

SMART CONTRACTS: THE LEGAL COMPARISON

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Abstract: *Though there are some initiative in order to give legal foundation for smart contracts, its legal status is still not settled. Most of the examination of smart contracts has been presented by common law scholars and practitioners while fewer civil law jurists shared their views on the matter. However, there seems to be a tendency that the representatives of the common law are reluctant to accept smart contracts as legally binding contracts while civil law jurist apparently are more open to that. The aim of the present article is to find out what the core principles and values are which make this difference. While evaluating the approaches in this respect, some additional thoughts will be added why the civil law may be more tolerant towards to smart contracts. The main purpose of the article is to highlight the different aspects as regards the smart contracts.*

1. Introduction

As it is well known, the nature of smart contracts and their possible role in revolutionize the daily business practice trigger fierce battles between technologist, businessmen, scholars and jurist. In order to take most of the opportunities from this new tool, eventually it will be necessary to provide a coherent and secure legal background. Even though legal framework for smart contracts should be constructed on international level it is probable that firstly it will be implemented by individual countries (as in some cases it was already done in some states in the USA or in Italy in Europe). It is held that smart contracts may be getting more and more relevant in providing services for consumers¹ and it also necessitates an approach how to handle them. In this contribution the legal issues are examined by from civil law and common law perspective demonstrating the core differences which show interesting and deep insights about the legal status of smart contracts.

To proceed, it is needed to set forth some assumptions. Firstly, it is essential to give a definition about smart contract itself and then determine what one should understand under continental (civil) law countries and common law countries. Having done that, it is possible to address the questions for which this paper is intended to answer.

The definition which was given by Szabo is well-known among the professionals in this field.² However, as regards the nature of smart contracts the relevant question would be whether it is only a computer program or it is a real contract manifested in a computer code or rather a quasi-autonomous agent which acts upon a certain type of logic. Although it would be an interesting topic to assess the different approaches as regards their

¹ BORGOGNO, Usefulness and Dangers of Smart Contracts in Consumer Transactions, In: DiMatteo/Cannarsa/Poncibò (Eds.), *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms*, Cambridge University Press 2019, p. 288–310, (pp. 296–299).

² SZABO, Formalizing and Securing Relationships on Public Networks, *First Monday*, volume 2, issue 9, 1997, <https://doi.org/10.5210/fm.v2i9.548>.

nature (for instance for the autonomous-agent reasoning see the opinion of Kolber³ or Kőlvart and others⁴), for the sake of simplicity the definition of a smart contract is understood as found below:

«digital programmes that

- (a) are written in computer code and formulated using programming languages;
- (b) are stored, executed and enforced by a distributed blockchain network;
- (c) can receive, store and transfer digital assets of value;
- (d) can execute with varying outcomes according to their specified internal logic».⁵

As regards the countries itself, Rene David's typology will be followed.⁶ Hereinafter common law countries are deemed (without completeness) the United Kingdom, USA, Canada and Australia while the continental civil law countries are deemed to be the ones which established their legal systems primarily on the Roman law tradition («Romano-Germanic family» as Rene David calls them) as for instance Germany, Italy, France, Finland and the author's home country, Hungary.

The main question that this article intends to respond to is what different aspects are considered in assessing the legal status of smart contracts and what are the considerations to promote or deny a legally binding effect from the standpoint of these two legal traditions. It is also our purpose to identify the conflicting views and theories which are relevant in this respect. Firstly, the main points of the relevant issues will be presented for each legal regime and then these points will be compared with each other providing the conclusion.

2. Common Law Approach

There are several authors who examined smart contracts from a common law aspect (for instance see among the many others the opinion of Sklaroff⁷, Werbach⁸ and Mik⁹). Since the epicenters of digital technological developments are found in these countries (especially in the USA) it may be assumed that the legal community has a soft approach towards this new instrument. In this article mainly American authors are cited and considered, the observations may be hold true mainly for the USA.

