fRamework for safE, opEn, collaboratiVe And incLUsive digitisAtion and managemenT of cultural heritagE

Grant Agreement No 101132389

DELIVERABLE 3.4:

DLT based asset tokenisation & IPR management

Work Package: 3

LEAD BENEFICIARY:

Centre for Research & Technology Hellas (CERTH)

Delivery Date:

Document Sheet

Project acronym	**REEVALUATE**
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Dissemination level

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0.1	25/02/2025	Initial version	**CERTH**
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1.0	20/03/2025	Final version	**CERTH**

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Publishable summary

The REEVALUATE project aims to establish a secure, transparent, and decentralized framework for the digitization and management of cultural heritage (CH) assets. This transformation enables trusted digital ownership, improved access control, and automated intellectual property rights (IPR) enforcement while promoting collaboration among CH institutions, artists, and stakeholders.

This deliverable, titled "DLT-Based Asset Tokenisation & IPR Management" and classified under Task 3.4 of Work Package 3, focuses on the development and deployment of a blockchain-based infrastructure that ensures secure storage, traceability, and automated rights management for digital CH assets. The objective is to create a trustworthy digital environment where stakeholders can register, license, and track the use of CH artefacts using permissioned blockchain networks and smart contracts. By integrating advanced Distributed Ledger Technology (DLT), the system supports long-term storage, digital provenance verification, and transparent licensing mechanisms. Additionally, the framework introduces non-fungible tokens (NFTs) as unique digital representations of artefacts, embedding essential metadata and ownership details to maintain authenticity and compliance with IPR standards. These efforts align with REEVALUATE's overarching goal of leveraging innovative digital solutions to protect, manage, and commercialize cultural heritage assets in a fair and structured manner.

The deliverable focuses on utilizing blockchain frameworks, advanced tokenization techniques, and stakeholder-driven governance models to achieve these goals.

Objectives

- To enable secure participation of stakeholders (museums, cultural institutions, artists, and content creators) in the management and licensing of digital CH assets.
- To provide a transparent and tamper-proof record of ownership and access rights, ensuring authenticity and provenance verification.
- To automate licensing, usage permissions, and access controls through smart contracts, reducing administrative burdens and legal uncertainties.
- To support interoperability and integration with existing CH management systems and digital marketplaces, allowing for broader adoption and monetization opportunities.

Methodology and Approach

The methodology integrates five innovation pathways:

- Decentralized Storage & Provenance Tracking: Ensuring long-term preservation and immutable record-keeping of CH artefacts.
- Permissioned Blockchain for Secure Transactions: Using Hyperledger Fabric to manage role-based access control and rights enforcement.
- NFT-Based Digital Asset Representation: Tokenizing artefacts to enable traceable, verifiable, and structured ownership models.
- Smart Contract Automation: Implementing self-executing agreements for licensing and usage rights, ensuring fair compensation for creators and institutions.
- Stakeholder Engagement & Collaboration: Enabling museums, researchers, and digital platforms to co-manage and legally distribute CH assets.

The blockchain framework guarantees secure, privacy-preserving transactions, with key features including:

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- Identity & Access Management: Using role-based authentication to manage ownership, licensing, and distribution of digitized artefacts.
- Smart Contract-Driven Licensing: Automating IPR enforcement and royalty distribution for creators and institutions.
- Tamper-Proof Metadata & Ownership Logs: Ensuring transparent record-keeping and trust-building among stakeholders.

Expected Results

- Secure Digital Asset Storage: Deploying a decentralized yet permissioned framework to store artefacts and manage metadata integrity.
- Marketplace Integration: Providing APIs for external platforms to access, license, and monetize digital CH assets.
- Smart Contract Mechanisms: Automating transactions, licensing, and access controls, reducing disputes and inefficiencies.
- Stakeholder Participation & Co-Creation: Encouraging collaborative efforts in preserving and managing cultural heritage through secure digital interactions.

This deliverable establishes a robust and scalable foundation for digital cultural heritage management, ensuring security, authenticity, and fair access to digitized artefacts.

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