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Some risks of tokenization and blockchainizaition of private law

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ABSTRACT

The paper focuses on the analysis of the problems that may be driven by mass tokenization of the objects of civil law, i.e. the creation of a digital representation of such objects in the form of a record in blockchain. This occurs where the value of such objects is transferred subsequently by means of disposal of such tokens, which is a subject of separate rights to it. The paper outlines two core problems, which were inspired by recent legislative activities in Belarus and Russia. The first is a possible displacement of existing legal regimes of objects of civil rights by the legal regime of the token. Secondly, the problem of definition of the nature of rights to tokens arises (in rem versus ad personam) as well as remedies for their violations. Provisions of the Belarus Decree "On the development of digital economy" of 21 December 2017 and drafts of the laws on blockchain and ICO, discussed in Russian Parliament and Government are taken to illustrate these problems.

1. Introduction

Blockchain has become a buzzword and this technology continues to attract attention from business, government and lawyers. Sometimes, it is referred to as "the cornerstone of trust for the digital society in the future".[1] The popularization of blockchain technology and ongoing attempts to implement it in various areas of life has resulted in the emergence of new peculiar objects, such as cryptocurrencies, tokens and smart-contracts, which pose substantial challenges to their legal regulation. These questions have already received coverage in multiple legal papers. However, such objects as the "token" deserve extra analysis, due to the recent developments in Belarus and Russian law and its potential impact on the overall structure of civil law. It may not only be relevant for these countries but for any jurisdictions that decide to reproduce the ideas reflected here. Specifically, special legal regimes that implement this object into the economy have the potential to absorb current legal regimes, such as contractual provisions relating to specific types of contracts, consumer law protection, security laws and other similar regimes. This potential is realised by the essence of this technology: digitalization of existing objects of rights and simplification of the process of contracting with them. The original subject matter of the contract is replaced by its digital manifestation: a"token". This is designed to facilitate the effectiveness of transactions by minimizing their costs. However, the nature of rights to such objects remains unclear: are tokens "rights in rem" or "rights ad personam"? In other words, is a right to a token a right "erga omnes" («against the whole world») or not. Depending on the

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[1] Helen Partz, *CEO Of Ant Financial: Blockchain 'Is The Cornerstone Of Trust For The Digital Society In The Future'*, 27 March 2018. URL: https://cointelegraph.com/news/ceo-of-ant-financial-blockchain-is-the-cornerstone-of-trust-for-the-digital-society-in-the-future.

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answer to this question, available remedies and other aspects of the legal regime will be defined, e.g. bankruptcy and conflict of laws. These issues are at the core of the analysis in this paper.

2. What is token?

The word "token" is of Germanic origin and is generally defined as "[a] thing serving as a visible or tangible representation of a fact, quality, feeling, etc."[2] Black's law dictionary defines a token quite similarly as a "sign or mark; a tangible evidence of the existence of a fact" and also as "a coin or other legal tender" with a potential to denote also a "bill or other medium of exchange".[3]

In certain contexts the term "token" may have a more specialized meaning, attributed to it by a legal act. For example in Article 14 of the UK Consumer Act 1974:

> *[a] credit-token is a card, check, voucher, coupon, stamp, form, booklet or other document or thing given to an individual by a person carrying on a consumer credit business, who undertakes (a) that on the production of it (whether or not some other action is also required) he will supply cash, goods and services (or any of them) on credit, or (b) that where, on the production of it to a third party (whether or not any other action is also required), the third party supplies cash, goods and services (or any of them), he will pay the third party for them (whether or not deducting any discount or commission), in return for payment to him by the individual.*

Thus, the concept of the token, within the context of consumer credit arrangements, serves as evidence of an unconditional right of a consumer to receive a certain performance from the other party.

Recently the term "token" has become a buzzword, frequently used in discussions and publications relating to blockchain and so-called Initial coin offerings (ICO). It serves as an important element of the blockchain ecosystem. However, there is still no generally accepted definition of a token in the blockchain context. To some extent, it is driven by the fact that the technology is still developing, but mostly it is due to the diversity of the various types of tokens. Nevertheless, there is a certain degree of consensus on the classification of tokens.

