



KLEROS

# ANNUAL REPORT 2024



# Coopérative Kleros

## Annual Report 2024

The Coopérative Kleros is a Société Coopérative d'Intérêt Collectif par action simplifiée, with a variable capital of 3,675.10€.

The company was incorporated on August 10th 2018, for 99 years, by the Registre du Commerce et des Sociétés of Paris under the registration number: 841 671 902.

The Head Office is located at 2 bis Rue Dupont de L'Eure, 75020 Paris.

The closing of the first financial period was on December 31, 2019.

The second financial period went from January 1 2020, to December 31 2020.

The third financial period went from January 1 2021 to December 31 2021.

The fourth financial period was from January 1 2022 to December 31 2022.

The fifth financial period was from January 1 2023 to December 31 2023.

**Occupation:** create, develop and promote a computerized and decentralized dispute resolution protocol using blockchain technology.

### PRESIDENT

*Federico AST*, born on April 18th 1981 in Buenos Aires, of Argentine nationality, residing at 1444 Echeverria, Buenos Aires, ARGENTINA.

### PRESIDENT OF THE SUPERVISORY BOARD

*LOGICAL PARADISE LDA*, located at Avenida Visconde de Valmor 73, R/C, 1050-239 Lisboa, PORTUGAL and directed by *Clément LESAEGE*, born on March 4th 1992 in Villeneuve D'Ascq, of French nationality, and residing at Avenida Visconde de Valmor 73, R/C, 1050-239, Lisboa, PORTUGAL.

### VICE PRESIDENT OF THE SUPERVISORY BOARD

*Ferit TUNÇER*, born on March 1st, 1992, of Turkish nationality, residing at Bostanlı Mahallesi, 1735. Sokak - Karşıyaka / İzmir, Turkey.



# Significant Events of the Past Financial Year

## April 2023

The Cooperative hosted a [demo day](#) for the third batch of the Kleros Incubator, showcasing the projects TheBadge and TalentLayer.

## May 2023

The Cooperative launched Veal, a new message bridging protocol designed as part of the development tasks for Kleros 2.0.

## June 2023

The Cooperative introduced the "Kleros Mediation Bridge," a vision and methodology for using Kleros as part of a mediation procedure.

Members of the team participated in the "[Blockchain Constitutionalism](#)" conference held at the European University Institute, as part of our work for drafting constitutions for DAOs.

## July 2023

The team attended the Ethereum Paris conference, where members held various talks and events.



*“The History of Politics and Lessons for DAO Governance”. A presentation by the President of the Cooperative in the main stage of the Ethereum Paris conference. July 2023.*

## August 2023

The Cooperative launched the [Kleros 2.0 testnet](#), a milestone that represents the culmination of years of work and research.

The Cooperative introduced the [Kleros Founder's Bootcamp](#), a new iteration of the Kleros Incubator.

## September 2023

The Cooperative launched Kleros Scout, a product based on Kleros curation technology allowing users to safely interact with blockchain contracts.

## October 2023

[“Technology and the Future of Online Dispute Resolution Platforms for Consumer Protection Agencies”](#), a report by the United Nations Conference on Trade and Development (UNCTAD) showcased Kleros as one of the key technologies for



dispute resolution in consumer claims.

"[Decentralized justice: state of the art, recurring criticisms and next-generation research topics](#)", an article authored by the research team reviewing the research done since the early days of Kleros, was published in the Frontiers in Blockchain journal.

## November 2023

The Cooperative welcomed participants to the 7th batch of the Kleros Fellowship.

## December 2023

The Cooperative hosted a [joint webinar](#) with the World Intellectual Property Organization as part of a collaboration to research dispute resolution use cases in the e-sports industry.

## January 2024

The government of Mexico enacted the [General Law of Alternative Dispute Resolution Mechanisms](#), the first national legislation ever to recognize decentralized justice as a legally valid dispute resolution system.

### Sección Tercera

#### De la Solución de Controversias en Línea

**Artículo 86.** La Solución de Controversias en Línea se regirá por lo dispuesto en la presente Sección. Serán aplicables las definiciones previstas en esta Ley y en el Código Nacional de Procedimientos Civiles y Familiares.

**Artículo 87.** Para los efectos de la presente Sección, se entenderá por:

- I. **Colaboración abierta.** Modelo en el que una persona física o moral, pública o privada solicita, a través de una convocatoria pública, la colaboración, aportes o servicios de un grupo diverso y amplio de personas, personalmente o a través de plataformas en línea;
- II. **Contrato inteligente.** Código digital o informático que se ejecuta en la parte superior de una cadena de bloques que contiene un conjunto de reglas bajo las cuales las partes acuerdan interactuar entre sí. Si se cumplen las reglas predefinidas, el acuerdo se ejecuta automáticamente. Un contrato inteligente es capaz de facilitar, ejecutar y hacer cumplir la negociación o la ejecución de un contrato usando la tecnología de cadena de bloques;
- III. **Sistemas automatizados.** Programas informáticos diseñados para realizar tareas que requieren de inteligencia artificial y que utilizan técnicas como aprendizaje automático, procesamiento de datos, procesamiento de lenguaje natural, algoritmos y redes neuronales artificiales, que para efectos de esta Ley se enfocan en la Solución de Controversias en Línea, y
- IV. **Sistemas de justicia descentralizada.** Protocolo que se basa en la participación directa de la comunidad a través de esquemas de incentivos, colaboración abierta, votación descentralizada y elementos de automatización como contratos inteligentes y cadena de bloques, para la Solución de Controversias en Línea.

*A section of the General Law of Alternative Dispute Resolution Mechanisms mentioning decentralized justice systems which are defined as protocols “based on the direct participation of the community through incentive schemes, open collaboration, decentralized voting, and automation elements such as smart contracts and blockchain, for the Resolution of Online Disputes.”*





A new deployment of Kleros 2.0 was done in the Sepolia testnet. The new version included several improvements, such as a module for creating disputes from the court interface, private voting in the general court, bug fixes for a smoother user experience, and the Hermes bot for Telegram notifications.

## February 2024

The President of the Cooperative participated in the World Governments Summit, an invite-only event organized by the Prime Minister's Office of Dubai. Kleros was presented in front of an audience of heads of state and high level government officials.

## March 2024

Cooperative partner Rob Dean released the [Harmony mediation bot](#), a ChatGPT model combining mediation and Kleros dispute resolution in a streamlined process.

The Cooperative deployed Kleros Neo on the Arbitrum mainnet.

## April 2024

The Cooperative co-hosted the “Blockchain Governance Summit” at Stanford Law School in collaboration with the Stanford Blockchain Club.



*The Stanford Blockchain Governance Summit co-hosted between the Cooperative and the Stanford Blockchain Club. April, 2023.*



## May 2024

The Cooperative was invited to participate in a training session for judges and justice system officials at the prestigious Ecole Nationale de la Magistrature in France.

The Cooperative co-hosted the “Dispute Resolution in the eSports Industry” conference, in partnership with the World Intellectual Property Organization and the University of Neuchâtel.



## June 2024

A pilot started in the municipality of General Lavalle in the Argentinian province of Mendoza for dispute resolution in neighbor conflicts.



# Activities of the Cooperative

The Coopérative Kleros conducts four main activities for the fulfillment of its mission: core protocol development, integration development, research, and marketing and communications.

- Core protocol development activities include the definition of the Kleros protocol architecture, leading security procedures and developing smart contracts to improve the security and efficiency of the protocol.
- Integration development activities include building integrations with partners for fostering the adoption of the Kleros protocol, development of user interfaces and other activities oriented at assisting partners to adopt Kleros for escrow, list curation and oracle use cases.
- Research activities include cryptoeconomic research with the goal of improving security and efficiency of the protocol, as well as enabling new use cases.
- Marketing and communications activities include crafting and broadcasting Kleros messages to relevant audiences, as well as conducting business development in order to foster adoption of the platform and increase the number of partners and users.





# Members of the Cooperative

As of May 31st, 2024 there are a total of 62 members of the Coopérative Kleros divided into three colleges: Founders, Producers and Users.

	TOTAL MEMBERS	NUMBER OF SHARES	VALUE
<b>FOUNDER</b>	<b>2</b>		
Federico AST		5	€250.00
Logical Paradise represented by Clément LESAEGE		6	€300.00
<b>PRODUCER</b>	<b>5</b>		
Laurence ZHANG		1	€50.00
Plinio BRAGA PINTO		1	€50.00
Annabelle VASSALLO		1	€50.00
Lagoon Digital Limited, represented by Jean-Baptiste Cebe		1	€50.00
Guangmian KUNG		1	€50.00
<b>USER</b>	<b>55</b>		
David ABAD		1	€50.00
Nicolas WAGNER		5	€250.00
Romina KAVCIC		1	€50.00
Mayank JAIN		1	€50.00
Lola GUÉRIN		1	€50.00
Samuel VITELLO		1	€75.10
Enrique PIQUERAS		1	€50.00
Pierre-Arthur RIBEIRO		1	€50.00
Alexander STACHNIEWICZ		1	€50.00
Dmitry NAROZHNY		1	€50.00
Lucas ACEBEDO		1	€50.00
William HARBORNE		1	€50.00
Marco MAUER		1	€50.00
Ivan de LASTOURS		1	€50.00
GENESIS RE represented by Michal STEPHANOW MARS ROBERTSON		1	€50.00
Damjan MALBASIC		1	€50.00
Abeer SHARMA		1	€50.00
Pablo EUILLADES		1	€50.00
Mariano ZVAIGZNINS		1	€50.00
Democracy Earth foundation represented Santiago Siri		1	€50.00
Mauro Viotti		1	€50.00
Agustin Dario Bresso		1	€50.00
Shawtaroh Granzier-Nakajima		1	€50.00
Anatoly Karlin		1	€50.00
Santiago Algozino		1	€50.00
Stuart James JACKSON		1	€50.00
Jimmy RAGOSA		1	€50.00
Henrique BARCELOS		1	€50.00



	TOTAL MEMBERS	NUMBER OF SHARES	VALUE
Ferit TUNÇER		1	€50.00
Matheus FARIA DE ALENCAR		1	€50.00
8bit Labs OÜ represented by Shaleen JAIN		1	€50.00
Jacob MacDonald		1	€50.00
Muhammad		1	€50.00
Marcos Pernas		1	€50.00
Akhil Swaminathan		1	€50.00
Alexandre Perez		1	€50.00
Harmeet Singh		1	€50.00
Aleix Cerdà Cucó		1	€50.00
Marino Sanchez		1	€50.00
Karen Sitjar		1	€50.00
Jamiliya Kamalova		1	€50.00
Divyang Chauhan		1	€50.00
Vincent Dangel		1	€50.00
Francisco Canela		1	€50.00
Jean Putzel		1	€50.00
Facundo Trotz		1	€50.00
Martin Moguillansky		1	€50.00
Ningning Fidel		1	€50.00
Juan Samitier		1	€50.00
César Scacchi		1	€50.00
Leonardo Eulliades		1	€50.00
Robert Dean		1	€50.00
Pablo Huertas		1	€50.00
	62	75	€3,675.10



# Administrative News

After months of personal issues that significantly affected her work performance, Mme. Annabelle Vasallo, the Office Manager of the Cooperative, resigned from her position.

