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DLT ALL

Discussion Document

Blockchain vis–à–vis Rights to Privacy and Property

This document aims to facilitate a face-to-face and online discussion on the concerns, challenges and opportunities regarding the above relationship, taking into account the future learning needs of students, entrepreneurs, incubator managers and investors.

01 Concerns

02 Challenges

03 Opportunities

The issue

As often is the case, technology is slightly ahead of law, since the former usually moves faster than the latter. Legislation needs to anticipate and adapt to technological evolutions. A case in point is the relationship between the rights to Property and Privacy, and, Blockchain.

Data is stored and processed on Blockchain networks in the following categories:

- Public keys: Every transaction on Blockchain is associated with a public encrypted key, which cannot directly identify the individual. However, the public key can be considered personal data, since its re-use enables individuals to be singled-out.
- Encrypted data: Encrypted data is pseudonymous, not anonymous, even when state-of-art cryptographic techniques are being used.
- Other data: Blockchain can store any kind of digital data, including personal and intellectual property data.

Blockchain is a sequence of blocks, each one containing a list of transactions, forming a digital file (public ledger), which is distributed among nodes of a network. Each block indicates to the previous one with a reference (hash value).

Blockchain has the following key characteristics:

01 Decentralisation: Contrary to centralised systems, in which transactions need to be validated via a trusted third party, Blockchain utilises consensus mechanisms and public key cryptography to define which will be the network's next block, allowing the network to confirm the transactions in a P2P fashion, without the need of the central authority.

02 Auditability: Every transaction is validated and written with a timestamp, allowing for verification and trackability of past transactions.

03 Immutability: Everything written on a block is almost impossible to be changed.

Concerns

At the core of the European data protection legislation is the Data protection Directive[1], updated in 2018 with the General Data Protection Regulation (GDPR)[2]. For ensuring the right to property (including intellectual), European Commission established the Single Market Strategy[3] and Digital Single Market Strategy[4], and recently adopted a comprehensive package of measures to further improve the application and enforcement of Intellectual Property Rights [5].

The decentralised nature of Blockchain networks creates concerns regarding the right to Privacy (since each node can be considered data controller, thus, subject to a list of requirements under GDPR) and the right to Property (since the inventor or creator must be able to derive a legitimate profit from his/her invention or creation).

The above concerns, among others, pose the following questions:

What knowledge do European University students need on the relationship between Blockchain and the Rights to Privacy and Property? How learning can be adapted for inter-disciplinary backgrounds (e.g. engineering, business, law, etc.)?

What are the most important pain-points of startups and incubator managers embarking on Blockchain-related projects? How do rights to Privacy and Property affect them?

How can Angel Investors valuate Blockchain-related startups? Are Rights to Privacy and Property issues for Due Diligence processes?

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31995L0046
[2] https://eugdpr.org/
[3] https://ec.europa.eu/growth/single-market/strategy_en
[4] https://ec.europa.eu/commission/priorities/digital-single-market_en
[5] https://ec.europa.eu/growth/industry/intellectual-property/enforcement_en

Challenges

GDPR has only recently started taking into consideration Blockchain's decentralised architecture[6], while Blockchain's immutability can contradict GDPR's right to be forgotten. At the same time, Blockchain's pseudo-anonymity can oppose the presumption of authorship or ownership, making enforcement of intellectual property rights in Blockchain a challenging task.

The tension between Blockchain and the Rights to Privacy and Property poses the following questions, among others:

What are the inter-disciplinary knowledge needs (e.g. engineering, business, law, etc.) of European Higher Education Institutes regarding the right to Privacy and Property and their relationship to Blockchain?

What knowledge and skills do entrepreneurs need to design, deploy and sustain Blockchain-related applications and endeavours (including various software license categories)?

What are the legal challenges of incubating Blockchain-related startups? What particular support services do they need?

How can Angel Investors better manage due diligence processes regarding the legal aspects of Blockchain-related investments?

[6] https://www.eublockchainforum.eu/sites/default/files/reports/20181016_report_gdpr.pdf

Opportunities

Despite Blockchain's complex relationship with Rights to Privacy and Property, there are some aspects in which the technology can enhance compliance with existing law.

Blockchain can embed consent structures for data access and processing rights, enabling better accountability and provenance tracking. Data controllers can prove who has access to data, when the data has been accessed and whether the data is being processed in accordance with the initial purposes. Traceability and authentication, embedded qualities of Blockchain, can enhance supply chain security, consumer safety and quality of products[7]. Distributed Ledger Technologies can offer information on the origin and history of properties, assisting validation of origin.

Blockchain can be part of the 'data protection solutions' market, expected to reach 120 billion dollars by 2022[8]. This market includes data protection services (e.g. risk assessment and consultancy), implementation and integration services, support and maintenance, and training and education. Additionally, Blockchain can have active role in IPR-intensive sectors, which account for around 42% of EU GDP (worth some EUR 5.7 trillion annually), generate 38% of all jobs, and contribute to as much as 90% of EU exports[9].

Blockchain-related opportunities pose the following questions, among others:

What kind of skill-sets should European University students be equipped with to further explore the potential opportunities of Blockchain?

How can entrepreneurs and incubator managers exploit the potential opportunities of Blockchain in supply-chain and data-protection markets?

In what ways can Angel Investors recognise early opportunities related to Blockchain-startup investments?

[7] European Commission (2017) A balanced IP enforcement system responding to today's societal challenges

[8] https://www.prnewswire.com/news-releases/data-protection-market-worth-11995-billion-usd-by-2022-674283953.html

[9] European Commission (2017) A balanced IP enforcement system responding to today's societal challenges