SECTOR
TELECOMMUNICATIONS SECTOR
14%
10%
76%
Source: Single Portal for Requesting Access to Public Information (SAIP)
*Superintendency of Insurance of the Dominican Republic (SIS)
**National Institute for the Protection of Consumer Rights (PROCONSUMIDOR)
***Dominican Institute of Telecommunications (INDOTEL)

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