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# Blockchain Technology and its Potential for Financial Inclusion

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(25/04/2018)



1. Introduction to blockchain technology
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3. What role can blockchain technology play?
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# 1. Introduction to blockchain technology



- 3 pillars of blockchain technology:
  - Peer-to-peer network (open or closed)
  - Shared data (data is stored on many devices)
  - Consensus algorithm (Proof of work, proof of stake, voting-style algorithms, etc.)
  
- Advantages:
  - Instant settlement
  - Security benefits / high level of immutability
  - Reduced transaction costs (less intermediation)

# 1.1 Characteristics of different crypto currencies



- Electricity consumption
  - Massive (proof of work) – very small (most other consensus mechanisms)
- Transaction capacity per second:
  - 7 (Bitcoin) - at least 1000 (Ripple, NEO, Monero)
- Transaction fees
  - Over 1 USD (Bitcoin, Monero) – free (IOTA)
- Transaction time
  - 10 Minutes (Bitcoin) – a few seconds (NEO, Ripple)

## 2. Basic facts about financial inclusion



- Financial inclusion:
  - (international) transactions
  - payments
  - savings
  - credit
  - insurance
- 1.7 billion people do not have access to an account

# 3. What role can blockchain technology play?



- Directly provide financial services to underserved people (disintermediation)
- Simple crypto currencies could provide access to (international) transactions / payments
- This requires high transaction capacity and adoption levels
- Smart contracts enable the provision of complex financial services
- Alternatively: Make intermediaries more efficient (e.g. remittance sector)

# 4. Potential showstoppers



- High electricity consumption
  - Only true for proof of work blockchains
- High volatility
  - Pegged crypto currencies (tether; IoUs in Ripple and Stellar)
- Risks to users
  - Central entities (e.g. exchanges) can get hacked
  - Management of private keys is a challenge
- Low adoption levels
  - Governments could promote blockchains

# 5. Traceability and data protection



- Transactions in most blockchains are publicly available, but pseudonymous
- Possibility to link the pseudonyms to actual persons, using publicly available data and statistical tools
- Anonymity services cater for the need for data protection
  - Mixing services
  - Anonymous crypto currencies like Monero



# 6. Conclusion



- Blockchains can foster financial inclusion
  - Directly by disintermediation
  - Indirectly by making intermediaries more efficient
- It is essential to choose a blockchain that has the characteristics needed
- Regulation should take a proportionate approach
  - Data protection vs. crime prevention
  - Customer protection vs. keeping system decentralized