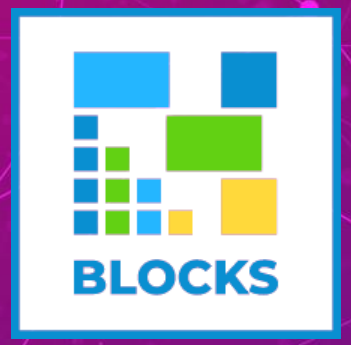

TAL TECH

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BLOCKCHAIN AND THE LAW

27.03.2019

AGENDA

- **REGULATING BLOCKCHAIN**
- **Regulation of Blockchain/Smart contracts**
- **Case study: Smart contacts under German and International law**
- **Smart contracts and void declarations of intent**
- **Blockchain and Private Autonomy**

POTENTIAL PROBLEMS WITH BLOCKCHAIN REGULATION

Traditional regulation by acts/statutes may fall short on decentralized systems.
Still, Regulation goes beyond law

How can „blockchain“ be object of regulation?

- Law: Not imposed on codes themselves, but on end users, e.g. vicarious liability on individuals interacting with/“engaging in undesirable blockchain applications“ (Filippi)
- Users actively maintain a platform by adding blocks; thus v.l. set up easier than elsewhere

POTENTIAL PROBLEMS WITH BLOCKCHAIN REGULATION

- Beyond individual users, also intermediaries showing (search engines, SM) or interacting with (companies providing services on top of blockchain-systems) may be regulated
- ISP can discern which computers are connected to blockchain-based Network, traffic over Bitcoin/Ethereum unencrypted

POTENTIAL PROBLEMS WITH BLOCKCHAIN REGULATION

- Miners and miners' pools can be regulated – but only within one jurisdiction
- Problem: obligations to comply with the law via changing a blockchain's protocol can be fulfilled only via consensus of miners who most probably will be scattered worldwide

REGULATING BLOCKCHAIN: ARCHITECTURE

- Code design can be regulated, i.e. duty to include government backdoor
- Strict liability of developers of blockchain based systems
- Even criminal prosecution (Melissa-Virus: 10 years prison)

REGULATING BLOCKCHAIN: MARKET

- Governments can buy digital currencies, increasing their price on secondary market
- Cost of storing data/transactions increase
- This can put pressure to implement protocol changes, e.g. to prevent unlawful transactions

REGULATING BLOCKCHAIN: SOCIAL NORMS

- Governments can start information campaigns on blockchain risks and advantages, raising awareness among users
- Governments can start mine themselves and actively influence community

LEGAL PROPERTIES OF SMART CONTRACTS

- ‘Trustless Trust’
- Self-performance of obligations to transact
- Disclosure of data exactly determined by specific needs/for a specific time
- Extended Smart Contracts: Automatic sanctions in case of non-performance

CHALLENGES OF SMART-CONTRACTS REGULATIONS

Unstoppability and
- ‘Reverse Transactions’?
- Exact point of time of contract conclusion?

Undertermined legal terms
- Protection of weaker parties (consumers, minors)
- Accountability of declarations of intent/liability; entanglement with autonomous systems (Dilemmata)

Problem of standardisation
- (Open-source-)Libraries of smart contract code provide samples, basically just as standard business terms, „automation bias“

Pseudonymous parties/party identification:

- In case of non-performance, pseudonymisation may bar initiation of civil actions
- To detriment of weaker parties

Privacy issues

- Risks if confidential data is involved
- Not only in smart contracts, but in all blockchain transactions in general: GDPR issues

General approach:

- documentation of the contract on a block chain is legally unproblematic
- On the other hand, an smart contract is initially not necessarily a contract at all.
- Composition of a contract: offer and acceptance

– contain sufficient information about essentialia negotii and

– be accepted without modification

Smart contract definition: software-based protocol, which may trigger other determined ”protocol steps”

- It initially only represents a documentation of the contract
- The automatic trigger of another process, on the other hand, can have a legal meaning.
- Usually performance of the contractual obligation of one of the parties (e.g. execution of an action on receipt of payment).