2.1. Absence of ambiguity

Most of the authors criticize the missing ambiguity of smart contracts saying that this feature is rather important when an outcome or a fulfillment is quite difficult to be assessed, thus ambiguity may contribute to flexibility to manage daily business hence it is widely used in real contracts.¹⁰ It is reiterated that losing the ability to use ambiguous terms a smart contract can never be used as a real contract. In this regards also highlighted the fact that it is impossible to list all the possible outcome of a contract thus a complete contract cannot be drafted.¹¹

³ KOLBER, Not-So-Smart Blockchain Contracts and Artificial Responsibility, *Stanford Technology Law Review*, 2018, volume 21, issue 2.

⁴ KŐLVART/POOLA/RULL, Smart Contracts, In: Kerikmäe/Rull (Eds.), *The Future of Law and ETechnologies*, Cham: Springer International Publishing, 2016, p. 133–147, (p. 134).

⁵ LAUSLAHTI/MATTILA/HUKKINEN/SEPPÄLÄ, Expanding the Platform: Smart Contracts as Boundary Resources, In: Smedlund/Lindblom/Mitronen (Eds.), *Collaborative Value Co-Creation in the Platform Economy*, Singapore, Springer Singapore, 2018, p. 65–90, (p. 70).

⁶ FÖLDI, Összehasonlító jogtörténet. Vergleichende (komparative) Rechtsgeschichte, Budapest, ELTE Eötvös K, 2012, p. 55.

⁷ SKLAROFF, «Smart Contracts and the Cost of Inflexibility», *University of Pennsylvania Law Review*, volume 166, issue 1,.

⁸ WERBACH/CORNELL, *Contracts Ex Machina*, *Duke Law Journal*, volume 67, issue 2, p. 313–382.

⁹ MIK, Smart Contracts: Terminology, Technical Limitations and Real World Complexity, *Law, Innovation and Technology*, volume 9, issue 2, p. 269–300.

¹⁰ SKLAROFF, Smart Contracts and the Cost of Inflexibility, p. 279.

¹¹ LIPSHAW, The Persistence of «Dumb» Contracts, *Stanford Journal of Blockchain Law & Policy*, <https://stanford-jblp.pubpub.org/pub/persistence-dumb-contracts>, 2019.

2.2. Lack of enforceability

There are authors who maintain that for the reason of lack of enforceability smart contracts may not be regarded as contracts in the legal sense see the opinions of Mik, Werbach and Raskin in this respect.¹² It is a well-known feature of the public blockchain that due to the anonymity it is virtually impossible to trace back the users hence in case of dispute it cannot be enforced which is an essential prerequisite for a contract according some of the authors.

2.3. The possibility of concluding void contracts

According to the authors referred to, smart contracts may give an opportunity to create obligations and legal relations which should be void ab initio. The most common examples are the following: establishing relationship with an ineligible person or persons (e.g., not an adult) or for illegal activities (e.g., drug selling).¹³

2.4. Lack of flexibility

It is pointed out that in conducting business the flexibility of contracts has great importance in order to be able to react to unexpected events. Although the mere unchangeable nature has less to do with legal issues, it seems that this feature renders it nearly impossible to appeal to the so-called «efficient breach» which is somewhat supported and propagated in the common-law regimes see the observations of Eenmaa-Dimitrieva and Schmidt-Kessen¹⁴ and Scott Farrell and others.¹⁵

2.5. Assessment of the common law opinions

It may be concluded that even though blockchain and smart contracts are utilized widely in common law countries, the general stance is not-so-positive towards this new tool from a legal perspective. Additionally most of the authors consider the hardships, which are related to conduct business activities with smart contracts, in other words they examine smart contracts from a very practical standpoint. It may be noticed that this moderated stance may derive from the fact what Primavera de Filippi interpreted as «a degree of a legality» meaning that autonomous systems as any blockchain-based system «can be designed to bypass or simply ignore the laws of a particular jurisdiction». ¹⁶ This «alegality» attribute could cause this approach, although EENMAA-DIMITRIEVA and SCHMIDT-KESSEN add that «they [smart contracts] do not only allow for illegal trade to occur, but they could also enable new forms of economic exchange that are actually desirable». ¹⁷

