Chapter 6
Tokenization of Intellectual Property in Research and Innovation Processes:
Between Technological Utopia and Dogmatic Paralysis

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ABSTRACT

This article provides a critical legal analysis of the phenomenon of intellectual property (IP) rights tokenization. The paper posits the thesis that the implementation of mechanisms based on blockchain technology, while offering revolutionary solutions to the problems of liquidity, valuation, and commercialization of intangible assets, is fraught with fundamental normative conflicts that undermine its legality and effectiveness within current legal orders. The analysis, conducted using dogmatic and comparative law methods, focuses on three key problem areas: (1) the collision of the global nature of blockchain with the principle of territoriality of IP rights; (2) the inadequacy of traditional formal requirements, particularly the written form, for the specifics of on-chain transactions; and (3) the crisis of regulatory classification

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of IP tokens under capital market law regimes. In conclusion, the authors assert that tokenization acts as a catalyst for legal evolution, forcing a revision of fundamental concepts such as jurisdiction and state coercion.

INTRODUCTION

A New Paradigm in Intellectual Property Management: Blockchain Technology as a Catalyst for the Transformation of the Intellectual Property System

Blockchain technology, originally developed as a decentralized infrastructure for cryptocurrencies (Nakamoto, 2008), has evolved into a universal platform enabling the tokenization of a broad spectrum of assets (De Filippi & Wright, 2018). In the context of intellectual property (IP), this technology creates the possibility of representing abstract exclusive rights in the form of digital tokens that function within distributed ledgers. The process of tokenization itself involves creating a digital equivalent of an intellectual property right, which, depending on its technical and legal construction, can be subject to transfer, division into smaller, transferable units (fractionalization), or be subject to automated management through smart contract protocols (Savelyev, 2017).

The fundamental innovation that blockchain technology brings is the cryptographic solution to the double-spending problem in a digital environment, which eliminates the need for a trusted central institution (Catalini & Gans, 2020). For the intellectual property system, this implies the ability to create digital representations of rights characterized by uniqueness, the impossibility of arbitrary duplication, and the finality of transfers made on them. In this way, the technology addresses one of the longest-standing challenges related to the digitization of intellectual property rights—ensuring the attribute of scarcity and excludability in an environment where copying is inherently trivial (Fairfield, 2021).

It should be emphasized, however, that the potential of intellectual property tokenization extends beyond simple digitization. It introduces the possibility of programming rights through smart contracts, which opens the way to automating complex licensing processes, as well as creating liquid secondary markets for assets traditionally considered illiquid (Werbach, 2018). Smart contracts can be programmed to automatically distribute royalties due to creators, enforce territorial or temporal restrictions arising from licensing agreements, and implement complex remuneration structures without the need for constant human intervention (Szabo, 1997).