Blockchain-Based Solutions to Improve Financing for the Ultra-Poor: Technological Potential and Practical Challenges

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Outline

- Importance of blockchain-based fintechs and cryptocurrencies for the unbanked
- General barriers to implement technology projects
- Blockchain-based fintechs and cryptocurrencies targeted at the poor: Examples
- Advantages and potential applications of blockchain-based fintechs and cryptocurrencies for the poor
- Challenges and limitations of blockchain-based fintechs and cryptocurrencies for the poor
- Concluding comments
Blockchain-based fintechs and cryptocurrencies for the unbanked

- World Bank’s Global Findex database: 1.7b adults unbanked
- Main reason: Lack of formal identity documents
- World Bank’s ID4D database:
  - 1b lack any identification to prove who they are.
  - Additional 3.4b: some identifications unusable in the digital world
- Financial institutions lack data, information and capabilities to access creditworthiness
- Blockchain-based fintechs and cryptocurrencies: access to/affordability of financial services
Barriers in the implementation of new technologies

- Unfavorable institutional arrangements: contract enforcement procedures, property rights and standards
  - Interaction with information flows, transaction costs/risks, market access-related constraints
- Douglas North: transaction costs: (1) costs of measuring and (2) costs of enforcement
- Information flow: relatively restricted channels/learn about new technologies from very few sources
- High costs to access information: access to markets
  - Thin markets
- Lack of sufficient skills and opportunities
- Underdeveloped supporting technologies/infrastructures.
# Blockchain-based fintechs and cryptocurrencies targeted at the poor

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<tr>
<th>Platform</th>
<th>Brief description</th>
<th>Geographic area of deployment</th>
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<tbody>
<tr>
<td>Humaniq’s user profiles and HMQ Tokens</td>
<td>Profiles based on biometric data. HMQ tokens: buy and sell goods and services with the third-party services utilizing the token and get access to small business loans.</td>
<td>Sept. 2018: operated in about 50 countries including 21 in Africa</td>
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<td>Kiva’s digital identification system</td>
<td>People get secure and complete ownership of personal information: all credit-related events are captured in a ledger connected to an individual’s ID</td>
<td>Aug. 2019: Sierra Leone launched a blockchain-based NDIP: wants all banks and MFIs to use it by 2019 end. Worked with UNCDF and UNDP.</td>
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<td>BanQu’s “economic passport”</td>
<td>Blockchain to establish economic identities and proofs of record for people in extreme poverty zones. Also working to verify the authenticity of academic certificates and credentials</td>
<td>2018: &gt;15k farmers, displaced people and refugees in eight countries. April 2019: The platform was used in 12 countries.</td>
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<td>Moeda’s microfinance platform</td>
<td>BAAS cooperative fin. Network: micro-loans to start or expand businesses. They can use Moeda’s app to pay for the things they need for businesses.</td>
<td>The project was initially launched in rural Brazil. Also incorporated in Uruguay.</td>
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<td>WFP’s Ethereum-based cryptocurrency for refugees</td>
<td>Uses cryptocurrencies to pay refugees. The receivers use them to spend them in participating stores. Parity Ethereum is used, which is private and employs four nodes to validate transactions.</td>
<td>Cash transfers of $1.8 billion s made in 2018</td>
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# Advantages of blockchain-based IDs

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<th>Dimension</th>
<th>Non-blockchain world</th>
<th>Blockchain’s advantage</th>
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<tr>
<td>Availability/ability to get</td>
<td>Under-funded identification agencies to implement ID programs (e.g., DRC, Tanzania and Zambia). Zambia’s Department of National Registration, Passport and Citizenship (DNRPC): severe lack of funds to run civil registration operations.</td>
<td>No need to rely on government agencies. Startups such as Humaniq’s apps allow users with smartphone to create their own IDs.</td>
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<td>Cost</td>
<td>Average cost of enrollment and registration for a national ID system per person: US$ 3-6, additional 15-25% per year for maintenance, software, and data updating. Card production and distribution: US$1-5 per person Nigeria: conservative estimates US$ 5 per person for the identity lifecycle</td>
<td>2018: the average cost of transaction in Ethereum network was $0.03. To register a customer’s identity, companies such as BanQu may need to execute few blockchain transactions.</td>
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<tr>
<td>Security and authenticity</td>
<td>Susceptibility to forgery and fraud: ID cards in many countries (e.g., the Madagascar, Sierra Leone, and Zambia) are paper-based: forged. Zambia: National Registration Cards (NRCs) can be forged by substituting photos and altering texts. Sierra Leone: fraudulent birth certificate can be obtained easily.</td>
<td>Blockchain allows for a higher degree of security and authenticity</td>
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Other advantages of blockchain-based fintechs and cryptocurrencies

