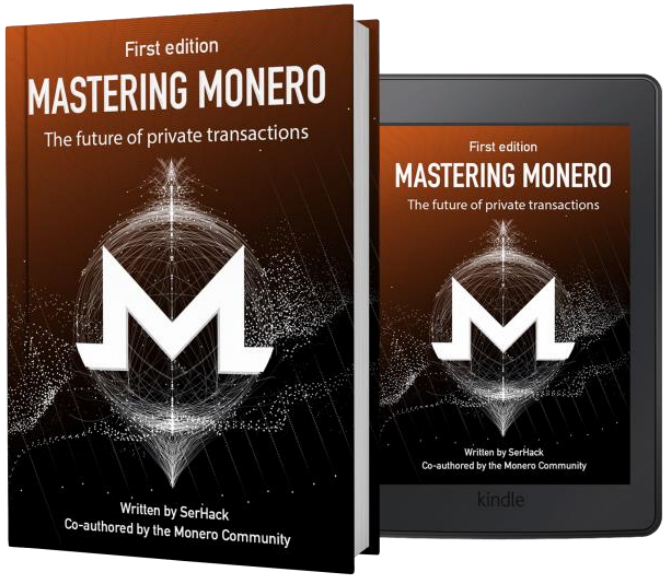
Bitcoin and Blockchain

Who Am I?



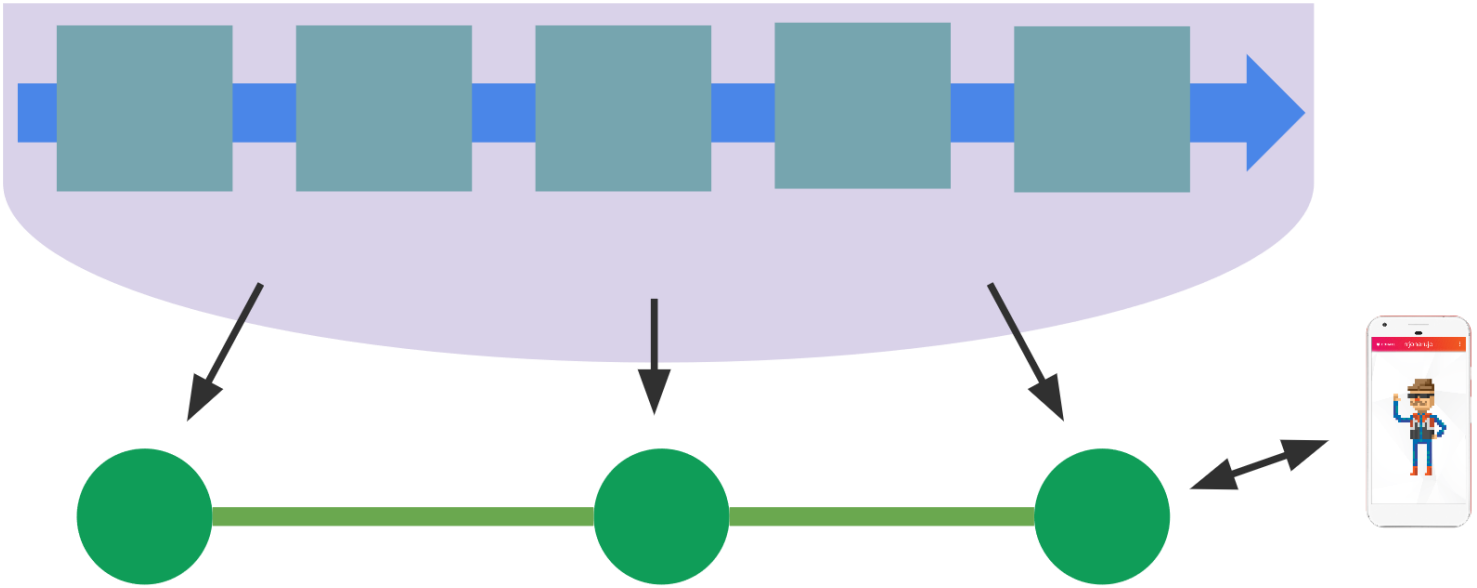
Minnesota Cryptocurrency

MONERO

What is a blockchain?

