

# BLOCKCHAIN, VIRTUAL CURRENCIES, MONEY LAUNDERING AND POTENTIAL WAYS TO APPLY BLOCKCHAIN TECHNOLOGY FOR THE PROTECTION OF TRADE SECRETS

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Blockchain is the technology that came into our lives in 2008 by an unidentified programmer or group of programmers under the name of Satoshi Nakamoto. In over 10 years, the technology has been upgraded by several groups of coders and used for an array of services from data storage to timestamp, property purchase to copyright protection.

On the one hand, blockchain technology provides transparency. The system itself provides encryption of the information through the hashing process. It is claimed that encryptions are virtually unhackable. This is guaranteed by the fixed-length code and the timestamp on the blockchain coupled to the information and indicating when the transaction of information occurred. Blockchain can be used for the fields related to intellectual property rights as well as to exercise the rights related to trade secrets of the company, confidential data can be encrypted securely on the chain, and blockchain can prove the dates relevant to the existence of ownership interests.

On the other hand, it remains questionable whether courts will accept storage on the blockchain as a trust worthy step to keep confidential data safe. Storing confidential data on the blockchain may serve as a type of unofficial and voluntary registration due to its lack institutional recognition.

The blockchain and other distributed ledger technologies (DLT)<sup>1</sup> can make changes in the fields of private and public law. The technology can provide an opportunity to renew the regulations connected with documentation, evidence, probative value, and to influence the corporate law where the more specifically affected areas could be the rules of representation and voting. This can also help to reconstruct the system of norms of the intellectual property (IP) and the jurisprudence of the 21<sup>st</sup> century.

This technology challenges the model of the centralized authentication method. The DLT can bring paradigm shift, and although the system is based on a technology, it doesn't reform the technology, but it transforms our social arrangement.<sup>2</sup>

Considering the multidisciplinary research domain of the DLT, this current study with bridging the barriers of the scientific world's specialization and from a particular narrative, demonstrates the separated, but parallel international and nation-state impacts of the distributed ledger technologies, on the intellectual properties.

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<sup>1</sup> Following the appearance of blockchain technology, a number of similar other distributed approaches came to light, such as the Hashgraph, DAG, Tempo or the Holochain. These technological solutions are the so called distributed ledger technologies (DLT).

<sup>2</sup> LYONS, Tom – COURCELAS, Ludovic – TIMSIT, Ken: *Blockchain for Government and Public Services*. European Union Blockchain Observatory & Forum, 2018. 4-6.

The first chapter of the paper will discuss blockchain technology and virtual currencies with a focus on money laundering legislations. The second chapter of the paper will focus primarily on the possibility that blockchain based solutions have the ability to operate as storage and protect trade secrets.

## 1. Blockchain (DLT), Virtual Currencies and Money Laundering

This chapter demonstrates how the battle against money laundering and the appearance of the DLT led to the coming into force of the “Liechtenstein’s Blockchain Act”. In addition, the chapter also discusses the possibilities of the tokenization of intellectual property rights.

Blockchain is the technology behind the most well-known cryptocurrency: Bitcoin. Since it was released in 2008,<sup>3</sup> we will analyze the technical advantages of blockchain technology. The blockchain is an unchangeable self-regulating database technology. There are four core characteristics of blockchain. These are immutability (permanent and tamper proof), distributed (networked copies), consensus driven (trust verification) and transparency (full transaction history).<sup>4</sup> The concept of trade secret protection can utilize two remarkable features of the blockchain, namely “hashing” and “proof of existence”.

