SIDELINE SUMMIT #1
Blockchain & Crypto: The brilliant basics and beyond
26 Jan 2016

Antony Lewis
Blockchain consultant
Mentor, Startup Bootcamp FinTech SG

@antony_btc
antony@bitsonblocks.net
www.bitsonblocks.net
THE EVOLVING LANDSCAPE

2013 / 14

- Bitcoins
  - Bitcoin for everyone!
  - Currency of the internet!
  - Mass global adoption!
  - Price, mining
  - Virtual currencies
  - Regulation of value transfer
  - Scams, bankruptcies, Silk Road

2015

- Blockchains
  - Blockchains for everything!
  - Distributed ledgers
  - Back office efficiencies
  - Bitcoin for cross-border payments
  - Bitcoin licences in US
  - Bitcoin scalability

2016

- Smart contracts
  - Shared ledgers for industries / governments
  - Privacy vs transparency
  - Scalability
THE FUNDING STORY - BITCOINS

Publicly disclosed funding
US$m

<table>
<thead>
<tr>
<th>Year</th>
<th>H1</th>
<th>H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>2013</td>
<td>78</td>
<td>154</td>
</tr>
<tr>
<td>2014</td>
<td>207</td>
<td>379</td>
</tr>
<tr>
<td>2015</td>
<td>111</td>
<td></td>
</tr>
</tbody>
</table>

Bitcoin price
US$ per BTC

Source: http://www.coindesk.com/bitcoin-venture-capital/
TURMOIL IN BITCOIN

The resolution of the Bitcoin experiment

Bitcoin Core
- Count data differently

Bitcoin XT
- 8MB, doubling every 2 years

Bitcoin Classic
- 2MB

Bitcoin Unlimited
- User configured

Consensus is hard!
Collaboration is hard!
EMERGENCE OF “BLOCKCHAIN” COMPANIES

Raised $52m

ASX project

JP Morgan (lead), Citi, PNC

BNP Paribus, ABN Amro, Santander

ASX, CME, Deutsche Boerse (Clearstream), DTCC, Accenture, Broadridge, ICAP

Consortium approach, subscription fees

Barclays
BBVA
CBA
Credit Suisse
Goldman Sachs
J.P. Morgan
RBS
State Street
UBS

Bank of America
BNY Mellon
Citi
Commerzbank
Deutsche Bank
HSBC
Mitsubishi UFJ Financial Group
Morgan Stanley
National Australia Bank
Royal Bank of Canada
Skandinaviska Enskilda Banken
Société Générale
Toronto-Dominion Bank

Mizuho Bank, UniCredit, Nordea, BNP Paribus, Canadian Imperial Bank of Commerce, ING, Macquarie, Wells Fargo & Co
BMO Financial Group, Danske Bank, Intesa Sanpaolo, Natixis, Nomura, Northern Trust, OP Financial Group, Banco Santander, Scotiabank, Sumitomo Mitsui Banking Corporation, U.S. Bancorp and Westpac Banking Corporation
A REAL-LIFE BLOCKCHAIN

![File System Displaying Blockchain Data](image-url)
BITCOIN’S BLOCKCHAIN IS TRANSPARENT!

Source: www.tradeblock.com

www.bitsonblocks.net
BITCOIN’S BLOCKCHAIN IS REALLY TRANSPARENT!

Source: www.tradeblock.com

---

<table>
<thead>
<tr>
<th>Details</th>
<th>Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block</td>
<td>Total Inputs</td>
</tr>
<tr>
<td>Time Received</td>
<td>Total Outputs</td>
</tr>
<tr>
<td>Size</td>
<td>Miner Fee</td>
</tr>
<tr>
<td>Fee/size</td>
<td></td>
</tr>
</tbody>
</table>

Transaction 00965d2eea9e302bc8836e5d8e909ddd4908efabbc5e4aefdbe9f6d64d212835

**Inputs (6)**

- 13IECXwy69865Ly1Tv6b85zn1n5hcHrN2jx
- 1AJEeApJ5V11T12k3f7x7pqbpZ1vmods4!
- 189ALmbvNFFyFJZAqrBWhvDekRLeUkBzm
- 18UURKwa9L3wEcHzH2E1dqQNNV9TW9Yrjp
- 1DaTYQaJgMQJv4lEz2aLrquSAHGRF4mt
- 1ezX9LUXbXrKeG1JU67n5YsxeSkA50H1e

**Outputs (2)**

- 12uH6R9Vb88x1DXbJdMSq5GyAuxQCsc1w > 0.24940000
- 18xDgr6R9SldDNqYMaoXpF6KJc6qPtg > 0.010000236
Public blockchains attempt to solve for agreement about valid transactions across a censorship-resistant network where some small portion of the participants may behave dishonestly and there is no legal recourse.

Bitcoin’s blockchain is a bunch of data about transactions stored in blocks that refer to each other in a linear chain.

Ethereum’s blockchain is a bunch of data about transactions and imbedded instructions that are automatically executed by computers, stored in blocks that refer to each other in a linear chain.
- **Private blockchains** can be “bitcoin-flavoured”, “Ethereum-flavoured” or build your own, with your own spec, for a known set of participants.

- **Shared ledgers** don’t even need data to be in blocks (hence, shared ledgers), or even distributed.

- Don’t get confused between:
  - Blockchains
  - Shared ledgers
  - Distributed data
  - Digital identities
  - Payments
  - Encrypted stuff

- Think hard about privacy vs transparency!
One product
One legal entity!
THE REAL PROBLEM WITH BANKING TECHNOLOGY

Before

BANK A

Need to reconcile

BANK B

After

BANK A

Guaranteed equal

BANK B

Introducing: Ethereum Blockchain as a Service (EthBaaS)

incubating disruption

Marley Gray – Director Technology Strategy US FS @ Microsoft

Source: https://devcon.ethereum.org/slides/ethBaas_gray.pdf
Blockchains for art / music / identity / education / trade finance / insurance
Woo! Fund me fund me hype hype hype etc

Can you articulate a real business problem that needs solving?

Yes: “Antiquated”

Problem of standards: participants all use different technologies.

Could this have been fixed before blockchains?

Yes: Try a normal database 😊

No

Is this a ‘digital identities’ and ‘blockchains are free’ play?

Yes

Digital identities (public/private keys) have been around for 20+ years.
Systems are cheap; businesses have costs.
Non-compliant startups have a cost advantage.

No

Should or could an entity have overall control?

Yes

How is a shared write ledger going to solve this problem better than efficient systems?

No

Will all participants need to upgrade/replace systems?

Yes

Can they adopt?
Do the benefits justify the cost of adoption?

No

Will participants mind their data being visible?

Yes

You may have a use case! 😊 Focus on privacy and scalability.

No

“Antiquated”

No

No

No

You may have a use case! 😊 Focus on privacy and scalability.

Just a conversation starter!
SIDELINE SUMMIT #1
Blockchain & Crypto: The brilliant basics and beyond
26 Jan 2016

Antony Lewis
Blockchain consultant
Mentor, Startup Bootcamp FinTech SG

@antony_btc
antony@bitsonblocks.net
www.bitsonblocks.net