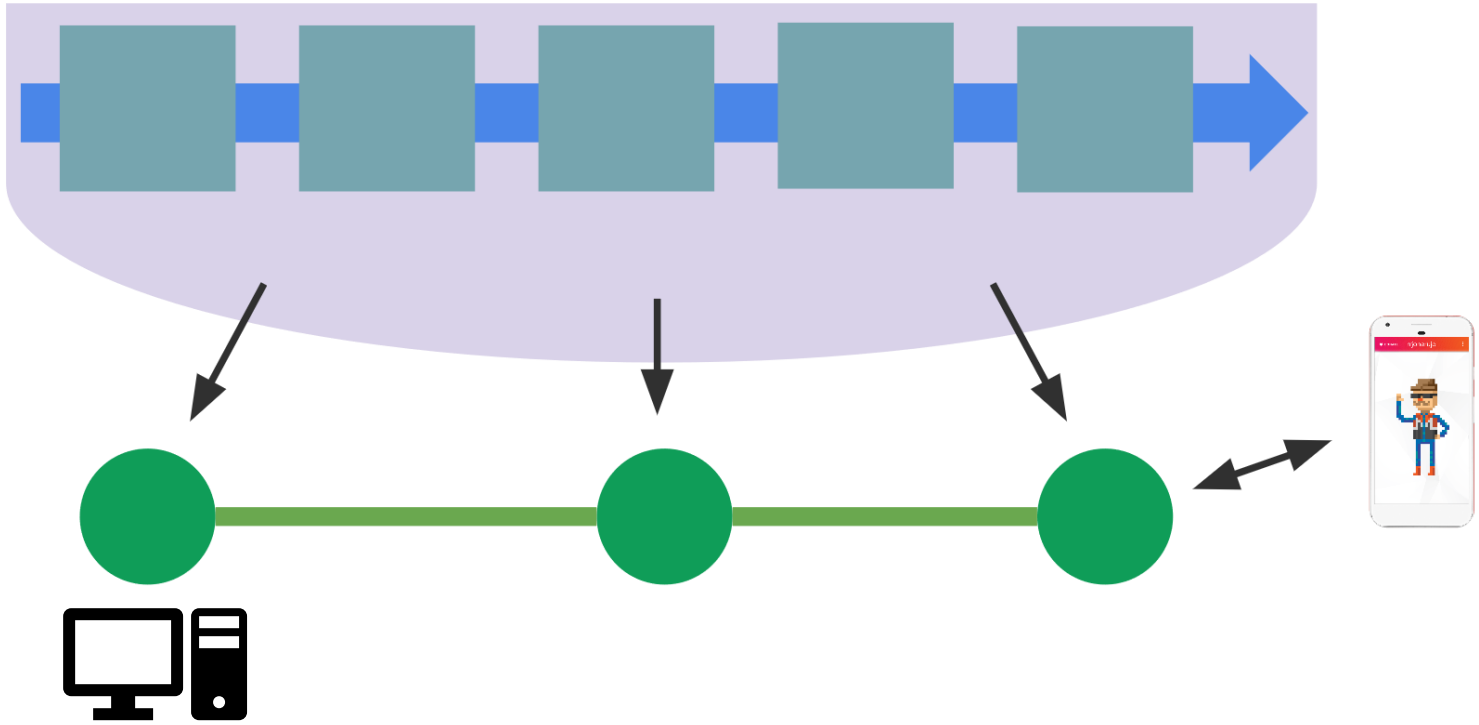
A blockchain is a distributed, growing database

Each *block* contains data. These blocks form a *chain*.



The blockchain is stored on *nodes*, which share the copy.

