

### **BLOCKCHAIN & LIABILITY** TOWARDS A PRIVATE LAW EXPLANATION OF DISTRIBUTED LEDGERS

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#### **O**VERVIEW

- A. Mechanics of DLT
- B. Liability Events
- C. Classifying DLT from a Private Law Perspective
- D. Consequences & Response
- E. Conclusion & Theses



# A.

### Mechanics of a Blockchain







### Passport, Banking identity today



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Taken from OIOSCO, FinTech, PS 4/14





A and B want to enter into a "transaction" A and B use "private" and "public" keys/signatures to securely share the "transaction with other nodes in the network

Once the "transaction" is confirmed, it will be added as a "block" to the blockchain



#### **Permissioned vs Permissionless Blockchains**

- Know your peers? Anonymity? +/-
- Governance? Hierarchy ⇔ Random

#### **Consensus Model**

- Proof-of-stake
- Proof-of-work





### A BC IS A SOLUTION TO ...

- ✓ The trust problem when storing data: did anyone manipulate the data stored?
- ✓ The access problem where multiple devices need <u>simultaneous access</u>
- ✓ <u>Permanent</u> storage due to linkage in a block

- (-) Turning inaccurate data into accurate data (,garbage in, garbage out')
- (-) Governance issues in computer interaction (code renovation etc.)
- (-) Data privacy as to data stored on BC ( data stored in external wallet)
- (-) Privileged and confidential data when node participation is permissionless.



### POTENTIAL APPLICATIONS

- ✓ Virtual currencies (Bitcoin)
- ✓ Clearing & Settlement
- ✓ KYC/AML hub
- ✓ ...



## **B**. *Liability Events*





### WEAK SPOTS OF DL-1: NOT ALL DISTRIBUTED

- Transaction data the second prior to storage
  - Corrupt transacting parties
  - Just two

- Bitcoin: Breaking into the Wallet
  - Examples Mt. Gox, DAO
  - Treatment: spreading losses over all nodes: 75 Mio / 17 Mio.



?



### WEAK SPOTS OF DL-2: TECH VULNERABILITY

- Brute force attack with quantum computers
  - If consensus = 50%+ of nodes (N), N/2+1 nodes must be corrupted.
  - Harder than centralized ledger, but possible

- Infect BC software update with malware
  - Permissionless DL ≠ governance, adoption process irrational / random
  - Code may serve different than expected, bugs hard to fix



### WEAK SPOTS OF BC-3: PERMANENT TRANSPARENCY

- Violation of data protection rules
  - Protected private data may be spread via the BC
  - GDPR penalties: 4% of turnover
- Violation of confidentiality requirements
  - Once stored via DLT information may loose privileged status in court (depending on DLT participants)
- Legal obligation to ,delete' (rather than remanufacture) transaction
  - ,Delete'impossible;
  - Ex: Copyright infrinctions: injunction to remove? RUL |



### C. <u>Classifying BC from a Private Law Perspective</u>



### LIABILITY IN A BC CONTEXT IS

## There are liability events specific to DLT/BC $\Rightarrow$ Who picks up the bill?





### POTENTIALLY LEGALLY RELEVANT ACTIVITIES

- Decision to start: download BC scripts / software
- Decision to participate: connect computer to internet, switch on off, run validation processes, install updates
- □ Other decisions:
  - □ decision to invest computing power (proof of work concept)
  - decision to contribute and maintain a certain stake (proof of stark concept)

### BC participation is not an accident, result of wilful action.



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### LEGAL CONCEPTS TO COVER BC PARTICIPATION





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### COMPARATIVE VIEW

- Which legal concept applies differs from country to country.
  - Partnership law concepts have a stronger support in Germanic legal systems (incl China, Japan), tort law concepts are stronger in angloamerican countries.
- Result could differ.
  - Ranging from joint liability to proportional liability.
  - Depends on specific DLT design
- Choice of law & courts may matter
  - Enterprise choice of law clauses may cover tort liability in certain cases
  - But: still ground for liability



## D. <u>Consequences & Response by Practice</u>



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DLT benefits may come at a price. Besides loss of privacy the price tag may include liability.



- Practice may respond to liability risk: to the extent possible choice of law and jurisdiction will be adjusted to liability risk.
- But extraterritorial liability risk remains. In particular in tort cases courts tend to provide a forum and apply national legal concepts where damages are felt in that countries.



- □ Liability risk in financial services is costly. Contingent liability will require additional risk capital on the side of intermediaries.
- □ Liability risk and confidentiality loss may make certain BC uses unviable.
- □ Legal profession may respond by structuring => concentrated ownership of distributed ledgers.

- Financial law (liability risk) presses towards concentrating the ledger in one holding entity or one outsourcing partner, or limit use and risks of DLT to one financial group.
- Law of the legal profession (lawyer-client privilege) presses towards concentrating the ledger in one entity owned by the law firm.
- Outsourcing, data protection and confidentiality rules determine to what extent others can participate.

### DLT Ltd.



E.

### **Conclusions & Theses**





1) From the perspective of some BC functions best in the absence, but there is law.

2) There are multiple liability events that may occur when making use of a DL. Some of these events are specifc to DLT, while others are general risk of IT use.

3) Legal consequences on a) confidentiality, b) privileged information, c) data protection and d) liability need to be considered when making use of blockchain.

4) One likely response to the legal challenges associated with DLT is that ledgers are distributed but ownership of ledgers remains concentrated.



### Thanks!

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