

# Smart contracts

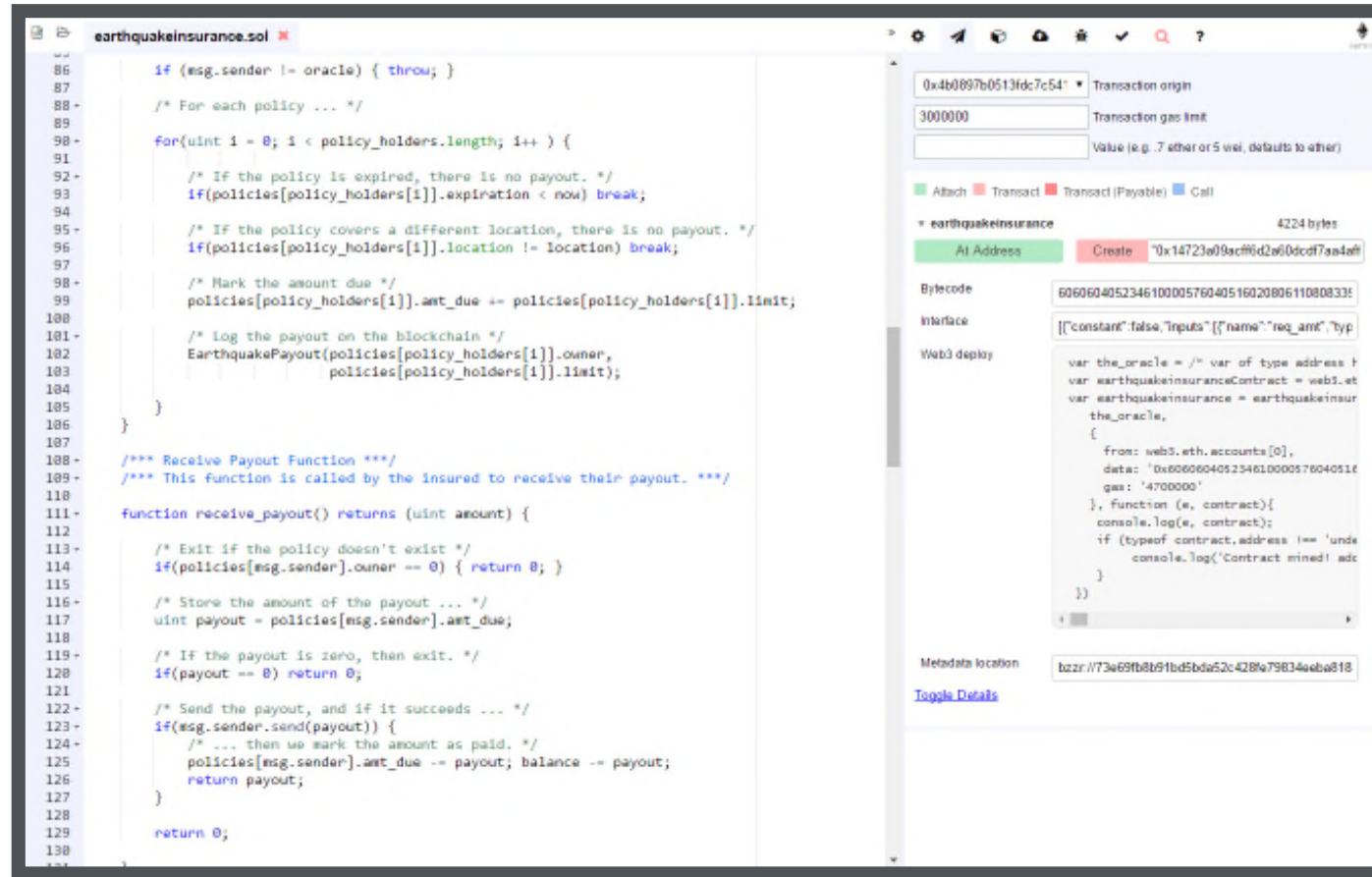
## Understanding key regulatory issues in practice

John Salmon

19 April 2018

# What is a smart contract?

- ❖ Neither smart nor a contract
- ❖ Computer programme designed to implement an agreement



**Parametric insurance pays a pre-set, actuarially-determined amount upon occurrence of triggering event**

Oracles are used to determine triggering event has occurred

... But why use a blockchain instead of a regular database?

# Parametric Insurance - fizzy



fizzy - beta

INSURANCE

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## fizzy

Smart insurance. Automatic compensation.

Your flight is 2h late? Get money without claiming.

### Check your flight



Ticket number



Last name



Allow AXA to retrieve information about my flights. [Learn more](#)

