POCRE - Proof of Co-Creation

Introduction: What problem are we addressing and what is the significance of the project?

POCRE solves the authorship acknowledgment of materials made by multiple authors via a novel identification process based on a Layer-2 Blockchain solution.

Managing copyright in the digital world proves to be a huge challenge. Despite various initiatives and ideas around meta-data, open licensing and content repositories and policy around Open Access and Open Educational Resources, properly managing authorship in (co-)creation processes remains immensely difficult. One of the areas suffering the most from the difficulties of copyright-management is education. Even though educators, teachers and learners are encouraged to have an open mindset and follow the principles of Open Education, their contributions to educational processes as co-creators are not properly recognised. Publishers, EdTeach and course providers in all shapes and sizes control not only the creation and feedback processes of educational materials, but additionally leverage their position of authority for revenue and income-generation. Simply put: the people involved in the co-creation and use of educational materials have the least amount of control of the process, the data and the content. There is currently no perfect solution for educators, teachers and learners who create, share, build and re-mix existing works. There continues to be a problematic identification process of who retains authorship and copyright and difficulties in identifying how and what materials have been used and adapted. Finally, educators, teachers and learners have less and less incentives to create, re-mix and share their educational materials freely online, as publishers, EdTech and course providers continue to dominate the market and collect revenue. With the help of POCRE, educators, teachers and learners

will gain the opportunity to take back control of the teaching and learning process by acknowledging authorship and meta-data of educational material through the entire iterative co-creation process, sharing and re-mixing, using a novel blockchain identification process.

Some key aspects of the problems being solved relate to the following users within the process - these terms can relate to any person involved in the educational processes, i.e. teachers, learners, subject-matter-experts and so on:

- **1st Creator**: Autonomous authorship management
- **Co-Creator**: Invited to authorship acknowledgement
- **Claimer**: Claim authorship acknowledgement
- **Litigator**: Resolving disputes

By connecting various creators through an authenticated reputation based on wallets, parties are able to interact in a workflow that allows for complete transparency in the ownership, authorship, and copyright management process. Wallets will then contain a reputation indicator and history of creations viewable to everybody, thereby helping to increase reliability and trust.

Overview: What is our mission and our objectives?

POCRE goes beyond traditional copyright management processes, beyond traditional Web2 (read: centralised) mechanisms, beyond traditional blockchain solutions.

Although there are myriad ways of expressing creativity, creating and re-mixing content, a global state-of-the-art model for claiming authorship through decentralised mediums and platforms is non-existent. Simultaneously publishers, EdTech and course providers have corporate means of claiming copyright of any educational materials, thereby excluding teachers and learners from the process. As seen in the Open Education movement, independent

educators, teachers and learners have carved out the means of creating, sharing and re-mixing materials through open licensing and either sharing them individually and privately, or through educational repositories. But corporate structures can nonetheless overwhelm the individual creator by simply claiming copyright and authorship potentially engaging individual educators, teachers and learners in litigation processes, which are often expensive and are difficult to prove without an overseer. As a result, there are not only often problems in claiming and proving originality in works, but educators, teachers and learners refrain from creating, sharing and co-creating materials because of possible legal repercussions.

Methodology: What makes our approach innovative?

POCRE is a pure Web3 (read: decentralised, without third-party custodianship) on-chain solution.

In order to meet the demands of existing copyright claims, and provide ownership and authorship rights, a KYC verification process that deploys Blockchain technology and issues certificates on the blockchain is the desired solution provided with this project. Identifying all the parties involved in the process and appeasing all the ownership and creative works by each co-creator is a central component of our blockchain system. The adoption of this technology in the field of copyright-management and co-creation is a new concept, which is not globally adopted and the relevant fields, e.g. educational content creation, lack awareness regarding its utility. In a more traditional framework, the Algorand blockchain is used by SIAE (the official Italian copyright collecting agency) to store the copyright as a "simple" immutable record store of authors in the traditional manner for documentation purposes. However, co-creation ownership, real-time claiming and litigation processes are not managed in this concept.