Hashing is the process of generating a fixed-size output from an input of variable size. This process is done through the use of mathematical formulas known as hash functions (implemented as hashing algorithms). The advantage of hashing is its benefits when dealing with enormous amounts of data. As an example, one can run a big file or dataset through a hash function and then use its output to quickly verify the accuracy and integrity of the data. This is possible because of the deterministic nature of hash functions: the input will always result in a simplified, condensed output (hash). A technique such as this removes the need to store and recall large amounts of data.<sup>5</sup>

The hashing’s output is presented as “123ABCDE456SZEGED59801KFNNA101”. While everybody has access to this output as the proof of data on the chain, the main data remain private on the chain. Proof of existence is the recording of this hashing in the blockchain.

The use of blockchain technology is being explored across many different industries, such as financial services, telecommunications, health, and fashion, as well as governmental services. Any industry that relies on database integrity can apply blockchain to attempt to reduce costs and create a more efficient robust system.<sup>6</sup>

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<sup>3</sup> *Bitcoi. A Peer-to-Peer Electronic Cash System*. Available at <https://bitcoin.org/bitcoin.pdf> (Last visit: October 25, 2019.)

<sup>4</sup> SULTAN, Karim – RUHI, Umar – LAKHANI, Rubina: *Conceptualizing Blockchains. Characteristics & Applications*, University of Ottawa, Canada, 2018.

<sup>5</sup> *What Is Hashing?* Binance Academy, October 3, 2019. Available at: <https://www.binance.vision/security/what-is-hashing> (Last visit: October 25, 2019.)

<sup>6</sup> YANISKY-RAVID, Shlomit – KIM, Edward: *Patenting Blockchain. Mitigating the Patent Infringement Warm*. Albany Law Review, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3357350> (Last visit: October 26, 2019.)

### *1.1. Treasure Chests of Europe*

The global financial crisis of 2008, among its huge impacts on global economy, cracked the banking system. The large risk of bankruptcy due to lack of liquidity caused more European countries, who were strong financial centers in traditional ways too, to loosely pursue the law against money laundering. The proper functioning of the financial sector providing cross-border asset management is an economic strategy question for multiple European states.<sup>7</sup> Switzerland, Malta, Gibraltar and Liechtenstein rely on incomes from this sector.

Before the crisis, the capital from illegal sources found inclusion in offshore financial centers for example in Cayman Islands, Seychelles or Belize, mostly avoiding the European financial systems. At the beginning of 2010, criminal groups found more favorable possibilities within Europe in the so-called “tax havens” countries named by the OECD. An interesting example of this trend is the \$233 billion money-laundering scandal of the Danske Bank Estonia between 2007 and 2015.

### *1.2. Fight against Money Laundering*

The European Union began to act more strictly against money laundering from the beginning of the 1990s in order to protect the internal market and the related *acquis*. Multiple supranational norms entered into force since then to curb money laundering, including:

1. Council Directive 91/308/EEC of 10 June 1991 on prevention of the use of the financial system for the purpose of money laundering;
2. Directive 2001/97/EC of the European Parliament and of the Council of 4 December 2001 amending Council Directive 91/308/EEC on prevention of the use of the financial system for the purpose of money laundering – Commission Declaration;
3. Directive 2005/60/EC of the European Parliament and of the Council of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing;
4. 98/699/JHA: Joint Action of 3 December 1998 adopted by the Council on the basis of Article K.3 of the Treaty on European Union, on money laundering, the identification, tracing, freezing, seizing and confiscation of instrumentalities and the proceeds from crime;
5. 2001/500/JHA: Council Framework Decision of 26 June 2001 on money laundering, the identification, tracing, seizing and confiscation of instrumentalities and the proceeds of crime;
6. Council Framework Decision 2005/212/JHA of 24 February 2005 on Confiscation of Crime-Related Proceeds, Instrumentalities and Property;
7. Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing;
8. Directive (EU) 2018/843 of The European Parliament and of the Council of 30 May 2018 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing.

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<sup>7</sup> MASCIANDARO, Donato: *Global Financial Crime Terrorism*. Money Laundering and Offshore Centres, Ashgate Publishing Company, Routledge, 2004. 125-145.

