

MONERIUM

Blockchains and the future of finance

Sveinn Valfells
ACTAI Iceland - CRYPTO CONFERENCE
Harpa, July 23, 2018



Team



Gísli Kristjánsson
Co-founder

Co-founder Appvise (smart DNS services in over 100 countries); Ethereum ICO investor; bond trader (Hf Verðbréf); BSc math (U of Iceland).



Hjörtur Hjartarson
Co-founder

Co-founder Appvise; Ethereum ICO investor; co-founder Kapital software; Commercial College (Iceland).



Jón Helgi Egilsson
Co-founder

Former chair and vice-chair, Central Bank of Iceland; Head of Capital Markets, Landsbanki; fintech co-founder (Mens Mentis); Mechanical engineer, BSc (U of Iceland), MSc (DTU). Adj prof finance (Reykjavik Univ); visiting scholar in economics (Columbia).



Sveinn Valfells, PhD
Co-founder

Investor, employee or advisor in biotech (Atlas, deCode, Ingenuity), telco (Vodafone.is), mobile (Dimon), VC (Arctic, IQ); first Bitcoin transaction 2011. Physicist BSc (Columbia) PhD (Boston), economist MSc (Stanford).



Árni Guðjónsson

Senior designer and developer in web and mobile applications at Det Norske Veritas, Germanischer Lloyd, National Oilwell Varco, Kapital. B.Sc. comp sci (U of Iceland).



Jón Gunnar Ólafsson

Associate (securities law and license applications), Lagahvoll. Mag. jur. (U of Iceland).



Eric A. Stubbs, PhD
Board of Directors

Senior Portfolio Manager, Royal Bank of Canada Wealth Management. Previously co-Head of Wealth Management Bear Stearns, Head of Strategic Investment Advisory Group and risk manager at J.P. Morgan. Economist, BA, MA (U of Toronto), PhD (Harvard).



Danielle Pamela Neben
Board of Directors

Founding Partner and Consultant at Maresías and affiliated with Fidelio Partners. 25 years in banking: 20 at HSBC in 7 countries, then Board Member of Landsbankinn and currently in the Boards of Meniga and Monerium. B.Comm (McGill University).



Magnús E. Björnsson, PhD
Chair, Board of Directors

CEO Men & Mice. Previously, Senior Director of Engineering, Oracle. BSc physics and comp sci (U of Iceland), PhD comp sci (Brandeis).



Gunnar Haraldsson, PhD
Advisor

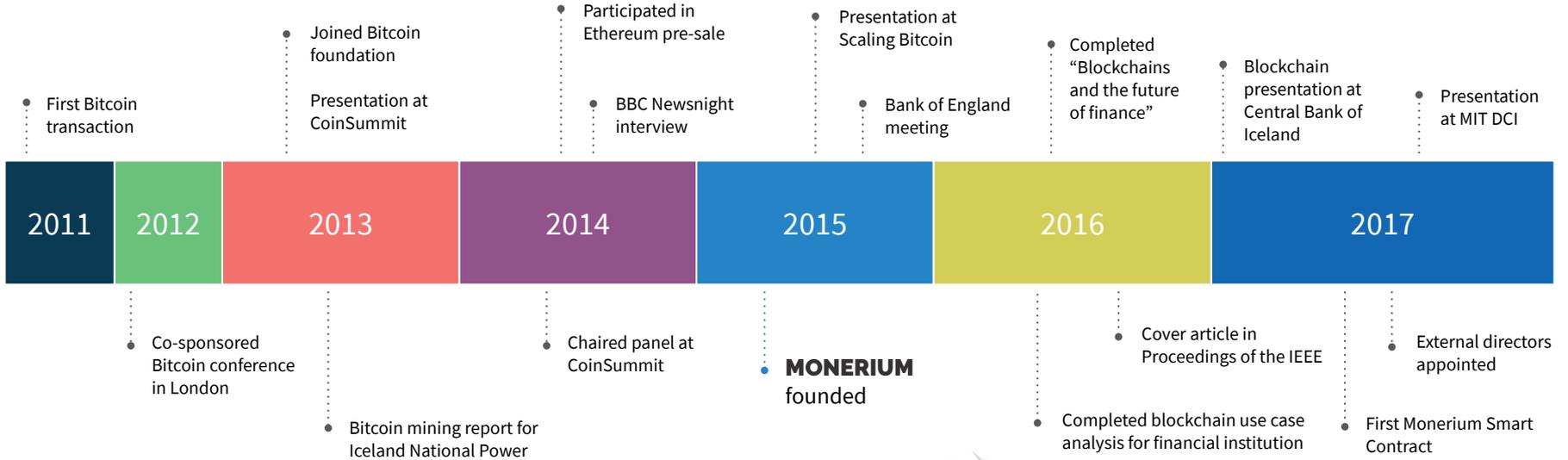
Former Chair Financial Supervisory Authority of Iceland, Director Inst. of Economic Studies (Univ. of Iceland), founder Intellecton. Economist B.Sc. (Univ. of Iceland), Ph.D. (Univ. of Toulouse).