EXAMINATION OF CLAIMS IN CIVIL LAW

The examination of a contractual claim consists of three steps:
1) Claim arisen (= contact concluded)
2)Claim expired
→ as a rule, this is effected by the performance of those duties. The elements of this performance depends entirely on the content of the specific contract.
3) Enforceability of the claim
• As a matter of principle, claims are enforced - if the debtor does not act voluntarily – upon obtaining a corresponding title and on the basis thereof by state bodies.
• Not the case for smart contracts

Unstoppable Contracts - Impermanence and Finality

- Unstoppability is just a technical peculiarity of a particular contract
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- Transactions have to be reversed also when traditional conctracts were void and still performed

Apparent Legal Challenges to Smart Contracts

- Offer/Acceptance: Declaration in form of respective action on interface
- Legally binding from that point of time when the action has been “enchained” by the hash of a subsequent block
- Interesting: Postal Rule in Common Law
- Performance of Non-existing Contracts
- If actions qualify to be interpreted as declarations of intent, a contract exists;
- If not and alleged contract has nevertheless been performed, transaction is also under traditional law anyway legally effective

Apparent Legal Challenges to Smart Contracts(Contd)

- Party to whose benefit the transaction has taken place is unjustly enriched and has to return all which has been received (since Roman law)
- This return is legally not an „annihilation“ of the performance, but a new performance which reinstitutes to previous status.

– Initially void transactions, e.g. “violating a statutory prohibition” (sec. 134 BGB, BGB being the German Civil Code) or “is contrary to public policy” (sec. 138 BGB)
– The blockchain in this situation does not reflect the correct legal status of the transaction any more

- A void transaction may still be in the blockchain record, but the only legal information that the chain contains is that at a certain point of time a person equipped with a private key has taken actions which are mirrored in form of a respective blog of these actions in the blockchain.

- Combination of Smart Contracts with software agents would fully uncover the potential of Smart Contracts (“follow-on” contracts).
- Legally most challenging aspect of software agents/AI-generated declarations: Attribution of these declarations of intent to the respective human behind the system
- Interpretation dilemma: Shall hypothetical approach of human contract partner behind the system be taken into account or perspective of objective observer?
- In second case: Declaration of intent avoidable

Attributing Autonomous Software Declarations

– In contrast to computer declarations, the essentialia negotii/ the individual contract partner are exclusively determined by the software

– By analogy: mechanisms of agency ?

Anyhow, overall potential of Smart Contracts for contract law should also not overestimated:

– contracts do have in society by far more functions than creating enforceable obligations

– Smart Contracts in public registries reduce function to mere records, neglecting significance of title-, not as mere document register

THE PROVISION OF SMART CONTRACTS BY COMPUTER SCIENTISTS AS ILLEGAL LEGAL SERVICES

- Smart contracts created on behalf of customers not only have conceptually a legal dimension, but they may also be the result of an activity that is regulated as a legal service

- Even though the relevant regulations do not yet refer to smart contracts and there almost no case-law yet, the criteria of the Legal Services Act still provide a clear picture of the extent to which smart contract programming is permitted and from when the programmer may be held liable.

THE PROVISION OF SMART CONTRACTS BY COMPUTER SCIENTISTS AS ILLEGAL LEGAL SERVICES (CONTD)

- Since 2008, legal services can according to the the Legal Services Act (RDG) in principle also be provided by non-state-examined lawyers, if either no "legal examination of a specific case required" (§ 2 para 1 RDG) or the provider the service provider is qualified for this activity for other reasons.

- In principle, the RDG is also applicable to smart contracts, namely with regard to "human service providers" and "activity" (§§ 10 I, 12 IV, 2 I RDG). According to § 2, this activity must be required in the "examination" of a "concrete", ie actually existing and not merely hypothetical individual case.

Conclusions:

Obvious advantages for transfer of property, controversial benefits for any performance beyond that

- How does transfer of property work?

Any software should be on safe side

– Who writes code which does not undertake legal examination,

– for tasks where there is also no need for such analysis due to the lack of concrete individual case

– and who communicated this in the form of an explicit and detailed disclaimer to the client.