START





## Key Legal Challenges

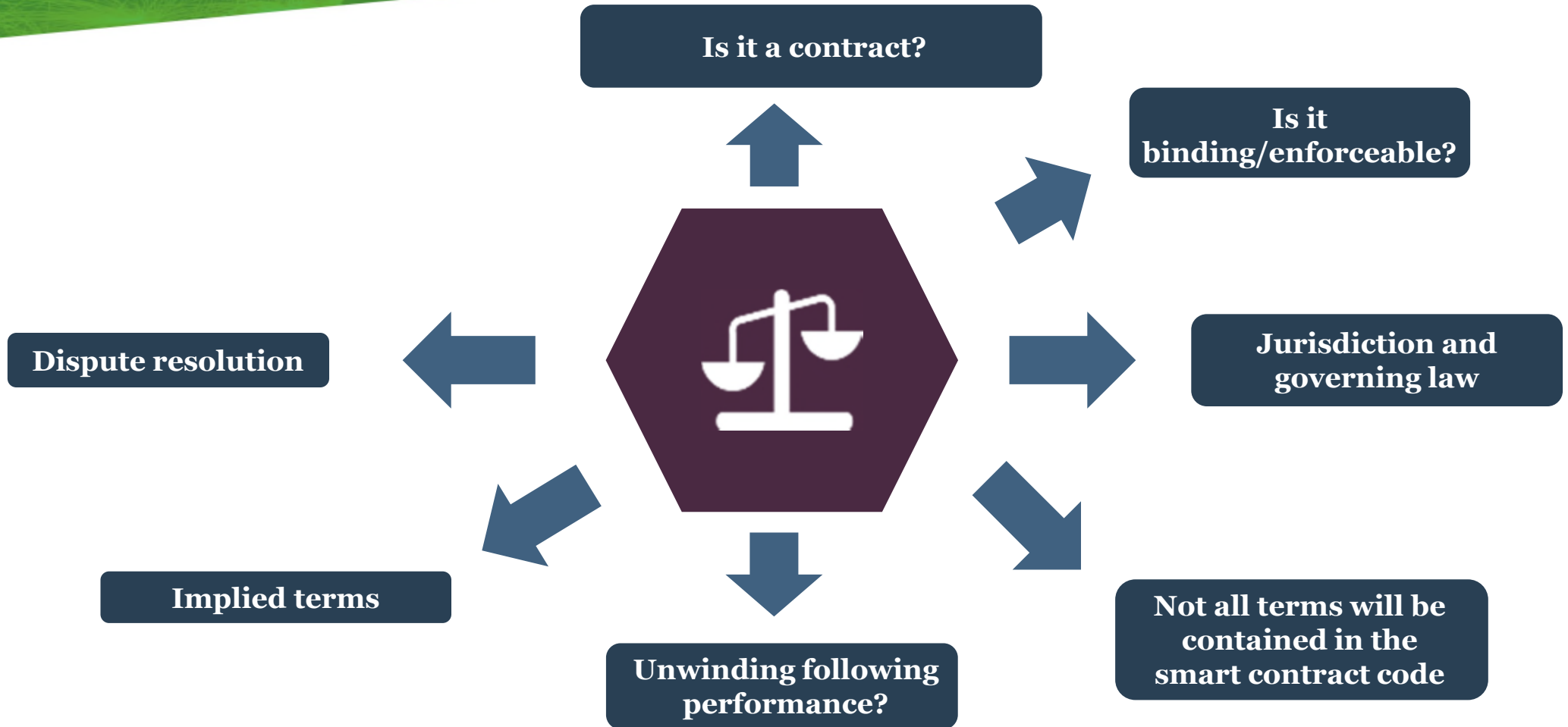


# Key legal challenges



# Key legal challenges

## Contract law



# Key legal challenges

## Contract law

- ❖ Which law applies?
- ❖ Is a smart contract the contract or just a part of the contract?
- ❖ Is the smart contract enforceable?
  - What elements are required to make computer code an enforceable contract?
  - What happens if there is a conflict between the parties' intentions and the smart contract code?



# Key legal challenges

## Contract law

### ❖ **Unlikely that a smart contract is the whole agreement**

- Usually only a few clauses of an agreement require action by the parties
- Typical agreement boilerplate cannot be coded as a smart contract

### ❖ **Written agreement vs. smart contract:**

- Is the contract the written agreement alone?
- Is the contract the smart contract alone?
- Is the contract the written agreement plus the smart contract?

### ❖ **Smart contracts need to be carefully designed**

- Comply with all applicable laws and regulations
- Implement parties' intentions and be fully enforceable