### 1.3. The Virtual Currencies

With the expansion of the internet, as well as legislation, the tactics of money laundering are also becoming more sophisticated. The year 2008 will not only be a memorable one due to the collapse of the Lehman Brothers and the resulting financial crisis, but also because of the appearance of the bitcoin. Bitcoin is a private, digital monetary and payment system that enables online payment with the same quality as cash transactions [known as “electronic cash” (eCash)]. The concept of bitcoin includes all traditional functions of money, i.e. the function of payment, storing value and also represents an arithmetic unit. The concept of bitcoin also includes an economic model that exists mainly without intermediaries and central banks. In a functional sense, blockchain works as a transaction register.

Virtual currencies<sup>8</sup> should not be confused with electronic money, or with in-games currencies, that can be used exclusively within a specific game environment.

The opinion of the EU legislature is that the anonymity of virtual currencies, as well as their supranational online transferability allows for potential criminal misuses. Unsurprisingly, Directive (EU) 2018/843 on the prevention of money laundering has defined virtual currencies. Furthermore, it has laid down requirements for virtual currency exchange and custodial wallet providers.

The legalization of virtual payment services has occurred first in Switzerland, Malta, Gibraltar and Liechtenstein. This development shows not only the progressive thinking of these countries, but it also suggests a fierce competition among these countries towards the management of the newly formed cross border capital. In order to find the best regulatory approaches, the legislators of these countries have identified various categories of virtual currencies based on their operation and functions.

#### 1.3.1. Payment Token

Virtual currencies might be separated into two groups: the coins and the tokens. The coins represent the value of the technical layer of a particular blockchain. In return for “chaining” each validated data packet to the blockchain, the system rewards the validator with pre-defined amount of coins. The value of the coins is based on the extent of the blockchain network, the acceptability of the coins issued in payments, and the total quantity of the available coins.<sup>9</sup> Legislators in Switzerland, Gibraltar and Liechtenstein call this category “Payment Tokens”. In Malta, this category of tokens is called “Virtual Financial Asset”.

#### 1.3.2. Utility Token

The other type of virtual currencies is tokens. Tokens represent the right to a specific physical or digitized value. They also grant permission to use the given application.<sup>10</sup> The

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<sup>8</sup> By the definition of the Financial Action Task Force: „Virtual currency is a digital representation<sup>5</sup> of value that can be digitally traded and functions as (1) a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value, but does not have legal tender status (i.e., when tendered to a creditor, is a valid and legal offer of payment) in any jurisdiction.

<sup>9</sup> FUSSWINKEL, Oliver – KREITERLING, Christoph: *Blockchain Technology. Thoughts on regulation*. BaFin Perspectives, 1/2018. 57-60.

<sup>10</sup> *Ibid.* at 61-62.

legislators in Switzerland, Gibraltar and Liechtenstein generally call these tokens “Utility Tokens”, while in Malta they are coined as “Virtual Tokens”.

### 1.3.3. Security Token

Security Tokens (STOs) lay down the specified shares in a company. They are parallel to traditional securities that express and embody stakeholders’ rights or securitized receivables or entitlements on tangible or intangible property. The included facts and data in the STOs can automatically change in predefined cases.<sup>11</sup> These types of virtual currencies are called “financial instruments” in Malta, and “asset token” in Switzerland.

After identifying these categories of virtual currencies, Switzerland, Malta and Gibraltar legislated a framework which was adapted to their financial regulations, which thereby can be interpreted as a kind of reflection on DLT. The payment, utility and security functions can provide numerous opportunities, which was recognized by the legislator in Liechtenstein, as a result a new law was introduced to enhance the tokenized economy, namely, the Tokens and Trustworthy Technology Service Provider Act (TVTG).<sup>12</sup>

