

Blockchain Technology for IP Management & Governance: Exploring its Potential to Restore Trust and Resilience in the Plant and Biomedical Sectors

Authors & Affiliations

Christine Frison, Postdoctoral research fellow, FWO – University of Antwerp, Belgium

Thomas Gils, Associate - DLA Piper – Brussels, Belgium

Esther van Zimmeren, Research Professor – University of Antwerp, Belgium

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Abstract

Following the popularization of cryptocurrencies, blockchain technology has attracted a lot of attention in the innovation and technology field. One possible application is to record and track transactions within a network, ensuring the integrity of that record of transactions by crowdsourcing oversight, while totally or partially removing the need for a central authority. This results in the creation of a trustworthy, transparent and distributed ledger. Many industries beyond fintech have started to explore the opportunities provided by blockchain technology. Likewise, in IP protection, management and enforcement, blockchain constitutes a potential tool to strengthen the cost-effectiveness and overcome important challenges: improve IP protection and registration processes, facilitate the provision of evidence in IP litigation, or streamline the conclusion and enforcement of IP licenses through “smart contracts” (Savelyev, 2017; Lluís de la Rosa et al. 2017; for a more negative perspective, see e.g. Zeilinger, 2018).

Smart contracts (self-executing software programs that automatically perform some function; Hileman & Rauchs, 2017) could establish and enforce IP licenses and transmit payments of licensing fees and royalties to IP owners, thereby improving the cost-effectiveness and reliability of IP management mechanisms. This might especially be useful in the context of more complex, collaborate licensing mechanisms such as the “Multilateral System of access and benefit-sharing” (MLS) of the International Treaty on Plant Genetic resources for Food and Agriculture (ITPGRFA) and patent pools. Prior research has shown that in the plant and biomedical sector, stakeholders encounter difficulties in sustaining trust while experimenting with different IP coordination mechanisms (Six et al., 2015; Frison, 2016; Frison et al., 2011; van Zimmeren, et al., 2011a, 2011b).

We recognize that many potential hurdles exist to large-scale legal applications of blockchain technology (e.g. data security and privacy issues, environmental cost of heavy data management infrastructure as well as determining the applicable law). However, we believe it is worthwhile exploring whether and how blockchain technology could serve to facilitate the implementation of complex licensing mechanisms such as the MLs of the ITPGRFA and patent pools in the biomedical sector. These IP licensing models have encountered various challenges in their application, including problems related to trust and resilience of the mechanisms.

The central research question of our paper is to what extent blockchain technology could overcome some of the challenges of IP management and governance. On the basis of a literature review and two

case studies in the plant and biomedical sectors, we explore the potential to strengthen the trustworthiness and the resilience of these mechanisms by employing blockchain technology. First, the paper sketches advantages, disadvantages, and some examples of the application of blockchain technology in the management of IP rights. Second, through the case studies we analyze how blockchain technology could be implemented within the plant and biomedical sectors, including the insights from interviews with stakeholders. Finally, the paper offers some preliminary conclusions on the feasibility of implementing blockchain technology within the context of these particular cases and some provisional recommendations that could potentially be extended to other fields and sectors.

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