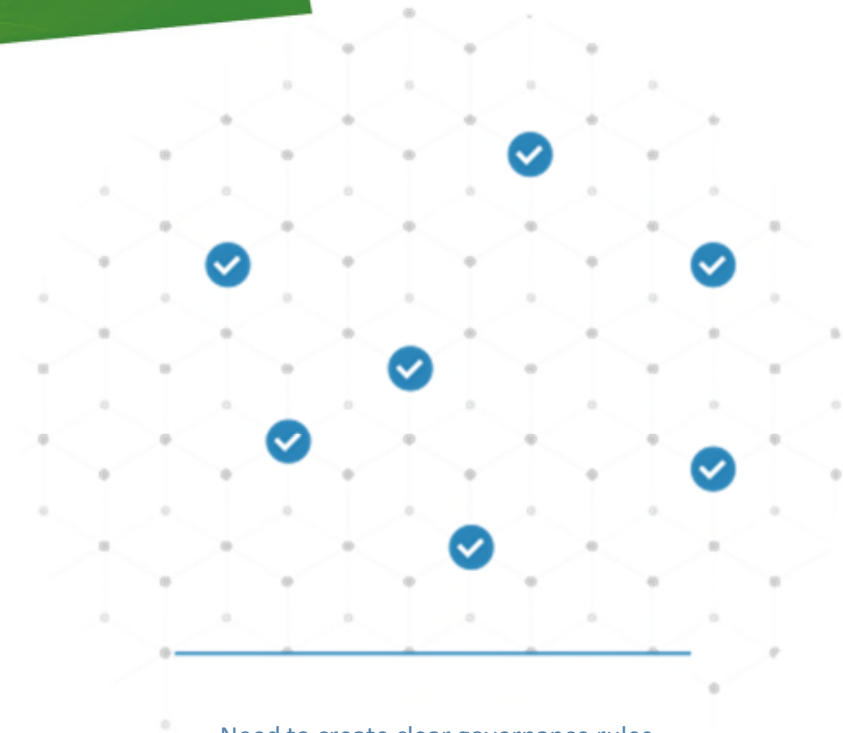
# Key legal challenges

## Governance



Governance is determined by central parties

Traditional  
model of value  
transfer

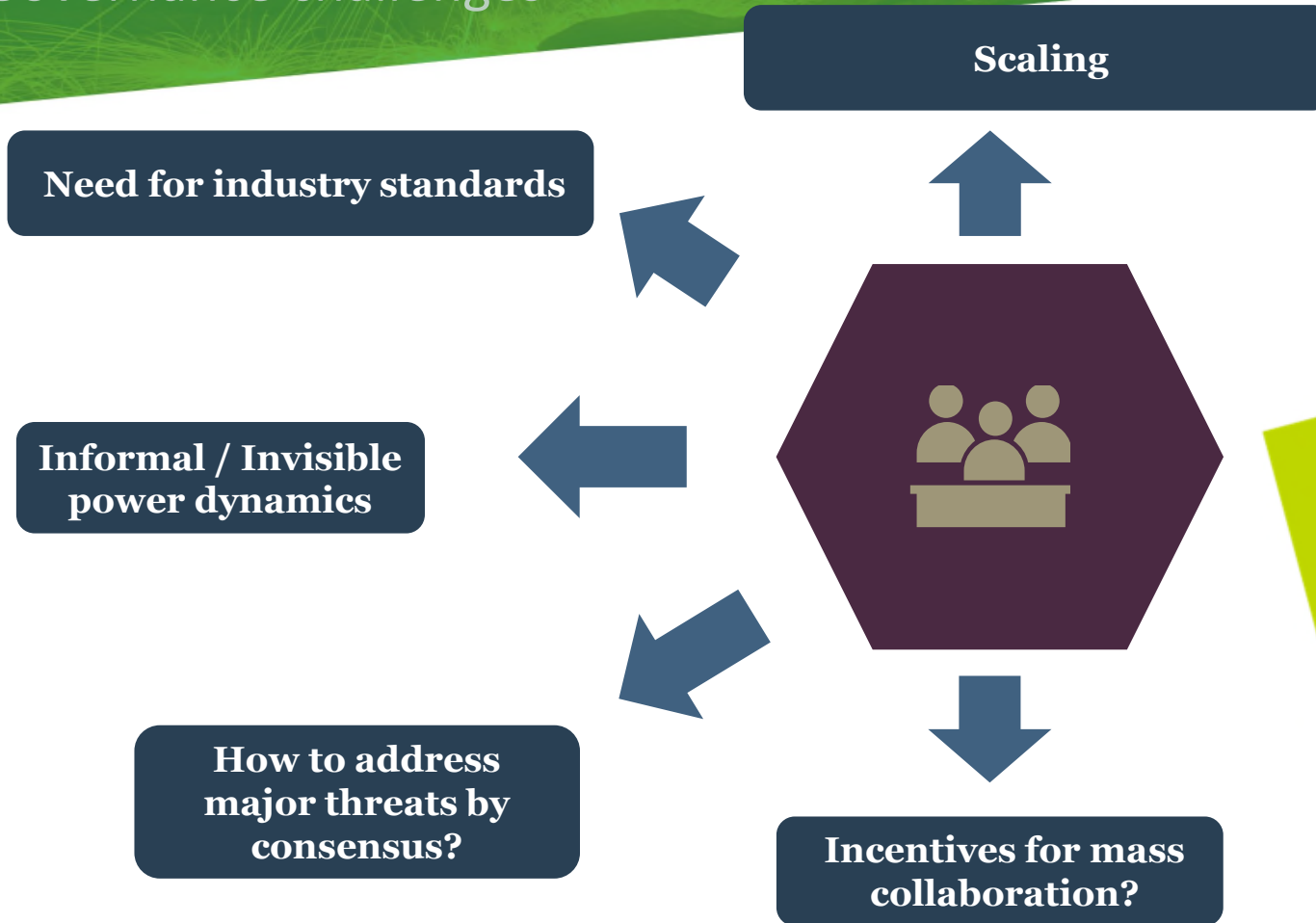


Need to create clear governance rules

Blockchain

# Key legal challenges

## Governance challenges



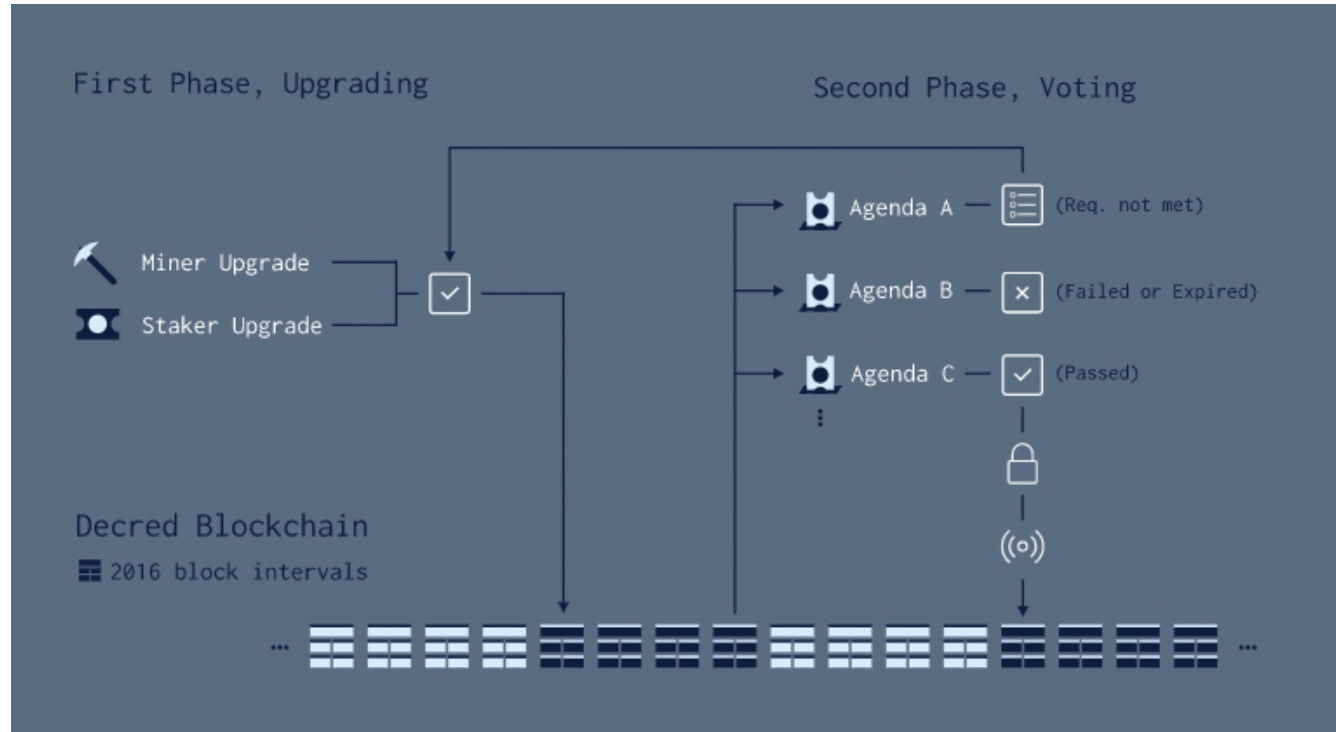
*"The extent to which this new technology realizes its potential will depend in substantial part upon how well stakeholders steward its development. There remain important open governance questions regarding both the functioning of the technology and its current and potential applications."*