It must be noted however, that there are authors who claim that smart contracts may be fitted better into the common law regime than to the civil law regime. Cannarsa's brief comparison about the civil law and common law contract drafting techniques ends up with the conclusion that the common law contracts generally covers more situations than their civil law counterparts hence common law contracts may be translated easier

¹² MIK, Smart Contracts: Terminology, Technical Limitations and Real World Complexity, p. 280., WERBACH/CORNELL, Contracts Ex Machina, p. 126., RASKIN, The Law and Legality of Smart Contracts, Georgetown Law Technology Review, volume 1., issue 2, 2017, p. 305–341., (p. 321.)

¹³ See for example: SKLAROFF, Smart Contracts and the Cost of Inflexibility, p. 268., MIK, Smart Contracts: Terminology, Technical Limitations and Real World Complexity, p. 287., (p. 321.)

¹⁴ EENMAA-DIMITRIEVA/SCHMIDT-KESSEN, Regulation Through Code as a Safeguard for Implementing Smart Contracts in No-Trust Environments, SSRN Electronic Journal, 2017, p. 26.

¹⁵ FARRELL/MACHIN/HINCHLIFFE/MALLESONS, Lost and Found in Smart Contract Translation – Considerations in Transitioning to Automation in Legal Architecture, http://www.uncitral.org/pdf/english/congress/Papers_for_Programme/14-FARRELL_and_MACHIN_and_HINCHLIFFE-Smart_Contracts.pdf, (accessed on 16 December 2019), 2017.

¹⁶ DE FILIPPI/WRIGHT, Blockchain and the Law: The Rule of Code, Harvard University Press, 2018, p. 44.

¹⁷ EENMAA-DIMITRIEVA/SCHMIDT-KESSEN, Smart Contracts: Reducing Risks in Economic Exchange with No-Party Trust?, European Journal of Risk Regulation, 2019, volume 10, issue 2, p. 245–262, (p. 259.)

into «dry» computer code (also common law drafters do not rely much upon courts which makes less problematic the enforceability).¹⁸ Durovic and Janssen share the view that the smart contracts are compatible with the English contract law regime.¹⁹ Additionally in their book Primavera de Filippi also holds true that smart contracts may be enforced by ordinary courts in the USA.²⁰ As Rohr investigated it, if one wishes to continue the vending machine metaphor originally given by Szabo, the contracts concluded in via machines are qualified contracts according to courts decisions as well.²¹

3. Civil law (continental law) approach

There is a limited number of authors who dedicated time and effort to evaluate smart contracts from a civil law viewpoint. In this article mainly the works of KÖLVART AND OTHERS²², LAUSLAHTI AND OTHERS²³ and HOFFMAN²⁴ works are considered. They emphasize the essential elements below.

3.1. Intention

One of the key factors whether it is possible to tell the intention(s) of the parties. The authors emphasize that even if it is controversial whether the intent of the parties may be determined, it is not impossible either. In their analysis KÖLVART AND OTHERS research the problem of spotting the intent of the parties in the framework of the current international and national (Estonian) acts and laws. A definite solution is not given how to assess it in case of smart contracts although the possibility to find it not excluded either.²⁵ On the contrary, in their work LAUSLAHTI AND OTHERS have a more positive attitude: «There seems to be no reason to doubt whether smart contracts can be used to perform legal acts as long as the parties» intent is at the very least made evident by facts».²⁶

3.2. Offer-acceptance schema

In the continental civil law tradition a certain process is expected upon which a contract may be concluded. According to the traditional view firstly an offer must be given and then by the acceptance a conclusion may be reached about the essential terms (*essentialia negotii*), which makes the foundation of a contract. It was realized long ago that this process is not applicable in the «modern» society in its traditional form, although it is still widely used when it comes to assessing contracts.²⁷ The authors do not exclude that this pattern may be recognized in the blockchain environment. See for the opinion of LAUSLAHTI AND OTHERS: «If observed in light of the offer–acceptance mechanism, a public smart contract added to the blockchain to which the party has transferred assets for management may perhaps be interpreted as an offer. Respectively, another party’s

¹⁸ CANNARSA, Contract Interpretation, In: DiMatteo/Cannarsa/Poncibò (Eds.), *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms*, Cambridge University Press, 2019, p. 102–117. (p. 111–12.)