For example, the Swiss financial regulator FINMA categorises tokens into three types depending on their actual function:

- Payment tokens are synonymous with cryptocurrencies and have no further functions or links to other development projects. Tokens may in some cases only develop the necessary functionality and become accepted as a means of payment over time. The most evident examples of such tokens are Bitcoin and Ether.
- Utility tokens are tokens which are intended to provide digital access to an application or service.
- Asset tokens represent assets, such as participation in physical stock, companies, or earning streams, or an entitlement to dividends or interest payments. In terms of their economic function, these tokens are analogous to equities, bonds or derivatives.

FINMA also notes that hybrid forms are also possible.[4] For example, Ether is a token used as a fee for smart contracts execution in Ethereum public blockchain as a utility token, but due to its high liquidity is also used as a payment token.

Based on the above it is possible generally to define a token as a kind of a digital asset, which exists in the blockchain ecosystem, and is bundled with the right to use it.

3. Tokenization of objects of civil law

The aforementioned definitions of token and their classification demonstrate that almost any object of a right can be tokenized and registered in the blockchain. As a result, its subsequent disposal will be performed by means of disposal of its digital "alter-ego" (token). This will be in accordance with the rules established by the architecture of the blockchain system at hand and subject to any special legal regimes for tokens established in a particular jurisdiction. Potential benefits of a special approach to passing the title to such objects include a decrease in transaction costs. This occurs by means of automatization of the contracting process by using smart-contracts, increased security of such transactions and their transparency. Clear titles facilitate trade and minimize resource-wasting conflicts. Existing literature on blockchain is full of optimism in this regard. For example, Melanie Swan indicates that blockchain may become a *the seamless embedded economic layer… serving as the technological underlay for payments, decentralized exchange, token earning and spending, digital asset revocation and transfer, and smart contract issuance and execution*.[5] William Mougayar argues that decentralized networks enable trading of any digital assets, financial instruments or real-world assets, represented in the form of a token.[6]

However, if all these promises come true, it will lead to a number of problems with existing regulation of transfers of such assets. Tokenization may, at some point, absorb such regulation and replace it with a new legal regime applicable to tokens, just as the legal regime of a security replaces the legal regime of a right embodied in it when it comes to transferring such a right. Moreover, governance of tokens consists not only of legal regulation, but mostly of code and contractual terms, formulated in terms of use and other similar contracts for adhesion-type agreements. As Bygrave notes *"contracts provide the primary legal rules for governing many of the digital*

[2] https://en.oxforddictionaries.com/definition/token.
[3] Black's Law Dictionary. West, 2011. P. 1625.
[4] FINMA Guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICOs) 16 February 2018. P. 3. URL: https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/.
[5] Melanie Swan, *Blockchain: Blueprint for a New Economy*. O'Reilly, 2015. P. vii.
[6] William Mougayar. *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology*. Wiley, 2016. P. 90.

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environments created by code".[7] Various Terms of Use, End-User License Agreements, Terms of Service and other similar documents form the basis of the Internet governance contractual framework and have become an integral part of any Internet service or website. Such contracts are predominantly used to manage the services and software usage in accordance with providers' economic interests and to marginalize, if not lock out, behavior or norms that threaten those interests. This results in the emergence of virtual worlds operating as fiefdoms.[8] It means that regulation relating to the transfer of assets will become more and more private and based on self-governance, enforced by technological measures in the form of program code, which operation is backed-up by contract.

Even if such code is be based on an open source development mode, it will still be controlled by a limited number of people represented by the core team, setting the rules and directing development of the project in a rather centralized manner.[9]

In order not to render the perspectives indicated above too hypothetical, some examples can be offered.

Recently, Belarus adopted a presidential decree "On the development of the digital economy" No. 8 of 21 December 2017 (hereinafter - Belarus Decree).[10] This Act contains an elaborate set of definitions and legal regimes applicable to various aspects of blockchain-based solutions. A token is defined as a *record in blockchain or other distributed information system, which certifies that the owner of such token has a right to a certain object of civil right or which performs a function of cryptocurrency". Cryptocurrency in its turn is defined as a "kind of a token, which is used in an international turnover as a means of exchange.*

There are two main features of token, provided in the above definition:

1) it represents a right to a certain object of civil law;
2) it exists in blockchain or other similar distributed decentralized system.

