

7CCSMDLC: Distributed Ledgers & Cryptocurrencies

Lecture 7: ICOs and TGEs



Peter McBurney

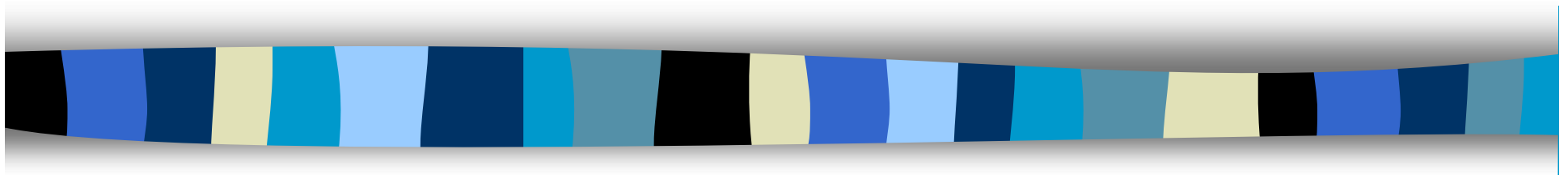
Professor of Computer Science
Department of Informatics
King's College London

Email: peter.mcburney@kcl.ac.uk
Bush House Central Block North – Office 7.15



Outline

- Raising Funds
- ICOs and TGEs
- Case Studies



Raising Funds for Start-ups



How is money raised for startups?

- FF&F – Founders, Friends and Family
- Angel investors
- Government grants and loans
- Commercial lenders (eg, banks)
- Venture Capital (VC) firms
- Initial Public Offers (IPO)
 - When the company lists on a stock exchange
 - Shares are now for sale to the public.



Seeking loans or investors

- Issue a Prospectus
 - A document presenting the opportunity, the terms and conditions (T&C) and the risks
 -
- Strict rules in most countries
 - USA: Securities and Exchange Commission (SEC)
 - UK: Financial Conduct Authority (FCA)
 - Prudential Regulation Authority (PRA)
- May also be industry-specific regulators
 - UK: Ofcom – Office for Communications & Postal industries
 - Ofgem – Office for Gas and Electricity Markets
 - Gambling Commission
 - Competition and Markets Authority
 - Food Standards Agency
 - Etc.



Newer forms of fundraising

- Traditional forms of lending
 - Savers place deposits into banks, building societies, credit unions
 - Banks etc aggregate the savings
 - Then lend larger amounts to borrowers (individuals, companies)
 - This is called Fractional Reserve Banking
- Crowd Funding
 - Aggregation done via a web-site or a crowd-funding service
 - Large number of investors invest a small amount each
- Peer-to-Peer lending
 - Lenders connect directly to borrowers
 - An intermediary may match borrowers and lenders (and do credit checks)
 - 133 UK P2P lending platforms listed here (although not all are still active)
 - www.p2pmoney.co.uk/companies.htm
- ICOs
 - Presale of tokens.

Case Study — P2P lending

- Folk2Folk
 - P2P lending company in England
 - Established 2013 by Parnalls (Solicitors in Cornwall)
 - <https://folk2folk.com>

Lenders: High Net Worth individuals (HNWI)

Borrowers: Companies or HNWI

Loans secured against property or land

Social base: Local rural communities
& market towns

Cumulative loanbook: over £300m.



Case Study — Crowd funding



- CrowdCube
 - UK's largest crowd-funding platform
 - First to receive FCA approval (2013)
- Crowd-funded equity raises
 - eg, Chilango in 2015: 1300 investors paid £3.4m total for 8.7% equity
- Also, crowd-funded mini-bonds (ie, loans)
 - eg, Chilango in 2014: 347 lenders lent £2.0m total for 8% pa return
 - eg, Brewdog in 2015: 815 lenders lent £2.3m total for 6.5% pa return
- Disclosure: Crowdcube was a partner on research project we undertook on voting over distributed ledgers (The VOLT Project, 2017-2020).