The role is now held by M. Juan Samitier, a certified public accountant, supported by M. Vincent Dangel.

The initial months after Mme. Vasallo's resignation were dedicated to a reorganization of the administrative functions, addressing delays, and rectifying accounting discrepancies. Some changes were made in the categorization of expenses compared to previous years, with all modifications detailed in the accounts section.

Instances of non-compliance with accounting practice were identified (eg., late payments in social contributions and problems with the presentation of annual accounting reports) and are currently being addressed by the administration team in collaboration with the Cooperative external accounting support.

In addition, the new administration team is enhancing and streamlining processes in payroll, accounting, and staff management.

According to French law, cooperative companies must undergo an external audit after their fifth year of operation. This audit is intended to verify that the company is being managed in compliance with French cooperative law.

The administration team has conducted a search for auditors and has decided to propose the firm Tonnon et Associés for this task. Our search found that, unlike most of the firms authorized as cooperative auditors, Tonnon et Associés has a thorough understanding of the intricacies of technology companies and blockchain. The proposed cost of the audit is €5,000 plus tax.

The Cooperative is currently involved in judicial proceedings against insurance protocol Unslashed. In this protocol, users can deposit digital assets to insure on-chain disputes in exchange for a premium paid by users that wish to acquire an insurance.

The Cooperative had a deposit of digital assets from its treasury as a way to support this partner that was integrated with Kleros.

On 29 November 2022, a vote by the Unslashed DAO resulted in the blocking of



assets held in the protocol. All users who have deposited assets in the smart contract are therefore blocked. The Cooperative has an exposure of about 317 ETH in digital assets. We have joined a legal action alongside other users to have the Unslashed team to unlock the funds and return them to their rightful owners.

**The Kleros Cooperative accounting team:**

Christophe LECLAIR, Certified Accountant

Anaïs VIOLLEAU, Accounting Advisor

**Amarris Contact Paris**

WeWork Paris Rive Gauche  
198, avenue de France  
75013 Paris

**☎** +33 (0)1 83 75 75 60



# Kleros Cooperative Expenses (from 01/01/2023 to 31/12/2023)<sup>1</sup>

	Cumulative until 31-12-2022	2023	Cumulative until 31-12-2023
<b>Total Wages</b>	<b>€3,551,157.12</b>	<b>€1,275,516.08</b>	<b>€4,826,673.20</b>
Development	€2,346,172.21	€438,742.00	€2,784,914.21
Business Development	€0.00	€335,214.00	€335,214.00
Research	€374,438.20	€96,476.18	€470,914.38
Communication	€260,956.38	€133,280.81	€394,237.19
Management & Operations	€569,590.33	€271,803.09	€841,393.42
<b>Total cumulative professional fees &amp; social costs</b>	<b>€196,109.61</b>	<b>€54,079.18</b>	<b>€250,188.79</b>
Accountant, Lawyer, Bank & Social Contribution	€196,109.61	€54,079.18	€250,188.79
<b>Total Cumulative Taxes</b>	<b>€15,252.40</b>	<b>€0,00</b>	<b>€15,252.40</b>
Taxes	€15,252.40	€0,00	€15,252.40
<b>Total Cumulative Office Expenses</b>	<b>€131,777.51</b>	<b>€45,079.93</b>	<b>€176,857.44</b>
Web services, Conference Calls, Office Rent, Post & Other Office Supplies	€131,777.51	€45,079.93	€176,857.44
<b>Total Cumulative Operating Expenses</b>	<b>€4,026,729.4</b>	<b>€155,322.32</b>	<b>€4,182,051.72</b>
Marketing/Awareness/Travel	€454,041.76	€49,278.66	€503,320.42
Communication/Advertisement/SEO	€2,121,240.41	€0,00	€2,121,240.41
Punctual Legal Fees	€26,194.65	€0,00	€26,194.65
Development (Bounties, Website, Audits)	€585,802.96	€100,877.11	€686,680.07
Other Marketing & Communications (Recruitment, Translation, Reward Programs)	€839,449.62	€5,166.55	€844,616.17
PNK Expenses	€0,00	€630,849.65	€630,849.65
<b>TOTAL</b>	<b>€7,921,026.04</b>	<b>€2,160,847.16</b>	<b>€9,451,023.55</b>

<sup>1</sup> The Communication/Advertisement/SEO budget for 2023 is €0 due to a change in the accounting method for PNK allocated to the juror incentive program. In previous years, PNK paid to jurors as part of the juror incentive program was accounted for as a communication expense of the Cooperative. However, this changed after 2024. Following the passing of KIP-66, PNK distributed is now minted by the protocol.





# Token Allocation (as of 01/03/2023)

	Subtotal Supply	PNK Allocated till 2022	PNK Remaining by 2023	PNK Spent 2023	PNK Remaining by 2024
<b>Token Sales and Juror Incentive Programs</b>	<b>424,626,704</b>		<b>93,964,033</b>		<b>10,000,000</b>
PNK Sold in the First Token Sale		160,000,000		0,00	
PNK Sold OTC		20,619,871		1,126,127	
PNK Sold in the Second Token Sale		150,000,000		0,00	
Juror & Curate Incentive Program		42,800,000		13,800,000	
Future sales + juror or curate incentives program		0,00		0,00	
Rebalance					-69,037,906
<b>Team Pool</b>	<b>180,000,000</b>		<b>0,00</b>		<b>0,00</b>
Total Used in Team Allocations		180,000,000		0,00	
<b>Coopérative Reserve</b>	<b>120,000,000</b>		<b>23,693,092</b>		<b>2,136,794</b>
Liquidity Provided to Exchanges		63,352,874		90,000,000	
PNK Paid to Team Members as Contractor Fees		15,745,651		514,204	
PNK Paid as Bounty Rewards		16,849,383		80,000	
Marketing Programs		359,000		0,00	
Rebalance					-69,037,906
<b>Airdrop Pool</b>	<b>40,000,000</b>		<b>16,503,000</b>		<b>16,503,000</b>
PNK Airdropped		23,497,522		0,00	
Future PNK Airdropped		0,00		0,00	
<b>TOTAL SUPPLY</b>	<b>764,626,704</b>	<b>764,626,704</b>	<b>764,626,704</b>	<b>764,626,704</b>	<b>764,626,704</b>

A rebalancing of PNK allocation was conducted between the "Token Sale & Juror Incentive Programs" and the "Cooperative Reserve," involving approximately 69,037,906 PNK. The initial forecasts for token allocations were established to provide predictability for token buyers in the context of the public sale conducted between May and July 2018. However, these forecasts have now become outdated, particularly in the category of Token Sales and Juror Incentive Programs.

On one hand, the Cooperative has no plans to conduct additional token sales so there is no need to hold tokens in reserve for that event. On the other hand, following the implementation of KIP-66 for the Long-term Juror Incentive Program voted by the Kleros DAO, from 2024 onwards, PNK allocated to the juror incentive program will be minted by the DAO under the conditions specified by the proposal that was voted by the token holders.



Consequently, the PNK tokens in the Token Sale & Juror Incentive category were transferred to the Cooperative Reserve where they can be used for providing incentives for team members and for paying bounties.

At the beginning of 2024, the amount of PNK held by the Cooperative was diminishing which affected the ability of the Cooperative to provide incentives to team members and to reward different community activities. In order to increase the amount of PNK, between April 9 and April 17, the Cooperative executed a buyback operation on the open market, purchasing 20,000,000 PNK at an average price of \$0.028 per token.



# Social Impact of the Coopérative

Coopérative Kleros is a mission-driven company with a positive social impact in a number of aspects.

## Justice Inclusion

The Cooperative's mission is to contribute to the development of a protocol for secure, affordable and fast dispute resolution. The successful completion of the project has the potential to greatly increase access to justice opportunities for people around the world.

## Open Source Technology Development

The Kleros protocol is open source and free for everyone. The Cooperative holds no patents on any of its code or other developments, which are freely accessible via [Kleros Github](#).

## Open Research

All research activities conducted by the Cooperative are published openly and free for anyone to use.

## Education

The Cooperative also engages in the important activity of educating the public. Different educational activities are conducted in partnership with academic and business organizations to foster awareness about decentralized justice.



## Research Activities

As usual, the Cooperative's research team maintained a vibrant and active research effort in cryptoeconomics and law, while also participating in conferences to foster the creation of an academic community in decentralized justice.

- Members of the Cooperative's research team published the article "[Decentralized justice: state of the art, Recurring Criticisms and Next Generation Research Topics](#)" at Frontiers in Blockchain. The paper is a compilation of the Cooperative experience in building the Kleros protocol, a survey of third party research on decentralized justice and future paths for research and development.
- Research continued on the incorporation of [soulbound tokens](#) (SBTs) into the Kleros protocol, particularly in the juror selection process. Introduced by Weyl, Ohlhaber, and Buterin (2022), SBTs aim to establish social identity information about blockchain users. Current research by the Cooperative is focused on the security models of SBT-utilizing mechanisms and their integration with financial incentives in the Kleros protocol.
- The Cooperative's research on griefing, a concept introduced by Vitalik Buterin as a measure of sabotage effectiveness, culminated in the publication of "[An Analysis of Grievs and Griefing Factors](#)" by William George in Frontiers in Blockchain, volume 6 (2023). The paper examines how griefing can alter system equilibria and the resilience of the Kleros protocol to such attacks.
- A publication on voting and incentives compatible with Schelling-point based systems by William George, titled "[Strategic Behaviour and Manipulation Resistance in Peer-to-Peer, Crowdsourced Information Gathering](#)," appeared in Mathematical Social Sciences, volume 124 (2023). The paper explores the constraints of these systems in non-binary outcomes and possible trade-offs.
- The research team explored various voting and incentive systems and their integration into dispute kits for Kleros 2.0, utilizing the new version of the court modular architecture. This included dispute kits for numerical output selection and options with differing dispute win rates.
- Economic experiments were conducted to test the impact of voting and incentive systems on participant responses to attacks and the effectiveness of such attacks. This was published in the blog article "[Voting and Incentive Systems in Kleros Cases with Numeric Outcomes](#)".