Public vs. Private Blockchains

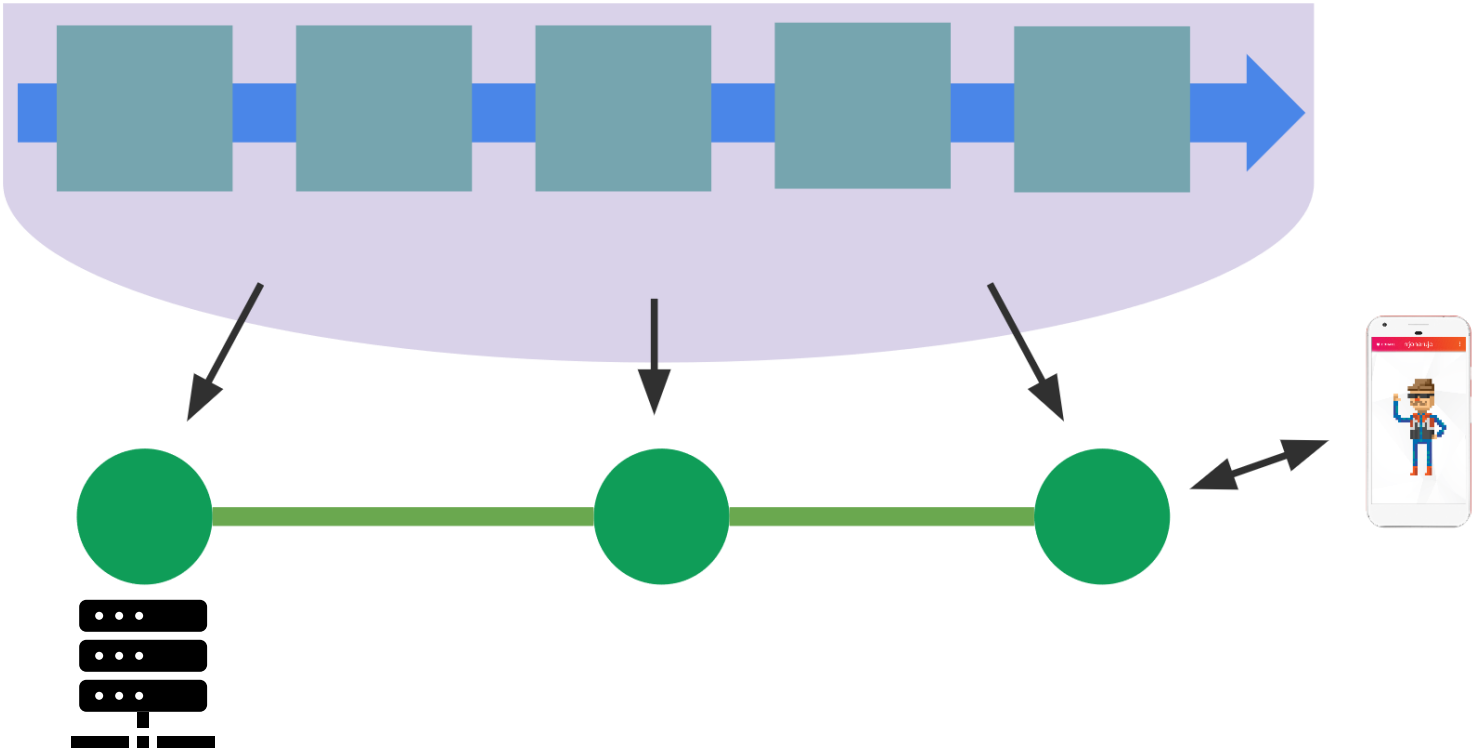


Alice runs node software on her home computer

Bob downloads wallet software and connects to an open node

Public: **anyone** can access it and host the infrastructure

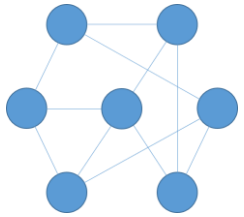
Public vs. Private Blockchains



Bob connects to company network on a company-issued phone

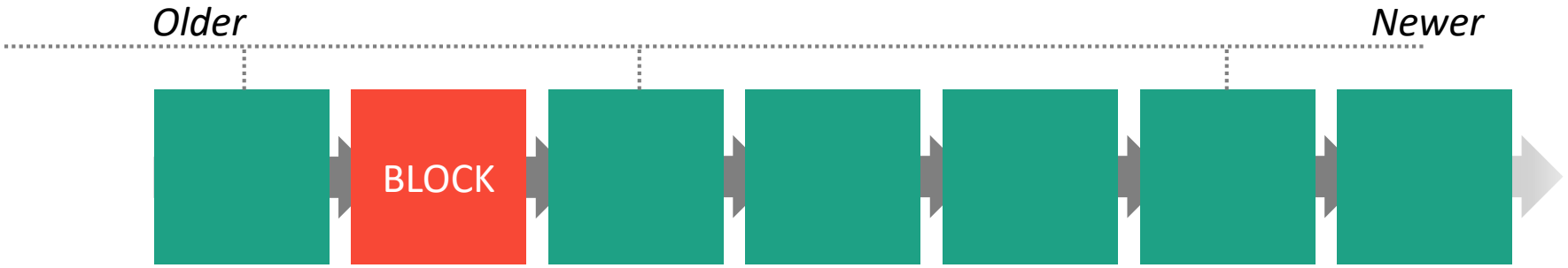
Alice is a sysadmin that maintains the blockchain on Amazon AWS