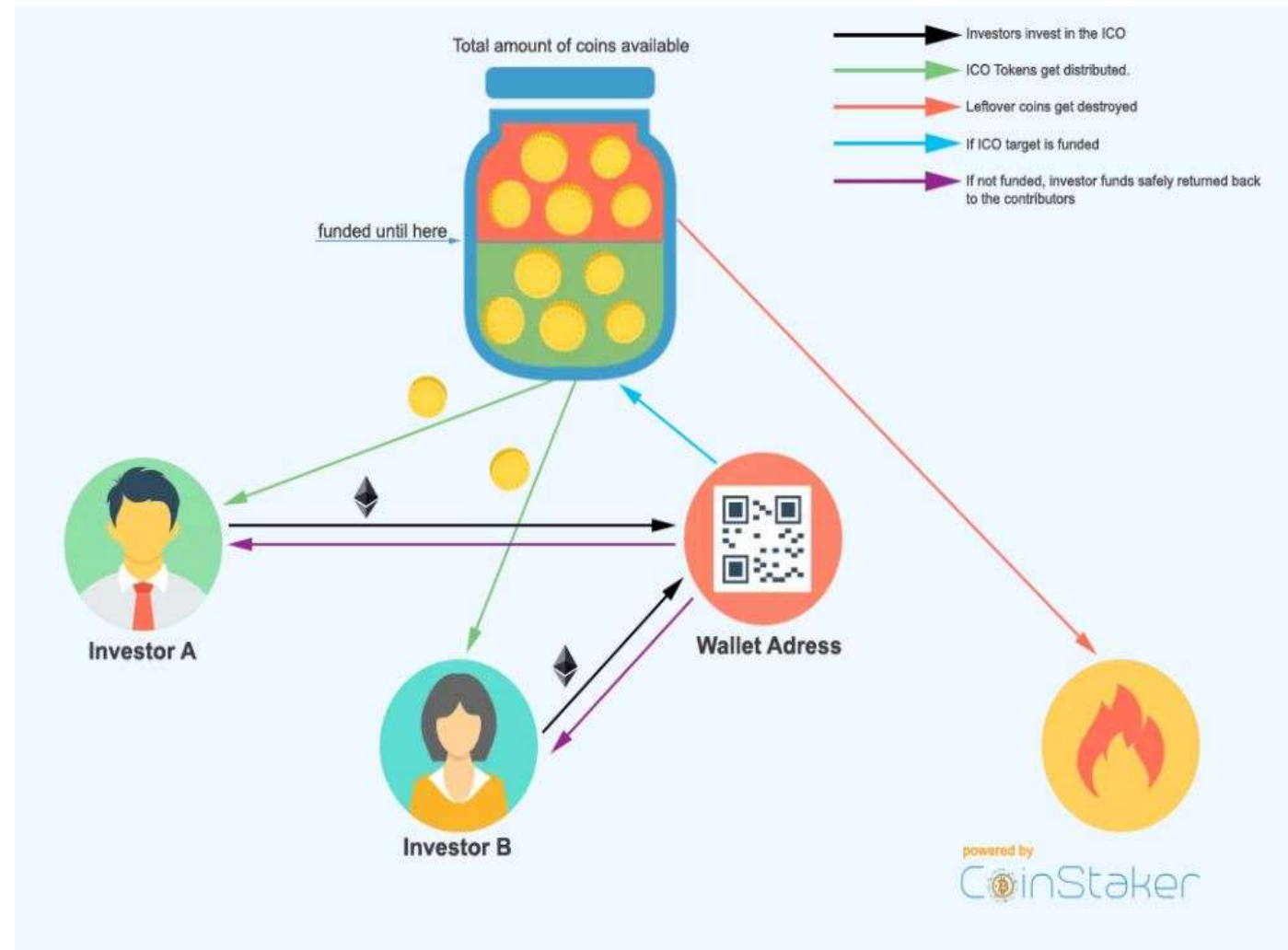
Initial Coin Offerings (ICOs)

What is an ICO

- Consider we plan a start-up airline
 - Our first route: London, UK and Zurich, Switzerland
 - We want to support the Crypto Valley community
 - Pre-sell the frequent flyer miles
- Why invest?
 - Business or utility reason
 - Investment reasons
 - to hold tokens and resell them later
 - Speculation reasons
 - to buy and sell tokens.
- Called an Initial Coin Offering (ICO)
 - Named following “IPO – Initial Public Offering” (of shares in a company)
 - Also called a Token Generation Event (TKE).