The first feature should be interpreted with reference to the list of objects of civil law recognized in the Civil Code. In accordance with Article 128 of the Civil Code of Belarus [which is quite similar in this regard to the Russian Civil Code], objects of civil rights include: tangible things, including money and securities; other property, including property rights; work and services; undisclosed information; results of intellectual activity, including exclusive rights to them (intellectual property); and non-tangible values. Such a list of objects, together with the definition of token, means that almost any object including real-world assets, rights to IP, information, services, etc. can become "tokenized" and their subsequent disposal made subject to the special legal regime of the token created by the Decree.

The second feature distinguishes tokens from other digital assets, such as paperless securities, bank money or electronic money. This seems logical since, without this feature, all such digital assets would become tokens. However, the mere fact that certain technology is used to record the existence of the legal right should not, as a general rule, lead to emergence of a special legal regime for the management of such a right. Were it to do so, it would contradict to the principle of technological neutrality of the law. The mere fact that the record is reflected in a distributed decentralized system such as blockchain, should not lead to changes in the legal status of such a right. This logic is supported by the position of the US Security Exchange Commission (SEC) regarding the nature of ICO which states: *replacing a traditional corporate interest recorded in a central ledger with an enterprise interest recorded through a blockchain entry on a distributed ledger may change the form of the transaction, but it does not change the substance.*[11]

At the same time, the circulation of tokens in blockchain-based technology can create extra public trust in the records concerning the right owner of the token. This is due to blockchain's resilience tin preventing tampering with the records. This feature may, in its turn, simplify the legitimization of the owner's rights certified by the token, in relation to third parties and thus provide increased liquidity of the tokenized asset. There is an argument, however, that technological neutrality of the law may result in some exclusions if the type of technology applied becomes so disruptive that it fails to mitigate some elements of risk, previously dealt with by legal means. The degree of technological impact on mitigation of legal risks, sufficient to relax the principle of technological neutrality, requires further research, which is outside the scope of this paper.

The Belarus Decree provides that a token is a type of property, on which the owner obtains a separate and independent right. Thus, if the rights to paperless securities are certified in blockchain and they fall within the existing definition of a token, the security will transform into a token and subsequent transactions will be performed with the token and not with the security. Such an approach has a number of

[7] Bygrave Lee, *Internet Governance by Contract*. Oxford University Press. 2015. P. 30.

[8] Bygrave. Op.Cit. P. 39; Joshua A.T. Fairfield, *'Anti-Social Contracts: The Contractual Governance of Virtual World'* (2008) 53 McGill L. J., P. 427.

[9] It is noted that open source projects are hierarchical, with key decisions being made by "product gurus", such as Linus Torvalds – the developer of the core of Linux operating system, one of the most successful open source software projects. Although users have the freedom, in principle, to make any changes they desire and to distribute those changes, such freedom is constrained by the problem of "forking". When users propose changes in products based on open source, the change moves up to hierarchy to the product guru, who then makes a decision as to the whether the change is worthy of inclusion to the product. If the guru rejects the change and the user still wants to distribute it, then the user forks the product and future users will have to choose between canonical versions of the product and forked one. See: Douglas Phillips. *The Software License Unveiled: How Legislation by License Controls Software Access*. Oxford University Press. 2009. P. 158.

[10] The text of the decree is available on the official website of the President of Belarus. URL: http://president.gov.by/ru/official_documents_ru/view/dekret-8-ot-21-dekabrja-2017-g-17716/.

[11] SEC Statement on Cryptocurrencies and Initial Coin Offerings, 11 December 2017. URL: https://sec.gov/news/public-statement/statement-clayton-2017-12-11; Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO (July 25, 2017). URL: https://www.sec.gov/litigation/investreport/34-81207.pdf.

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consequences: not only will it influence the subject matter of the agreement and applicable rules, but also for accounting and tax purposes, the asset at hand will be considered as a token, not a security. Currently, Belarus financial regulators are developing an accounting framework for tokens.[12]

License rights can serve as another example, illustrating the risks of tokenization. If non-exclusive rights to use a certain object of copyright are tokenized and subsequently provided for by means of disposal of the token, it means that special provisions such as copyright are no longer applicable to license agreements. In other words, the list of essential terms of license agreements, requirements for their formation, and limitations for their conclusion, will be overridden by the requirements for agreements with tokens. It is also not clear what kind of remedies will be applicable in the case of infringement of IP objects existing in tokenized form, or how traditional remedies available in copyright or patent law will interrelate with specific token-related remedies, which will appear at some point to be driven by the specifics of underlying blockchain technology.