In POCRE, the transition data (claiming and litigation) are immutable but not permanent. Only at the end of the N possible transitions (for N co-creators) the final block, containing all the elected co-creators, is permanently and immutably stored on the Layer-1 chain.

Solution Description: What is our proposed framework?

This concept is a development that deploys certificates of authorship that can be used for claims of ownership and copyright by using a media identification process. Authors are able to showcase original materials that are built on existing works, as evidenced by re-mixes deploying collaborative content- and media-creation. By identifying original works, both dues can be paid on materials that have been used under existing copyright claims, as well as identification of new content and media that arises from co-creation processes. Besides providing content analysis and verification, the breakthrough involves multi-party authentication management using a blockchain solution. The content can also be stored on an IFPS system and optionally published to any type of repository or platform after it has been approved. As part of the vetting process, users are required to create a POCRE wallet where they receive the official certificates of authorship and ownership, which can be verified through the Blockchain technology.

Technology and Innovation: How does our solution implement the technology?

The technology is one of the most advanced product solutions on the market today for recognizing authors, creators, and co-creators in the digital creation process. It goes a step further by not only recognizing these authors and contributors, but also validating the creations on the blockchain, and issuing a verification certificate. To further enhance the outreach and marketing and development of the platform and solidify its presence as an authority in the

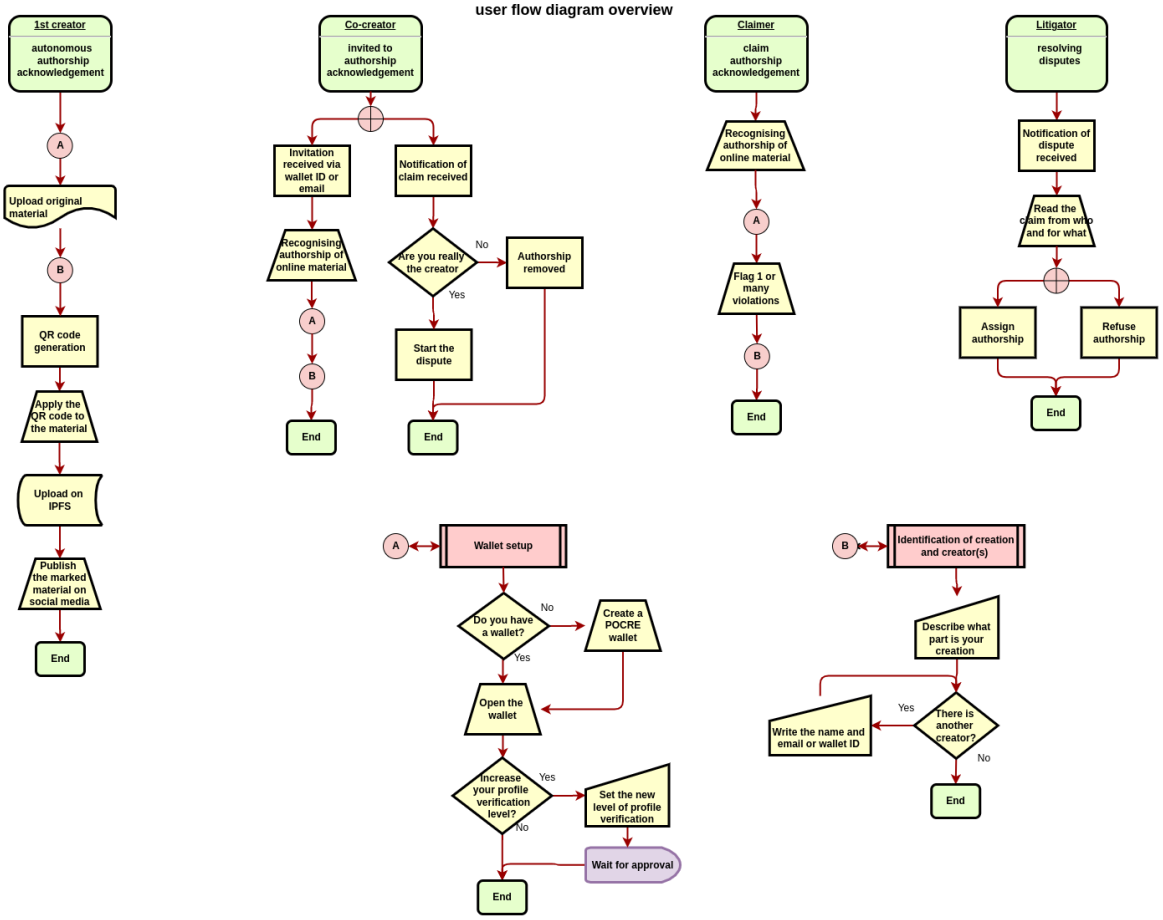
space, the digital creation is then populated to the internet via social media where content can be downloaded/verified and authors can receive stipends in the form of royalties should their content be priced for sale.

