

# Comparative Analysis of the Legal Concept of Title Rights in Real Estate and the Technology of Tokens: How Can Titles Become Tokens?

Oleksii Konashevych

Erasmus Mundus Joint International Doctoral Fellow in  
Law, Science and Technology, a.konashevich@gmail.com,  
Supervisors: Prof Marta Poblet Balcells and Prof Pompeu Casanovas

## **Abstract.**

This paper discusses how to use blockchain tokens to represent real estate titles. Tokens on the blockchain as a technological concept is the closest solution to the legal concept of titles, because it provides for evidence of ownership and can be transferred from one address to another, while giving exclusive access to such an address to the owner. This paper contains the analysis of the concept of tokens in the context of its applicability to title rights on real estate. There is also a discussion of the outcomes of conducted interviews with professionals in the field of Computer Science, technologies, blockchain and smart contracts. Some critical mismatches were found: tokens are not able to satisfy current demand to manage title rights online. To develop a mature and sustainable electronic system, there are certain issues that need to be addressed: inheritance procedures, litigation, guardianship, delegation of rights and rights of third parties (liens and encumbrances) as well as the legal concept of bundle of rights (possession, disposition, enjoyment, etc.), which requires a strong mathematical model. During the abovementioned interviews, some weaknesses were found in the existing ideas of the use of the blockchain for real estate, mostly related to the undesirable centralization and issues with security. As the result of this research, it is obvious what needs to be developed is the concept of a high-level design of the technology, capable of managing title rights on the blockchain, which includes a three-level mechanism of 1) e-voting, which provides for a democratic implementation of governing algorithms; 2) Smart Laws, as the concept of high level "smart" algorithms that implement (by e-voting) existing laws related to property rights in a form of the program/protocol; and 3) smart contract templates which are based on the smart laws, that allow people to manage their title rights online.

**Keywords:** Blockchain, Smart Contracts, Titles, Real Estate, Tokens, E-Governance, E-Voting, E-Democracy.