Blockchain & Bitcoin:
A new opportunity for travel retail?

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THE BITCOIN STANDARD

Outline

- What is Blockchain technology?
- What are the drawbacks?
- What is Bitcoin?
- Opportunities for retail

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How does blockchain technology work?

- We cannot understand ***blockchain*** unless we understand ***Bitcoin***.
- Bitcoin is digital cash: money that can be transacted digitally in the same way physical cash is transacted in the real world—***without intermediaries***.
- For decades many cryptography and networks amateurs and professionals tried to find a way to create digital cash. Many iterations were created: ecash, egold, digicash, b-money, bit-gold, etc…
- None succeeded, usually because of a centralized element—a trusted third party, or a single point of failure.

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How does blockchain technology work?

- Building on these attempts, as well as bittorrent and Proof of Work, Satoshi Nakamoto created a reliable form of digital cash.
- Bitcoin succeeded as digital cash by completely replacing trust with ***verification***
- Bitcoin begins with the assumption that everybody is dishonest
- Replaces trusted third parties, checks and balances, and governance structures, with ***verification***—done through *Proof of Work*.

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How does blockchain technology work?

- **Proof of Work**: Computers spending processing power and electricity to solve math problems that are:

Expensive to solve & Cheap to verify

- Recording transactions into the ledger can only be done along with solving these hard math problems.
- Recording accurate transactions with correct PoW solution is rewarded with newly issued bitcoins
- Incorrect transactions & solutions are easily detected, and constitute a waste of processing power and electricity

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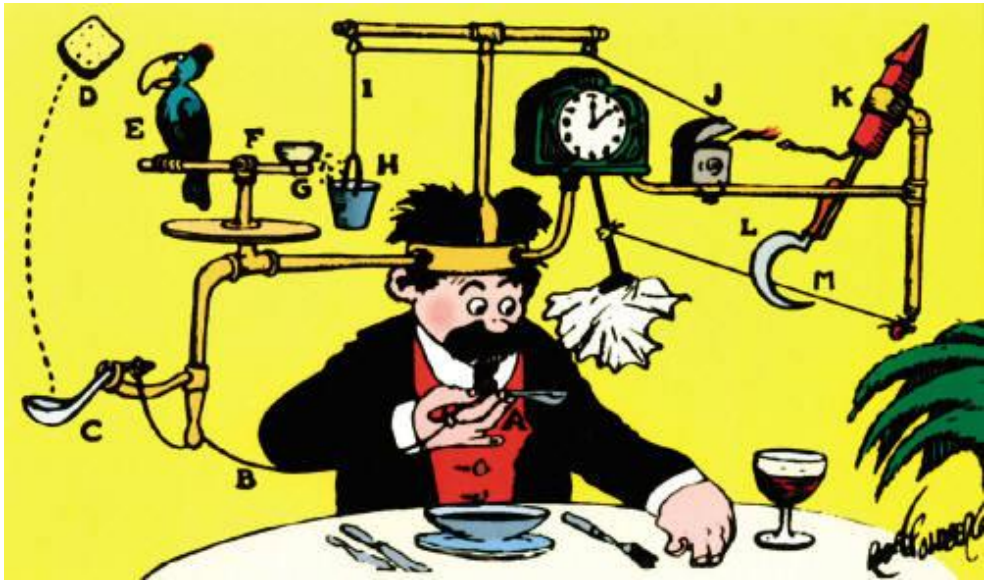
How does blockchain technology work?

- Bitcoin did NOT introduce the idea of synced ledgers
- It introduced synced ledgers without having to rely on a third party.
- The unique innovation introduced by Bitcoin is a technology to determine the validity of ledgers ***without having to trust anyone***.
- If you keep the trusted third party, you have a pointless, expensive machine



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Drawbacks of blockchain technology

1. Regulatory compliance
   - A properly-functioning blockchain is outside the realm of regulation.
   - There is absolutely nothing regulators can do: valid transactions will be approved, invalid transactions will be rejected.
2. Irreversibility
   - Blockchain transaction are irreversible, with no authority to appeal to
   - Human errors would be extremely costly in such a system

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Drawbacks of blockchain technology

3. Redundancy
   - To eliminate the need of trust in a third party, every node has to keep a record of all verified transactions and balances. That is far more expensive than having a single record
   - If Bitcoin didn't use blockchain, all its transactions could be recorded on a laptop
4. Scaling difficulties
   - Bitcoin processes 500,000 transactions per day, Visa 150 million
   - Bitcoin's scaling will come off the blockchain

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Drawbacks of blockchain technology

5. Insecurity

- In a system reliant on verification by Proof of Work: the more parties use the ledger, the more secure it is.
- In a centralized system reliant on an intermediary: the more parties using the system, the more potential points of failure.