### 1.4. *The Blockchain Act of Liechtenstein*

The Alpine Principality entered into a monetary union with its neighbor, Switzerland in 1923. Since then, the tasks of the National Bank of Liechtenstein have been fulfilled by the Swiss National Bank, which has helped Liechtenstein to become a financial center. The 16 commercial banks of the country are the members of the Swiss Bankers Association. The royal family is the trademark of Liechtenstein. The total wealth of the family is estimated at 6 Billion Euros. This wealth derives from selling paintings, and their collection of pictures has also contributed to that which worth 5 Billion Euros.<sup>13</sup>

Hence, it comes as no surprise that in the case of Liechtenstein, besides the payment, utility and security token classification, which can be considered general, the TVTG lays down the basics of tokenized storage of the entitlement. The legislation provides opportunity to tokenize any rights as well as any asset, thus paving the way for legal certainty related to the digitalization of the physical economy.<sup>14</sup> The opportunity of tokenization is regulated by this law, in the knowledge that token allocation, access control, and access change for applications running on a blockchain are transparent, chronologically traceable, and considered authoritative in respect of the data contained within the blockchain.<sup>15</sup>

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<sup>11</sup> Ibid. at 62-63.

<sup>12</sup> *Law on Tokens and TT Service Providers (Token and TT Service Provider Act; TVTG)*, LR-Nr.: 950.6. Liechtenstein Legal Gazette, 3th October, 2019. Available on: [https://impuls-liechtenstein.li/wp-content/uploads/2019/11/950.6\\_04.11.2019\\_TVVG-english-final-version.pdf](https://impuls-liechtenstein.li/wp-content/uploads/2019/11/950.6_04.11.2019_TVVG-english-final-version.pdf) (Last visit: November 20, 2019).

<sup>13</sup> KRISKÓ, Andrea – TATAY, Tibor: *Clearing houses of Alpine countries, the development*. Taylor, 7 (3-4) 2015. 59.

<sup>14</sup> NAGELE, Thomas – BONT, Patrick: *Tokenized structures and assets in Liechtenstein law*. Trusts & Trustees, Issue 25, No 6, 2019 636.

<sup>15</sup> LAURENT, Patrick – CHOLLET, Thibault – BURKE, Michael: *The tokenization of assets is disrupting the financial industry. Are you ready?* Deloitte Inside Magazine, 19/2018. 62-67.

Another advantage is the intermediary free transfer of tokenized rights, including transferable intellectual property rights, licences. This does not only allow for a more straightforward and inexpensive process but it may also be automated with the application of a smart contract.

With the aforementioned abilities of the technology, the appropriate authorities can reduce their response time and operate more effectively during a money laundering attempt.

In such an event, the perpetrator initiates a sequence of commercial transactions to conceal the origins of illegally obtained money, often trading it for a painting, which can be later marked as a long-lost inheritance from a formerly deceased relative.

### *1.5. Tokenized Art*

The online space makes it difficult to track not just originality but also novelty, and uniqueness. It can be stated that DLT-based applications provide solutions for consumers, authorities, and for artist, too. The consumers are guaranteed to obtain the right of the original copy in a transparent way for the authorities.

With the help of technology-built applications, the artists can be sure that their digital works is adequately protected from duplication by undoubtedly identifying the original online copy.

There are many blockchain based applications that offer adequate solutions for the problem, for example, ARTBLX,<sup>16</sup> Rare Bits,<sup>17</sup> OpenSea,<sup>18</sup> Verisart<sup>19</sup> or the Snark.Art. Particular interesting is the Snark.Art<sup>20</sup> project called “89 seconds Atomized”. It is clearly a reference to the 2004 film “89 Seconds of Alcazár” about the work of the Spanish painter Diego Velazquez. The ten-minute long film was tokenized into 2304 pieces which parts can be purchased separately.<sup>21</sup>

The legislative authority of Liechtenstein wanted to provide a legal framework for a legitimate operation of similar solutions and services. Lichtenstein played a pioneering role with this new regulation which will come into force on January 1, 2020. The underlying intention for the creation of the legal framework was not only the expansion of the economy, but also to take a step towards suppressing money laundering. The closest example to underline this claim comes from the field of copyright piracy. File-sharing sites’ activities involving copyrighted content are mostly unlawful, and the operator’s revenue from these activities is also illegal. This illegal activity necessarily entails the sui generis crime of money laundering. The tokenization of intellectual property, with the aforementioned capabilities of blockchain technology, could help to reduce the illegal activities of illegal file-sharing sites and thus money laundering as one of the accessory offences.