- From October 2023 to May 2024, our PhD researcher Yann Aouidef was a [visiting scholar at the CodeX Center for Legal Informatics at Stanford Law School](#). During his stay, he conducted research on law and economics in the context of Kleros.
- The Cooperative hosted the [Stanford Blockchain Governance Summit](#) at Stanford Law School in collaboration with the Stanford Blockchain Club which gathered leading academics and practitioners in blockchain governance.
- In autumn 2023, our PhD researcher Jamilya Kamalova participated in a [research exchange at the Hong Kong University](#). She was also accepted into the Adam Smith fellowship program at the Mercatus Center at George Mason University.
- Ms. Kamalova had her article "[Exploring Blockchain-Based Alternative Dispute Resolution: Limitations of Traditional Methods and Prospects for Further Research](#)" accepted for publication in the prestigious Harvard Negotiation Law Review. Her article "[Proof of Humanity: ethnographic research of a 'democratic' DAO](#)" co-authored with Tara Merk, Sofia Cossar and Primavera de Filippi was published by the European University Institute.
- Members of the Cooperative participated in different academic activities including the [DAO Harvard Conference](#) at Harvard Kennedy School of Government, "[Blockchain constitutionalism: the role of legitimacy in polycentric systems](#)" at the European University Institute, the [Cambridge Arbitration Day](#) at the University of Cambridge, as well as other activities at [Paris 2 Panthéon-Assas](#), Miami University, [Ohio State University](#), [Boston University](#), [Hong Kong University](#), the [National University of Singapore](#), [NOVA School of Science and Technology](#), [Universidad Austral](#) and [Universidad Torcuato Di Tella](#) among others.





*Federico Ast and Jamilya Kamalova at the DAO Harvard Conference. March 2023.*



*Federico Ast, Clément Lesaege and Jamilya Kamalova at the “Blockchain constitutionalism: the role of legitimacy in polycentric systems” conference at the European University Institute.*



- The 7th cohort of the Kleros Fellowship of Justice was selected. Participants are researching various topics, including the application of decentralized justice to environmental conflicts, examining blockchain-based dispute resolution in jurisdictions like Brazil, addressing AI-art copyright disputes, and investigating blockchain-based resolutions for scientific misconduct in peer-reviewed journals, among others.
- Kleros has been mentioned in numerous academic papers published across various prestigious outlets.<sup>2</sup>
- The LLM thesis ["The New York Convention on the Enforcement of Decentralized Justice Systems' Decisions: a Perspective from the Evolutionary Interpretation of Treaties"](#) by David Molina Coello won the second place of the 2022-2023 "New Voices in International Arbitration" Young ITA Writing Competition of the Institute for Transnational Arbitration.
- The Cooperative has reached an agreement with the computer science department of the University of Oxford to co-sponsor a PhD researcher

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<sup>2</sup> ["Applying blockchain to the modern legal system: Kleros as a decentralised dispute resolution system"](#) at the International Cybersecurity Law Review (Springer), ["Backstop Layer 2: A forkable L2 to secure oracles and arbitration systems"](#), ["New Forms of Dispute Resolution in the Russian Federation as a Reflection of Innovation in Law Enforcement: Platform Justice"](#) (Springer), ["TokenDoc: Source Authentication With a Hybrid Approach of Smart Contract and RNN-Based Models With AES Encryption"](#) (IEEE Transactions on Engineering Management), ["Picking the Proper Technological Tool for Problem-Solving in Arbitration"](#) by Amy Schmitz, ["La online dispute resolution, acceso a la justicia y protección de los derechos del consumidor en el comercio electrónico: el caso chileno"](#) IDP. Revista de Internet, Derecho y Política, ["Legal Intervention in the Decentralised Era: A Sceptical Analysis of ADR's Feasibility in Resolving Blockchain Disputes"](#) Asian Dispute Review, ["Revolution of Smart Contracts in Arbitration: An Analysis"](#) Vol. 6, No. 1 Int'l J.L. Mgmt. & Human. 813 (2023), ["An Efficient and Decentralized Blockchain-based Commercial Alternative"](#) 2023 IEEE 20th International Conference on Software Architecture Companion (ICSA-C), ["Safeguarding Physical Sneaker Sale Through a Decentralized Medium"](#), ["Arbitrating in a Modern World: Challenges and Opportunities"](#) (Arbitration: The International Journal of Arbitration, Mediation and Dispute Management), ["Onto the light side of sharing: Using the force of blockchain"](#) Journal of Business Research Volume 175, March 2024, 114507, ["Blockchain Arbitration for NFT-Related Disputes"](#), ["Blockchain Constitutionalism: the Role of Legitimacy in Polycentric Systems"](#) from the Publications Office of the European Union, ["The Use of Knowledge in a Digital Economy"](#) by Jason Potts. ["Unpacking How Decentralized Autonomous Organizations \(DAOs\) Work in Practice"](#), ["Project bank account \(PBA\) decentralised application for the construction industry"](#), ["Onto the light side of sharing: Using the force of blockchain"](#) - Journal of Business Research, ["STAKESURE: Proof of Stake Mechanisms with Strong Cryptoeconomic Safety"](#), ["The New York Convention on the Enforcement of Decentralized Justice Systems' Decisions: a Perspective from the Evolutionary Interpretation of Treaties"](#), ["Global Class Actions: Towards a Blockchain-Based Dispute Resolution System"](#), Journal of Consumer Policy, November 2023.





who will conduct their dissertation on mechanism design for decentralized justice. The recruitment process for the student has already begun, and they will conduct their research under the supervision of [Dr. Paul Goldberg](#), director of the MSc in Mathematics and the Foundations of Computer Science and a world leading expert in computational complexity, machine learning, game-theoretic models for data and the decentralized computation of economic equilibria.



*Dr. William George presenting at the Cambridge Arbitration Day. April 2024.*

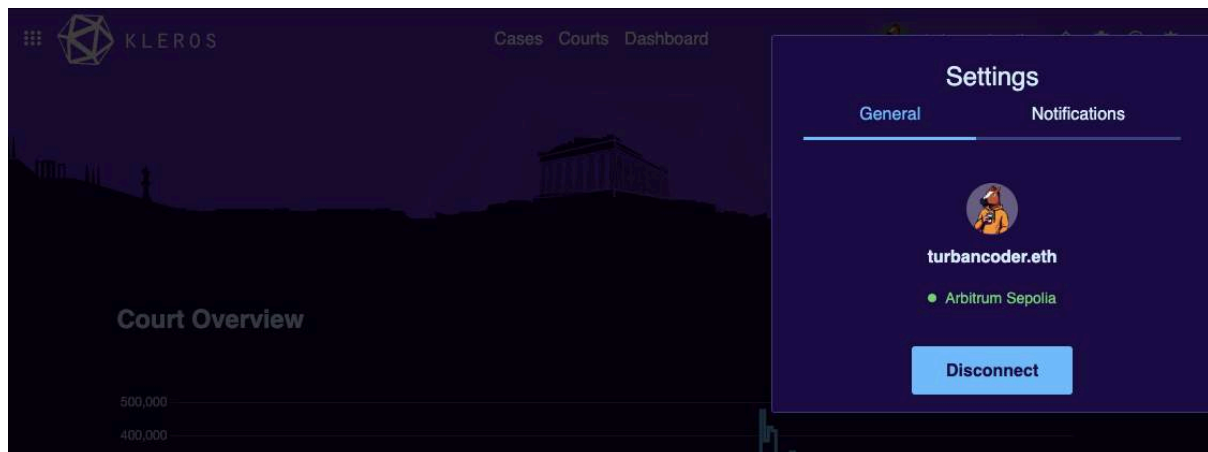


# Development Activities

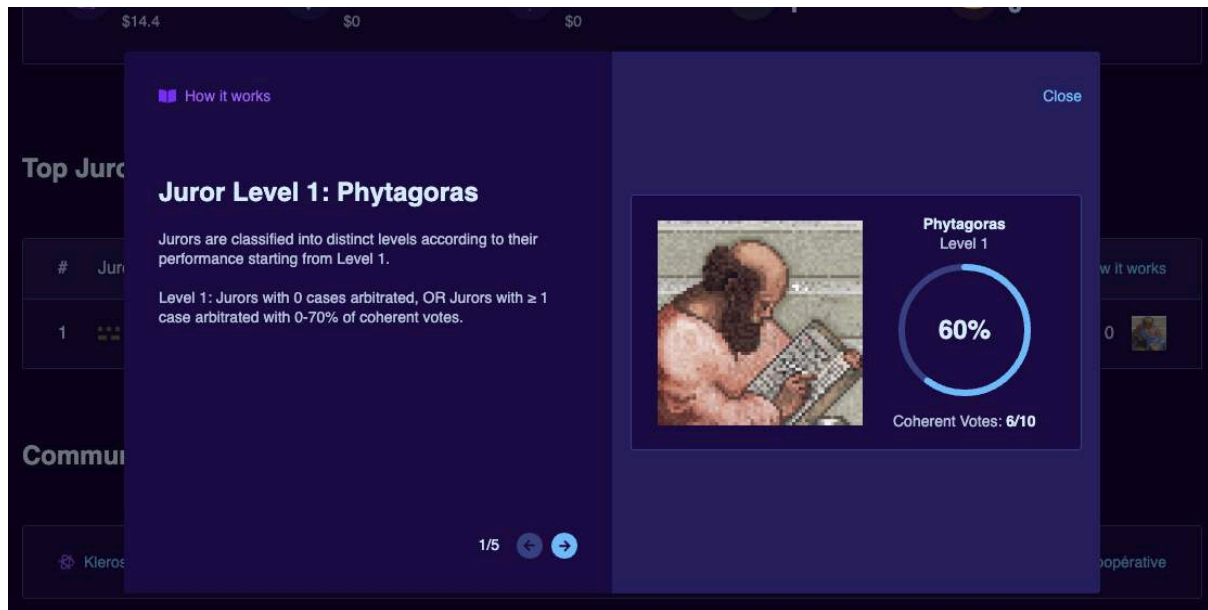
## Kleros 2.0

[Kleros 2.0](#) is the most important development project currently undertaken by the Cooperative. Its completion will allow for a more affordable and flexible solution to address a larger number of cases. Throughout the year, the project maintained strong momentum with technical enhancements, feature development, and community engagement initiatives.

- The core smart contracts of the protocol were made upgradable, making it easier to fix unforeseen issues. The upgradability mechanism can be disabled once the contracts are more battle-tested. The sortition mechanism is now relying on a [VRF-based random number generation](#), which is regarded as a highly secure and fair way of drawing random jurors.
- Considerable efforts were devoted to refining the user interface and experience, including updates to the stake confirmation processes and the addition of new pages, such as the “Buy PNK” page. These improvements aim to make the platform more accessible and informative for users.



*An interface of Kleros 2.0 showing the avatar and ENS name of the connected user.*



*A number of interactive mini-guides have been inserted in key locations of the interface to increase the user-friendliness of the protocol.*

- The development team implemented a number of new features and functionalities. The implementation of the Sign-In-With-Ethereum ([EIP-4361](#)) allows users to authenticate with the backend services in a standardized way.
- The implementation of cross-chain swaps offers the users a friendly way of onboarding to the court on Arbitrum as they can bridge and swap the tokens they have for PNK without leaving the application.
- The [commit-reveal scheme present in Kleros 1.0](#), which allows the jurors to hide their vote, has been migrated to Kleros 2.0 and enabled by default.
- The [Dispute Resolver](#) app, which allows for the easy creation of disputes has been integrated directly into the Kleros 2.0 to provide a more convenient way of creating cases.