¹⁹ DUROVIC/JANSSEN, Formation of Smart Contracts under Contract Law, In: DiMatteo/Cannarsa/Poncibò (Eds.), *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms*, Cambridge University Press, 2019, p. 61–79., (p. 68).

²⁰ DE FILIPPI/WRIGHT, *Blockchain and the Law*, p. 79.

²¹ ROHR, Smart Contracts in Traditional Contract Law, Or: The Law of the Vending Machine, *Cleveland State Law Review*, volume 67, issue 1, 2019, p. 67–88.

²² KÖLVART/POOLA/RULL, *Smart Contracts*.

²³ LAUSLAHTI/MATTLA/SEPPALA, Smart Contracts How Will Blockchain Technology Affect Contractual Practices?, *SSRN Electronic Journal*, 2017.

²⁴ HOFFMANN, Smart Contracts and Void Declarations of Intent, In: A. Proper/Stirna, *Advanced Information Systems Engineering Workshops*, Cham: Springer International Publishing, 2019, p. 168–175.

²⁵ KÖLVART/POOLA/RULL, *Smart Contracts*.

²⁶ LAUSLAHTI/MATTLA/SEPPALA, Smart Contracts How Will Blockchain Technology Affect Contractual Practices?, p. 22.

²⁷ KÖLVART/POOLA/RULL, *Smart Contracts*, p. 139.

joining the smart contract may be seen as acceptance of the offer».²⁸ It goes in line with Hoffman's opinion who states that setting up a smart contract in blockchain may be a binding offer «however, only be from that point of time when the action has been «enchained» by the hash of a subsequent block, as eventual forks arising during calculation of the hash on separate servers until that point of time prevent a clear determination of the declaration. In other words, «enchaining» the transaction into the blockchain makes it also legally irrevocable and thus binding».²⁹

3.3. Other constraints to create a valid contract

While admittedly the freedom of contract is the main principle of the continental civil law, there are some constraints to keep as the principle *pacta sunt servanda* or the protection of consumers against major companies. It is implied that especially the «*pacta sunt servanda*» principle may be fitted to smart contracts.³⁰

3.4. Assessment of civil law opinions

In conclusion, it may be clear that although the continental civil law's approach is more theory-driven, these principles do not exclude the eligibility of smart contract to be qualified as a legally binding contract. Seemingly there is no consideration which may undermine the legality of a contract as deeply as it was found from common law perspectives (for instance the problem of enforceability).

4. Key Differences

Now it is time to compare the two approaches in order to see the main differences between them. However, it must be noted that – as it was mentioned before – it is apparent that common law requires more flexibility in order to enhance business opportunities, while the continental civil law aims at fulfilling requirements of principles and processes established long ago.

4.1. Lack of enforceability of common law and the requirements of intention and offer-acceptance schema of the civil law

While the impossibility of enforceability mentioned several occasions in the works of common law jurists and scholars, it is not even considered in the writings of their continental colleagues. Probably the reason is that the definition of the contract in civil law is often based on the common intention of the parties irrespectively of the form or the enforceability and as long as this requirement is fulfilled, the contract is valid.³¹

The continental civil law even specifies the legal relations, which constitute the requirements of a valid contract, but which cannot be enforced assuming that validity does not equate with enforceability. This kind of bond is the so-called «*obligatio naturalis*» (natural obligation). The «*obligatio naturalis*» is used basically in two scenarios: in case of prescription as well as in legal relationships which are deemed immoral.