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<sup>16</sup> See: <https://artblx.com/home/> (Last visit: October 25, 2019.)

<sup>17</sup> See: <https://rarebits.io/> (Last visit: October 26, 2019.)

<sup>18</sup> See: <https://opensea.io/rankings> (Last visit: October 26, 2019.)

<sup>19</sup> See: <https://verisart.com/> (Last visit: October 26, 2019.)

<sup>20</sup> See: <https://snark.art> (Last visit: October 27, 2019.)

<sup>21</sup> See: <https://snark.art/assets/white-paper/89-seconds-Atomized-White-Paper.pdf> (Last visit: October 27, 2019.)

## 2. Potential Ways to Apply Blockchain Technology for the Protection of Trade Secrets

### 2.1. Trade Secrets in General

It is important to note the existing problems in the trade secrets in order to discuss the potential solutions that blockchain technology can provide.

A trade secret is an item of information such as a customer list, business plan, manufacturing process that has commercial value and that the company in possessing the information wants to conceal from its competitors to prevent these data from duplicating it.<sup>22</sup>

To able to describe the data as a trade secret, three main criteria should be fulfilled. First, the information should not be generally available. Second, this information should have commercial value. Without any nominal value (or competition advantage etc.) the data cannot be specified as a trade secret. Third, the owner of the information as a company or person must take reasonable steps to keep the data private. If the company publishes the data or does nothing to protect this data, then it will not be a trade secret.<sup>23</sup>

In sum, a trade secret is a valuable piece of secret information of the company, which has commercial value and reasonable steps have been taken by company to protect it. Trade secret holders can be either natural or legal persons.

A trade secret is confidential information that provides the company with competitive advantage. Employee salaries, experiments, source code, methods, pre-release pricing, financials, yearly/monthly budgets, contract terms, business plans, market insights and advantages, supplier and customer lists, chemical formulas, positive and negative experimental results, engineering specifications, laboratory notebooks, prototypes, and recipes are some of the examples of trade secrets.

The European Union's (EU) Trade Secrets Directive (No 2016/943 on the date of June 8th, 2016), article 2 defines the trade secrets, as information which meets all of the following requirements:

- It is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;
- It has commercial value because it is secret;
- It has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.<sup>24</sup>

The above mentioned directive regulates how to preserve the confidentiality of trade secrets in the course of legal proceedings. In article 9, potential measures are mentioned as restricting access to any document containing trade secrets, restricting access to hearings

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<sup>22</sup> FRIEDMAN, David D. – LANDES, William M. – POSNER, Richard A. : *Some Economics of Trade Secret Law*. The Journal of Economic Perspectives 1/1991. 61-72.

<sup>23</sup> International Chamber of Commerce (ICC): *Protecting Trade Secrets*. Recent EU and US Reports, 2019. Available at: <https://iccwbo.org/publication/trade-secrets-report/> (Last visit: October 28, 2019.)

<sup>24</sup> Directive (EU) 2016/943 Of The European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure, October 25, 2019. Available at: <https://eur-lex.europa.eu/legalcontent/EN/TXT/HTML/?uri=CELEX:32016L0943&from=FR> (Last visit: October 25, 2019.)

with the conditions of potential disclosure of trade secrets and removing or redaction of the judicial decision.<sup>25</sup>

International agreement (TRIPS, 1994)<sup>26</sup> regarding the trade secrets and, Trade Secrets Directive of the EU (2016)<sup>27</sup>, Defend Trade Secrets Act (DTSA)<sup>28</sup> of the USA at the federal level and 1996 Economic Espionage Act (EEA)<sup>29</sup>, regulates a private right of action for misappropriation of trade secrets link with foreign commerce or interstate, without displacing trade secret law of the state.