KLEROS

Coopérative

2 bis Rue Dupont de L'Eure, 75020 Paris



The screenshot displays the Kleros web interface. At the top, the navigation bar includes 'Home', 'Cases', 'Courts', 'Dashboard', and 'Get PNR'. A yellow arrow points to a 'Create a Case' button in the 'Court Overview' section. Below this, the 'Voting options' section is shown, featuring a sidebar with steps: 'Initiating', 'Parameters', 'Policy', and 'Preview'. The main area contains a 'Question' field with the text: 'Was the penalty awarded to West Germany in the 1986 World Cup Final against Argentina justified based on'. Below the question, there are three voting options, each with a description: 'Penalty' (Bewski's challenge was a foul warranting a penalty), 'No Penalty' (The incident did not constitute a foul deserving of a penalty), and 'Inconclusive' (The incident is too ambiguous for a clear decision, a more cautious interpretat). At the bottom, there is a 'Return' button and a 'Next' button.

**Court Overview**

**Create a Case**

**Voting options**

**Question**

Was the penalty awarded to West Germany in the 1986 World Cup Final against Argentina justified based on

Type the question jurors will see when voting.

**Voting Option 1** **Option Description (Optional)**

Penalty Bewski's challenge was a foul warranting a penalty

**Voting Option 2** **Option Description (Optional)**

No Penalty The incident did not constitute a foul deserving of a penalty

**Voting Option 3** **Option Description (Optional)**

Inconclusive The incident is too ambiguous for a clear decision, a more cautious interpretat

**Add the question and options jurors will see when voting**  
Make it clear and objective.

**Return** **Next**

**Case #125 submitted**

Your case was successfully submitted to Kleros. A pool of jurors will be drawn to evaluate the case and vote at most April 29, 2024.

Now, it's time to submit evidence to support the case.

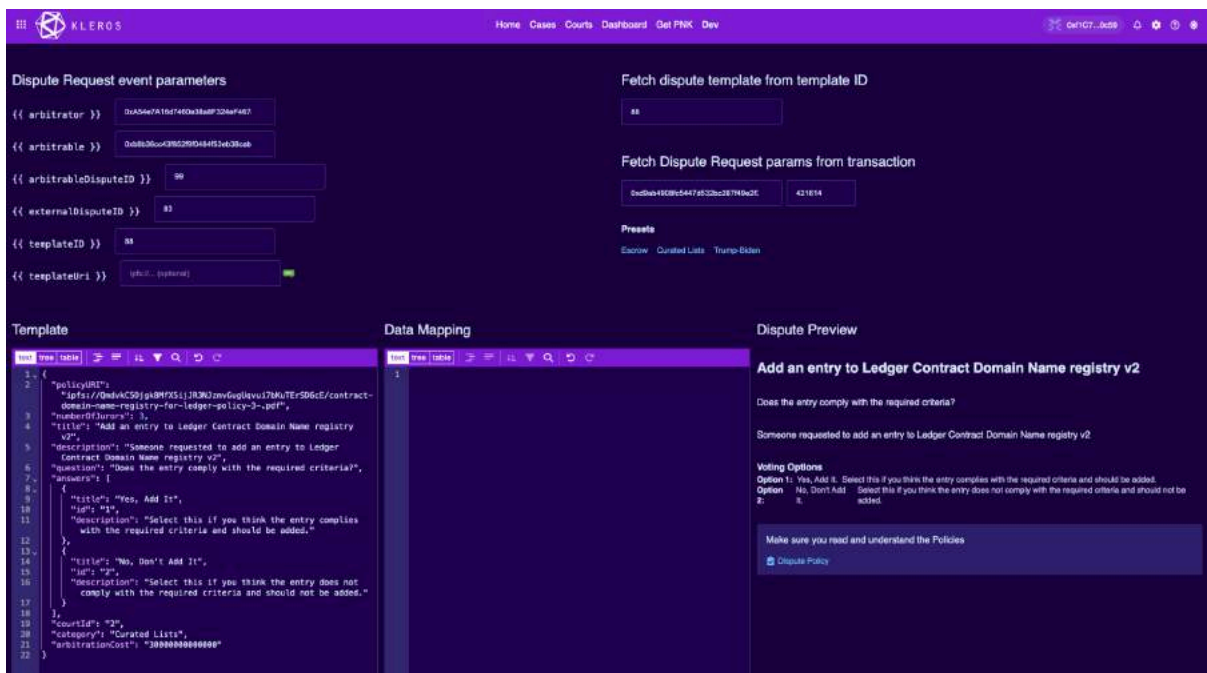
**Check the case**

- A variation of Kleros 2.0 nicknamed “the University Court” has been created for educational purposes, allowing an instructor to draw attendees to participate in a dispute.



*A workshop conducted in the judiciary of the province of Mendoza, Argentina. The first time the university court was used in an educational setting. March 2024.*

- As part of providing a better experience for the developers of applications arbitrated by Kleros, a dispute preview page has been built, in addition to the SDK.



*Screenshot of "Dispute Preview" developer tool (work in progress).*

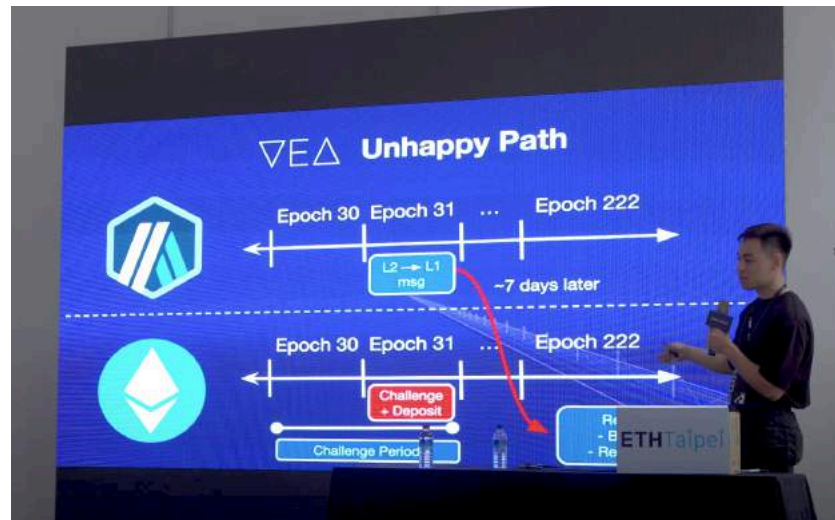


- The development team has completely redesigned the Escrow application, including a new settlement flow that is nearly ready for use with Kleros 2.0. The Curate application has also been redesigned and is progressing well for use with Kleros 2.0. Additionally, the integration with the Reality oracle for Kleros 2.0 has commenced.
- The team adheres to best practices in secure coding, testing, operations, and code review. Later in 2024, Kleros 2.0 is expected to undergo an external code audit, which will be followed by offering competitive bounties to attract security researchers.

## Vea

The optimistic bridging protocol at the heart of Kleros 2.0 has been spun out as a distinct solution named Vea.

- The team has [announced](#), [presented](#) and [published documentation of Vea's](#) bridging mechanism. A DevNet launch ensued, intended for developers to build on top of Vea.
- A bridge transaction explorer named [VeaScan](#) has been built as a development tool.
- The next milestone is focused on the launch of a permissionless version of the protocol with emphasis on security and reliability. To better inform our threat model, the team carried out some chain-specific research including [an Arbitrum sequencer downtime analysis](#) and [a L1 missing blocks analysis](#).
- The Cooperative has joined the [Cross-Chain Interoperability Alliance](#) led by the Gnosis Hashi team. Plans are to have Vea integrated into the bridge aggregator [Hashi](#).



Developer Shotaro presenting the Vea Bridge at ETH Taipei. May, 2023.

## Proof of Humanity 2.0

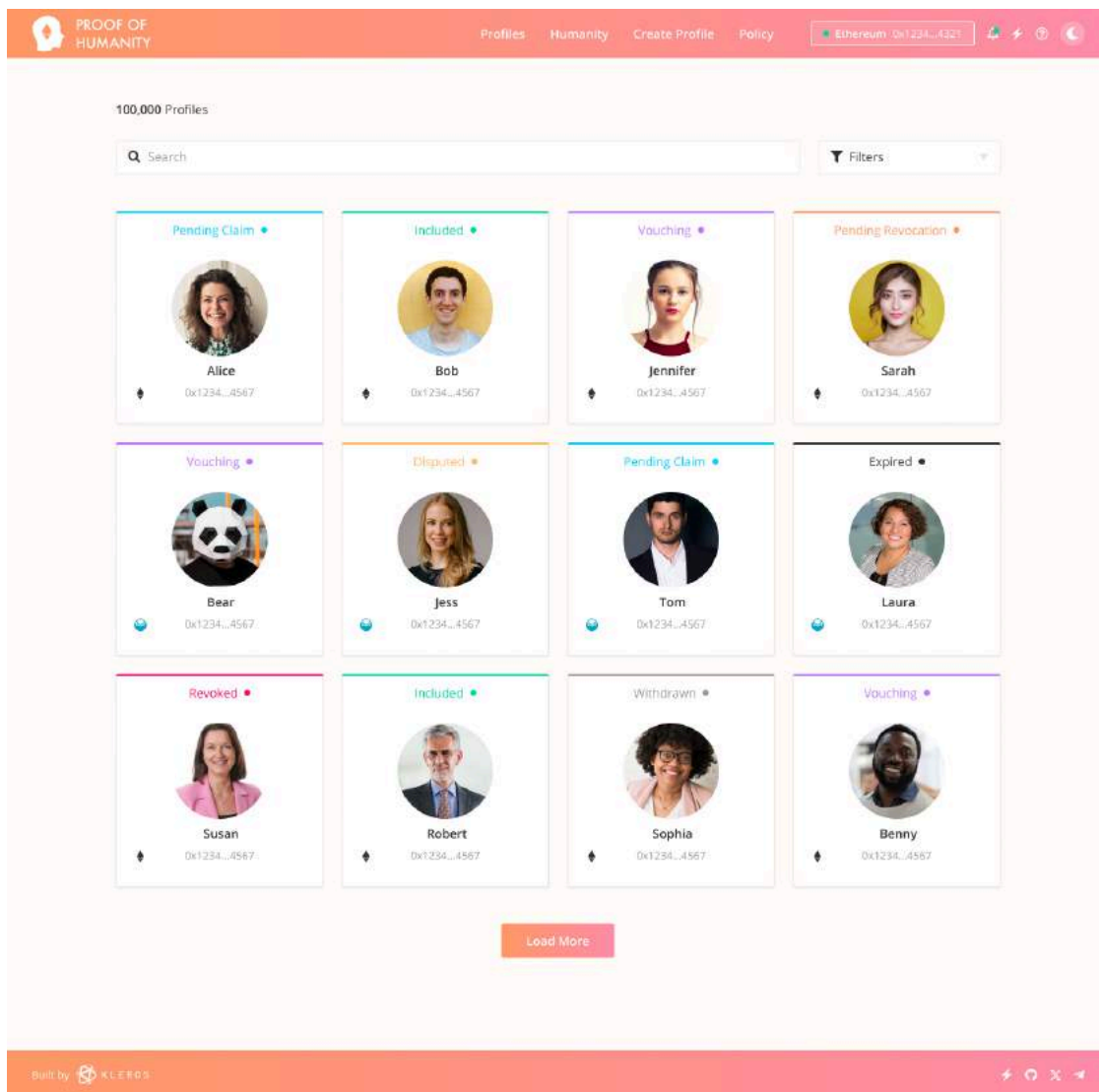
Proof of Humanity aims to establish itself as an anti-sybil registry of humans with multiple applications across the Web3 ecosystem and beyond. This protocol will provide essential infrastructure for one person, one vote governance systems and for distributing universal basic income in the form of cryptocurrency.

