



# Legal aspects of Blockchain Technology & Bird & Bird

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# My background

- Tech startups
  - #CPHFTW
  - NordicMakers.vc
  - (FDIH, OSL)
- Partner Bird & Bird Copenhagen
  - IT lawyer
  - Startups
  - Open source
  - Blockchain (FinTech)

# Trustless databases

- The integrity of the central copy?
- Establishing trust is costly
- Immutable entries
- Transparent ledger
- Open (Permissionless) blockchain
- Private (Permissioned) blockchain
- Consensus on the “correct” ledger

# Distributed computing

- Every node runs the application
- Bitcoin miners use CPUs en masse
- Scalability
- Collusion of miners
- Mining as a service?
- New consensus mechanisms in permissioned blockchains
- At the expense of immutability?

# A Declaration of the Independence of Cyberspace

- John Perry Barlow (1996)
  - *Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather. We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear...*

# Code is law

- Coding choices set standard and governance
  - The primacy of drafter
  - Risk of defects and mistakes
  - Lawyer as coders
- Code is subject to gravitation and to law
  - Law as default rules
  - Adjudication and flexibility

# Open source

- The transparency of Bitcoin (vs. anonymity).
- Bitcoin Core code is released under the terms of The MIT License.
- Linux Foundation's Hyperledger Project code is released under Apache License, Version 2.0.
- R3's New Distributed Ledger Technology Corda released as open source under Hyperledger.
- Everything at Ethereum, including website, tools, white papers, software and compilers are released under the GPL.

# Consensus

- Consensus about code and database
- Consensus mechanisms to secure updating of a state
- Distributed non-monopolized decisions
- Proof of work
  - Miners in bitcoin
- Proof of stake
  - Ethers in TheDao
- Valid transaction
  - PKI cryptography on Permissionless blockchains
  - Permissioned blockchains



# Personal data

- Open blockchains are transparent
- BitCoins are “anonymous”
- Pseudonyms?
- Personal data on a blockchain
  - Data controller and processor?
  - Where does the data reside?
  - Consent to use
- (Database ownership?)

# Smart contracts

- Computer protocol that embeds the terms and conditions of a contract.
- The human readable terms (the source code) of a contract are compiled into executable computer code that can run on a blockchain.
- Self-sufficient contracts
  - All information embedded in code or network
  - Information from external sources
- Self-executing contracts
  - No need for human interaction
  - “Un-stoppable”
- Self-enforcing contracts
  - Bitcoins are transferred from escrow
  - SaaS is terminated

# Link to the physical world

- BitCoins outside the law
- Who makes the entry to the ledger?
  - Authentication
- Is that person entitled to make the entry?
  - Contract law
  - Contracts
  - Jurisdiction
  - Mandatory regulation
- Regulation of the middleman or platform

# Mandatory regulation

- Smart contracts regulate human activity
- Criminal law
- Contract law
- Consumer protection
- Tenant law
- Employment law
- Financial regulation

# TheDAO

- Decentralized, autonomous organization
- Codebased AoA, SHA, board and management, no address
- Interface: DAO.Link SARL
- Investor-directed venture capital fund.
- Ethereum blockchain
- Voting with tokens in Ether
- Crowdfunded 120M USD worth of Ether by anonymous "shareholders" in May 2016

# TheHack

- June 17, 2016, a hacker transfer 50M USD into subsidiary with 28 days waiting period
- Code is law?
- Immutability?
- Hard fork or soft fork
- The Fork adopted by consensus
- Ethereum Classic

## Further reading

- **Blockchain 2.0, smart contracts and challenges**  
(<http://www.twobirds.com/en/news/articles/2016/uk/blockchain-2-0--smart-contracts-and-challenges>)
- **The Trust Machine**  
(<http://www.economist.com/news/leaders/21677198-technology-behind-bitcoin-could-transform-how-economy-works-trust-machine>)
- **The DAO of accrue** (<http://www.economist.com/news/finance-and-economics/21699159-new-automated-investment-fund-has-attracted-stacks-digital-money-dao>)
- **Goldman Sachs Report** (<http://www.the-blockchain.com/docs/Goldman-Sachs-report-Blockchain-Putting-Theory-into-Practice.pdf>)
- **World Economic Forum Report**  
(<https://www.weforum.org/reports/the-future-of-financial-infrastructure-an-ambitious-look-at-how-blockchain-can-reshape-financial-services>)

Thank you & Bird & Bird

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