It is common to discuss the difference between trade secrets and patents. To able to obtain a patent, there must be an invention and strong rational proof. On the contrary, in trade secrets, there is no obligation like a patent to have these conditions. No rational person with a patentable invention would fail to seek a patent, and therefore trade secret law must protect a class of lesser inventions and after valuable information.<sup>30</sup> Trade secret provides protection regardless of rational proofs or the long application process.

One other advantage of a trade secret is avoiding significant fixed costs of the patent. The age of the internet has caused the invention of new technologies to be faster and easier than how it was twenty years ago due to the wide scale of internet access across the globe. The significant development of tele communicational technology in the last two decades, has allowed accessing information to become easier. It might be said that this access creates competition for technology. Companies are expected to constantly update their technology while in the meantime compete with new ones. However, obtaining patent protection still takes quite a long time as well as this it involves significant costs. In the age of the internet, the world is much faster than how quickly laws are developed. It has come to the point that trade secret protection may be more effective in the future years. Nowadays, companies are concerned with profitability and willing to test their invention first rather than wait out a long and expensive patent process. There may be another invention that replaces the existing one while the patent application for an existing technology is in progress. Intellectual property protection must be faster than today in era of the ever-growing internet and digitalization.

The patent has more recognizable protection in the different law systems rather than trade secrets through rational proofs and common systems. However, a trade secret can only be protected the three main elements that we mentioned above can be proved. Patent Cooperation Treaty (PCT) is an international patent protection treaty with 153 Contracting States, which seek patent protection for an invention simultaneously in the 153 countries by filing a single international patent application instead of filing several separate national or regional patent applications. For example, how blockchain can be used: blockchain company, IPwe is a blockchain-enabled patent registry and rating database currently containing basic information on 80 percent of the world's patent.<sup>31</sup>

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<sup>25</sup> Directive (EU) 2016/943 Of The European Parliament and of The Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure, Article 9. Available At: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016L0943&from=FR>. (Last visit: October 25, 2019.)

<sup>26</sup> The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS, 1994),

<sup>27</sup> Trade Secrets Directive of EU (2016).

<sup>28</sup> Defend Trade Secrets Act (DTSA).

<sup>29</sup> 1996 Economic Espionage Act (EEA).

<sup>30</sup> FRIEDMAN et al., 1991. 61-72.

<sup>31</sup> KRAJEWSKI, Trevor – LETTIERE, Rich: *Efforts Integrating Blockchain with Intellectual Property*. les Nouvelles



Also, in patent protection, the claims will be strong enough and broad enough to adequately protect the product or process that will be put on the market as well as any likely modifications.<sup>32</sup>

There is discussion around the patentability of the blockchain technology itself. The number of patent applications being filed for blockchain technology is on the rise. If the patented invention uses the algorithm in a process designed to solve a technological problem in “conventional industry practice,” the assignee could get the patent.<sup>33</sup>

## 2.2. Using Blockchain for the Protection of Trade Secrets

To refer to any data as a trade secret, the company or person should take reasonable steps to keep this data confidential. For example, EU Trade Secrets Directive require that all trade secrets need to be subject to reasonable protection measures. If the company fails to take these measures, then the data cannot be referred as trade secret. The question arises whether we can accept blockchain technology to keep trade secrets, under the EU Trade Secrets Directive as a reasonable protection measure? In our opinion, acceptance of this move as reasonable protection measure meets the expectation of the logic behind of the directive. First, the blockchain hashing method keeps the data confidential while it has the code of existence. Also, proof of existence guarantees the exact time of the data upload into the blockchain. Also, in case of any intervention to the data, it is trackable.