Within the broader strategy of the Kleros protocol, Proof of Humanity enables a more versatile design space capable of addressing a wider array of use cases, including one person, one vote courts and token-gated courts using soulbound tokens (SBTs).

The Cooperative has continued its development on Proof of Humanity 2.0, a new iteration of the protocol. In 2023, numerous enhancements were made to improve the platform's functionality, security, and user experience.

- Throughout the year, the [Proof of Humanity 2.0 smart contracts](#) underwent several rounds of internal security reviews, leading to numerous improvements and fixes. These adjustments focused on enhancing security, scalability, and efficiency, including modifications to contract structures and the introduction of new functionalities to better support the platform's decentralized identity verification process.
- Significant progress was made on the user interface, aimed at streamlining the user journey and enhancing overall usability. This effort involved redesigning key components and simplifying the verification process to make it more intuitive.

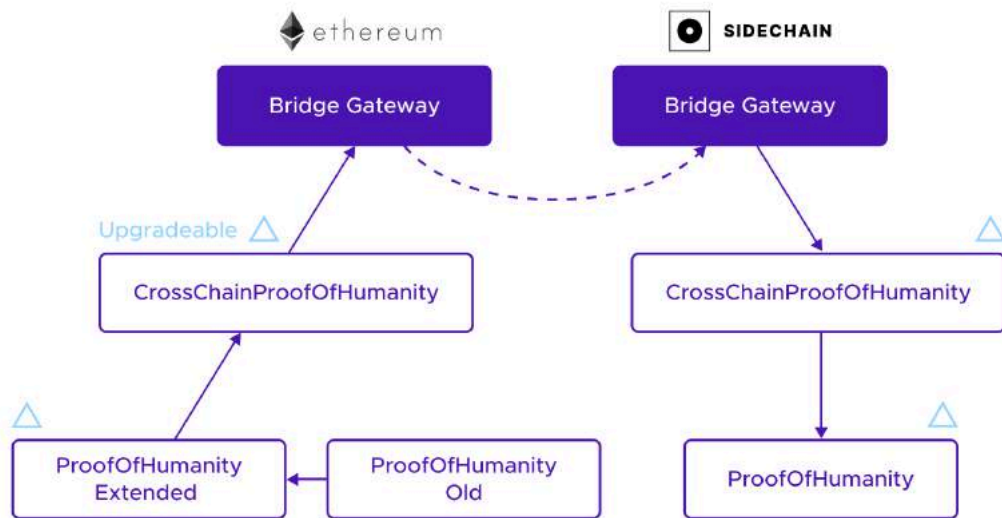




*The interface of Proof of Humanity 2.0.*

- The development and optimization of subgraphs were carried out to ensure efficient data handling and retrieval, which are crucial for the frontend's usability and reliability.
- The team explored and initiated integrations with cross-chain technologies to enhance accessibility and expand the platform's utility across the blockchain ecosystem. The primary focus of cross-chain operations has been the transfer or updating of Proof of Humanity profiles. Testing has been conducted between the Ethereum and Gnosis chain networks using the official "AMB" message bridge. Additionally, an integration with our own Vea bridging protocol was developed as a proof of concept to ensure compatibility.





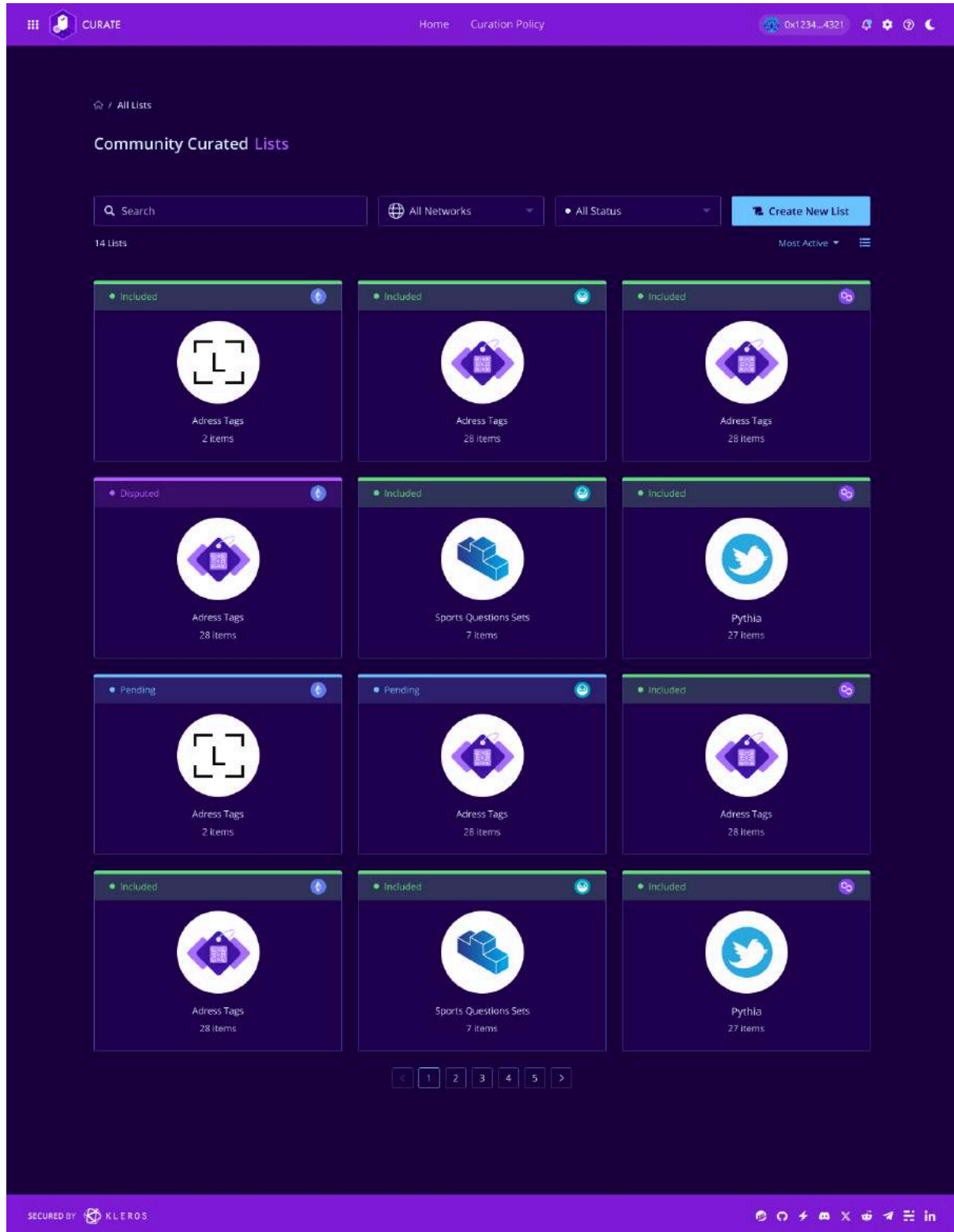
*Relationships between the contracts deployed on Ethereum and a side-chain.*

- A multisig Safe module has been developed that allows a registered human to recover ownership of a Safe based on their Proof of Humanity profile rather than an Ethereum address. Existing Safe multisigs are free to install this module to enjoy this functionality.
- Comprehensive technical documentation has been created for internal collaboration as a preliminary step towards sharing this knowledge more broadly with the community of users, developers, and future contributors.
- To offer a universal basic income distributed to all registered profiles in Proof of Humanity, work has continued on the PoH/Circles group currency contract. With the Circles team going through an organizational restructuring and a smart contracts redesign, the project has turned out more complex to deliver than expected despite our close collaboration.

## Curate 2.0

Curate 2.0 is a new version of the Cooperative curated list products, first launched in 2019. This has different applications including private financial compliance and the tokenization of real world assets. Curate 2.0 was redesigned from scratch and brings a modern and scalable architecture supporting a wide range of functionalities for curated lists and registries.

- The design phase included a strong emphasis on user experience (UX) and interaction design for a final product that is both technically robust and also intuitive for users.



*The new design of Curate 2.0.*

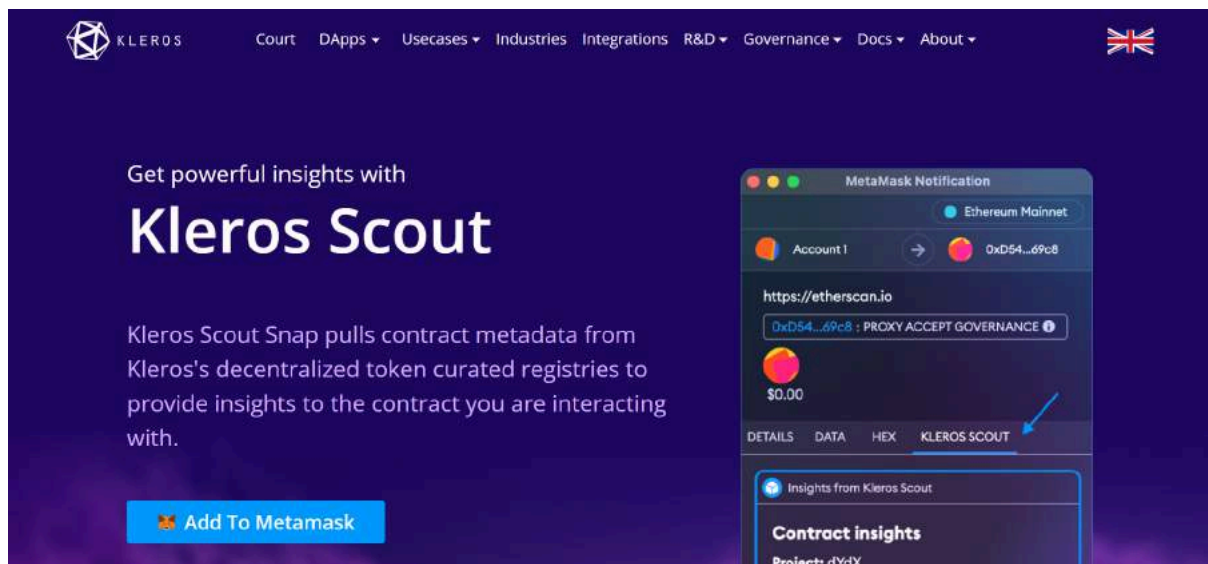


- Key efforts were made in developing and refining smart contracts essential for the Curate 2.0 functionality. These contracts are designed to facilitate the creation, management, and governance of curated lists, ensuring transparency, security, and efficiency.