Private: only **selected parties** can access it and host the infrastructure



DECENTRALIZED

bitcoin



Tx ID: wgis85cissajr5da7wz3fcnqnhift
Sender: w3fn5ujfm3d3r975qjd35jrwd4k5q
Receiver: nftic5k8sf4j598wf357jw38956659
Amount: 10 BTC

Bob

Alice

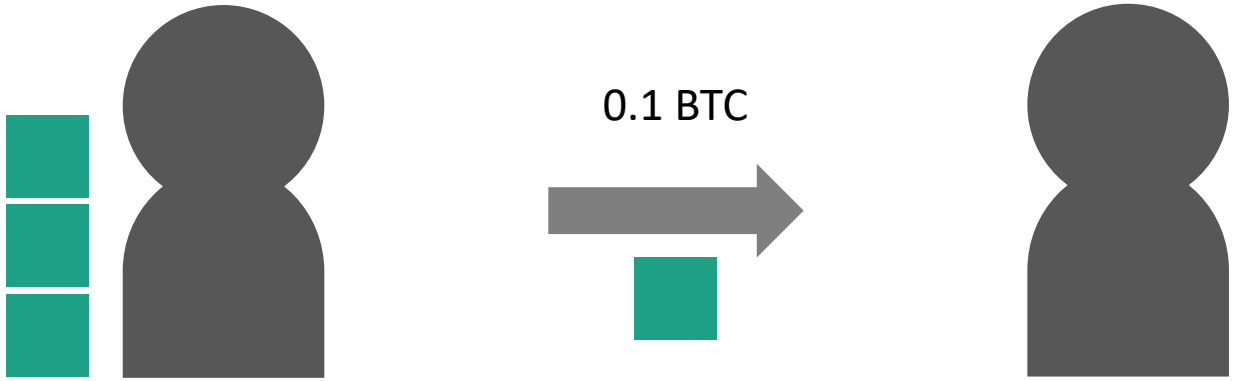
0.1 BTC

w3fn5ujfm3d3r975qjd35jrwd4k5q

nftic5k8sf4j598wf357jw38956659

Bob

Alice



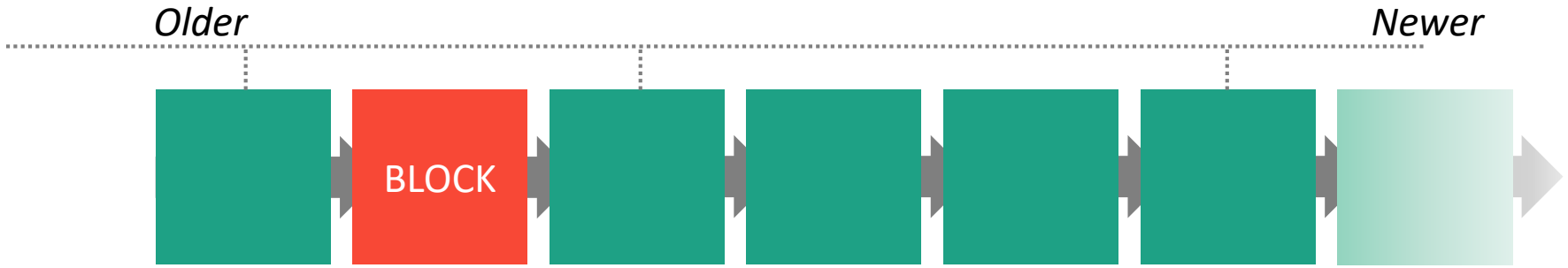
w3fn5ujfm3d3r975qjd35jrwd4k5q

nftic5k8sf4j598wf357jw38956659

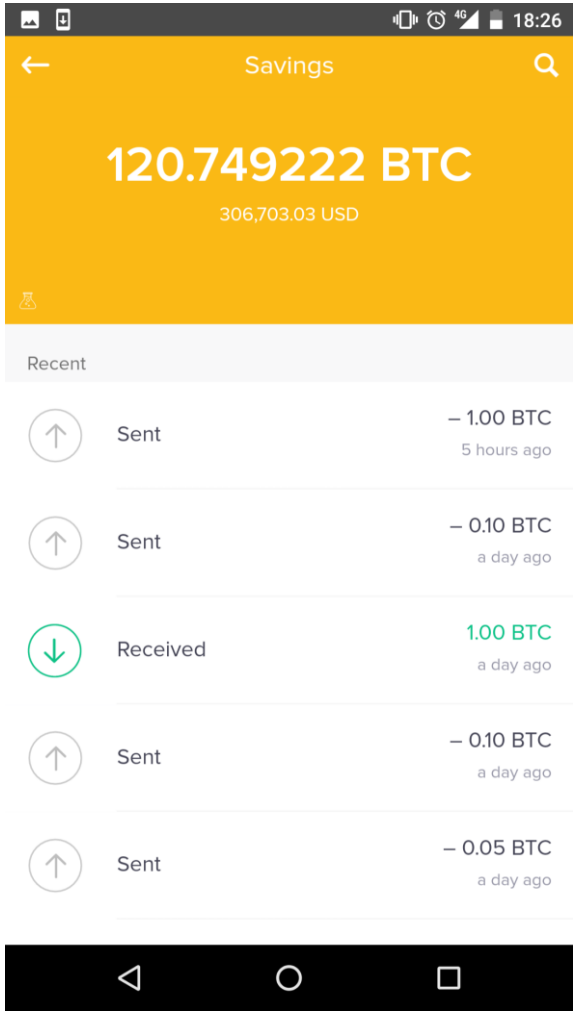
bitcoin

Mining (Proof of Work)

Tx ID: wgis85cissajr5da7wz3fcnqnhift
Tx ID: eh5vnc3c5bv ncxc3undm5x84q
Tx ID: cwab8nqf5ax7tcf45dxncnfmd3
Tx ID: t2C4hdsjz2xcn4renv5fadjxxje8e



Wallets


18:26
Savings
120.749222 BTC
306,703.03 USD
Recent
Sent
– 1.00 BTC
5 hours ago
Sent
– 0.10 BTC
a day ago
Received
1.00 BTC
a day ago
Sent
– 0.10 BTC
a day ago
Sent
– 0.05 BTC
a day ago

TREZOR

Ledger

EXODUS
$29,684 USD
Portfolio
Wallet
Exchange
Backup
Settings
Help
$29,684
Total Value
13% Augur $3,858.92
17% Bitcoin $5,046.28
16% Dash $4,749.44
7% Decred $2,077.88
11% EOS $3,265.24
11% Ethereum $3,265.24
9% Litecoin $2,671.56
16% Salt $2,077.88

There are many options available

Name	Price USD	24hr vs USD	"Real 10" 24hr Vol	Y2050 Marketcap	Reported Marketcap	Liquid Marketcap ▼	Supply % Issued	Current Inflation
1. **Bitcoin** (BTC)	$5,080.61	+0.63%	$490,480,404	$106,598,945,549	$89,630,297,612	$89,630,446,142	84.08%	3.84%