The blockchain company, MyDocSafe claims that they provide trade secret protection via blockchain platforms.<sup>34</sup> The difference between hashing and encrypted data, hashing is designed as a one-way action. It brings the advantage of avoiding decryption and revealed. Blockchain hosts these trade secrets with a timestamp with the ownership proofs. However, records as hash codes are free to the public. Following the uploading of the trade secret into the chain, the hash code can be verified through any publicly accessible node of the blockchain network. Through this, any third party can authenticate ownership of the data without a breach of confidentiality.

The main consideration in protecting trade secrets is that companies, whether a small business or large corporations, must first decide which trade secret are worth protecting, and then must act aggressively to protect these secrets.<sup>35</sup>

Today, trade secret protection is getting harder for companies because of rising employee mobility, strategic employee transfers by competitors, digitalization and potentially ease of copy-pasting, territorial fragmentation or high patent expenses.

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– Journal of the Licensing Executives Society, March 2019. 42. Available at <https://ssrn.com/abstract=3317053>. (Last visit: October 25, 2019.)

<sup>32</sup> NOONE, Thomas M.: *Trade Secret vs Patent Protection*. Research Management, 3/1978., 21-24.

<sup>33</sup> CHAUDHRY, Inayat: *The Patentability of Blockchain Technology and the Future of Innovation*. Landslide, March/April 2018. 2.

<sup>34</sup> MyDocSafe (13.11.2019). Available at: <https://mydocsafe.com/uk/solutions/secure-document-management-sharing/> (Last visit: October 25, 2019.)

<sup>35</sup> HORN, Beverly D.: *Protecting Trade Secrets in the Information Age*. Natural Resources & Environment, 3/1990. 22-51.

Blockchain and especially public blockchains (There are private blockchains as well.<sup>36</sup>) are immutable global registries. Companies can leverage these to prove ownership of the trade secret at a certain time. Blockchain based solutions can offer to help to protect trade secrets with the proof of ownership and timestamp, in addition may help users to verify data, particularly identification of this data with the purpose of quickly creating an inventory of private business and trade secrets capable of being effectively protected and enforced.

The Resolution of European Parliament on distributed ledger technologies and blockchain (dated on 3 October 2018) stated that blockchain can use to improve processes related to the privacy and confidentiality of data exchanges, as well as access to e-government services using a decentralized digital identity and would enable greater transparency, as well as more streamlined processing of information and development of more secure services for European citizens; stresses how a permitted blockchain network shared between the Member States could be designed in order to store citizens' data securely and flexibly and 'digitalized' creative content, DLT can enable the tracking and management of intellectual property and facilitate copyright and patent protection; it emphasizes that DLT can enable greater ownership and creative development by artists through an open public ledger that can also clearly identify ownership and copyright.<sup>37</sup>

The following of this resolution, the acceptance of proofs, provided by blockchain technology for the trade secret conflicts started to be deliberate over on the EU Institutions level.

To grant the legal status of blockchain technology, lawmakers claim to see standardization, which is quite important to show how this technology works, how certain that this system is unhackable and secure to avoid third parties' interventions. In this respect, the International Organization for Standardization (ISO) has a committee since 2016 to standardize the blockchain technology. The committee has published an ISO standard in September 2019 under the ISO/TC 307 Blockchain and Distributed Ledger Technologies Committee. This standard provides an overview of smart contracts in BC/DLT systems; it describes what smart contracts are and how they work and discusses methods of interaction between multiple smart contracts. According to the technical aspect of this Standard, smart contracts and applications will be legally binding with the conditions of to be briefly mentioned in ISO standard.<sup>38</sup>

It can be said that there are efforts to understand blockchain's implications and using blockchain technology to protect IP rights better. World Intellectual Property Office (WIPO) and the European Union Intellectual Property Office (EUIPO) are working on the idea of smart IP registries. In the following years, we will hear more about the concepts of IP rights protection via distributed ledger technology.