Sigurður Örn Hilmarsson
Advisor

Barrister at the Supreme Court of Iceland, partner at Réttur, Previously at Laugardal Legal. Mag. jur. (Univ. of Iceland).

How did we get here?



Ledgers track economic transactions



Babylonian ledger, 1800 BC

2331. St. John Houblon Dr. Conto

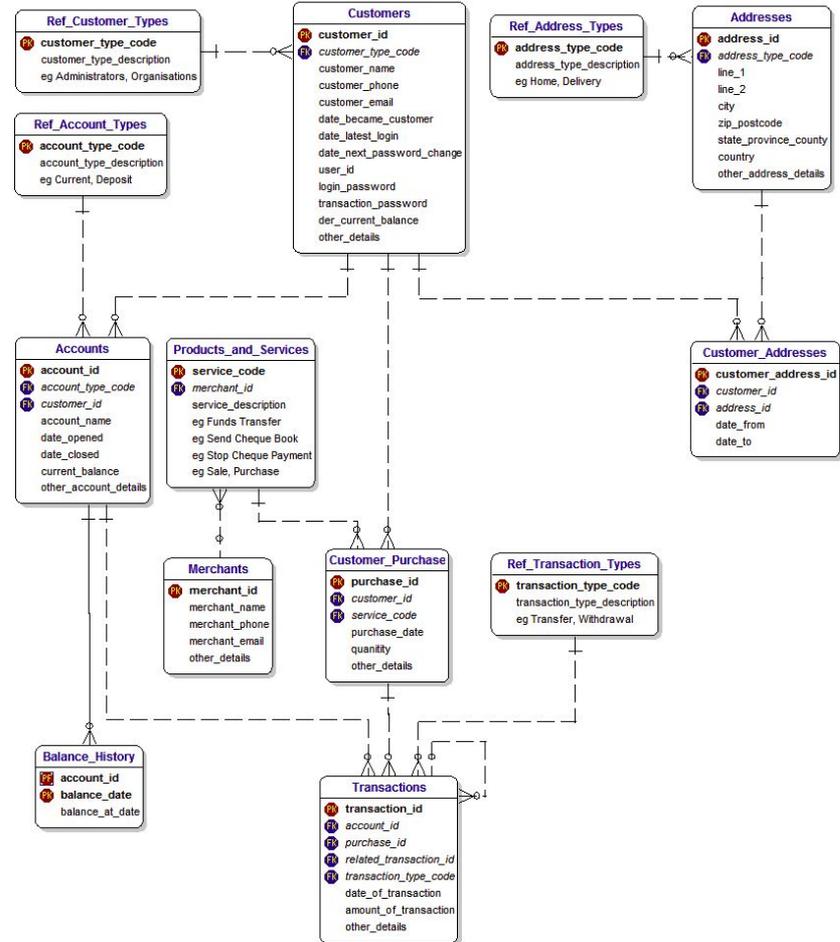
		1696		By his acco	
1696	To Cash	Nov 20	15	Dec 27	796
26776	Dr	12	400		
2	1016	Dec 1	125	Dec 1	751
-	700	333. 6. 8	330		
5	8016	Dec 1	163	10	66
-		154. 16. 8	81	3	3
7	768	Nov 8	5	16	3
12	1111	30	125	14	215
14	814	1329. 0. 4	210	15	216
15	777	9	95	5	8
-	1655	12. 3.	69	15	10
-	1657	15	80		
16	3166	1100	80	100	
19	3226	14	1800	11	18
-		16	800	11	19
-		16	170	11	23
-		16	112	6	8