Overview of Initial Coin Offerings (ICO)



Source: <https://www.coinstaker.com/initial-coin-offering/>.
Accessed: 12/02/2018



Example: 2017 ICO fundraising statistics

Total Raised in 2017: \$4.8 billion in 279 ICOs (“The Summer of ICOs”)

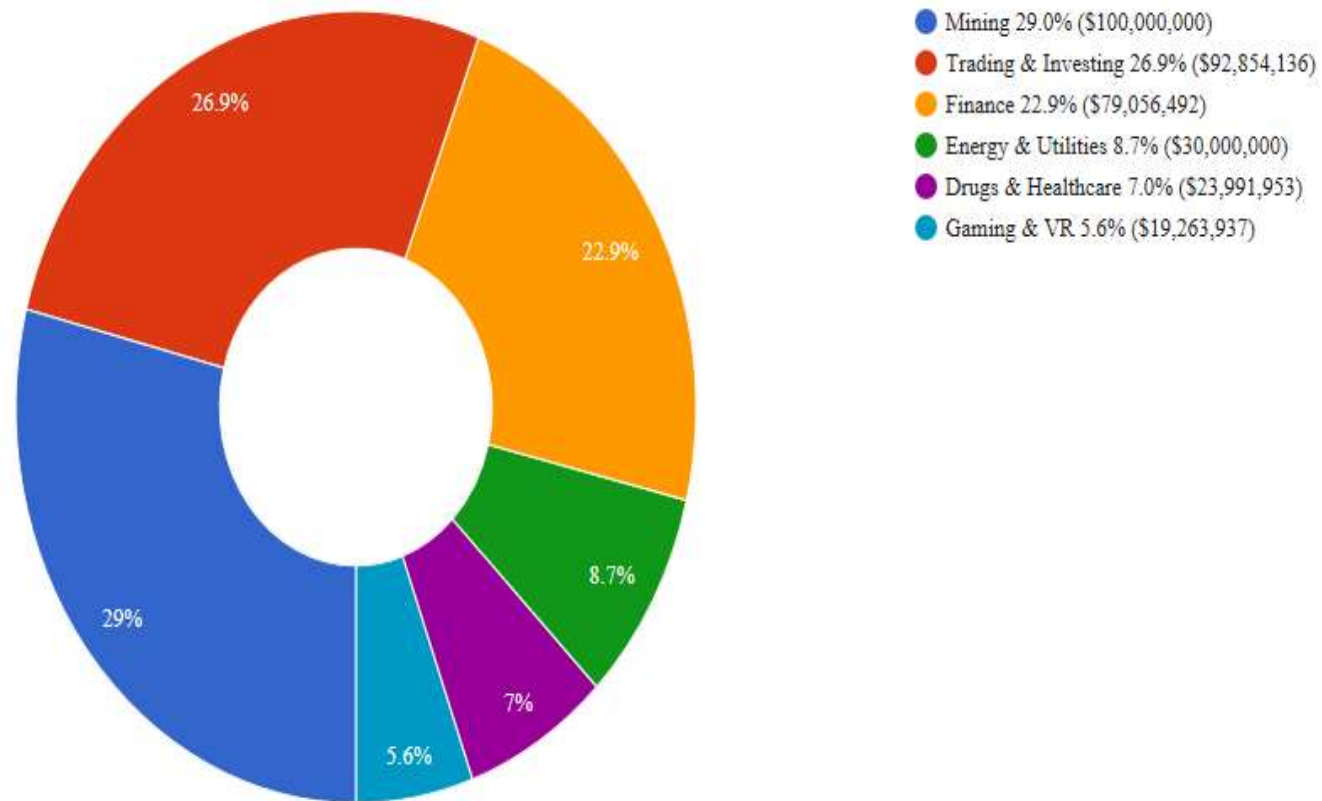
Rank	ICO	Amount (USD m)
1	HDAC	258
2	Filecoin	257
3	Tezos	232
4	EOS Stage 1	185
5	Paragon	183
6	Bancor	153
7	Kin Kik	97
8	Status	90
9	BANKEX	71
10	TenX	64

Source: <https://www.coinschedule.com/stats.php>.

Accessed: 2018-02-12

Securities tokens or utility coins?

ICOs by Category 2018



Source: <https://www.coinschedule.com/stats.php>.