**Richard Samans,**  
World Economic Forum's Center  
for the Global Agenda



# Key legal challenges

## Governance: Token Voting



# Key legal challenges - Competition

## Information exchange

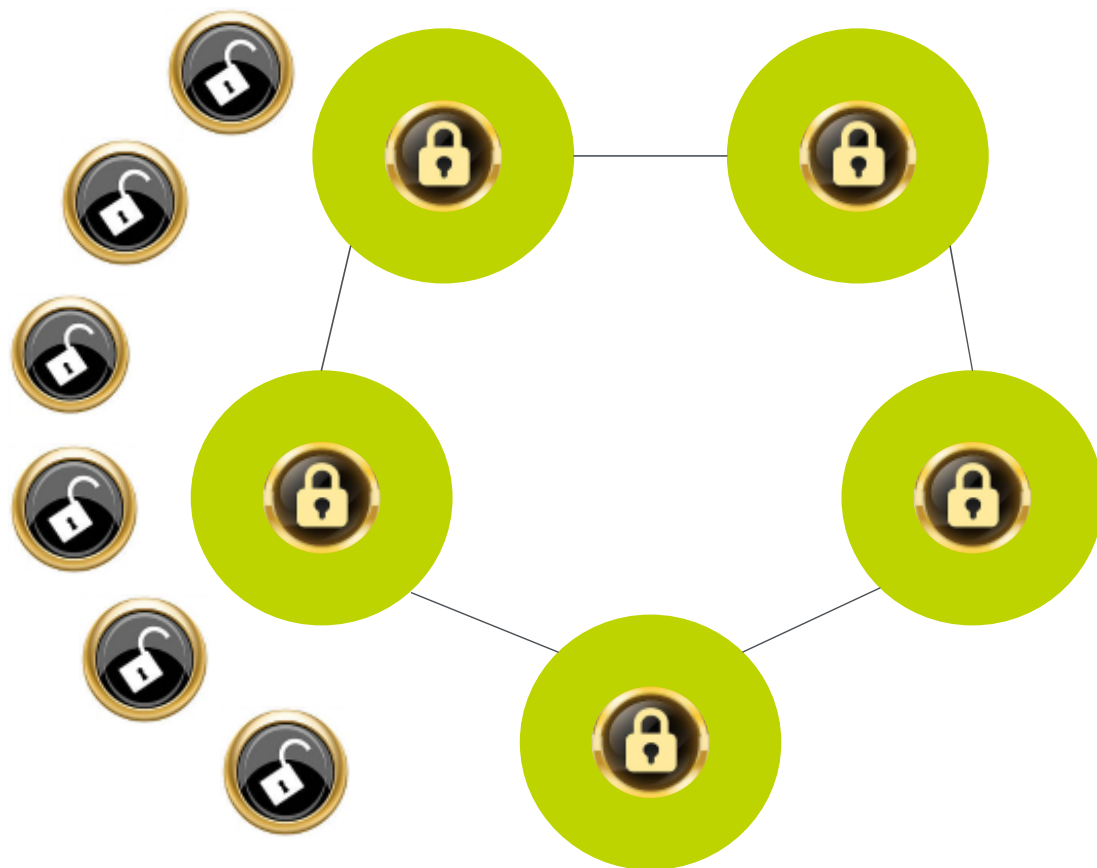


- "As competition enforcers, I think we need to make it very clear that companies cannot escape responsibility for collusion by hiding behind a computer program."

Margrethe Vestager  
European Commissioner for  
Competition

# Key legal challenges - Competition

Discriminatory access



**ESMA Report: The DLT Applied to Securities Markets (Feb '17)**

*"ESMA anticipates a number of potential fair competition issues with DLT, although some of these issues may not be unique to DLT. Early participants might refuse or impose conditions on new members that make it unduly difficult or costly for them to join the DLT network."*



# Key legal challenges - Competition

## Paid prioritisation



Regular bitcoin wallet – Fixed fees

- Fixed fee
- Potential **delays** in transactions

Wallet automatically setting dynamic fees

- Computerised fee; fluctuation depending on transaction size and network congestion
- Optimises clearance cost and speed

Bitcoin wallet allowing the user to set the fee

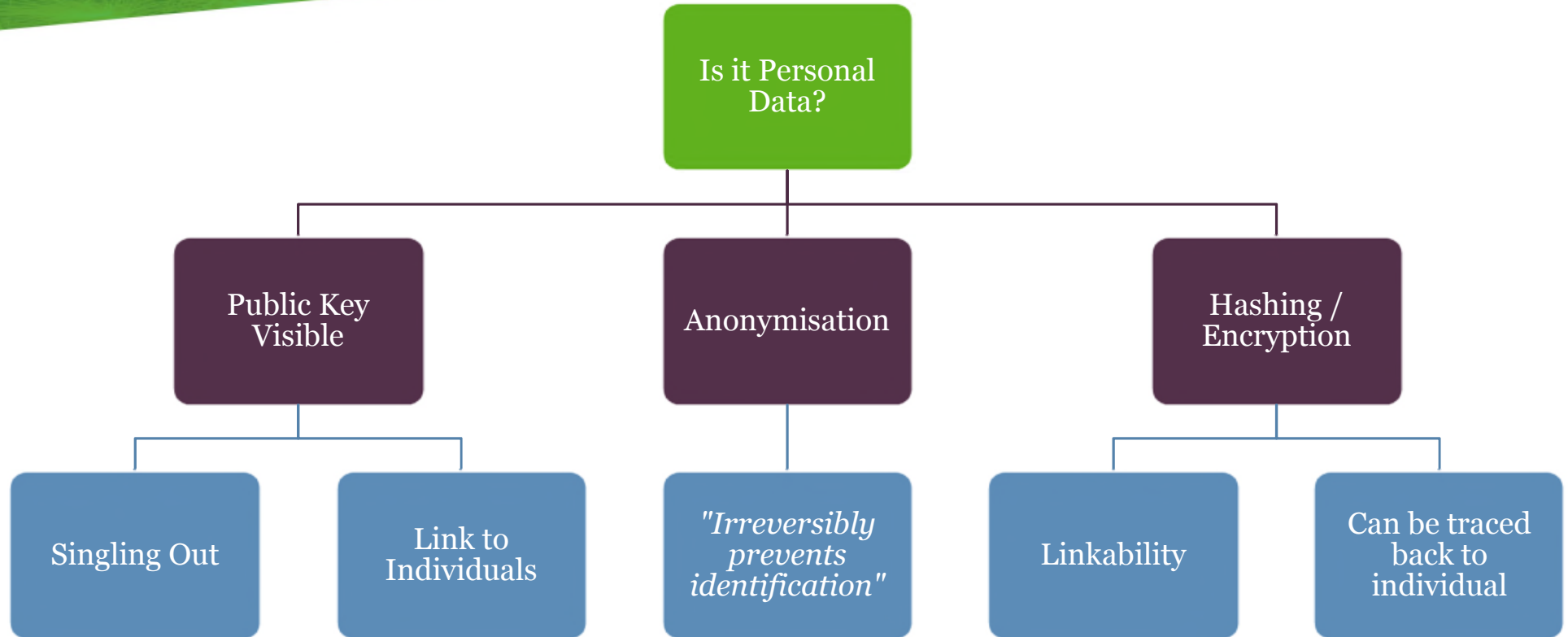
- Fees increase of >1200% since 2015
- The more satoshis a user pays, the **quicker** will the transaction be executed

## Issues to consider

- Blockchain applications more likely to attract regulation: Financial services, stock exchanges, consumer facing applications
- Trans-Atlantic divide and requirement of a global approach
- Pre-emptive regulation vs. case-by-case antitrust assessment