Bank of England ledger, 1696 AD

Modern ledgers are digital

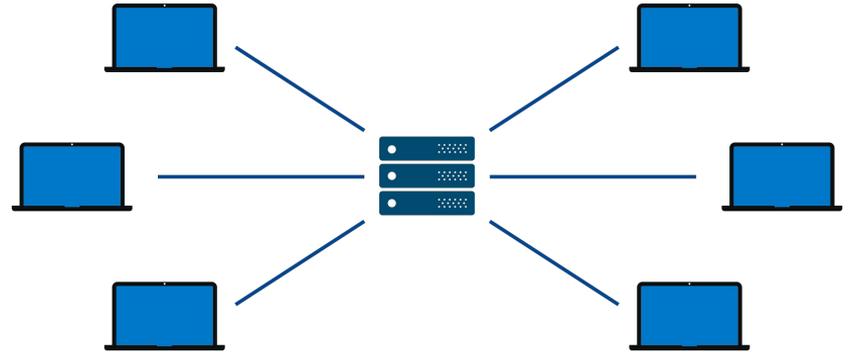
Databases extend ledgers to digital domain

- Relational structure
- Flexible queries
- Fast duplication
- Remote access



Digital ledgers are effectively centralized

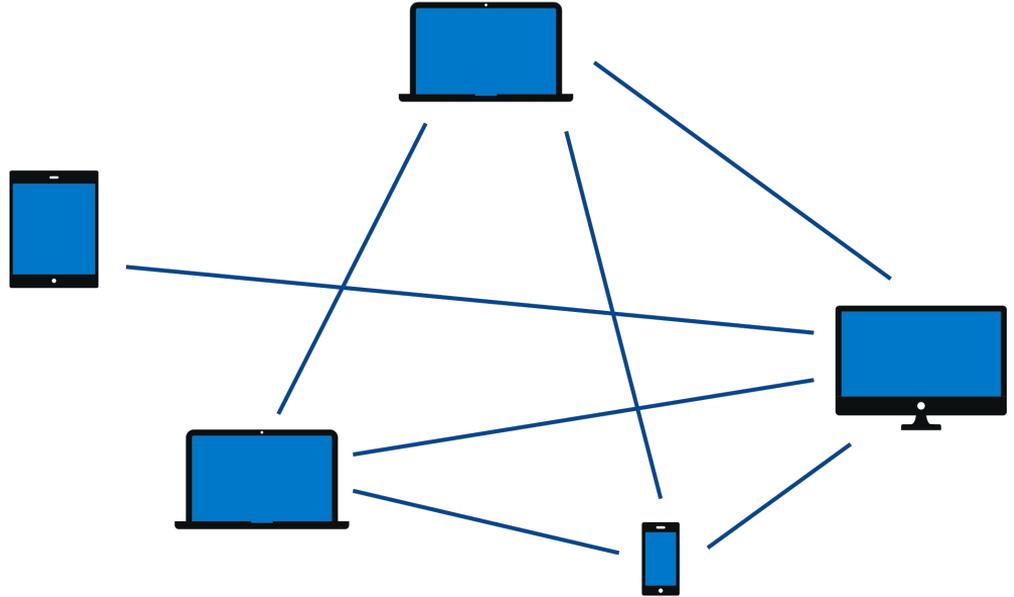
- Centralized architecture and processes.
- Transactions channelled through central entities.
- Organizations maintain trusted ledgers (banks, exchanges, social networks, registries, etc)



Centralized ledgers require trust

Blockchains are distributed ledgers

- Peer-to-peer transaction transmission and processing.
- Peer-to-peer updates of distributed ledger (consensus).
- Permissioned or permissionless participation of users and Validators.
- Trust is enforced through blockchain protocols.



Blockchain uses public-key cryptography

- Widely used in securing communications.
- Permissionless key generation.
- Pseudo-anonymous transactions.
- Transaction authenticated by scripts.
- Features range from multi-sig transactions to autonomous smart contracts.

Private Key



```
E9 87 3D 79 C6 D8 75 C0  
FB 6A 57 78 63 33 89 F4  
45 32 13 30 3D A6 1F 20  
BD 67 FC 23 3A A3 32 62
```

