

HEALTH IN THE DIGITAL SOCIETY DIGITAL SOCIETY FOR HEALTH

16-18 OCTOBER 2017
TALLINN, ESTONIA

Legal Aspects of Blockchains in Healthcare

Christian Dierks, M.D., J.D.

 @chrstndrks

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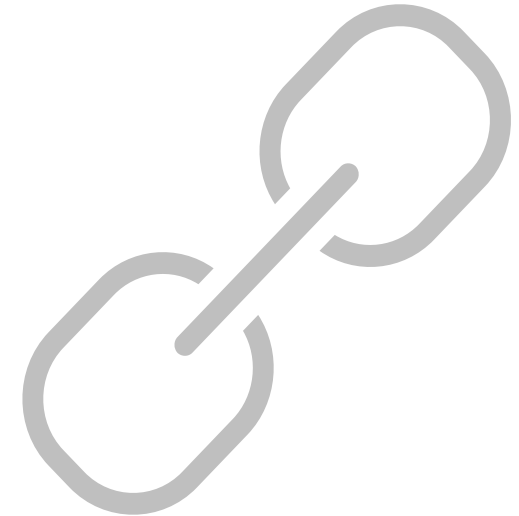
NEEDS AND REQUIREMENTS IN HEALTHCARE DATA PROCESSING

- » Availability
- » Authenticity
- » Integrity
- » Security
- » Changeability
- » Concept of consent
- » Concept of minimization



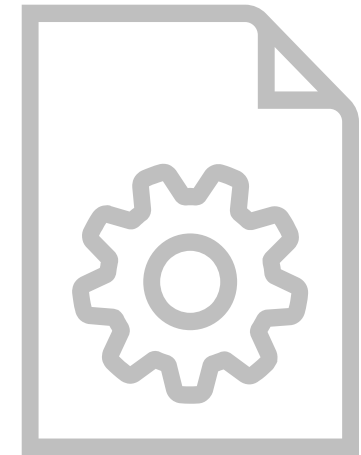
PROPERTIES OF BLOCKCHAINS

- » Storage of data spread over many participants
- » Hard to Manipulate – changes visible to all
- » Selective data management instead of full scope insight into health data record
- » Generating value
- » Running in cycles



POTENTIAL USECASES FOR BLOCKCHAINS IN HEALTHCARE

- » Interoperable Patient File e.g. KSI/Guardtime
- » Patient Registries e.g. EMA Conditional Approval
- » Smart Contracts (claim adjudication and bill processing)
- » Crowd Funding for Start-ups
- » Clinical Research
- » Drug Supply Chain Integrity e.g. iSolve
- » Telemonitoring
- » Security in the IoMT, e.g. Tierion, Telstra



DATA PROTECTION – HOW ANONYMOUS IS IT?

- » No application of EU Data Regulation if data are anonymous
- » Blockchain works on pseudonyms
- » **But:** KYC structure required for Health Application
- » Identity as a service?


Deanonimization of clients in Bitcoin P2P network, Biryukov, Khovratovich, Pustogarov ¹⁾
An Analysis of Anonymity in the Bitcoin System, Reid, Harrigan ²⁾



REIDENTIFICATION

- » Identifying the public key
- » Countermeasure Certification for Users?
- » Regulation for Miners what to process
- » Whitelisting/Blacklisting

Details

2e58f4708346a6a6da29c49c456987571ae2a5aa6961ac1f7a55789a326beb6 

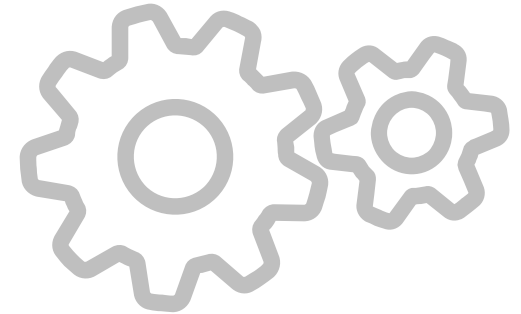
16d7ctwIBGZmNW1CHYw8SjkFcvr1NimCY6A	0.01260408 BTC	»	1w6GUhpnHduaEd8kY4Hba4ZyBdbhUPSgg	0.01170471 BTC (U)
1HvDx7vJHyqBCFnGw8ZiysbLsSD9gL1mp5	0.00910068 BTC		18Pb9AmWudXdBP7LDwsznrVpnrRxmtiPQz	0.00963247 BTC (U)

FEE: 0.00036758 BTC

UNCONFIRMED TRANSACTION! 0.02133718 BTC

BASIC PRINCIPLES OF IT LAW IN A BLOCKCHAIN?

- » Meta Tags ensure conformity of purpose
- » Right of correction/deletion
- » Liability issues
- » Right to be forgotten vs. Permanent storage?
- » Potential to edit the ledger / blocks in the chain?
- » Smart contracts: Can a contract become pending, void, nil?



USE CASE PATIENT REGISTRIES

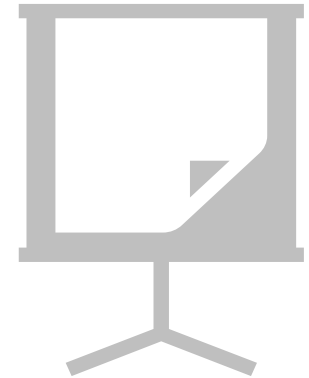
- » OD Designation
- » Registry intended
- » Involvement of pE required

	Methods	Consequences	Data Protection	Transparency
EMA				
HTA Body				
Patients				
pE				

Collect, Analyse, Conclude, Develop, Publish

SUMMARY

- Blockchain is a fascinating technology
- It will find its place in the economy
- What are the prospects in healthcare?
- Can we align the technology with the legal principles in healthcare?
- Do we need to adapt the legal framework?



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THANK YOU

Christian Dierks, DIERKS+BOHLE, Berlin

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