# Key legal challenges

## Privacy and data protection

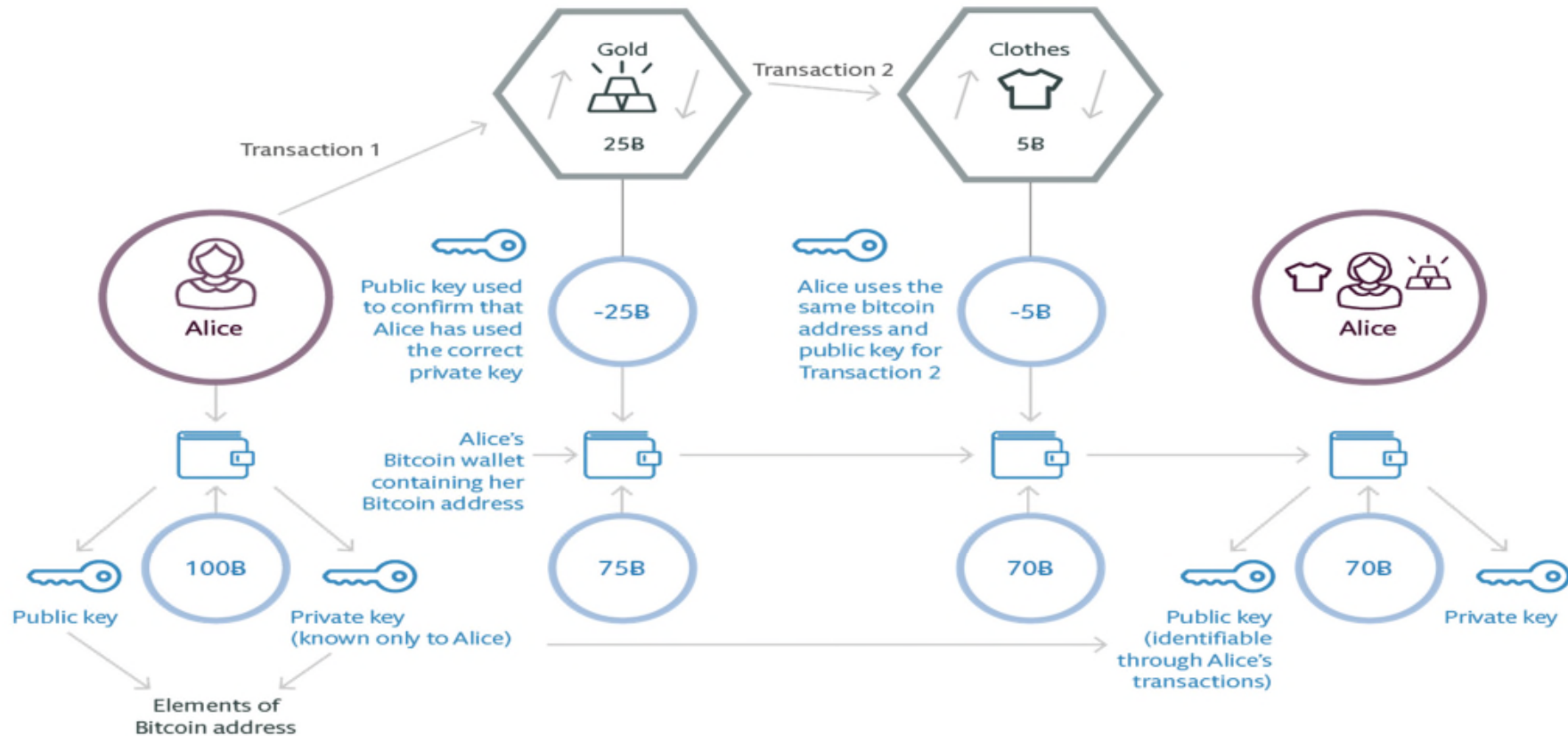


# Key legal challenges

## Re-identification risk

### Public key/Private key on a bitcoin transaction

B = Bitcoin





# Key legal challenges

Who is the data controller?



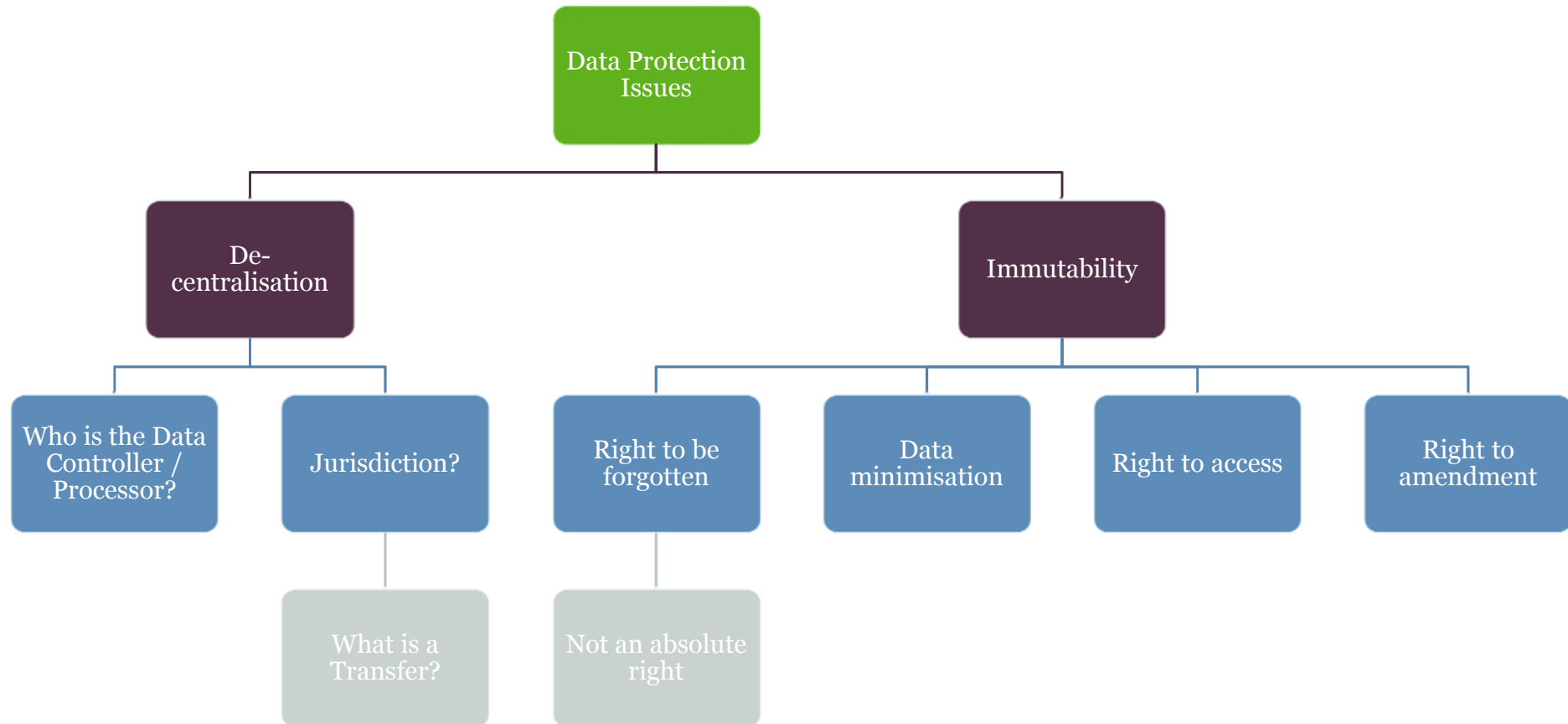
**More than one party participating in a distributed ledger network could be responsible for compliance with the relevant privacy requirements**