In both cases there is a legally binding relationship, which cannot be forced for different reasons. In the case of prescription, the sole fact of passage of time does not render invalid the contract, but for practical considerations (for instance the provability of the claim) the state denies helping in the enforcement.³² In the case of

²⁸ Ibid, p. 16.

²⁹ HOFFMANN, Smart Contracts and Void Declarations of Intent, p. 170.

³⁰ LAUSLAHTI/MATTILA/SEPPALA, Smart Contracts How Will Blockchain Technology Affect Contractual Practices?, p. 9.

³¹ See for the definition of contracts in the Italian Civil Code (Codice Civile) art. 1321, in the French Civil Code (Code civil) art 1101 and in the Hungarian Civil Code (Polgári törvénykönyv) 6:58. German Civil Code (Bürgerliches Gesetzbuch) does not contain explicitly the definition of the contract since it has been established by the German jurisprudence.

³² See examples for the regulation for prescription in the Italian Civil Code (Codice Civile) art. 2934 and art. 2940, in the German Civil Code (Bürgerliches Gesetzbuch) Section 214 and in the Hungarian Civil Code (Polgári törvénykönyv) 6:21 and 6:23.

the immoral obligations (for instance gaming, betting) the shared intention is concluded, so in a wide sense it fits to the definition of a contract, yet the subject of this common interest often offends the values of the states, hence they are not willing to help to enforce a claim as such. In both cases the claim must be fulfilled and cannot be reclaimed if it was completed.³³

On the other hand, as it was presented from a continental law perspective, the intention and a possible offer–acceptance process are the decisive factors in assessing the validity of a contract. If it is possible to ascertain a smart contract according to the offer–acceptance schema, it is highly likely that one can understand the parties’ intentions. As it was shown in section 3.1. and 3.2., the intention of the parties and the offer–acceptance schema may be apparent and may be spotted in the course of creating and concluding a smart contract hence the main requirements could be fulfilled in the respect of the civil law.

In summary, the theoretical and practical separation of the validity and the enforceability is not problematic at all for the continental civil law, while its main prerequisite as having a shared intention and have an offer–acceptance process in advance more or less fits to the creation of a legal bond by smart contracts.

4.2. The problem of the absence of ambiguity and lack of flexibility

Whilst it is certainly true that a smart contract cannot handle subtle concepts as for instance «good faith» or «good conduct» however in this phase of its development it is not its primary goal. It must be admitted also that in certain scenarios the ambiguity as a feature might contribute to an accelerated conclusion of a contract and maybe to a smoother relationship later on. Nonetheless, the overall statement as «developers fail to recognize that in contract law, ambiguity is a feature not a bug»³⁴ may be misleading. When the subject of a contract is assessable/measurable (as in a case of a work contract or a purchase contract) ambiguity is not a feature at all, and in a case like this the parties most likely would wish to be as precise as possible including the verification of the fulfillment. As Sklaroff pointed out, there is a tendency that the «gentleman’s agreements» end up in courts since the parties rarely know exactly what they have undertaken.³⁵ It is also correct to ascertain that human creativity cannot be matched with smart contracts;³⁶ however, the point to made here is the mere fact that smart contracts may be more powerful in some scenarios even in the absence of an ability to handle ambiguity.

As regards flexibility, some Anglo-Saxon authors maintain the possible negative consequences of the inaccessibility of an efficient breach. It is a sort of popular theory, which was developed in the law & economics research area primarily in the USA. As the name suggests, it tries to find situations where the parties are better off when terminating the contract due to economic reasons.

A well-known feature of (public) blockchain is its unchangeability, thus what was once placed in the blockchain most probably will be executed no matter what.³⁷ In practice it means that a smart contract may be terminated only in the explicitly coded cases, and in every other scenario it will be executed even if one of parties changes his/her mind.

Although the efficient breach theory may be relevant in common law thinking, Scalise brightly shows why it cannot be efficient under continental civil law.³⁸ Without going into deep analyses, it is certain that in the

³³ See examples for immoral obligations in the Italian Civil Code (Codice Civile) art. 2034, in the German Civil Code (Bürgerliches Gesetzbuch) Section 762., and in the Hungarian Civil Code (Polgári törvénykönyv) 6:121.