Providing examples illustrates that the emergence of tokens, which can become a derivative digital representation of almost any other object existing in analogue or digital form, allows absorption of existing legal regimes of those objects with a new one. This leads to the conclusion that tokenization enables not only achievement of a new level of effectiveness in the transacting process by means of its standardization, but also the ability to bypass "inconvenient" rules and provisions by means of tokenization. For example, the Belarus Decree does not permit the exchange of tokens, including cryptocurrencies on goods or services, only token-token or token-fiat money[13] types of transactions, performed via specialized operators of crypto-platforms. This restriction is driven by the fear of regulators to admit cryptocurrencies in real economic turnover. However, it can be by-passed by tokenizing relevant goods or services and making such tokens the subject matter of subsequent exchange transactions.

To a substantial degree, the effectiveness of tokenization will be driven by the increased role of governance by program code and contract, in setting the rules for the circulation of objects of civil law in the shape of a token. The convergence of algorithmic governance with pre-defined contractual terms, both embedded in decentralized infrastructures, can lead to some rather questionable results. Ultimately, it may be a major step for society, regulated mostly by technology. Some researchers have already expressed alarm that the pervasiveness of algorithmic governance tends to de-humanize social relations and results in "techno-social engineering of humans", since digital platforms like blockchain, focus on the transaction exchange process, rather than on the relationship building process.[14]

Obviously, this scenario is not the only possible outcome, but it may become a reality if political decisions are taken to exploit blockchain technologies in certain jurisdictions to attract investment and startups in high-tech areas, as is done in Belarus. It remains to be seen, however, how far relevant provisions will be enforced in practice, but the black letter of the law does permit the drawing of the conclusions outlined above.

4. The right to token: right erga omnes or right ad personam?

The nature of the right to a token is one of the key elements of its legal regime, since it defines remedies available, applicable provisions in bankruptcy proceedings, applicable connecting factors in conflicts of laws and other aspects of a legal regime.

Traditionally, from the period of Roman law, all civil rights were divided into rights in rem and rights ad personam. A right in rem is available against the world at large, i.e. it is valid against all persons generally (erga omnes). The right owner performs his right in rem by his own actions. No assistance from other persons is necessary. Thus, the essence of this right lies in the negative obligation of all other persons to refrain from interference in the enjoyment of that right. Therefore, any other person can violate such right.[15] Taking into account the famous definition of privacy, rights in rem can be designated as a right to be left alone[16] or the right to exclude others from one's property.[17] The most evident example of the right in rem is the ownership right. Third parties may never see the owner, hear about him, or even know if he has died and been replaced as owner by some other person. The only relationship to him is through the property, operating as some kind of mediator, in the sense that third parties may affect the owner only by acting towards his property in some way. The right holder is represented to them as an "owner" and his identity can remain completely obscure. Thus, no particular feature of an individual needs to be ascertained in order to comply with the passive obligation of non-interference. The right in rem is defined by reference to the existence and location of the thing itself and cannot survive the extinction of the thing.

A right ad personam is available only against a determinate person or persons, and corresponds to a duty imposed on determinate individuals. Therefore, only such person or persons can violate it. The rights to claim damages for tort, or the right to recover a debt from the contractual counterparty are the prime examples. The personality of individuals is relevant for rights ad personam, since these persons are obliged to perform something actively, e.g. to do something. A right ad

[12] See: Regulation of the Belarus Ministry of Finance of 6.03.2018 No. 6 'National standard of accounting for tokens".

[13] Fiat money is currency that a government has declared to be legal tender, but it is not backed by a physical commodity. Most modern paper currencies are fiat currencies; they have no intrinsic value and are based solely on the faith and credit of the economy.

[14] Atzori, Marcella and Ulieru, Mihaela, Architecting the eSociety on Blockchain: A Provocation to Human Nature (June 1, 2017). P. 11 ff. Available at SSRN: https://ssrn.com/abstract=2999715;.