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What is blockchain technology good for?

- In a blockchain, economy and operational efficiency are sacrificed purely to *eliminate intermediaries*
- This has proven cost-effective for exactly one use case so far: digital hard money
- Bitcoin isn't an application of a general purpose 'blockchain technology'.
- Blockchain is rather a specific mechanism that makes bitcoin workable

- BLOCKCHAIN IS LARGELY A MEANINGLESS TERM
- BITCOIN IS ALL WE GET

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Why does Bitcoin matter?

- Anything can be used as money if its held as a store of value and used in exchange
- But rising monetary demand raises the price of the money
- Rising price incentivizes more production of the money
- Excess production brings the price down, making it a useless store of value
- Only things that are hard to make succeed as money in the long term

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What have humans used as money?

- Cattle
- Lime stones
- Rare seashells
- Glass beads
- Metals
- Precious metals
- Government money
- Cigarettes in prison

What do they all have in common (when they work)?

Hard to make

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Bitcoin: The hardest money ever

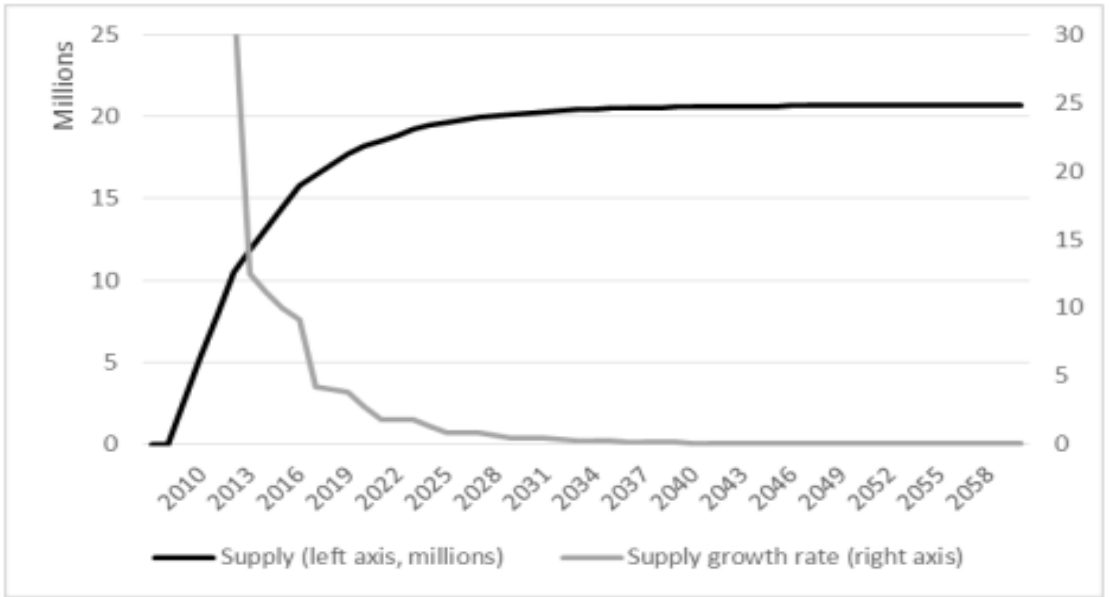

Figure 14: Bitcoin supply and supply growth rate assuming blocks are issued exactly every ten minutes.

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Bitcoin's monetary uniqueness

- The more something is chosen as a store of value the more its production increases at the margin…
- **EXCEPT BITCOIN**
- When Bitcoin is chosen as a store of value, its value goes up, but more production is not possible