## Kleros Scout

Kleros Scout is a plugin within the MetaMask Snaps wallet plugin framework that provides users with insights about transactions. Kleros was selected by MetaMask as one of the launch partners. The release of the product required numerous development activities.

- To comply with MetaMask's security requirements, Kleros Scout underwent exhaustive preparations for a comprehensive security audit. A meticulous process was carried out to select an appropriate auditor for the MetaMask Snap project, ultimately choosing Veridise.
- The completion of the security audit facilitated the release of the NPM package, making the project accessible for wider use.
- Efforts were made to integrate the project with the new version of the Kleros Tags registry, including updates to token registry formats and policies.



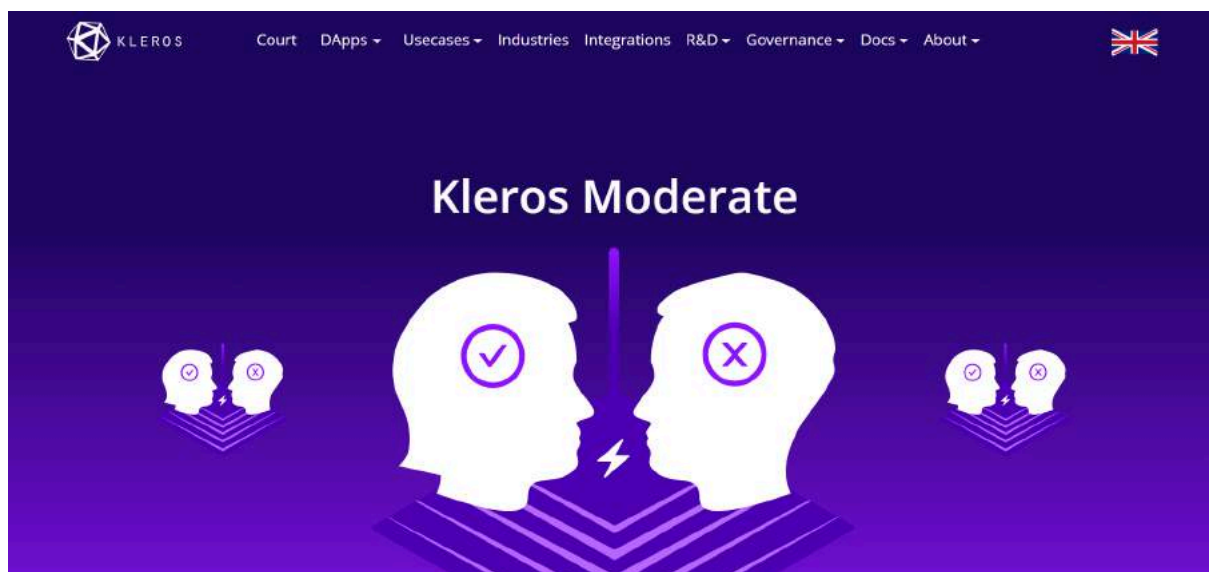
*The Kleros Scout website.*



## Kleros Moderate

Kleros Moderate is an experimental product designed to resolve disputes arising on social media platforms. Launched in 2022, the product underwent significant evolution throughout 2023.

- Several improvements were made in feature refinement, community rule formulation, and technical enhancements to better adapt the product to the needs of different communities.
- Enhancements in evidence display and multi-language support were implemented, including a significant translation effort for the Spanish version of the bot to broaden its accessibility and usability across diverse user bases.
- New moderation features were introduced, such as /forgive, which resets users to a neutral state without penalties, and /warnmode, which issues warnings to users upon their first confirmed report.



Kleros Moderate, dispute resolution for social media.

## Development Team Management

During the last months of 2023, several developers left the team, some by the decision of the management and others to pursue different opportunities. In early 2024, the Cooperative launched an aggressive recruitment plan, resulting in the hiring of several new developers.

The development team is now the largest it has ever been in Kleros' history. Once all the new developers are fully onboarded, an increase in the speed of



development across the Cooperative's product portfolio is expected.

Several initiatives are being implemented, such as streamlining the development process and hiring a talent recruitment specialist.

## Development Stack Renovation

Over the years, the Cooperative has launched many products addressing various use cases, ranging from full-fledged applications to minor "glue scripts" connecting to a partner's API. Due to the rapid pace of tooling changes and Kleros's early involvement with Ethereum, our deployed applications rely on widely varying technology stacks.

These differences result in high overhead costs for maintaining products. Therefore, we have initiated several measures to modernize and streamline our technology stack across our different Dapps.

- The team has taken actions to reduce the number of apps. The old Kleros Tokens app's curation mechanism was superseded by a more generic one implemented by the Curate app. Consequently, the Tokens app was discontinued and its data was migrated to Curate, while a new Scout app was developed as a specialized frontend on top of Curate.
- Another initiative involves reducing the number of backend services running on various cloud platforms. We continue to favor Software-as-a-Service solutions, as reflected in our migration from a private IPFS storage cluster to Firebase's IPFS solution. Our entire development platform is being re-architected and consolidated into a few internal services, which will allow us to discontinue dozens of fragmented services and batch jobs.
- A tooling baseline has been established internally for all new projects to prevent inconsistencies in the development stack going forward.

## Integration Activities

The year 2023 was a period of consolidation for our integrations and partnerships team.

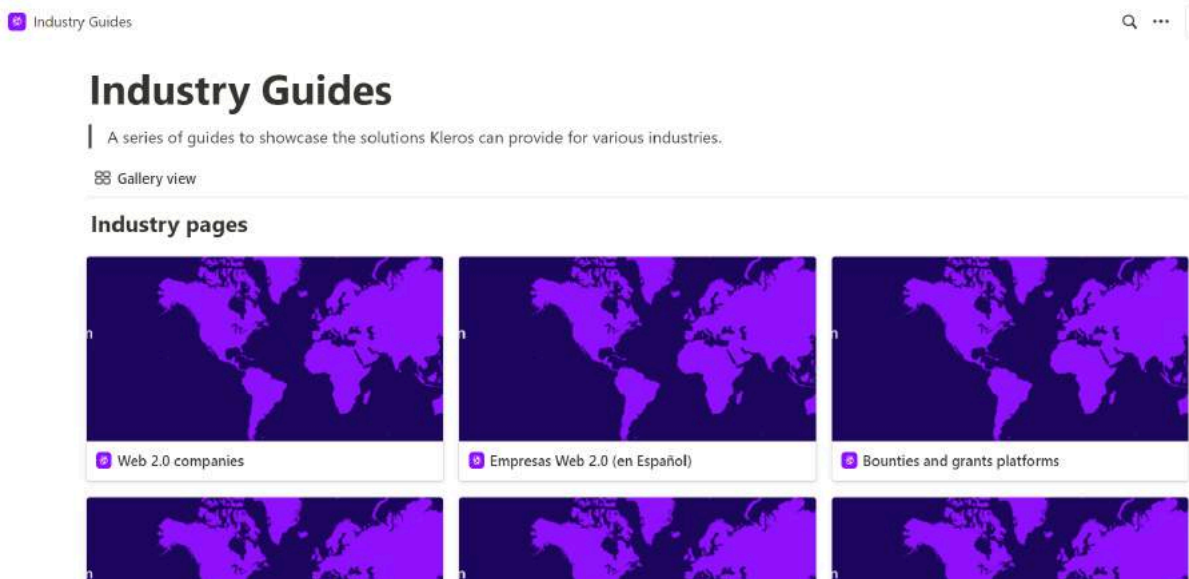
- The growth in the number of committed partners, though not as steep as in the previous year, was still significant as we intensified our focus on areas showing promising traction.
- The number of committed partners has grown from 110 to 170, a list which





now includes names like Mask Network, Joba Network, Play Prode, Giza, PDC Finance, Catalyst, Very.Insure, Payant, Rhino.fi, and Agave Finance, reflecting the Kleros protocol expanding influence across various sectors.

- The launch of the [Industry Guides](#) on our website was an important step forward in helping prospects understand what Kleros can do for them. These guides provide tailored Kleros solution strategies for over a dozen industries and use cases, marking a step forward in making our technology accessible across various sectors.



## Data Curation

The Cooperative has made significant progress in its data curation business through the Curate application.

We have upgraded our three key contract metadata registries—Address Tags, Tokens, and Contract-Domain Names—to [new multi-chain versions](#). This upgrade allows support for contract data across a wide range of blockchain networks, enabling secure interactions across all these chains.

The Cooperative has achieved substantial strides in the adoption of its contract metadata by major industry players:

- For Ledger, we established a new registry tailored for Contract-Domain Names, specifically designed for their “Ledger Connect” product line.
- In collaboration with Metamask, we launched [Kleros Scout](#), a



transaction-insights plugin within the Metamask Snaps wallet plugin framework. We were also extremely pleased to be one of the over 20 launch partners for their highly anticipated development.



*Integrations lead Guangmian participating at a panel on MetaMask Snaps promoting Kleros Scout at the Linea Build Conference. November 2023.*

- Our partnership with Etherscan has evolved beyond their Ethereum explorer. We now extend our services to support all 20+ chains covered by Etherscan's white-label explorers, including platforms like Arbiscan, Gnosisscan, and Polygonscan.



**Oxjean.eth** @jnptzl

2023 was the year where [@KlerosCurate](#) lists were implemented on:

- + [@etherscan](#) (and [@polygonscan](#), [@gnosisscan](#), +)
- + [@Ledger](#) Mobile
- + a [@MetaMask](#) Snap (Kleros Scout)

Decentralized curated lists are essential for scaling security, and they are just starting to get traction. 🙌

[Traducir post](#)



**Auryn** @auryn\_macmillan · 1 ene.

Welcome to 2024, the year of DAOs and the TCRs.

2:32 a. m. · 2 ene. 2024 · **3.107** Reproducciones



## DAO Integrations

In the DAO space, we enhanced our integration with the Zodiac Reality module by introducing the streamlined Kleros Snapshot module. This module simplifies the process for DAOs to utilize Kleros in securing the execution of their Snapshot votes.

Additionally, hiring Alexandre Perez as our new DAO Lead represents a strategic move to aggressively expand our presence in the DAO space.

Following a series of strategic thinking sessions, we decided to rebrand this product as Kleros SafeSnap.



*An attack on the Proof of Humanity governance was thwarted, demonstrating Kleros' utility in securing blockchain transactions. Kleros prevented an attacker from stealing over \$100,000. December 2023.*

## Consumer Applications

Last year saw significant advancements in the use of the Kleros protocol for consumer applications within mainstream companies. The design of these integrations was first outlined by the President of the Cooperative in his presentation titled "Layer 2 for DApps: When Decentralized Protocols Meet the Real World" delivered in March 2020 at the Ethereum France conference. This approach also formed the basis of the grant the Cooperative received from BPI for the Themis project.