**With permissioned ledgers, the allocation of control will be more clear**

**Careful consideration is needed as fines for breach can cost up to 4% of global annual turnover**

# Key legal challenges

## Privacy and data protection







# Initial Coin Offerings ("ICOs")



# What are token sales

## Token sales (or "ICOs")

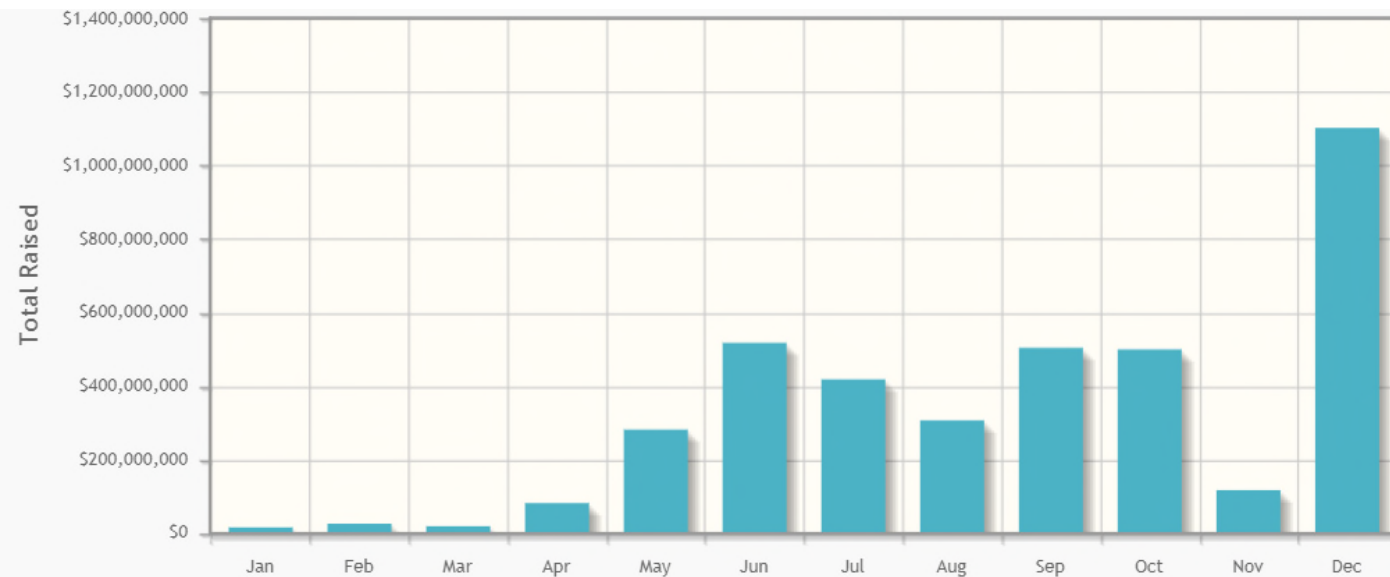
A form of fundraising, whereby a company:

- ❖ Releases its own digital virtual currency (known as a "token")
- ❖ Investors purchase the token in exchange for real or virtual currency (e.g. bitcoin, ether)
- ❖ Tokens may:
  - Constitute a digital version of, or confer similar rights to transferable securities; or
  - Serve a function in connection with the fundraising company's platform (known as a utility token).

# Token Sales / Initial Coin Offerings (ICOs)

## Cryptocurrency ICO Stats 2017

**Total Raised: \$3.88+ billion**  
(Number of ICOs: 210)



Totals raised are grouped by the ICO closing date and are valued using BTC exchange rate at that time. Data last updated on 16th March 2018 09:59 UTC

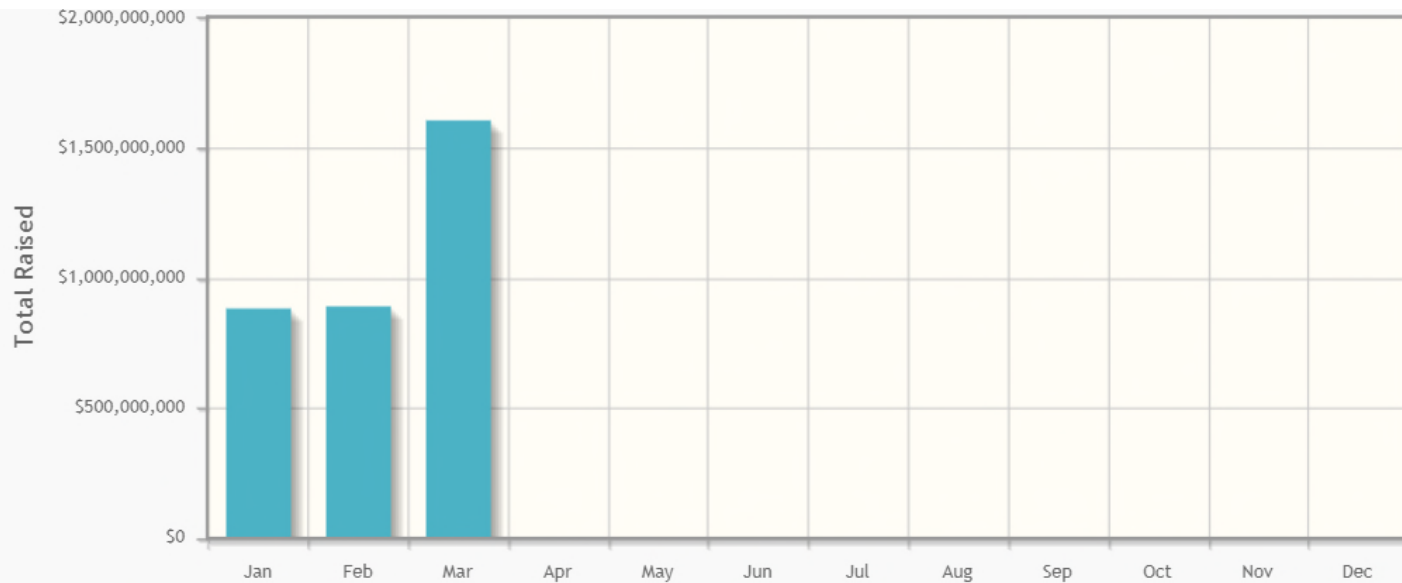
Position	Project	Total Raised
1	Hdac	\$258,000,000
2	Filecoin	\$257,000,000
3	EOS Stage 1	\$185,000,000
4	Paragon	\$183,157,275
5	Bancor	\$153,000,000
6	Status	\$90,000,000
7	BANKEX	\$70,600,000
8	TenX	\$64,000,000
9	Nebulas	\$60,000,000
10	MobileGO	\$53,069,235

From: <https://www.coinschedule.com/stats.php> (visited 19.03.2018)

# Token Sales / Initial Coin Offerings (ICOs)

## Cryptocurrency ICO Stats 2018

**Total Raised: \$3.36+ billion**  
(Number of ICOs: 86)



Totals raised are grouped by the ICO closing date and are valued using BTC exchange rate at that time. Data last updated on 16th March 2018 09:59 UTC