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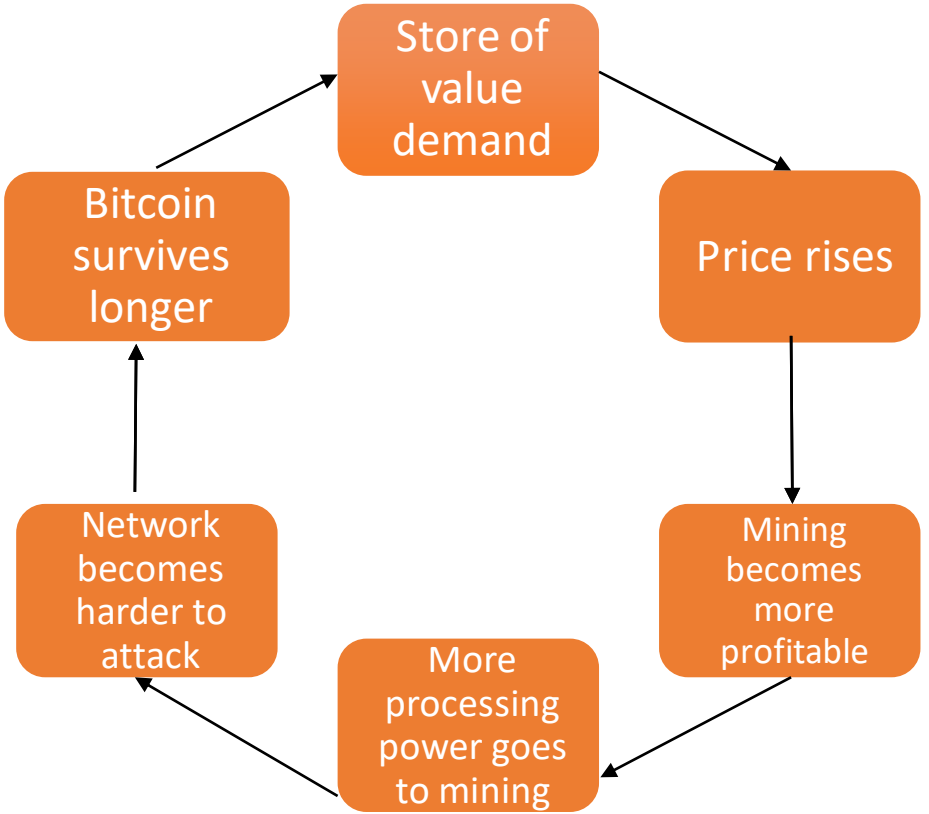
Bitcoin's monetary uniqueness

- Bitcoin is an all-conquering juggernaut positive feedback loop of economic incentives:



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How secure is Bitcoin

- The processing power to secure only 500,000 transactions per day:
- 50 Exahashes/s

- ~ 7,000,000 x the world's top supercomputer
- ~ 700,000 x the world's top 500 supercomputers combined
- ~ 7 trillion x your laptop

- The same transactions can be done on a single computer. But Bitcoin does it without relying on anyone or anything.

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How secure is Bitcoin

- No single point of failure
- No single piece of critical hardware or infrastructure
- No single critical individual or organization
- Bitcoin cannot be stopped—a protocol always open to anyone who wants it
- Around every 10 minutes, a new block of transactions is released. Has never failed.
- Has never confirmed a fraudulent transaction

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Bitcoin's monetary uniqueness

- The hardest money ever invented
- Available worldwide for anyone who can receive 2MB of data every 10 minutes
- Purely voluntary, does not need regulation, enforcement, or police
- Chosen and valued freely on the market: sound money.

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What is Bitcoin good for?

1. Store of Value:
   - First strictly scarce liquid asset
   - Before Bitcoin, the only thing that was truly scarce was human time. The Ultimate Resource, according to Julian Simon
   - The only limit on how much of a resources we have is how much time we dedicate to it
   - Anything chosen as a store of value had the imperfection that its supply will increase in response, causing a loss of the value

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What is Bitcoin good for?

1. Store of Value:
   - Only two things are genuinely scarce: time and bitcoin
   - For the first time, you can store the value produced from your scarce time in a store of value that is equally scarce.
   - Our most advanced technology for transferring the value of time into the future

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What is Bitcoin good for?

2 A decentralized, free market alternative to central banks & gold

- Over time, Bitcoin on-chain transactions might increase, but only marginally.

- Bitcoin off-chain transactions can increase exponentially.

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What is Bitcoin good for?

2 A decentralized, free market alternative to central banks & gold

1

- Bitcoin transactions need several minutes to be initially confirmed, and that’s useless for consumer payments

2

THE BITCOIN STANDARD

What is Bitcoin good for?

2 A decentralized, free market alternative to central banks & gold

- This is not speculation or a prediction.
- The Bitcoin Standard is already securely operational.
- The majority of Bitcoin transactions do NOT happen on the Bitcoin blockchain, they are settled offchain by payment processors, exchanges, and websites utilizing Bitcoin.

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Blockchain, Bitcoin, and travel retail opportunities

1. Bitcoin offers an alternative global payment settlement network free of political interference and with predictable monetary policy
2. Travel retailers can benefit from diversifying their global payment and settlement networks to protect against emergencies and political risks
3. Managing foreign exchange reserves and hedging against foreign exchange risk
4. In the entire “blockchain space” only Bitcoin is a commercially-viable product worth considering. Everything else is, at best, fantasy

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Soon to be translated to Arabic, French, Simplified Chinese, Traditional Chinese, Russian, Korean, Croatian, and Vietnamese.