BLOCKCHAIN AND SME FINANCING

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I. Quick intro to blockchain

Blockchain $\neq$ Bitcoin
Amy sends an asset to Bob

**Traditionnal Approach**
- Amy
- Amy's Bank
- Bob's Bank
- Bob

**Blockchain Approach**
- Amy
- Bob
1. Transaction submitted or requested
   → Can involve documents, contracts, cryptocurrency, etc.
   → The data are “hashed” and encrypted.
   → Possibility to encrypt documents.

2. The transaction data T are broadcast to the peer-to-peer network.

3. Validation (by authorized nodes only in the case of permissioned blockchains).
   Validating nodes take the transaction from the transaction pool and combine it with other transactions in a block. Block validated based on the consensus protocol of the blockchain.

4. Validated block added to the chain and linked to the previous block in a permanent and unalterable way.
DECENTRALIZED AND DISTRIBUTED

<table>
<thead>
<tr>
<th>Traditional centralized ledger</th>
<th>Distributed ledger</th>
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</thead>
<tbody>
<tr>
<td><strong>Central server</strong></td>
<td><strong>Data</strong></td>
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DIFFERENT TECHNOLOGIES

BLOCKCHAIN VS DISTRIBUTED LEDGER TECHNOLOGIES

vs

Transaction
## Different Types of Blockchains

<table>
<thead>
<tr>
<th>Blockchain Types</th>
<th>Read</th>
<th>Write</th>
<th>Commit</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Public permissionless</td>
<td>Open to anyone</td>
<td>Anyone*</td>
<td>Bitcoin, Ethereum</td>
</tr>
<tr>
<td></td>
<td>Public permissioned</td>
<td>Open to anyone</td>
<td>Authorized participants</td>
<td>Sovrin</td>
</tr>
<tr>
<td></td>
<td>Consortium</td>
<td>Restricted to an authorized set of participants</td>
<td>Authorized participants</td>
<td>Multiple banks operating a shared ledger</td>
</tr>
<tr>
<td>Closed</td>
<td>Private permissioned (“enterprise”)</td>
<td>Fully private or restricted to a limited set of authorized nodes</td>
<td>Network operator only</td>
<td>Internal bank ledger shared between parent company and subsidiaries</td>
</tr>
</tbody>
</table>

DIFFERENT DEGREES OF DECENTRALIZATION

100% centralized

Today’s centralized ledgers

Degree of centralization of distributed ledger technology platforms

100% decentralized

Private blockchain

Consortium blockchain

Public blockchain
## Different Characteristics

<table>
<thead>
<tr>
<th>Cryptocurrency</th>
<th>Average transaction fee in US$</th>
<th>Average transaction time</th>
<th>Transaction capacity per second</th>
<th>Energy efficiency</th>
<th>Additional features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bitcoin</td>
<td>7.32</td>
<td>9-10 minutes</td>
<td>7</td>
<td>Low (PoW blockchain)</td>
<td></td>
</tr>
<tr>
<td>2. Ethereum</td>
<td>0.22</td>
<td>14 seconds</td>
<td>20</td>
<td>Low (PoW blockchain)</td>
<td>Supports smart contracts</td>
</tr>
<tr>
<td>3. Bitcoin Cash</td>
<td>0.32</td>
<td>9-10 minutes</td>
<td>50</td>
<td>Low (PoW blockchain)</td>
<td></td>
</tr>
<tr>
<td>4. Ripple</td>
<td>0.00000024 (+ IOU fee)</td>
<td>3.5 seconds</td>
<td>1,000</td>
<td>High (Voting-style algorithm)</td>
<td>Enables IOU transactions in any currency</td>
</tr>
<tr>
<td>5. Litecoin</td>
<td>0.15</td>
<td>2 minutes</td>
<td>56</td>
<td>Low (PoW blockchain)</td>
<td></td>
</tr>
<tr>
<td>6. Dash</td>
<td>0.80</td>
<td>2-3 minutes</td>
<td>(4,000)</td>
<td>Low (PoW blockchain)</td>
<td></td>
</tr>
<tr>
<td>7. NEO</td>
<td>None (+ variable fee)</td>
<td>A few seconds</td>
<td>1,000</td>
<td>High (PoW blockchain)</td>
<td>Supports smart contracts</td>
</tr>
<tr>
<td>8. IOTA</td>
<td>None</td>
<td>No data available</td>
<td>500-800</td>
<td>Rather high (PoW Tangle)</td>
<td>Especially suited for IOT devices</td>
</tr>
<tr>
<td>9. Monero</td>
<td>2.43</td>
<td>2 minutes</td>
<td>1,700</td>
<td>Low (PoW blockchain)</td>
<td>Advanced privacy features</td>
</tr>
<tr>
<td>10. NEM</td>
<td>0.21</td>
<td>30 seconds</td>
<td>(3,000)</td>
<td>High (PoW blockchain)</td>
<td>Integrated reputation system</td>
</tr>
</tbody>
</table>

*Based on November 2017 data. Source: Ohnesorge (2018)*
KEY FEATURES

- Automation
- Time-stamping
- Peer-to-peer Transfer of assets
- Greater security
- Smart contracts

TRANSPARENCY

TRUST

TRACEABILITY

Smart contracts
II. A GAME CHANGER FOR SME FINANCING?

- Opens new P2P financing opportunities
Trade finance

- Cost reductions and less burdensome procedures

Source: trade finance global
- Emergence of new marketplaces

→ That help SMEs build a credit history
→ Helps assess creditworthiness
→ That give access to alternative sources of financing
- Monetization of collaterals through tokenization

Sterling Bank, Binkabi, AFEX Launches world First Blockchain Commodity Marketplace
Supply Chain Financing

Alipay’s parent applies blockchain to supply chain finance

China’s central bank blockchain trade finance initiative

Tradeshift rolls out blockchain supply chain payments

Trado: New technologies to fund fairer, more transparent supply chains
Interesting opportunities, but…

- Lack of knowledge
- Uncertain regulatory framework
  - E.g. re smart contracts, P2P lending across borders
- Standardization issues
CONCLUSION

- An evolution rather than a revolution
- Gives more options and opportunities to SMEs
- Won’t solve all problems
Thank you for your attention!