The Cooperative partnered with Lemon, a leading cryptocurrency exchange in Argentina with over 2 million customers, by having them recognize the jurisdiction of Kleros for user disputes. This arrangement allows users to escalate disputes with the exchange to Kleros' decentralized court for a more impartial resolution.



Nearly 30 cases have already been resolved by Kleros with extremely high customer satisfaction. Notably, this type of integration has proven to greatly increase customer retention for the partner organization. According to internal research by Lemon, 90% of users remain customers even after losing their case.

The partnership with Lemon provides a template which could be replicated in other industries. The business development team is currently researching applications in the fields of fintech, insurance, government, consumer services, and content moderation.

In June 2024, a pilot started with the city of General Lavalle in Argentina for the use of Kleros in resolving small value disputes.

Kleros was mentioned in the "[Technology and the Future of Online Dispute Resolution \(ODR\) Platforms for Consumer Protection Agencies](#)" by the United Nations Conference on Trade and Development (UNCTAD) as one of the key technologies for the future of consumer dispute resolution. The report concludes that the Kleros approach *"has the potential to significantly reduce the costs associated with dispute resolution for both consumers and companies, while also increasing the efficiency and transparency of the process."*

This has resulted in an increased interest for the use of Kleros by different public and private organizations for resolving small claims.

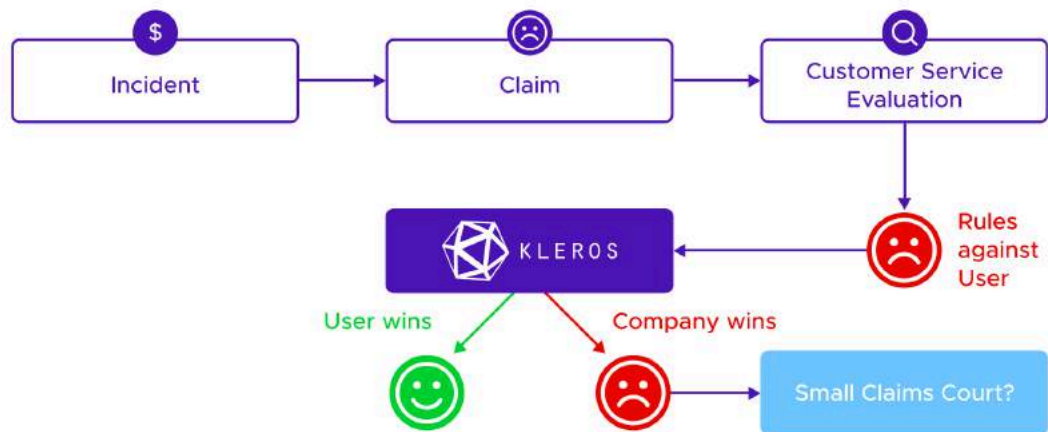


*Kleros presented as a case study in the eWeek in Geneva organized by the United Nations Commission on Trade and Development (UNCTAD). The presentation of the report "Technology and the Future of Online Dispute Resolution. Platforms for Consumer Protection Agencies." Watch the video [here](#).*





#### DISPUTE RESOLUTION PROCESS WITH KLEROS MEDIATION



*This flow describes the use of Kleros in the Lemon integration. After a claim is rejected by customer service, the user is offered a neutral dispute resolution option with Kleros. If the user wins, the company pledges to abide by the ruling. If the company wins, the user still has the option to present their case in a small claims court.*

## Kleros as a Component of Complex Dispute Systems Design

In connection with the previous point, over the last year, the Cooperative has explored the implementation of Kleros within the context of complex dispute system design, combined with off-chain processes and tools such as artificial intelligence.

Initially, the Cooperative hypothesized that the Kleros protocol would serve as a neutral decision-making mechanism for self-enforcing on-chain arbitration. While this remains a central hypothesis, our experience over the years has taught us that Kleros can be part of a more sophisticated dispute resolution system, including mediation, mediation-arbitration, and expert determination.

In an effort spearheaded by Cooperative partner and dispute resolution expert Rob Dean, we developed a new methodology called "[The Kleros Mediation Bridge](#)" for using Kleros in mediation-arbitration procedures. We presented this methodology at an event at Assas University and in [a talk in the Arbtech community](#).

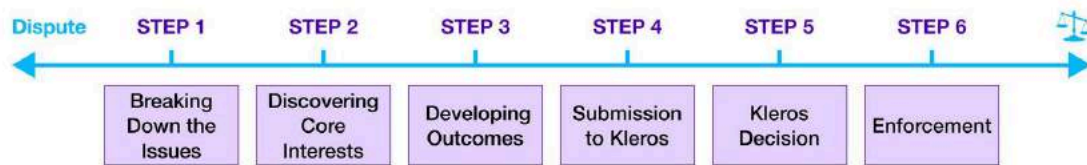
The Cooperative has also been experimenting with the use of generative AI bots to assist users in submitting their claims. One such development includes





Harmony, a bot based on ChatGPT that guides users through the Kleros Mediation Bridge process.

### KLEROS MEDIATION BRIDGE PROCESS



*The stages of the Kleros Mediation Bridge Process.*



*A workshop conducted at the Panthéon-Assas university with professional mediators and arbitrators in order to test the use of Kleros in the context of mediation procedures. July 2023.*



## Ecosystem Investments

Over time, the Cooperative has made several strategic investments in projects that add value to the Kleros ecosystem and have the potential to increase the adoption of the Kleros protocol.

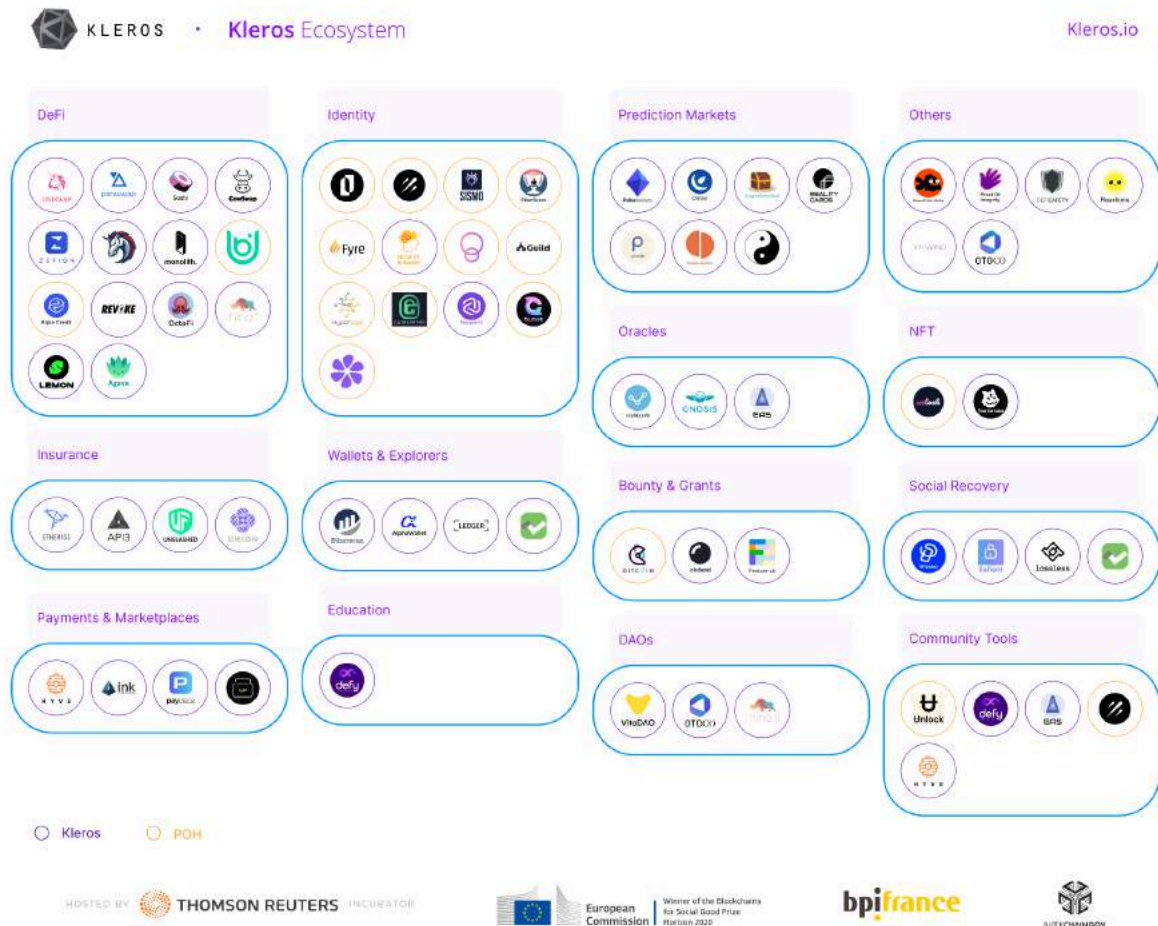
Some of these investments were made through the [Kleros Incubator](#) or [Kleros Founder's Bootcamp](#) program, while others arose from ad-hoc opportunities.

The following projects participated in the Kleros Incubator:

- Yubiai, a Web3 marketplace: \$50,000. The project is no longer active.
- Reactions, an NFT social network: \$50,000.
- Prove Us Wrong, a project for using Kleros for detecting misinformation: \$50,000.
- OpenVino, a wine certification project: \$50,000.
- Lens Tags, a Web3 social network tagging service: \$50,000. The project is no longer active.
- TheBadge, a real world assets project: \$50,000.

Other investments done by the Cooperative based on ad-hoc opportunities include the following:

- CommonGround, a Web3 Discord project: \$50,000.
- Hashi Bridge Alliance, an aggregator of blockchain bridges: \$50,000.
- Snapshot, a voting platform: \$20,000.
- In 2024, the Cooperative selected the insurance protocol Nebula and NFT Protect as winners in the Kleros Bootcamp and is currently conducting the final due diligence process before investing in these projects.



*The growth of the Kleros ecosystem.*

## Marketing and Communications Activities

The Cooperative has conducted a number of marketing and communications activities with the goal of strengthening the Kleros brand, raising awareness about decentralized justice and increasing interest for integrations:

- Members of the Cooperative regularly publish blog articles, media pieces, and participate in webinars, X Spaces, and other online events. Notably, the President of the Cooperative was invited to publish a thought leadership piece in the prestigious newsletter of the American Bar Association. The article is titled "[Overcoming Algocracy: AI, Blockchain and Crowdsourcing for Designing Better Dispute Systems](#)".
- Kleros was mentioned in a number of third party pieces published in general and specialized media outlets and blogs including the [Kluwer Arbitration Blog](#), [Cointelegraph](#) and [Hackernoon](#).