Accessed: 2018-02-12

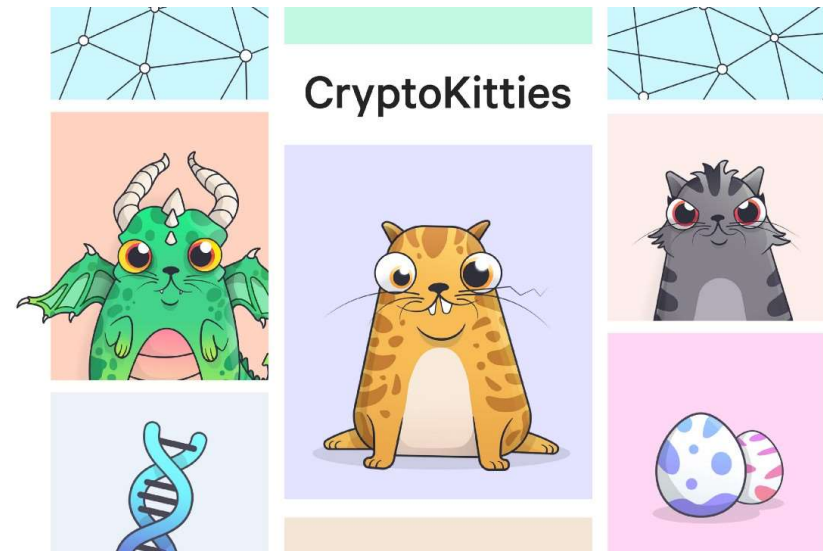


Token standards: ERC20 & ERC223

- ERC20 – The Ethereum standard for tokens
 - ERC = Ethereum Request for Comment
- A protocol for tokens to interact on the Ethereum network
 - So that tokens can easily be sent and be received without developers of new tokens have to re-create interaction code for each new token.
 - So that wallets & exchanges can have a single API for dealing with new tokens.
- Coinlore site lists 5380 tokens on Ethereum which are ERC20 compliant (as of February 2025):
 - www.coinlore.com/token-types/erc20/all
- ERC223 token standard
 - An update on ERC20
 - Does not permit tokens to be transferred to a smart contract which does not permit tokens to be withdrawn.

Token standards: ERC721

- ERC721 – The Ethereum standard for Non-Fungible Tokens (NFTs)
 - These are tokens intended to represent unique objects, each of which may be bought and sold
 - Fungible means replaceable
 - Non-Fungible means unique



- The first major NFT app was Cryptokitties by AxiomZen
 - Unique images of cats which could bought, sold, & bred together
- Etherscan site lists the top 100 Non-Fungible tokens which are ERC721 compliant (by value):
 - <https://etherscan.io/tokens-nft>



What are the concerns of regulators?

- To prevent scams and frauds
- To ensure promoters reveal all they know to investors regarding
 - Past records of promoters
 - True plans & intentions of company
 - Legal & regulatory status
 - Insider deals and connections
 - Risks
- Types of risks
 - Market demand
 - Competitors
 - Regulatory risks
 - Technology developments.



Accredited investors

- Most financial sector regulators are more concerned with risks to ordinary consumers & investors
- Less concerned with risks to
 - High-Net-Worth Individuals (people with wealth over, say, US\$100K)
 - Private pools of investment
- Some agencies have a category of Accredited Investors
 - Less regulation & oversight of these investors and the pools they join
 - Hedge funds – pools of accredited investors using high-risk strategies.



Cryptocurrency Hedge Funds

- Pooled investment funds targeting investments in:
 - Cryptocurrencies and alt-coins
 - ICOs
 - Start-up businesses running over blockchains
- Often created by partners & investors in traditional hedge funds
 - Crypto is too volatile for traditional investors
- Examples:
 - Pantera Capital (2013) – first crypto fund for US investors
 - Galaxy Digital Assets Fund
 - Chromatic Capital
 - Polychain Capital.



Checks on investors

- KYC – *Know Your Customer* regulations
 - Identity
 - Location
 - Wealth & assets
 - Other investments
- AML – *Anti-Money Laundering* regulations
 - What are the source(s) of funds?
- Money-laundering
 - Proceeds of criminal activity (often in cash)
 - Proceeds of transactions with entities under sanctions
 - eg, Syria, DPRK, Iran (until recently), Rhodesia (1965-1980), South Africa (ca. 1985-1991).



