BLOCKCHAIN-POWERED TRACEABILITY DIGITAL PLATFORMS: UNLOCKING SUPPLY CHAIN 2.0

Kim Raath, co-founder and CEO
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Motivations
– What was the technology originally designed to accomplish?

Basic Value propositions
– Decentralization
– Transparency
– Immutability (tamperproof-ness)

Topl
– Potential applicability and value for ethical supply chains
  • Using transparency and security to bootstrap trust
  • Combining history with fungibility
  • Simplified scalability to multiple certifiers
  • Demo of Topl Powered Platform(s)
  • Supply Chain 2.0

Questions
Solving the Double Spending Problem

What is Double Spending and why is it such a problem?

Alice
Without exception, all Bitcoin transactions are included in a block of transactions. Each block has a timestamp with encoded information that makes it more difficult to manipulate the blockchain.

John
The mechanism of the blockchain ensures that the party spending the bitcoins is the real owner.

Bob
The technology behind Bitcoin ensures that the party who spends the bitcoins is the real owner by only processing verified transactions.

Katy
Double spending is a type of deceit where the same money is promised to two parties but only delivered to one.
Blockchain Value Propositions

• Decentralization
  – Removing any single points of failure or control

• Transparency
  – Providing greater traceability and increasing trust

• Immutability
  – Closing off any possibility of record tampering
Decentralization

Fig. 1—(a) Centralized. (b) Decentralized. (c) Distributed networks.

via Vitalik Buterin
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## Blockchain information

<table>
<thead>
<tr>
<th>Parchment coffee</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>23040 Kg</strong></td>
<td><strong>3:11 AM, 04 February 2020</strong></td>
</tr>
</tbody>
</table>

**Transaction Hash**
kiok3W6wuCfCT2Nh3mHLVNGPhhiGjExtDBgXUjvw2I57

<table>
<thead>
<tr>
<th>Seller name</th>
<th>Seller address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suke Quto Washing Station</td>
<td>W1qW25LzNdB4HVj9Xv21hpt2vHeXM1yp6fqiH7eu2j</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buyer name</th>
<th>Buyer address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moredocofeb</td>
<td>EquBhiXZkHAKq58J7rfq78oxpi3LdgM5ZaKbBLRU</td>
</tr>
</tbody>
</table>

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**Girma D**  
Oromiya, Ethiopia

Girma D. received 27 Ethiopian Birr ($0.90) per kilogram of freshly harvested coffee cherries, around $6.30 per kilogram of roasted coffee. A 63% increase in price compared to the regular 10 Ethiopian Birr ($0.30) per kilogram that might be for green coffee.
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Immutability

via Bits on Blocks

- Alice pays Bob 3 bitcoins
- Chris pays Doris 2 bitcoins
- Ed pays Fred 2 bitcoins
- Reward myself 25 bitcoins
+ Chocolate free of child labor.
+ Carbon neutral business practices.
+ Sustainable, farm-to-table, meat and veggies.
+ Diamonds mined without human or environmental cost.

Sustainable and ethical commitments like these sound nice—**but mean nothing without proof.**
Organizations face mounting pressure to increase and prove sustainability and positive impact.

**Unfortunately, current methods...**

- Are time-consuming and expensive, costing months and hundreds of thousands of dollars
- Lack any means of transparent, verifiable proof
- Leave gaps that allow for data loss or manipulation
- Need adequate digital infrastructure

**Existing Technology Deficits**

- Data monopolization and lockout
- Data handoffs
- Claim verification
- Lack of trustworthy certification bodies
Before Topl

Current certification standards, such as UTZ, have complex pricing setups composed of program fees, site-audit certifications, and chain-of-custody audit certifications. The system is not real-time, convoluted, and inefficient, making it impossible for businesses to predict their costs.
Potential applicability and value to supply chain certification processes

• Using transparency and security to bootstrap trust
  – Building increased transparency and security into certification processes can increase trust among supply chain actors.
Potential applicability and value to supply chain certification processes

• Combining history with fungibility
  – Since assets traced on a blockchain can be linked to their entire histories, we can immutably link characteristics to their origin and full-life cycle without introducing complexity or undermining fungibility (interchangeability).
Potential applicability and value to supply chain certification processes

- Simplified scalability to multiple certifiers
  - Given the decentralized nature of the technology, scaling a blockchain-powered standard to multiple certifiers is dramatically simplified.
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• Simplified scalability to multiple certifiers
  – Given the decentralized nature of the technology, scaling a blockchain-powered standard to multiple certifiers is dramatically simplified.
Instead of numerous individual transactions, our blockchain streamlines the exchange data on funds, goods, and certification claims all into one transaction.

Defensible self-certification enables supply chain actors to reliably validate themselves, thus avoiding unnecessary time and expense.
SaaS Platforms Powered by Topl

- Fairfood Certification Body
- Coffee Brand Trabocca
- Topl-powered Supply Chain Traceability Platform
Coronavirus Is a Wake-Up Call for Supply Chain Management
by Thomas Y. Choi, Dale Rogers and Bindiya Vien
March 21, 2020

“40% of U.S. respondents say they are now evaluating their supply chain to improve resistance to future disruption.”

PwC’s COVID-19 CFO Pulse Survey US Findings
April 2020

Coronavirus should inspire businesses to prepare their supply chains for the future

“The potential opportunity is primarily in credit.”

Paul Singer’s Letter to Elliot Investors
April 2020

The most discussed solutions for improving supply chain resilience include:

+ Increased transparency, diversification, and tamper-proof digitization of supply chain records
+ Creating financing mechanisms using alternative sources of information (e.g. supply chain records) to build credit scores

Coronavirus crisis shows that visibility into supply chains is critical
Spend Matters Brand Studio - April 22, 2020 6:00 AM
There are many blockchain-powered traceability platforms, but the number of actual blockchain protocols is much smaller.

At the same time, the number of groups building blockchains for a unified problem or space is close to zero.
Topl’s Blockchain

• Security
  • Proof of Work vs Proof of Stake

• Scalability
  • Energy efficient

• Accessibility
  • Lightweight
Questions?

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