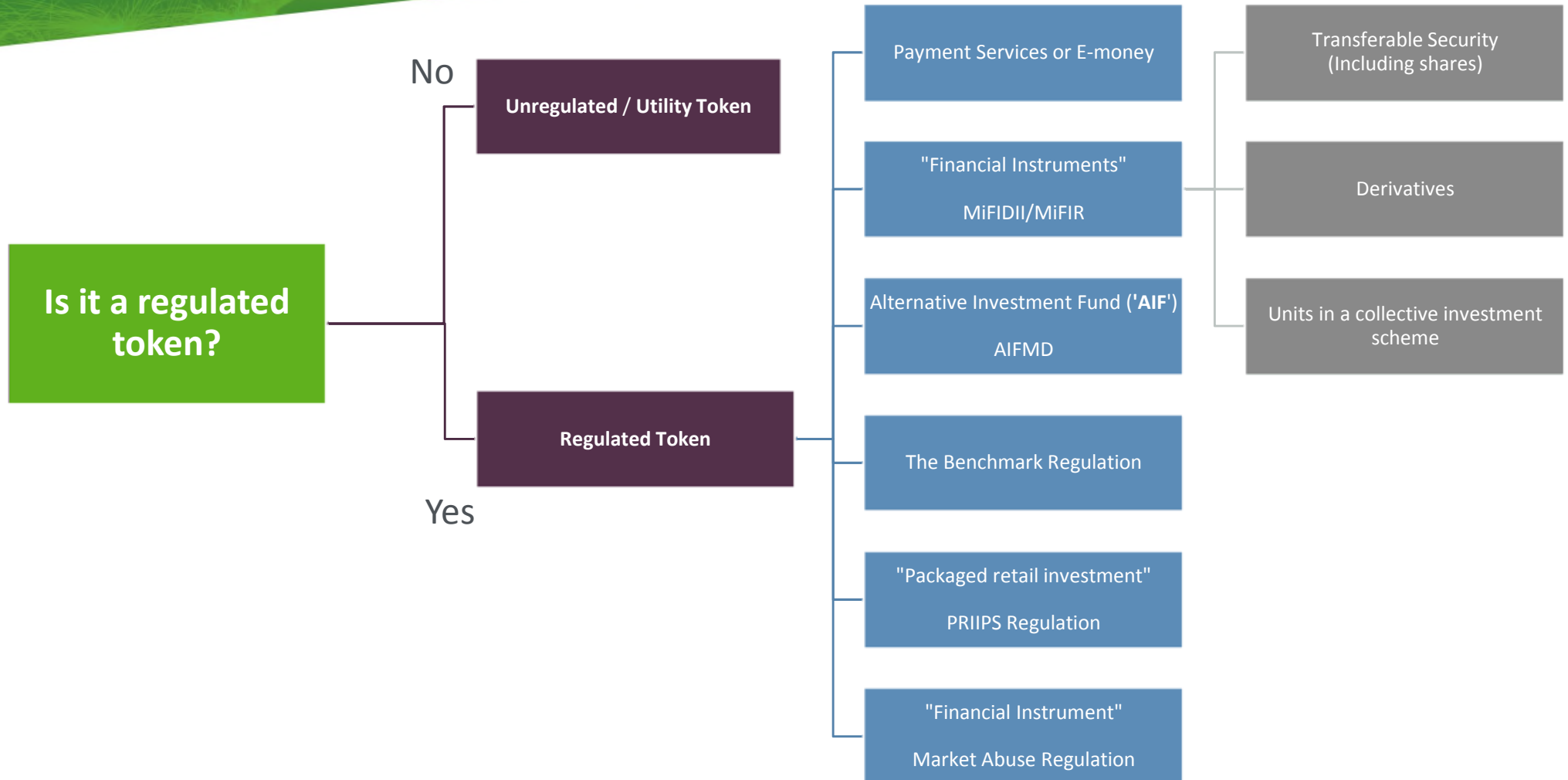
### Top Ten ICOs of 2018

Position	Project	Total Raised
1	Telegram ICO (Pre-sale 1)	\$850,000,000
2	Dragon	\$320,000,000
3	Huobi token	\$300,000,000
4	Bankera	\$150,949,194
5	Envion	\$100,000,000
6	Neuromation	\$71,669,400
7	Crypterium	\$51,656,963
8	SwissBorg	\$50,000,000
9	Lendroid	\$47,500,000
10	iungo	\$45,978,800

From: <https://www.coinschedule.com/stats.php> (visited 19.03.2018)

# Key EU legal challenges

Is it regulated?





# Key EU legal challenges

## Impact of regulation



Regulated Token

Possible Impacts (subject to exemptions)