Registration of security

Need to register securities with SEC (unless exempted), providing details on:

- The company's properties and business purpose
- The security being offered
- The company's management
- Financial statements, certified by independent accountants.



Howey Test

- What counts as a “security” under US Securities law
 - ***Securities and Exchange Commission v. W. J. Howey Company***, 328 U.S. 293 (1946)

Under the Howey Test, a transaction is an investment contract for securities if four conditions are satisfied:

- It is an investment of money
 - “Money” may include other forms of near money
- There is an expectation of profits from the investment
- The investment of money is in a common enterprise
 - Pooling of funds into a joint-stock company or similar joint enterprise
- Any profit comes from the efforts of a promoter or third party
 - If profit arises from investor’s own actions, then likely not a security.



For intending ICOs, there are 3 broad choices

- Option 1 (Regulation-Heavy)
 - Register tokens as securities with the USA SEC
 - Around USD \$500K in legal fees
 - 4-6 months for the process
- Option 2 (Regulation-Lite)
 - Gain exemption from the SEC by not selling to US citizens or residents
 - Similarly, not selling to Chinese or South Korean residents
 - Around USD \$50-100 K in legal fees, 2-3 months
 - Need to collect KYC and AML information
 - Contrary to Cypher-punk ethos
- Option 3 (No-Regulations)
 - Ignore these regulations
 - Risk being prosecuted by regulators and/or sued by investors
 - Employ a good lawyer!



Stages of an ICO

- Private token allocation
 - To friends & employees
- Private token allocation
 - Typically to large investors and crypto-hedge funds
- Public token allocation
 - To anyone (perhaps subject to constraints)
 - eg, Not to citizens or residents of the USA, China or South Korea
 - Money raised on basis of a White Paper and a Prospectus
- Development of Platform
 - And creation of tokens
- Launch of Business
 - And use of the tokens.



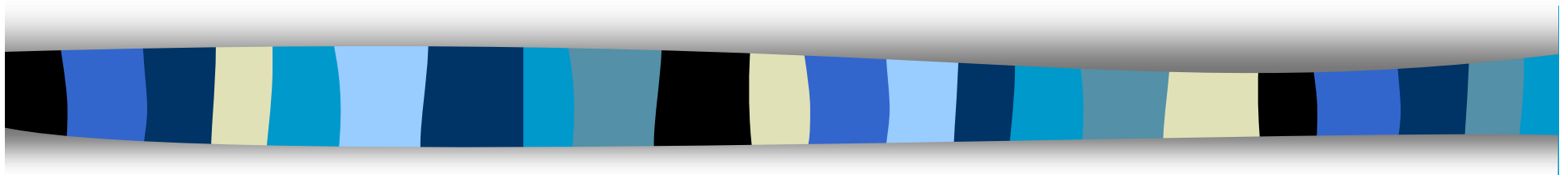
ICOs — A typical organization structure

- A charitable foundation (F) initiates the ICO and receives the funds
 - Has independent board of directors
- A software development firm (D) develops the idea and the white paper
 - When money is raised, some is allocated by F to D to build the platform
- Locations
 - Foundation often registered in regulation-friendly jurisdictions
 - eg, Switzerland, Gibraltar, Singapore.
 - Software company registered elsewhere
 - eg, UK, USA.
 - Employees may be anywhere.
- Potential Governance issues
 - What is relationship between Foundation (F) & S/W company (D)?
 - Place of jurisdiction if disputes?
 - Do token-holders have rights over software?



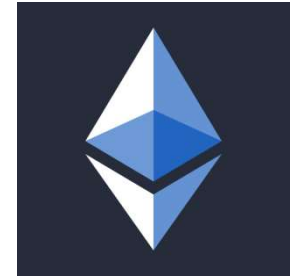
Token allocation mechanisms

- A variety of allocation mechanisms are used to allocate tokens in the public sale
 - Usually an auction with tokens awarded to highest bidder
- Basic Attention Token (BATCoin) ICO
 - May 2017: \$35 million raised in 30 seconds
 - 130 investors only
 - Top 20 addresses control more than 50% of tokens
- Bancor ICO
 - 12 June 2017
 - \$153 million (in Ether) raised in 3 hours
 - \$51 million more than planned
- Criticisms
 - Favouritism to insiders
 - Speed
 - Not capping total tokens.