2. **Ethereum** (ETH)	$165.30	-0.24%	$201,784,329	$20,507,122,459	$17,466,522,728	$17,375,481,940	85.15%	4.73%
3. **XRP** (XRP)	$0.328	-0.60%	$70,979,609	$32,863,471,940	$13,694,030,555	$7,660,465,890	41.79%	27.4%
4. **Bitcoin Cash** (BCH)	$282.37	+3.06%	$126,774,085	$5,935,137,557	$5,008,549,742	$5,013,452,464	84.47%	3.68%
5. **EOS** (EOS)	$5.36	+2.35%	$108,889,746	$9,312,983,965	$4,855,156,938	$4,908,070,852	52.38%	2.23%
6. **Litecoin** (LTC)	$79.41	+1.05%	$94,933,210	$6,702,847,581	$4,868,606,073	$4,900,421,488	73.09%	5.66%
7. **Stellar** (XLM)	$0.115	-0.11%	$10,203,825	$16,498,695,117	$2,228,904,832	$3,964,031,251	13.53%	39.95%
8. **Binance Coin** (BNB)	$18.43	+7.48%	$68,676,620	$1,850,590,817	$2,602,493,503	$2,612,581,375	141.18%	9.63%
9. **Cardano** (ADA)	$0.0845	+1.29%	$32,676,860	$3,546,977,560	$2,191,648,136	$2,556,008,224	61.68%	3.34%
10. **TRON** (TRX)	$0.0267	+0.66%	$22,961,074	$2,988,259,807	$1,778,105,400	$1,776,634,088	59.41%	49.38%
11. **Bitcoin SV** (BSV)	$72.55	+0.73%	$17,681,148	$1,527,809,923	$1,285,227,084	$1,290,319,282	84.46%	3.67%
12. **Ontology** (ONT)	$1.35	+2.50%	$7,819,959	$1,345,727,208	$669,283,227	$1,244,797,667	49.49%	4.05%
13. **Monero** (XMR)	$66.94	+0.12%	$10,991,408	$1,518,334,380	$1,130,304,218	$1,142,465,774	75.23%	3.56%
14. **Dash** (DASH)	$120.80	-0.82%	$5,162,973	$2,287,318,277	$1,056,564,918	$1,058,910,476	46.28%	7.79%
15. **NEO** (NEO)	$11.38	+0.02%	$12,726,141	$1,145,179,459	$739,912,746	$916,143,567	65%	18.75%