[15] J.E. Penner. The Idea of Property in Law. Oxford University Press. 2003. P. 23; Belov Vadim, Essays on Property Rights [*Ocherki veschnogo prava*]. Moscow, 2017. P. 8 ff.

[16] Samuel Warren and Louis Brandeis, *The Right to Privacy*, 4 Harvard L.R.,1890, P. 193.

[17] Penner. Op. Cit. P. 71.

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personam is capable of surviving the loss or disappearance of a thing: the destruction of a certain thing that has to be delivered under the contract does not discharge the claim.[18]

Thus, the question is whether a right to token is a right in rem or right ad personam? One of the possible answers is that "it depends" . Specifically, it depends on the type of token and the nature of the right it certifies. This position seems sound if one recalls that there may be one token representing a cryptocurrency unit, such as bitcoin, and other token representing the right of an investor to a share in the profits of a company issued with such a token. In the former case, there is no obliged person, viz "debtor", as cryptocurrency units are issued and transferred based on algorithms reflected in protocols. In the latter case, there is a determinate person, obliged under the token, by the issue of such token. Nevertheless, if the token becomes one of the core elements of the new digital economy and services based on blockchain, there needs to be a unified approach to its legal regime. In order to answer this question, the key features of the right to a token must be outlined.

First, it is necessary to distinguish the right to a token from the rights certified by it. Two types of relations exist viz. the "owner of the token and other third persons" and "the owner of the token and the issuer of the token". Utility and asset tokens usually have an issuer, who becomes a debtor towards the owner of the token with regard to the obligations certified by it, e.g. to provide a certain online service, a specific share in the profits of the debtor or other asset. The qualification of the relation between the issuer of the token and its owner, as a right ad personam, does not prevent qualification of the right to such token as a right in rem, when it comes to relations with third parties. This situation is quite similar to the one operating with securities: a person may own a security as an object and at the same time have a personal claim to the issuer of it. The activities of cryptoexchanges, where the market value of such objects is defined and where they can be converted in fiat currencies, or exchanged for other types of tokens or cryptocurrencies, prove the fact that a token as well as cryptocurrencies can be objects which are alienable and circulating as such. In substance, such activities do not possess substantial differences compared with the activities of traditional stock exchanges, where securitized representations of rights are circulating, usually treated as objects of property rights.

Nevertheless, the disposal of tokens do possess some unique features, which are essential in defining the nature of the rights to a token. Only a person who knows the private key has the opportunity to transfer a token. No consent or approval from another person is needed for such a transfer, at least if it is circulating in a public blockchain. However, in order to make such a transfer effective, assistance or rather, participation of other persons, is required. So-called miners are performing activities necessary for verification of transactions in blockchain and reflecting them in new blocks of such transactions. It is not possible to identify in advance the list of such miners: any person, having the motivation and possessing computing power may become a miner. It means that the ultimate dominance of a person over the token circulating on a public blockchain, is impossible without the participation of third parties. However, such participation is rather untypical: such participation is regulated, not by an agreement, but by protocol. Besides, such participation does not lead to the emergence of any legal rights on the miner's side to a token, transfer of which is verified by him. The token, in this situation, serves as one of the sources of input for complex mathematical tasks, which need to be resolved by the miner. Therefore, such miner can still be considered "excluded," from a legal perspective, from interference in the sphere of the token owner's property right. There is nothing personal in relations between the owner of a token or cryptocurrency and miners and, as Penner convincingly argues, the more something is impersonal, the more it is property.[19]

Moreover, it is possible to "steal" a token via a hacker's attack. A number of cases have been reported already. One of the most notorious attacks was the DAO (digital decentralized autonomous organization) hack, where the attacker managed to transfer more than 3.6 million ETH cryptocurrency units into his account by exploiting the program code.[20] There is also a long history of thefts at cryptocurrency exchanges and wallets, dating back to the infamous robbery of Tokyo-based Mt. Gox in 2014. These examples illustrate that the right to a token can be violated by a third party and support the argument that the right to a token is a right in rem.