- Kleros has been mentioned in a number of books: “[Blockchain Radicals](#)” by Joshua Davila, “[Arbitration's Age of Enlightenment?](#)” edited by Wolters Kluwer, “[The Handbook of Research on Blockchain Technology and the Digitalization of the Supply-Chain](#)”, a compilation edited by IGI Global, “[Algorithmic Ethics](#)” published by Taylor & Francis, “[Sustainable Development Risks and Risk Management](#)” published by Springer, “[The Essential Guide to Web3](#)” published by Packt Publishing, “[Own This! How platform cooperatives help workers build a democratic internet](#)” by Trebor Scholz published by Verso Books, “[E-Due Process](#)” published by Almedina Brasil, “[Las DAOs y el Reto de Controlar al Algoritmo](#)” published by Aranzadi among others.
- Members of the Cooperative have participated as speakers in different events and conferences including Ethereum France, [Ethereum Argentina](#), [Ethereum Uruguay](#), [Ethereum Prague](#), [ETHDam](#), [ETH Taipei](#), [Edcon](#), the [University of Ethereum](#), [Gnosis Ethereum Meetup Lisbon](#), [Ethereum Milan](#), [Arbtech](#), the [Cambridge Arbitration Day](#), [Ethereum Kuala Lumpur](#), [Paris Dotcomm](#), the [Humanode Conference](#), [Unchained Barcelona](#), the [Cross-Chain Interoperability Alliance](#), [Token 2049 Singapore](#), [Ethereum Block Summit](#), the [Infrachain Summit](#), the [Paris Arbitration Week](#), the [Magno Foro of Legaltech Mexico](#), [Lawgic Legaltech Summit 2023](#), [Telefonica Legaltech Forum](#) México, [Legaltech Forum Buenos Aires](#), [Devconnect](#) and [Dappcon Berlin](#) among others.





The director of research of the Cooperative, Dr. William George, giving his talk "[Parameterization of Crypto-economic Systems](#)" at the Ethereum Paris Conference. July 2023.



Researcher Jamila Kamalova presenting at Edcon. Podgorica, Montenegro. April 2023.





- New episodes of The Decentralized Justice Broadcast were published including renowned blockchain and legal professionals as guests such as [Primavera De Filippi](#), [Amy Schmitz](#), [Christophe Dugué](#), [Pedro Breuer](#), [André Guskow Cardoso](#), [Edward Castronova](#), [Eric Alston](#) and [Tim Reutemann](#).
- Since the early days of the project, the President of the Cooperative has held a weekly "ask me anything" meeting every Wednesday, where he provides a weekly review of the company's activities and answers questions from Cooperative members and the broader community. Since early 2024, these meetings have also been conducted in Spanish every Monday to accommodate the significant growth of the Spanish-speaking community. Sessions are recorded and made available in the [YouTube channel](#) of the Cooperative.
- The Cooperative has opened a WhatsApp community to expand its reach, especially among lawyer communities.
- The Cooperative received a special invitation by the Office of the Prime Minister of Dubai to present in the [Edge of Government](#) exhibit at the [World Governments Summit](#) in the United Arab Emirates. During this event, Kleros was presented to a number of heads of state and cabinet members as a possible solution for alternative dispute resolution for a wide range of commercial and consumer claims.
- The Cooperative organized the event "Decentralized Justice: From Theory to Reality" in Lisbon, Kleros Agora as a side event to the Ethereum France conference and the Kleros Football Cup. The tournament included teams from well-known projects and agents from the ecosystem such as Sorare, ORWL and Morpho among others.
- The Cooperative co-hosted the "Dispute Resolution in the eSports Industry" in collaboration with the University of Neuchatel and the World Intellectual Property Organization. The event gathered leading academics and practitioners from the world of law and eSports.



*Kleros Agora, a side event organized in the context of EthCC 2023. July 2023.*



*The Kleros team at the Kleros Cup. July 2023.*



- Efforts were made to expand Kleros into the Nigerian market and ecosystem. Talks were organized with the Nigerian Bar Association's technology branch and in Web3 communities.
- Community activities on social media have experienced a significant increase over the last year, as new technologies enable easy creation of media. We have observed a greater production of memes and materials by the community.



# Foreseeable Economic and Financial Developments

## Research

In the coming year, the Cooperative will continue with its research program in decentralized justice.

- We will continue our research on using soulbound tokens for juror selection. Specifically, we will study potential SBT-weighting mechanisms based on ideas from spectral clustering, which may allow for more flexible use of social identity information in selecting jurors. Additionally, the study will examine the attack resistance of these mechanisms, raising interesting questions about the feasibility of AI systems in decentralized environments that are resistant to data poisoning attacks.
- We will further our research on various voting and incentive systems that can be implemented as dispute kits compatible with Kleros 2.0, drawing insights from the results of the economics experiments conducted in the past year. In particular, we will explore new dispute kits based on voting and incentive systems that are efficient in the deposits required from users, even for dispute categories where outcomes vary significantly.
- We plan to investigate the interaction between AI and Kleros to either enhance AI's service delivery or use AI to secure the Kleros protocol, from assisting jurors in their decision-making to analyzing on-chain data to detect and prevent attacks on the protocol.
- We will explore the role of dispute resolution systems in the governance processes of decentralized communities and investigate current trends in dispute resolution solutions within the Ethereum ecosystem.
- Jamilya Kamalova is scheduled to serve as a visiting research associate at Cambridge University in autumn 2024.
- The Cooperative will continue to seek opportunities to participate in and host conferences with the goal of fostering a research community on decentralized justice.



## Development

The Cooperative will continue to develop the core Kleros protocol, side products, and various support activities. Development activities for the next year include:

- The progressive deployment of Kleros 2.0 throughout the Neo and Agora milestones during 2024.
- The launch of Curate, Escrow, and Reality on Arbitrum for Kleros 2.0.
- The launch of the permissionless version of the Vea protocol.
- The development of automation and notification bots for the Zodiac module, and its upgrade to a custom Snapshot SafeSnap plugin, bypassing the need for interactions with Zodiac.
- The launch of Proof of Humanity 2.0 on the Ethereum and Gnosis chains.
- The resumption of the Proof of Humanity integration with CirclesUBI once their new 2.0 protocol launches.
- The expansion to new chains for the Reality Proxy to support oracle dispute resolution on zkSync, Arbitrum, and Optimism, among others.
- The migration to public IPFS gateways and the forced migration to TheGraph's network, impacting nearly every app and bot.
- The streamlining and further automation of our consumer claim handling process, similar to the one used by the Latin America exchange Lemon.
- The re-architecture of backend services and the phasing out of most legacy services.
- The revamp of the Kleros website.





FEATURES	KLEROS 2.0 NEO	KLEROS 2.0 AGORA
Court hierarchy	✓	✓
Anyone may be a juror (permissionless staking)	✗	✓
Anyone may stake as much PNK as they want	✗	✓
Anyone willing to pay dispute fees may create a dispute	✓	✓
Any arbitrable contract may create a dispute	DisputeResolver only	✓
Anyone may submit evidence	✓	✓
Random juror sortition	✓	✓
Juror voting	✓	✓
Hidden votes via 2-steps commit/reveal	✓	✓
Appeals rounds with 2n+1 juror	✓	✓
Appeals rounds crowdfunding	✓	✓
Ruling execution onchain	✓	✓
PNK juror rewards/penalties	✓	✓
Dispute fee juror rewards	100%	100%

## Integrations

The Cooperative will continue its ongoing efforts to bring more integrations to the Kleros protocol and to upgrade existing integrations to new versions of our products.

- With the upcoming launch of Kleros 2.0, the integrations team will dedicate significant efforts to assist partners with the migration and to inform prospects about the new functionality and chain support enabled by this migration.
- We plan to expand the business development team to increase our capacity for integrations associated with the launch of Kleros 2.0.
- We aim to expand use cases targeting mainstream integrations under the brand umbrella of Kleros Enterprise.
- We have decided to temporarily suspend the Kleros Founders Bootcamp, as we believe that our limited business development resources are better allocated towards pursuing integrations.
- Once Kleros 2.0 is launched, we will also aggressively pursue partnerships with builders on chains that we currently do not support, such as Arbitrum, Optimism, Polygon, and Binance Smart Chain.



## Marketing and Communications

The Cooperative will continue to conduct activities for promoting the Kleros brand and its different products.

- Plans are being made for a communications campaign to support the launch of Kleros 2.0. The goal will be to create more awareness about the protocol and its expanded capacity to resolve a whole new set of use cases.
- A substantial part of the marketing and communications will focus on supporting the Kleros Enterprise use cases.
- Kleros will keep working on maintaining a strong presence in the field of decentralized justice by publishing high quality articles, videos and other materials directed at informing and educating the audience.
- As usual, the team will participate in relevant conferences from the blockchain and legaltech industries, and collaborate with professional associations.
- The Cooperative will continue with its efforts to produce relevant content aiming at integrating more projects.

## Financials

The Cooperative enjoys a solid financial position due to the resurgence of a positive market and its treasury management activities.

- As of April 31, 2024, the Cooperative's treasury held nearly €27.3 million, of which approximately €24.8 million were held in various types of assets and €2.5 million in PNK. This provides an eight-year runway at the current burn rate.
- In January 2024, the Cooperative began publishing monthly transparency reports on its website, showing the status of the treasury.
- The Cooperative continues to use its holdings of GNO tokens to earn rewards by running validators on the Gnosis Chain. We have around 23,000 validators producing between 0.008 and 0.01 GNO per month each. Besides the financial benefits, which contribute to extending the runway for the Cooperative, being one of the primary validators of the Gnosis Chain aligns closely with the ethos of Kleros. It supports the development of the Gnosis ecosystem, which is closely aligned with Ethereum, and enhances the security of the Kleros court deployment on the Gnosis Chain.



# Conclusion

Over the past year, the Cooperative has diligently pursued its mission of developing tools and promoting the concept of decentralized justice.

- We conducted research to enhance the efficiency, security, and flexibility of the Kleros protocol, which led to the introduction of innovative concepts such as soulbound tokens, new social choice mechanisms, and insights from behavioral game theory.
- We engaged with several key academic institutions specializing in blockchain and dispute resolution, and participated in numerous conferences to build a research community focused on decentralized justice.
- We collaborated with significant government and non-government organizations to promote the adoption of the Kleros protocol and spread the concept of decentralized justice.
- We launched the first version of Kleros 2.0 on the testnet, which is currently being tested by community members.
- The Cooperative invested significant effort in updating its apps and modernizing the technology stack, resulting in major improvements in maintenance efficiency and product reliability.
- The team grew to its largest size since the project's beginning, and new software development processes were established to enhance development efficiency. This will help accelerate development in the coming years.
- The first application of the Kleros protocol was validated in the field of consumer dispute resolution, setting a template for similar solutions across various segments of consumer disputes. This could greatly increase the adoption of the protocol.

As President of the Cooperative, I am proud of our continued progress toward our vision of justice inclusion, and I look forward to the coming year with confidence.