Some ICO Case Studies

Ethereum 2014



- Ethereum
 - 2013: White Paper by Vitalik Buterin
 - Proposed to enable full programming capabilities over a blockchain

- ICO in July-August 2014
 - 6th highest ICO at that time
 - \$18.4 million raised
 - Payment in BTC at descending fixed prices
 - 2000 ETH / BTC falling to 1337 ETH / BTC
 - 31.5 K BTC or 60 million ETH

The DAO 2016



- The DAO
 - Decentralized Autonomous Organization
 - Self-running VC fund running over Ethereum
 - Raised \$150 million in 1 month (May 2016) from 11,000 investors
 - Intended that token holders would vote on investment proposals
- June 2016: Code vulnerability exploited
 - \$50 million siphoned off
- Risk to investors
 - Loss of funds due to poorly-designed (or tested) code
- Ethereum nodes voted to hard-fork to restore lost funds
 - 20 July 2016 at block 1,920,000
 - Now 2 branches:
 - Ethereum (the blockchain excludes the exploitation)
 - Ethereum Classic (the exploitation continues).

Tezos 2017

- A decentralized blockchain to facilitate formal verification of code, and smart contracts
 - Initiators and s/w developers: Arthur Breitman & Kathleen Breitman (USA)
 - Tezos Foundation (Switzerland): Johann Gevers
- ICO in July 2017
 - \$232 million raised in ETH and BTC
- Disagreement between the Breitmans and the Foundation
 - Lawyer's letters between the two
 - Delay in development & launch of tokens
 - Who would do the s/w dev?
- Investors disaffected by the delays
 - Risk of class-action suits from investors.



Polkadot 2017

- Goal
 - to link private and public blockchains together
- Promoters
 - Gavin Wood (former CTO, Ethereum)
 - Jutta Steiner (ex-Ethereum)
 - Parity Software
- Parity Software Company (UK)
- Web 3.0 Foundation (Berlin)
- ICO in October 2017
- Raised:
 - Private Sale: \$83 million in Swiss Franks
 - Public Sale: \$140 million in Ether & Bitcoin
- Auction process was a descending-price auction (Dutch Auction).





Polkadot — Issue with multi-sig wallets

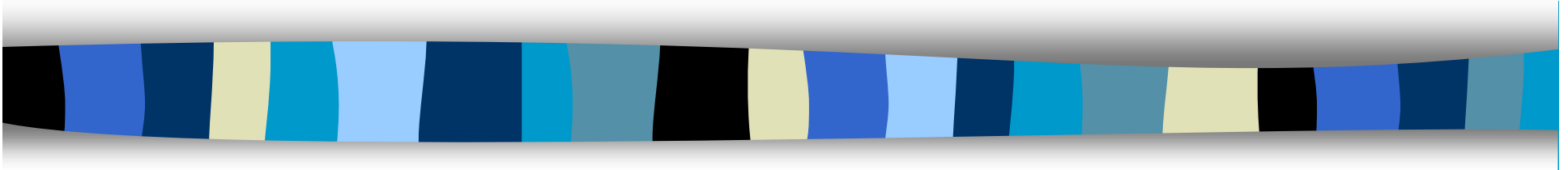
- Funds paid into a multi-sig wallet on Ethereum
- Ethereum multi-sig wallet template put most of the processing (apart from payments out) in a library wallet
 - This was to reduce processing costs
- The library wallet had a vulnerability
 - Someone could call it and initialize it (taking ownership of it)
 - Then could kill it
 - Someone did! (probably accidentally)
- Any multi-sig wallet which used this wallet was no longer accessible
- Some 500K ETH no longer accessible
 - Including \$90m of funds raised for Polkadot.



Risks of an ICO

- Risks of any business investment
 - Investment may fail
 - Market demand may not be present
 - Especially for products seeking to create new market categories
 - Scams & frauds
- Risks of investments in new technologies
 - Technology may move on
 - Shortage of skilled people
 - Competition may arise
 - Network effects & path dependence
- Risks particular to ICOs
 - Tech is new & immature, and not yet well understood
 - Regulatory risks (eg, prosecution by regulators)
 - May be a Ponzi scheme
 - Class-action suits by investors
 - Earlier investors may be sued by later investors.

Thank you!



peter.mcburney@kcl.ac.uk