Discussion: Advantages and Disadvantages

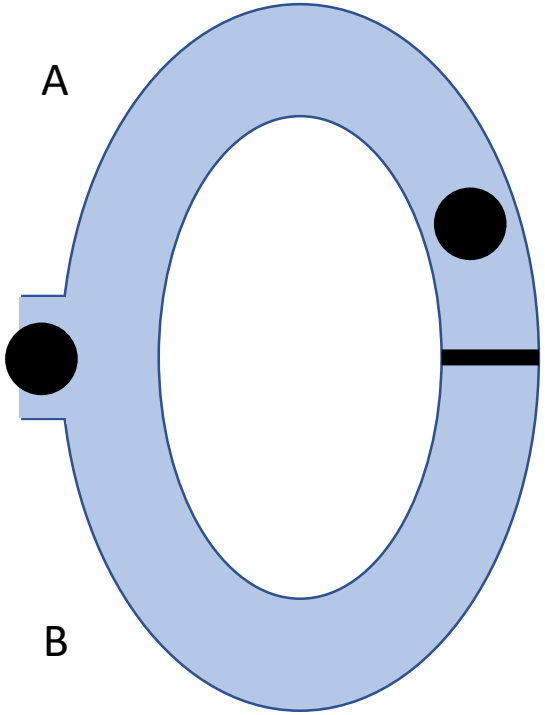
1. What are some pros and cons to decentralized systems?

2. What are pros and cons of using a blockchain?

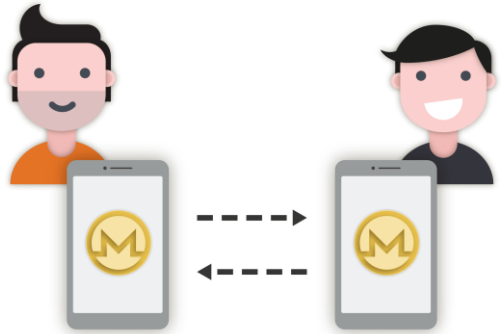
Real problems, real solutions

1. I need an asset with predictable supply
2. I need an asset where funds are secure against attack
3. I need an asset where funds are kept private
4. I need access to a global economy
5. I need project code or contracts that are immutable
6. I need an auditable public record
7. I need to prove something without revealing why it’s true

Mini lesson: zero-knowledge proofs



Quick Demo



Sending cryptocurrency transactions is similar to sending Venmo transactions, but people don’t really get it until they see it.

Myth: it takes 10 minutes to send a transaction. It takes time for it to be *confirmed*, but transactions will likely be included. You don’t need to wait that time for small transactions.