³⁴ MIK, Smart Contracts, p. 292.

³⁵ SKLAROFF, Smart Contracts and the Cost of Inflexibility, p. 285.

³⁶ GIANCASPRO, Is a «Smart Contract» Really a Smart Idea? Insights from a Legal Perspective, Computer Law & Security Review, 2017, volume 33, issue 6, p. 825–835., (p. 834.).

³⁷ Using a so-called fork, a smart contract may be modified but as the case of the DAO showed, its utilization is rather controversial. The original and «purest» notion of smart contract is assumed here according which modification is not a possibility.

³⁸ SCALISE, «Why No» «Efficient Breach» in the Civil Law?: «A Comparative Assessment of the Doctrine of Efficient Breach of Contract», The American Journal of Comparative Law, volume 55, issue 4, 2007, p. 721–766.

Roman law tradition the contract has some «sacral» nature, which implies a rather high degree of moral considerations attached to its notion. This is why the «pacta sunt servanda» principle renders somewhat costly the breach of a contract; hence it is nearly impossible to talk about «efficient breach» in the continental civil law. The «pacta sunt servanda» principle surprisingly fits to the unmodifiable nature of smart contracts, which may make it rather usable for the continental civil jurists. To quote Mik, the unmodifiable attribute of smart contracts «may be a feature not a bug» from a civil law standpoint. Although, in a recent article Kaczorowska examined the juridical status of the smart contracts from the Polish legal standpoint and it has been emphasized that «the requirement to honour contractual promises reflected in the pacta sunt servanda principle never operated as a principle being absolute in character».³⁹ She iterates that in the civil law the «rebus sic stantibus» (Latin for «things thus standing») is a «vital exception» as regards the fulfillment of a contract and it adds flexibility to the civil contract law regime although it cannot be equated to the efficient breach doctrine.⁴⁰

4.3. The problem of the possible void contracts

In this respect it is certain that common law and continental civil law have a common stance. Both law regimes aim at preventing illegal transactions either because of the subject of the transaction or because of the ineligibility of the parties (or party).

Nonetheless an invalid contract must be deemed invalid *ab initio* (*ex tunc*), solely because of the impossibility of the assessment of a smart contract in advance, this instrument cannot be regarded as inefficient or illegal. As HOFFMAN demonstrates, even in the real world the validity of a contract is not apparent immediately, and it is possible to act upon forged or invalid documents.⁴¹ The mere risk that a contract may be invalid does not render the whole regime invalid or ineffective, rather it is something we need to live with. It is absolutely true to smart contracts as well.

5. Conclusion

The key question, which have been posed by the present article is whether a smart contract may qualify as a legally binding contract according to the civil law and the common law, and what may be the decisive factors for a legislation in the future. In addition, this analysis was reflecting to the main differences, which may be crucial in a possible international legal act. As it was shown, common law scholars express rather serious reservations in respect of smart contracts although not all of them deny its contract-nature (the counter-opinions are shown in section 2.5.). While continental civil law scholars are cautious as regards the assessment, they tend to accept the validity of smart contracts. It may be rather surprising, knowing that the continental civil law regime may seem stricter and more demanding to meet the requirements of the centuries-old paradigms and principles. However, apparently it is not the case, thus it may be expected that continental countries recognize smart contracts as legally binding contracts (maybe without recognizing its enforceability). Overall it may be summarized that the difficulties which are raised by common law scholars are valid; however, they are not necessarily taken into consideration by civil jurists.

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³⁹ KACZOROWSKA, Juridical Status of So-called Smart Contracts against the Background of the Polish Legal Framework, Masaryk University Journal of Law and Technology, volume 13, issue 2, 2019, p. 208

⁴⁰ Ibid, p. 208.

⁴¹ HOFFMANN, Smart Contracts and Void Declarations of Intent, p. 170.

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