Based on the usage and adoption, currently, there appear to be no barriers to the scalability of the technology, thanks to the innovative layer 2 approaches. When comparing it to other similar style products like Shout4.com - where authors are offered recognition for their work inside a centralized platform that can guarantee and validate recognition only inside itself - POCRE goes beyond traditional mechanisms by using a global blockchain. Being globally decentralized, the POCRE solution advances the socio-economic benefits for creators, producers, and consumers alike, outside any authority and auto regulated by the actors themself. In this model, users control and regulate their creative destiny without any central authority, thus allowing for more creative and economic freedom.

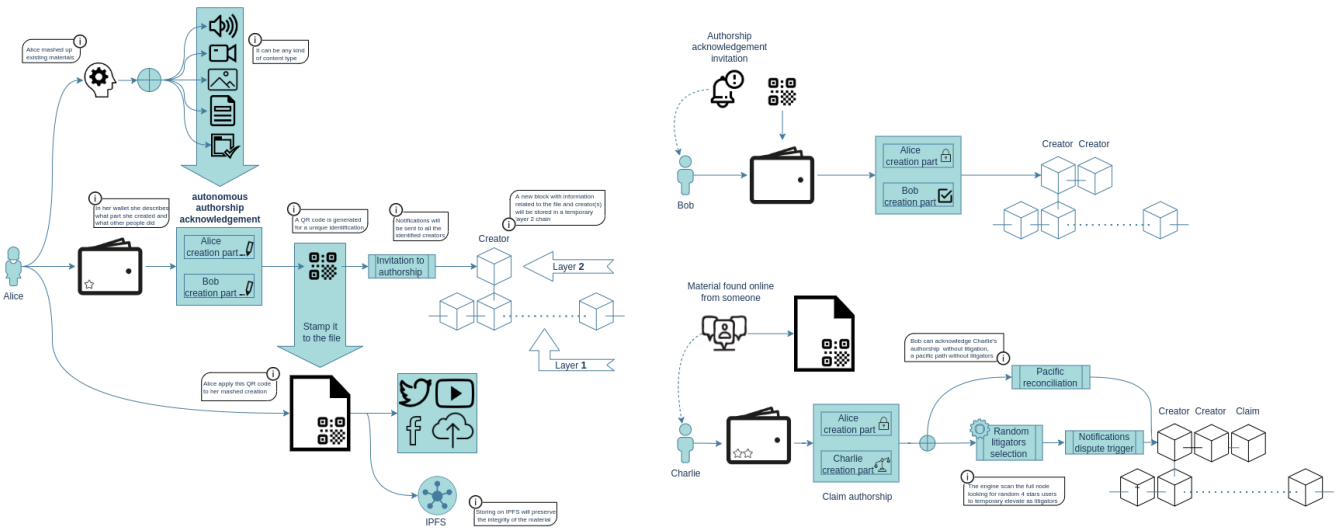
In order to reach technological readiness levels 7 through 9, we are testing our solution so that the prototype can be verified and written to the blockchain. Having already demonstrated our technology is ready to move into an operational and scalable environment, we are near readiness levels 8 and 9. We can prove our system through successful mission operations and evaluate it as part of an iterative feedback cycle.