Institutional Adoption

1. Futures, forwards, and options
2. Clearer IRS guidelines
3. Clearer exchange compliance guidelines
4. More ICO regulation
5. Negative associations decreasing

Calling All Developers! Come to Construct During Blockchain Week NYC. On

ING Bank Is Bringing Bitcoin 'Bulletproofs' to Private Blockchains

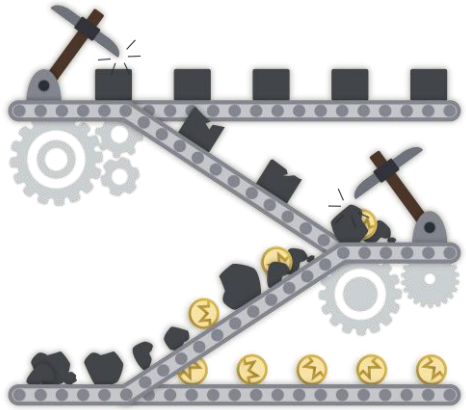
Ian Allison

Apr 15, 2019 at 08:00 UTC • Updated Apr 15, 2019 at 08:00 UTC

FEATURE

China and Hong Kong

1. Extremely difficult to assess accuracy of reports
2. Difficult to assess accuracy of project claims
3. High proportion of scams in the region
4. Chinese government imposes strict technology regulations
5. Chinese mining is a topic of debate

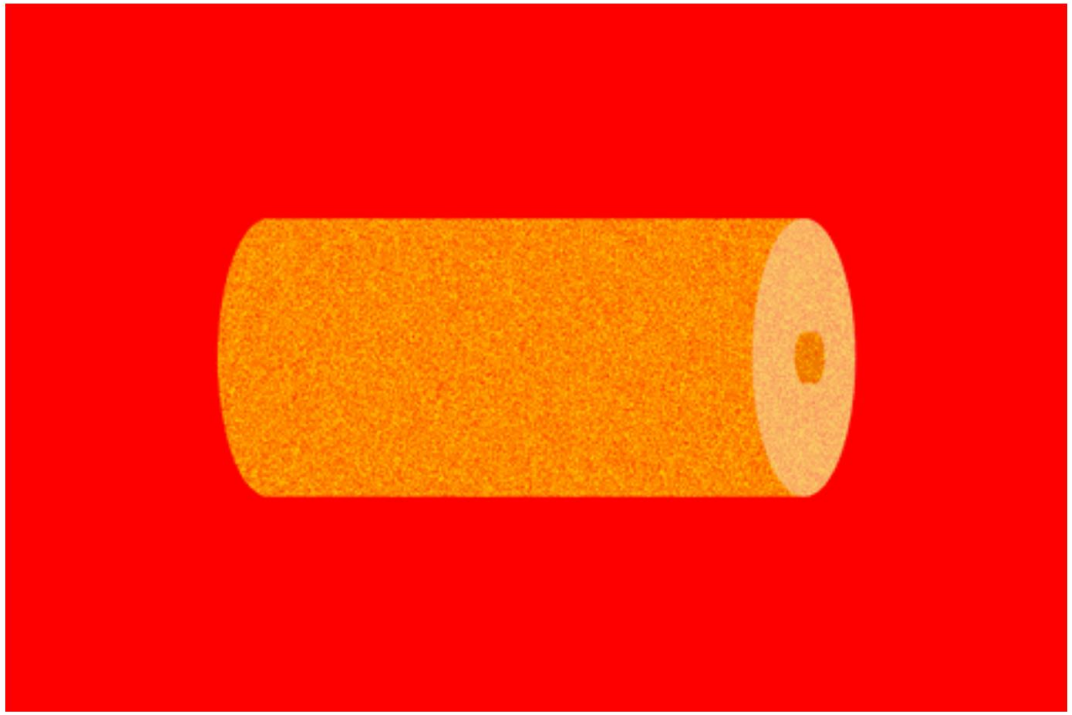


In China, bitcoin mining moguls are scrambling to survive

Cryptocurrency miners have been making millions in digital currency from China's excess energy. Now, a government crackdown could end the gold rush