Nonetheless, once one decides that a right to a token can be qualified as a kind of right in rem, since it can be violated by a third party, a very difficult question about the applicability of associated remedies arises. These difficulties result from the fact that the action of the owner to claim his property implies that there is a possibility of possession of such an object. As the old maxim of common law states, "possession is the root of title".[21] Under Russian law, possession is the key element of the so-called vindicatio claim, which forms the core type of remedy for the protection of a right in rem: the claim of the non-possessing owner to the possessing non-owner (Article 302 of the Civil Code of the Russian Federation). This remedy allows the owner to receive the actual thing back, if he has lost control over it for some reason, sometimes even if the new owner is a bona fide purchaser for value without notice. The mere notion of possession, understood in Russia as the exercise of exclusive dominion through physical relation over a material object, does not fit easily into such intangible objects as a record in a blockchain register, even if it is associated with some kind of property right. The core problem here is not only in the intangibility itself, but also in the inability to seize effective control by a third party over such an asset as a token, which can be transferred only if the private key is known. If a certain right or other asset exists in a centralized system, the administrator may take action and transfer it to the other person, based on the decision of the court or other lawful basis. In a decentralized system like blockchain,

[18] Peter Birks. An Introduction to the Law of Restitution. Oxford. 1985. P. 49-50.

[19] Penner. Op.Cit. P. 132.

[20] See, e.g. David Siegel. Understanding the DAO Attack. 25 June 2016. URL: https://www.coindesk.com/understanding-dao-hack-journalists/.

[21] Carol Rose. Possession as the Origin of Property. 52 U. Chi. L. Rev. 1985, P. 75.

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where the token exists, such approach is not an option. If it is not possible to transfer the token without the will or cooperation of the person who knows the private key, then it means that vindication and other types of remedies associated with possession and its transfer are not feasible. The only possible decision is a claim for damages, which is a claim ad personam. The presence of a damages claim allows one to say that there is a right recognized in the law: as the old Roman law maxim states - where there is a right, there is a remedy (ubi ius ibi remedium). After all, whether a property-holder can only obtain damages for theft or interference of his property, or whether he can secure the return of the object itself, does not determine whether he is the owner or not.[22]

There are some known cases, where the court authorized seizure of bitcoins contained in wallets belonging to a defendant by transferring the full account balance in each wallet to a Bitcoin address controlled by state authority.[23] Specifically, it was done in the famous 'Silk Road' case and resulted in a subsequent tender, where such seized bitcoins were sold. Unfortunately, available materials on this case do not reveal how the order of the court was performed, from a technical perspective. However, if it was done without the cooperation of the owner of the private key then, based on the decision of the court or law enforcement agency, it means that there are possibilities to transfer tokens existing in decentralized systems, such as public blockchains. If so, this is a major breakthrough in bringing this object within the traditional province of law.

Based on the above, it is possible to conclude that the right to a token possesses some features, which are typical for both rights in rem and rights ad personam. At first glance, the loss of control over a token, e.g. due to the inability to recall the password to the wallet, leads to the disappearance of both the right certified by it and the right to such a token. Secondly, a right to a token can potentially be violated by any third person, who may steal it from the wallet using hacking or social engineering techniques. Therefore, it needs protection against the whole world (erga omnes). Besides, it represents the fact of belonging to certain individually defined assets, to a person separable from it, which is typical in relation to property rights. As Penner puts it, if a relationship is a property relationship, there must be an owner and there must be something owned, and these cannot be the same things. Furthermore, if one stands in the relationship of owner to a thing, then it must be possible for someone else to own it as well.[24]

However, certain features, such as the inability to transfer tokens without involvement of certain third parties ("miners") in public blockchains, and the inability to apply the concept of "possession" to such intangibles as tokens, with relevant proprietary remedies, leads to the conclusion that a right to a token is of a mixed nature and potentially deserves a *sui generis* regime.

Having reached this point, it is worth considering how some jurisdictions try to answer this question. The aforementioned Belarus Decree explicitly states that the owner of the token has a "proprietary" right to it (Attachment 1 to it). At the same time, for the purposes of taxation, the transfer of tokens is qualified as the assignment of a proprietary right (Article 3.1 (1)). Pragmatic reasoning drives such decisions. When a new object appears, there are few options available: either to extend existing legal regimes towards such new objects or to create a new legal regime. Given that such objects depend on the evolving technology, which perspective is unclear, it is too risky perhaps to create something new. Therefore, the former approach might be preferred. It will be interesting to see how the Belarus authorities and the courts handle the many difficulties associated with the specifics of tokens.