- Higher privacy protection and safer from misuse and abuse of data
- Lower cost solutions compared with other alternatives
- Directly connecting lenders and borrowers/aid-givers and aid-receivers
- Availability of more relevant information to lenders
Challenge #1: Complexity of technology making it difficult to grasp

- Poor quality institutions: lack of necessary skills to utilize and benefit from blockchain.
- Half of the populations cannot speak an official language of their country
- Challenges related to poor information flow: more daunting for blockchain applications
  - High degree of complexity.
  - Blockchain-based fintech and cryptocurrencies are more complex and more difficult to understand.
- Africa: people handwrite PIN numbers on debit cards
Challenge #2: Limited resources and capability of startups

- Difficulty in competing for the market against more established companies.
  - Facebook’s Libra
  - Facebook’s WhatsApp Pay: 1 million users in India.
  - Fintech firms such as Coinbase and PayPal may include Libra in their wallets.
  - Plan to run Calibra inside WhatsApp and Messenger.
  - WhatsApp is available in up to 60 languages on Android
    - In India: 13 languages.
- Humaniq app is offered in English, French and Swahili
  - Training and development to bridge skill gaps
  - Too few ambassadors to facilitate the adoption of Humaniq apps.
Challenge #3: Unfavorable market and institutions

- Lack contract enforcement procedures, property rights and standards
  - Humaniq claim: new users earn money immediately by performing tasks for outsourcing firms
- Thin markets
- Companies concerns to outsource
  - Weak property rights protection
  - Privacy
  - Data integrity
  - Cybersecurity
**Challenge #4: Stockholder centric bias in the actions of start-ups**

- Actions of blockchain startups: investor-centric vs. consumer-centric.
- **Humaniq**
  - HMQ listed on big exchanges
- **BanQu**
  - Help track supply chain activities for Anheuser-Busch, one of the investors.
- **Moeda**
  - Launched the mobile game Moeda Go
  - Investors can monitor the value of MDA token in real time
  - Moeda’s loans too big to be considered to be micro-loans.
  - As of January 2018: invested in 18 projects: Loans ranged from $50k to $300k.
    - Kiva's average loan outside the U.S. is $400
    - VisionFund’s average loan size worldwide was $495.
      - The average loan sizes for Asia and Africa were $313 and $323.
- **Porter and Kramer (2002):** increased pressures to meet stockholder expectations, philanthropy has been declining.
Challenge #5: Poor people’s limited power and financial/social capital

- Social capital “features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions”. (Putnam, 1993).
- Powerful social and political actors (e.g., policy-makers and NGOs): no attention to indicators related to whether the projects are achieving their stated goals.
- Moeda: “investors know all the details of how their money is spent in each Seed Project, directly from Moeda’s website”.
  - The link provided listed two projects with a few details
Challenge #6: Poor connectivity

Only 15% of Sierra Leone’s population has Internet access.

- Developed: 128.0
- Developing: 102.8
- World: 107.0
- LDCs: 72.4

Mobile-cellular telephone subscriptions (%) vs. Individuals using the Internet (%)

Individuals using the Internet (%)

Developed: 80.9
Developing: 45.3
World: 51.2
LDCs: 19.5
Challenge #7: Lack of supporting technologies and infrastructures

- Low quality physical capital: infrastructures, plant, equipment and information technology.
  - Difficult to build well-developed ecosystem around fintech products and cryptocurrencies.
    - Barriers for maximum utilization
- Moeda White Paper: combine Ethereum with ML, AI and IoT.
  - Not achieved.
- Building and maintaining an IoT system: large investment in software infrastructure and local skill development.
  - Maybe set up with outside helps
    - Small farmers cannot perform technical tasks such as troubleshooting and maintenance.
Concluding comments

- Fintechs and cryptocurrencies for the poor: most intriguing blockchain applications.
  - Transparency and accountability
  - Disintermediation
  - Low cost
  - Economic history can address problems associated with poor record keeping technologies and authentication

- Startups focusing on fintechs and cryptocurrencies: not achieving stated goals
  - Claims based on unrealistic assumption
  - Less to do with the technologies than with the lack of users’ skills and availability of opportunities
Concluding comments

• Big companies' needs: key determinant when blockchain solutions are developed to connect with the poor.
  • Skills, resources and financial capacity to benefit.
• Benefits conditional
  • Poor people having skills to utilize the technologies
  • Existence of opportunities
• The lack of well-developed ecosystem
Thank you!

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