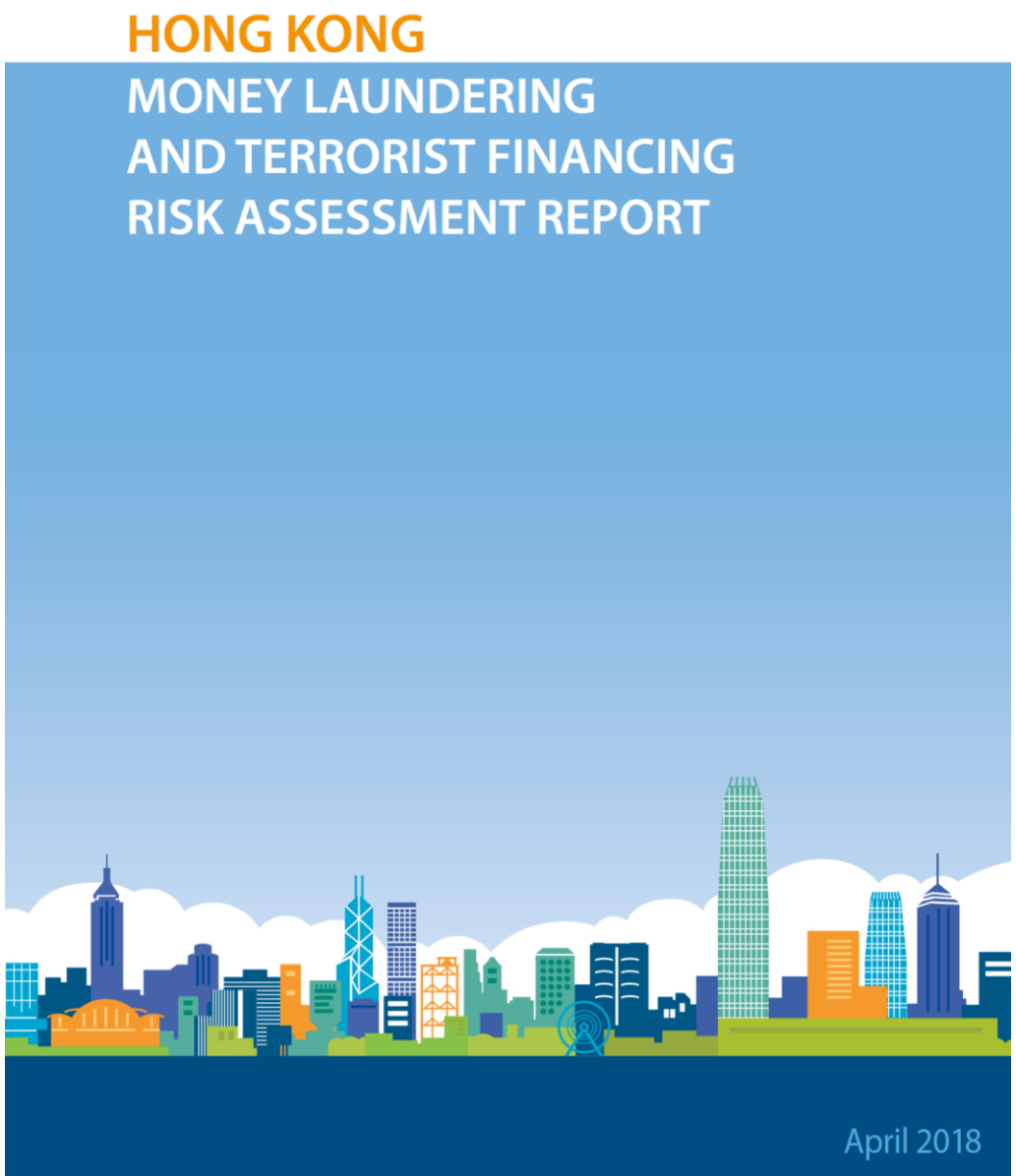
By **BARCLAY BRAM**

Monday 15 April 2019



Key takeaways:

- Mining is cheaper in China than most other parts of the world, since electricity is cheap and chip production occurs locally
- China has banned purchases of cryptocurrencies on exchanges, leading to a strong OTC market
- Mining is the main way to invest in cryptocurrencies in China, since there are few other options to earn it
- China has strict controls on the ability to transfer money abroad, and cryptocurrencies challenge these regulations
- China has strict controls on the internet



Key takeaways:

- Hong Kong has no capital controls, so cryptocurrencies are less used compared to companies with strict capital controls
- In-person trades are not popular
- Cryptocurrencies were seen used as a pretext for ponzi schemes and as payment for criminal activity
- “Although there is inherent ML/TF vulnerability related to VCs, there does not seem to be any visible impact affecting the overall risk in Hong Kong so far. The risk of VCs is assessed as medium-low”

What to do

1. Remain skeptical
2. Watch for efficiency and privacy improvements
3. Ask “why not use a centralized database?”
4. Demand more clarity from representatives
5. Come to club meetings if interested
6. Mine in dorm with free power :)

Thank You!

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