As for the Russian approach, it is still under development. The Ministry of Finance and the Central Bank of Russia are both preparing new legislation in this sphere, aimed at clarifying the legal regime of ICO, tokens, cryptocurrencies, and smart-contracts.[25] It is expected to have these laws adopted by the end of 2018. Currently, the draft law establishes that the rights to tokens and to cryptocurrencies are rights in rem. However, no further specific provisions about remedies or other aspects of the regime of such rights are provided. This draft law is mostly concerned with public aspects of usage of cryptocurrencies and tokens, such as the status of operators of cryptocurrency platforms, their obligations and the list of permitted transactions.

Another draft of the law dedicated to tokens seeks to introduce changes in the Civil Code itself.[26] It considers the nature of tokens as some kind of property right. Such tokens are identified as "digital rights" and defined as "digital code," certifying the right to be an object of civil rights (except for nonmaterial values) existing in a decentralized information system. This is on condition that the owner of the token is familiar with the description of such object at any time. The transfer of rights to such objects is performed solely by introduction of changes to the register existing in such a decentralized information system. This draft defines cryptocurrencies as "digital money" and as digital code, existing in a decentralized information system, which does not certify a right to some kind of civil law object, and functions as a means of payment among the users of such information system. The same rules for the transfer of digital money as for digital rights apply.

Both drafts have received substantial criticism from various stakeholders, and it is likely that a middle ground approach will ultimately be found. Amendments to the Civil Code will regulate private aspects of tokens/cryptocurrencies, while a special law will cover the public law aspects. In any case, these drafts prove the trend of the law to tokenization, with all the inherent risks as illustrated in this paper.

Meanwhile, the Russian courts and authorities have taken a position that such an object does not exist in Russia and cannot be an asset, which can be exchanged for goods or services. Neither can it be accepted as a payment by legal entities. The

[22] Penner. Op. Cit. P. 141.

[23] US v. Ross William Ulbricht, Sealed Second Post-Complaint Protective Order. 24 October 2013. URL: https://www.justice.gov/sites/default/files/usao-sdny/legacy/2015/03/25/Second%20Post-Complaint%20Protective%20Order%20-%20Silk%20Road.pdf.

[24] Penner. Op. Cit. P. 124.

[25] Draft Federal Law of the Russian Federation "On Digital Financial Assets" No. 419059-7.

[26] Draft Federal Law of the Russian Federation "On Digital Financial Assets" No. 424632-7.

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Russian commercial ('arbitrazh') court has decided recently that cryptocurrency should not be included in bankruptcy assets, since it is not an object of civil rights.[27] The official reasoning is that such objects as cryptocurrency are not indicated in the list of objects of civil rights provided in the Civil Code of the Russian Federation. There is much speculation about the motives of the judge here, but one could be linked to frustration about the possible consequences of inclusion of such objects in bankruptcy processes, where no clarity exists as to the nature of the rights to it or to the possible regime of its subsequent disposal.

The complexities of the issues discussed above, driven by the unique nature of tokens and cryptocurrencies, lead to the conclusion that such objects deserve their own, *sui generis* legal regime. Nevertheless, it is impossible to provide a detailed regulation now, as the technology is still developing and the scope of its application in real life remains unclear. During the transition period, it will be squeezed into existing concepts and provisions, some of which will be applied directly and others by means of analogy. However, in the long run, there are prerequisites for the emergence of rights to tokens, which may include features from other legal regimes, such as security laws, tangible property rights, and intellectual property rights. There may also be parallels to how, after a period of time, the intellectual property rights regime evolved from traditional property law, when relevant relations became sufficiently mature.

The remarks provided in this paper have most definitely only scratched the surface of the problems associated with tokenization of the economy. The judgements expressed here are those about which reasonable people may wish to differ. However, the author hopes that these thoughts will be of value for the ongoing and subsequent discussion of this topic.

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[27] Decision of the Commercial court of Moscow No. № A40-124668/2017. However, it seems likely that the Appellate court may overrule this decision and take into account the recent legislative initiatives.

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