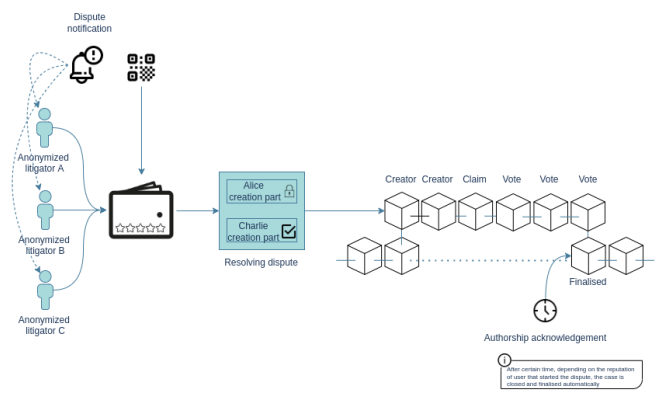
Below is the user flow diagram, where it is possible to see all of the interactions between the four types of actors. Finally a detailed workflow of how and when layer 2 persists the data in a “temporary immutable” way until the final transaction to layer 1. It also shows the importance of the wallet reputation with different levels of verification, essential for the opera acknowledgement and for the litigators.

POCRE
(Proof of Co-Creation)
user flow diagram overview

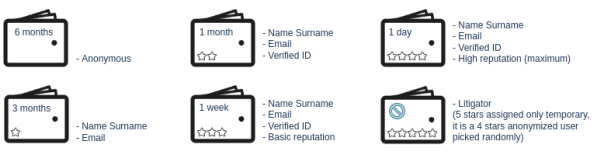


POCRE
(Proof of Co-Creation)
a use case and workflow overview





Wallet reputation
Time required for authorship acknowledgement
Personal data verified requested



Impact Assessment: How and where does our concept make an impact?

Vision: Creating an identification and recognition platform using a Layer-2 Blockchain solution that engages authors and co-creators of educational materials and issuing a certificate of ownership and authentication of original works.

Target Audience: The solution is designed for educators, teachers and learners who struggle with copyright-management issues, either as new creators, or as co-creators of shared works and re-mixes of other media and content.

Impact and Need: The global education community needs a system and technological solution like POCRE in order to get recognised for their creativity, content and media creation, especially within the concept of Open Education and re-mixing of educational materials. This is especially necessary to that educators, teachers and learners can co-create educational processes and educational materials globally without legislation barriers and fears of censorship.

Key Feature: The opportunity to get recognition for any type of (co-)creation, identification of (co-)creators while getting works certified. Another intriguing possibility is the enhancement function of earning royalties on revenue from sales of educational materials through repositories through a royalty generation function.

Business Expectation: There are millions of dollars in value attributed to the business through intellectual property management. Assuming every transaction for claiming authorship is done through a micropayment, POCRE can quickly become sustainable and grow. By decentralising educational processes all relevant stakeholders can take back control of their produced worth incentivising the educational community by rewarding and using credentialed and verified educational materials.

Sustainability and Future Plans: What happens beyond the initial starting period / follow-ups

We will create a product that will sustainably change the way the education community globally collaborates and works. This solution has the potential to decentralise and empower educators, teachers and learners to take control of their own educational processes by taking ownership through co-creation and acknowledgement of authorship. Additionally, the solution can evolve by offering the opportunity to earn tokens for every download of user-generated content thereby creating a token economy and promoting co-creation, while enabling revenue-generation and revenue-sharing for the global education community. Publishers, EdTech and other course providers therefore lose their central authority in managing educational processes and educational materials, because even smaller (non-institutional) individual educators, teachers and learners are rewarded for their efforts and them partaking in co-creation, as the entire global education community can share their work and grow awareness of the content and media produced and the democratised ownership model.
This project meets the following scientific, social and economic goals: Easy to use and understandable reputation model on a blockchain application and integration into various repositories. Connection to the 5R model of open content and seamless integration into educational practices of open education. Novel way of generating revenue and monetising user generated educational content using blockchains, KYC approaches on blockchains, and applications related to copyright-management for user-generated content.
Finally, POCRE offers a potentially wide-reaching, sustainable and primed for mass-adoption solution to serious issues plaguing the global education community by giving back control of educational processes to educators, teachers and learners.