Intellectual Property Rights Management

Leveraging IOTA for Fair, Immediate, and Transparent Compensation for Rights Holders
Bringing **Clarity** to **Rights Management**

The music industry faces issues of payment transparency and rights identification.

Collaborating with the EU-funded Musika Periferica project, the **Intellectual Property Rights prototype** facilitates faster and more secure royalty distribution to ensure timely compensation for artists.

The prototype features a combination of **distributed ledger technology (DLT)**, **smart contracts** and **NFTs** to enable tracking of creative work usage, transfer of intellectual property rights, and automated, trusted compensation.

Industry actors can directly interact in the prototype's **Marketplace interface**. Smart contracts encode creative works administration, while musicians can license music rights with immutable terms.
Challenges in IPR Management

The management of intellectual property rights faces several challenges:

- There are substantial issues with payment transparency, making it difficult for artists and rights holders to track and verify their earnings.
- The identification of rights and proper attribution is often complex and prone to errors.
- These challenges lead to inefficient and delayed compensation for the stakeholders involved.
- The negotiation and execution of contracts are cumbersome, typically involving multiple intermediaries, which complicates and prolongs the process.
Introducing the **IP Rights Management Prototype**

To address these challenges, an innovative Intellectual Property Rights Management prototype has been developed as part of the European Blockchain Pre-Commercial Procurement. This prototype utilizes IOTA Smart Contracts ("ISC Chains") and Non-Fungible Tokens (NFTs) to manage rights more transparently and efficiently. The system automates the process of royalty payments and contract execution, thereby reducing delays and increasing accountability. This development was achieved through collaboration with Musika Peripherika (a project of the EU Media Program), which documents creative processes across Europe.
IOTA Technology for IPR Management

The prototype leverages several key IOTA technologies:

**IOQT Smart Contract Chains** ensure that contracts are immutable and transparent, thus guaranteeing the integrity of agreements.

**Non-Fungible Tokens (NFTs)** are used to represent art works, intellectual property rights, and contractual obligations, providing clear and traceable records.

**The InterPlanetary File System (IPFS)** facilitates decentralized storage of contract data, ensuring that all information is securely and transparently maintained.

**Decentralized Digital Identities** enable secure and verified interactions among participants, enhancing the system’s overall trustworthiness.
How the Prototype Works

The workflow of the prototype begins by converting traditional legal contracts into machine-readable smart contracts using the **Smart Contract for Media MPEG-21** standard.

These contracts are then managed through the **IPR Marketplace** web interface, which streamlines the negotiation and execution processes.

Payments and royalty distributions are executed automatically by the system, ensuring timely and accurate compensation to all rights holders. This automation significantly reduces the administrative burden and potential for errors, making the entire process more efficient.
Step-by-Step Guide

01 Install the Metamask Wallet and fund the selected Metamask account on the IOTA Smart Contract Chain stable network.

02 Login to the application via the EBSI PCP Wallet. The wallet shares your credentials, including your EVM account, with the IPR Marketplace.

03 Navigate to the Assets Landing Page to view all your assets including IP entities, obligations, and permissions.

04 Select an IP Entity and click the button on the right to prepare a new Smart Contract for Media.

05 Prepare Contract: Choose the appropriate contract template (e.g., "Music Composition Sync" for a film producer and publisher), define contract details, specify the governing law court, publisher, song composition, duration, film details, distribution channels, timeframe, payment amount, and distribution country.

06 Propose Contract: Click “Propose Contract” to finalize the contract preparation. This sends the contract for approval by both parties.

07 Contract Approval: Go to “My Contracts” to view and approve pending contracts. Both the producer and publisher must approve the contract.

08 Deploy Contract: After approvals, the producer can deploy the Smart Contract for Media. Upon successful deployment, the contract’s DLT address will be provided and the contract will appear as “deployed”.

09 Initiate Payment: Post-deployment, the producer must fulfill the payment obligation by going to “My Assets” and clicking on “View and Pay”. The producer authorizes the transfer of IPR tokens via Metamask, confirms and executes the final payment transaction through Metamask.
Prototype Benefits

**Transparency**
By utilizing distributed ledger technology, the system provides clear and immutable records of all transactions and rights, ensuring that all stakeholders can verify their claims easily.

**Efficiency**
The automation of contract execution significantly reduces administrative delays, ensuring timely payments and reducing overhead costs.

**Accountability**
Smart contracts enforce the agreed terms strictly, ensuring that all parties are compensated fairly and promptly.

**Traceability**
The use of NFTs and InterPlanetary File System allows for detailed tracking of rights and obligations, making it easy to audit and verify all aspects of the contractual agreements.
What’s Next?

At the time of publication, several enhancements are planned to further improve the prototype.

- **Integration with the Open Rights Data Exchange** will provide better metadata management, enhancing the system’s ability to manage and verify intellectual property rights.

- Development of **connectors for event-triggered smart contracts** will enable more dynamic and responsive contract execution based on real-time events.

- Expansion of the prototype to **support additional media types** and use cases will broaden its applicability and benefit a wider range of creative industries.

- Continuous improvement of the IPR Marketplace web interface will **enhance user experience**, making the system more intuitive and efficient for all stakeholders.
In conclusion, the use of IOTA technology provides a transparent, efficient, and accountable system for managing intellectual property rights and compensations. The potential for broader application across the creative industry is substantial, promising to simplify rights management and ensure fair compensation for creators. Moving forward, continuous development and adoption of this technology will pave the way for a more equitable and efficient creative ecosystem.

Our Technology Adoption Team is spearheading commercialization efforts with an ecosystem of partners – reach out to christoph.strnadl@iota.org to learn more about these opportunities.
About Us

Founded in 2015, IOTA is a public goods infrastructure to bring trust in our digital world. Through IOTA, governments, organizations and people are able to interact with each other in a secure, trusted and verifiable way.

IOTA is one of the most established blockchain projects in the world and is primarily driven by a global ecosystem of non-profit organizations.

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