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<sup>36</sup> Private Blockchain, or also referred as Permissioned Blockchain allows certain level authorized entities to join in a closed network. Ripple (XRP) is one of the examples.

<sup>37</sup> European Parliament resolution of 3 October 2018 on distributed ledger technologies and blockchains: building trust with disintermediation (2017/2772(RSP)). Available At: [http://www.europarl.europa.eu/doceo/document/TA-8-2018-0373\\_EN.pdf?redirect](http://www.europarl.europa.eu/doceo/document/TA-8-2018-0373_EN.pdf?redirect) (Last visit: October 29, 2019.)

<sup>38</sup> Blockchain and distributed ledger technologies – Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems, ISO, Publication date: 2019-09. Available At: <https://www.iso.org/obp/ui/#iso:std:iso:tr:23455:ed-1:v1:en> (Last visit: October 28, 2019.)

## Conclusion

Blockchain can be used for trade secret protection with different purposes as record keeping (with irreversible, time-stamped, secure), control and track the distributions of data, evidence of first use, enforcement of exclusive distribution network.

By registering IP rights on a distributed ledger, they could effectively become smart intellectual property rights, providing robust and trustworthy proof of record.<sup>39</sup>

Distributed ledger technology can be used for identity management as well. Distributed ledger technology can strengthen the rights of the individual by providing access to tools that enhance the individual's agency as-self sovereign factor.<sup>40</sup>

DLT provides digital, paperless data management with public access in case of proof need from third parties. However, through hashing, data keeps confidential. Besides the discussion about the technical trustworthiness of the blockchain, through technical acceptance of smart contracts and technical developments of blockchain as the ISO example above, in the following years' blockchain may be one of the most popular trade secrets protection platforms. Even patent protection may be discussable via blockchain by the support of smart contracts. For instance, easier and more secure trade secret protection with Blockchain may decrease the popularity of patent applications.

Blockchain technology may minimalize some challenges of IP Law such as complex processes of registration, the requirement to register in different jurisdictions, the expertise required in the registration and opposition processes and the fees attached to these processes.<sup>41</sup> Trade secret is one of the examples to show potential ways to use blockchain technology for IP Law matters.

Trade secrets are generally non-registered as copyrights and the unregistered design rights. These must be protected well but besides the management of these confidential data requires transparent and secure manners. However, putting confidential data on blockchain won't be enough just by itself, also, it must be managed very well who can access the data to avoid disclosure.

Trade secret protection via storage on the blockchain is likely to be chosen by small and medium sized enterprises (SMEs).

In conclusion, trade secret protection popularity is already rising against patent protection and through blockchain technologic advantages, it will be more secure to keep confidential data on the chain. Whether or not courts and institutions will accept blockchain storage as a reasonable step or not, companies keep their secret safe. The following developments on the technology and official studies as by ISO, WIPO, EUIPO, decade-old technology, blockchain will be standardized and admissibility of the technology will rise in the future. During that period, storing the trade secrets on the blockchain can serve as a kind of unofficial registration with proof of existence and origin.

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<sup>40</sup> ZWITTER, Andrej – GSTREIN, Oskar Josef – YAP, Evan: *Digital Identity and the Blockchain. Universal Identity Management and the Concept of the 'Self-Sovereign' Individual* (September 16, 2019). *Frontiers in Blockchain*, 2019 (Forthcoming). Available at: <https://ssrn.com/abstract=3454513> (Last visit: October 25, 2019.)

<sup>41</sup> GÜRKAYNAK, Gönenç – YILMAZ, İlay – YEŞİLALTAY, Burak – BENGI, Berk: *Intellectual property law and practice in the blockchain realm*. *Computer Law & Security Review*, 4/2018. 847-862.