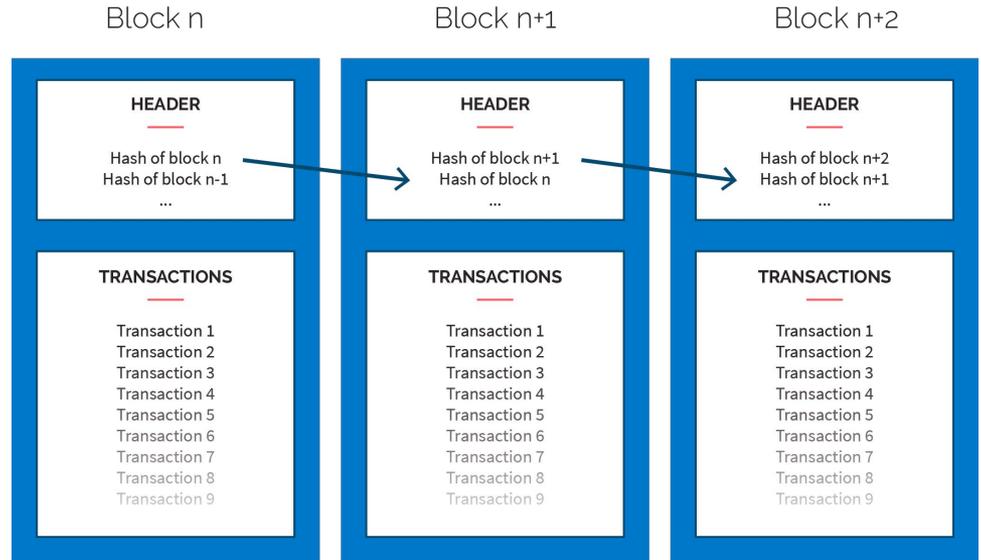
Public Key



```
1j2m5TakK99HvJUT  
fg2b2b8EGWQenmdTh
```

Consensus secures blockchain

- Consensus established by cryptography, proof-of-work or Byzantine agreement.
- Validators (miners) compute hashes for or sign new blocks.
- Validation can be permissioned on Permissionless.
- Cost and time of double spending prohibitive.



Blockchains are new financial networks

- WWW and mobile changed media, communication
- Blockchains will change finance

Anyone can build new products on top of blockchains

- Money is now programmable (scripts, dApps)
- For the first time possible to send money like email

Bitcoin: A P2P payment system and a new asset class

- >\$120b market cap
- >\$200b annual transaction volume

Ethereum: A P2P platform for smart contracts

- >\$50b market cap
- >1M daily transactions

Both public and private sectors are embracing blockchains

- Ethereum
 - Ethereum public blockchain
 - Ethereum Enterprise Alliance backed by Microsoft, Amazon, Accenture, JP Morgan, and others.
- Hyperledger
 - Run by Linux Foundation, backed by Intel, Oracle, IBM, State Street, NEC, and others.
- R3
 - Backed by global banks including, Barclays, BBVA, Commonwealth Bank of Australia, Credit Suisse, Royal Bank of Scotland, State Street, and UBS.
- Bank of Canada
 - Simulated wholesale payment system
- Bank of England
 - Blockchain research since 2015
- Federal Reserve
 - “public and private currencies can coexist”
- State of Illinois
 - Illinois Blockchain Initiative
- Malta
 - Task force to advise on national blockchain strategy
- IMF
 - Considering “Crypto Drawing Rights”

Major jurisdictions are removing regulatory uncertainty

EEA

- Bitcoin exempt from VAT by EU Court of Justice ruling 2015
- EU AML directive amended to include virtual currencies, 2017.

USA

- FinCEN guidance on virtual currency issued March 2013
- FBI confiscated bitcoins from Silk Road, October 2013
- All major exchanges perform KYC/AML

Japan

- Virtual currency act in 2017
- Bitcoin recognised as payment method
- Virtual currency exchanges subject to KYC/AML

“Public and private currencies can coexist.”

James Bullard, Federal Reserve, Consensus NYC 2018

Iceland can benefit from blockchain adoption

Diversification of industrial power consumers

- “Mining” consumes >100MW, rapidly growing.
- Less polluting, more profitable than heavy industry, creates skilled jobs.
- Can replace existing heavy power users without requiring additional capacity or subsidies

Upgrade of financial infrastructure

- Improve profitability of state owned banking sector
- Foster environment for next-generation fintech

Streamline government services

- Link public asset ledgers to blockchains, car register, quota register, real estate register ...

Blockchains will reshape financial services

- Renaissance of private currency
 - Crypto- and fiat currencies will coexist
- Emergence of new commercial networks
 - Blockchains enable new commercial networks and models
- “Programmable money”
 - Customizable financial services
- Unbundling of financial services
 - Separate service providers for deposits, lending and payments
- Reduction in systemic risk
 - Shift away from “too big to fail”, dilution of existing monoculture



MONERIUM
money on blockchains

Q&A