Authorisation  
Required



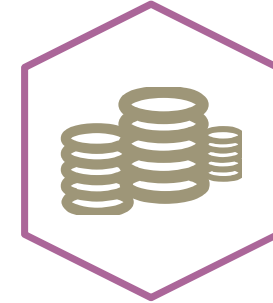
Prospectus



AML / KYC



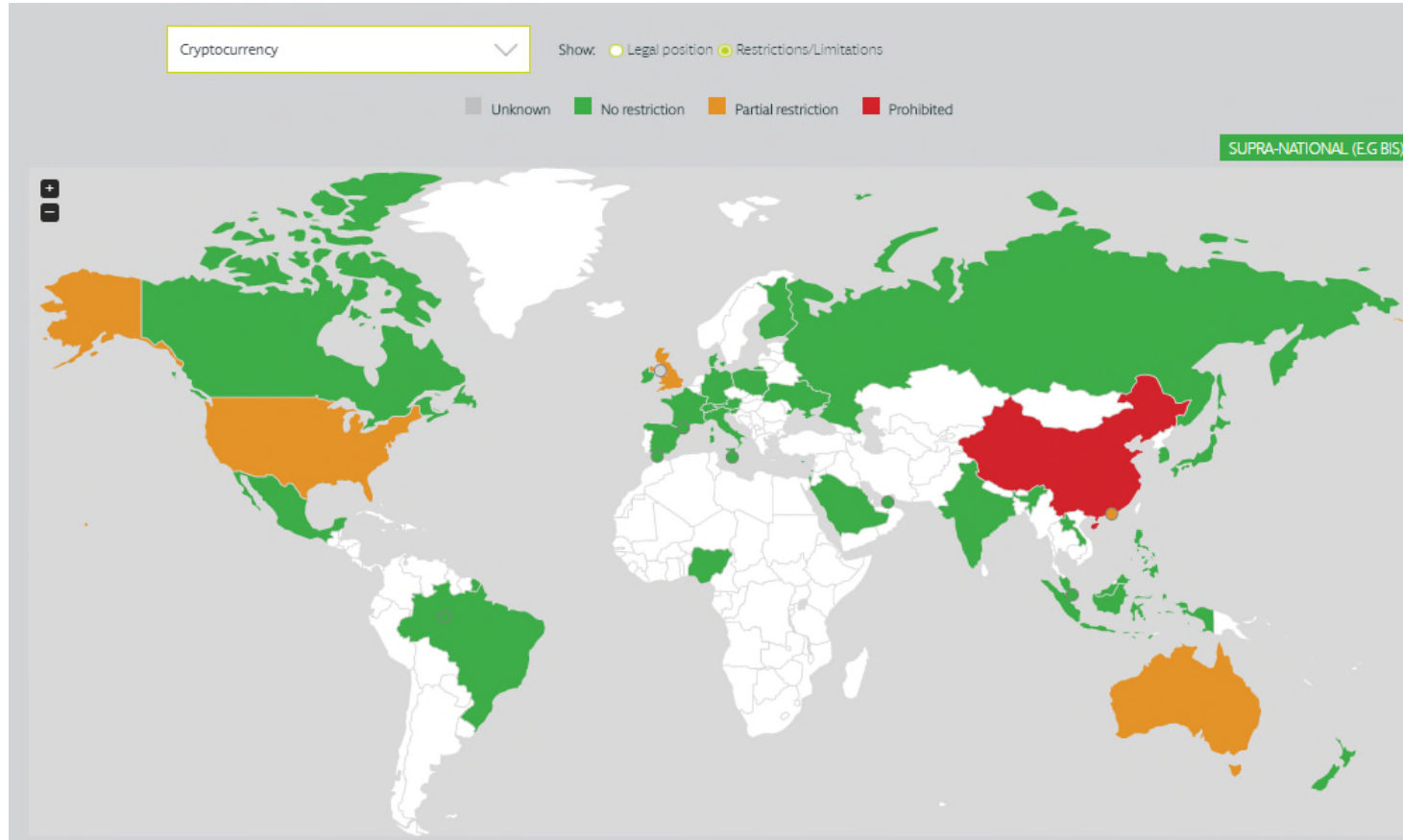
Financial  
Promotion



Cost of compliance

# HL Engage Blockchain toolkit

[www.hlengage.com/blockchain](http://www.hlengage.com/blockchain)



Interactive Maps enable users to:

- Identify legal environment relating to blockchain use cases (Smart Contracts, ICOs, Cryptocurrency) in over 50 jurisdictions
- Identify whether use cases permitted, or prohibited
- Run reports comparing regulatory approach to blockchain technology and it's uses across the world.

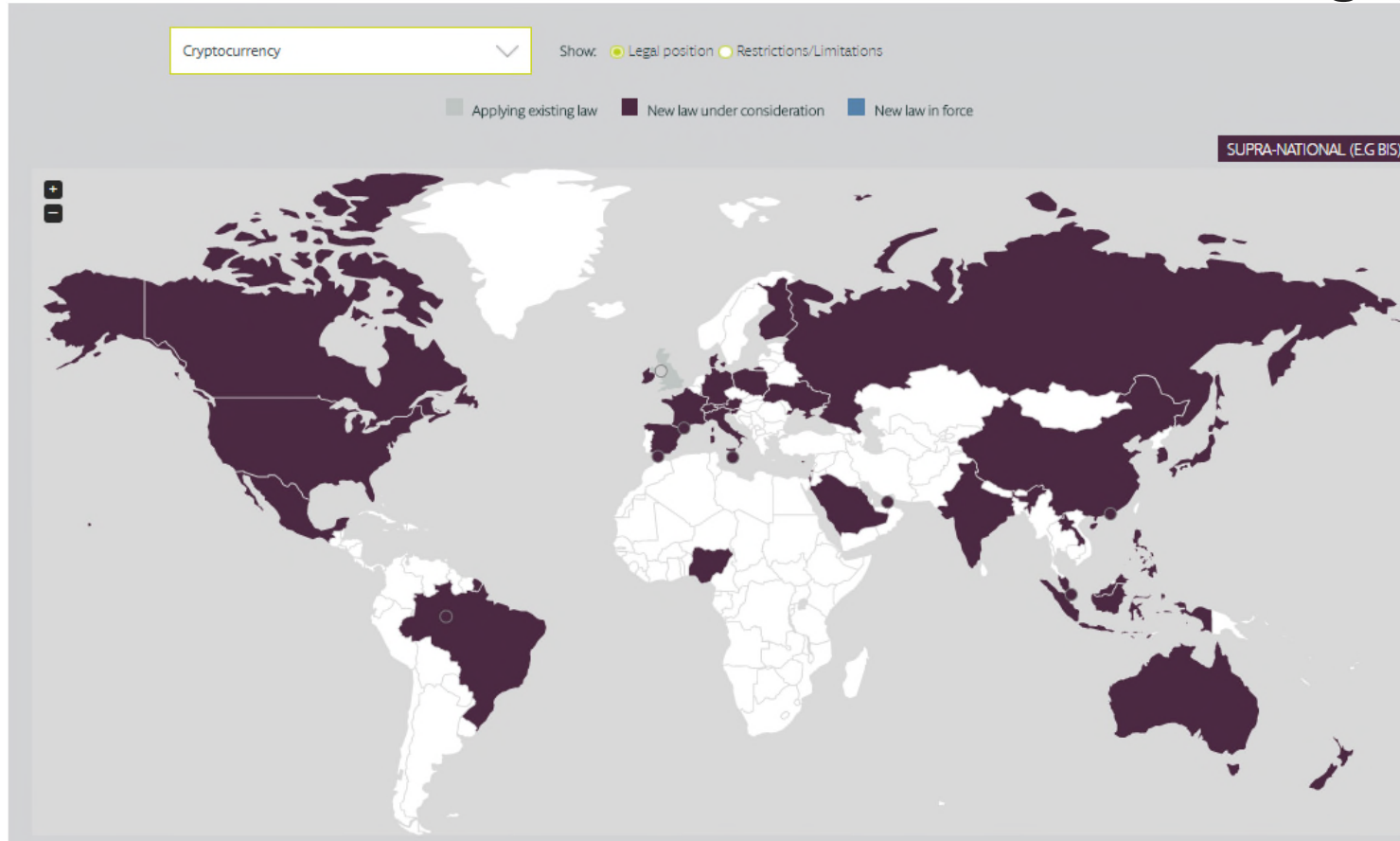
# HL Engage Blockchain toolkit



Engage

The online insight and analysis you need

[www.hlengage.com/blockchain](http://www.hlengage.com/blockchain)



- Hogan Lovells insight provided giving analysis of legal position
- Case studies on a country-by-country basis show how blockchain technology is being adopted
- Quickly see whether new blockchain law applies, whether existing law is being used or whether the matter is still under discussion.





Discussion





[www.hlengage.com/blockchain](http://www.hlengage.com/blockchain)  
[www.hoganlovells.com](http://www.hoganlovells.com)

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