Blockchain Powered
Financial Inclusion

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Blockchain Market Overview

- 24+ countries currently investing in DLT
- 2,500+ patents filed over the last 3 years
- 90+ corporations have joined blockchain consortia
- 80% of banks predicted to initiate DLT projects by 2017
- Over US$ 1.4 billion in investments over the past 3 years
- 90+ central banks engaged in DLT discussions worldwide

Awareness of DLT (Distributed Ledger Technology) has grown rapidly, but significant hurdles remain to large-scale implementation:

- Nascent collective standardization efforts
- An uncertain and unharmonized regulatory environment
- An absence of formal legal frameworks

Source: World Economic Forum
Blockchain key constructs

**Key constructs of Blockchain technology**

- **Peer to Peer Network**: Transactions are broadcasted through the network and travel from one node to another.
- **Distributed Shared Ledger**: A chronological record of transactions in a distributed ledger (book-of-records) shared across a business network.
- **Network Consensus**: All participants agree to a network verified transaction by consensus.
- **Smart Contracts**: Business logic (rules) embedded in ledger that can be triggered when certain conditions are met.
- **Security**: Cryptography is a central feature, transactions are secure, authenticated & verifiable.
- **Secured Transactions**: Transaction stored in the Distributed Ledger.

**Benefits**

- Lower Cost
- Increased Transparency
- Greater Security
- Faster Settlement
What is the total Market Opportunity from the Unbanked Population?

Mobile and Blockchain are providing solutions to this market
Blockchain will help distribute value than wealth

$380 Bn

Estimated revenue generated by banks by 2020 within emerging markets from unbanked population

By including unbanked adults into the formal financial system, & raising their financial services spending levels on an average to that of lower middle income countries

From closing the small business credit gap at average lending spreads & conservative estimates of fee-based services

$270 Bn

$110 Bn

Window of Opportunity

As per CGAP, for people living in rural areas on less than $2.5 a day, mobile money is emerging as a common source of financial inclusion

Mobile penetration even in low-income countries is over 50%

Mobile banking and payment solutions are opening up new access routes to and for customers

According to Santander, blockchain could reduce banks’ infrastructure costs attributable to cross-border payments, securities trading and regulatory compliance by between $15-20 Bn per annum by 2022

Blockchain supports smart transactions, reduces cost and settlement time and eliminates the need for third party intermediaries

Payments and remittance settlement can happen rapidly allowing people to access their capital when they need it

Source: World Bank Development Indicators. Financial Access Survey, Accenture, CGAP(Consultative Group to Assist the poor)
How Banks/FIs are using Blockchain to Foster Financial Inclusion

Inclusion through blockchain-powered Economic Identity

- Blockchain provides **digital identity to individuals** with enhanced privacy, so that identity is restricted to devices as well as other individuals with access.
- Financial institutions have the ease of **reissuing identity documents and data** in case the documents are lost or stolen.
- **BanQu is an Economic Identity technology platform** for the creation of a personal digital profile comprised of various records of personal, financial and other activities. That profile is recognized and accepted by financial institutions as legitimate identification information.

Inclusion through blockchain-powered remittance service

- Joint effort by **Stellar**, the Stripe-backed open-source payment network, and **Oradian**, a cloud-based software provider for microfinance institutions in developing countries, is an example of blockchain-powered remittance service.
- The payment-transfer network inside Oradian is built on top of Stellar’s platform and **allows 300,000 Nigerians (90% of them women) to cheaply transfer money** between microfinance institutions over the Stellar network.

Blockchain-powered services for refugees and migrants

- **Regalii** is an international mobile payments platform that allows immigrants to pay their families’ bills anywhere in the world through SMS.
- **Ripple** is making it easy to send money anywhere in the world in any currency instantly. Users simply need to load money to an active Ripple wallet through a participating gateway.
- **WorldRemit** provides an online service that lets people send money to friends and family in other countries, using a computer, smartphone or tablet.

Blockchain-powered digital identity for citizens in poverty

- Citizens lacking appropriate access to the financial system would gain a **higher independence and better chances for welfare** by creation of digital identity on blockchain.
- The solution can be built with the purpose of integration with external systems in order to **diminish the fraud and error possibilities** in the delivery of benefits for the financially excluded.
- Some of the key startups empowering this are **Credits.vision, OneName, ShoCard and BitNation**.
Why Blockchain Make Sense for Financial Inclusion (Benefits)?

- **Secure Transaction Ledger Database**
  - Source: Finextra, Accenture White Paper, Coindesk

- **Reduces Settlement Time**
  - Payments and remittance settlement can happen rapidly allowing people to access their capital when they need it.
  - Time and cost efficiencies could support large amounts of small transactions or micro transactions within a trusted network.

- **“Trusted” Third Party Elimination**
  - Storing transactions in automatically shared, tamper-proof database could eliminate the need for complicated procedures and clearing houses and ensure that banks have their records in sync.

- **Eliminates Error Handling**
  - Provides real time tracking of transactions in a decentralized system with no double spending or transaction repudiation.

- **Support Smart Transactions**
  - Blockchain supports smart contracts, transactions that include multiple assets, transactions that include multiple parties and two-way transactions.
  - This will allow the unbanked not only access to bank accounts but access to global capital markets as well by providing all types of value transfers.

- **Cost Reduction**
  - Blockchain can cut operational costs which banks are targeting and reach the customers at the edge of wireless and not just bank accounts.
  - Santander predicted that blockchain technologies could reduce banks’ infrastructure costs attributable to cross-border payments, securities trading and regulatory compliance by between $15-20 billion per annum by 2022.

- **Secure Transaction Ledger Database**
  - Secure transaction ledger database which is shared in an established, distributed network.

Source: Finextra, Accenture White Paper, Coindesk
Blockchain brings speed and transparency in payments system

- Blockchain eliminates the need for intermediaries which **drastically reduce settlement time**, which in turn means that customers will be able to **access their capital when they need it**.

- Storing transactions in blockchain could eliminate the need for complicated procedures and clearinghouses, saving time, money and the risk of error. The allowance of frictionless savings and investment **gives people more control over their financial destiny**.

- The use of digital technology to embed business rules into a **contract**, including automated execution of contract terms and payments will simplify complex procurement, negotiation and verification processes.

**But there are still some risks in incorporating Blockchain**

**Integration concerns**

- Blockchain applications offer solutions that require significant changes or complete replacement of existing systems. In order to make the switch, financial institutions must strategize the transition.

**Control, Security, and Privacy**

- While private or permissioned blockchain and strong encryption exist, there are still cyber security concerns that need to be addressed before the general public will entrust their personal data to a blockchain solution.

**Uncertain regulatory status**

- If the government regulation status remains unsettled, blockchain will face a hurdle in widespread adoption by financial institutions.

**Nascent/ Experimental Stage**

- While most of the banks have started experimenting or developing proofs-of-concept around blockchain, there are still no major breakthroughs in blockchain applications in the real sense.

**Cultural adoption**

- Blockchain represents a complete shift to a decentralized network which requires the buy-in of its users and operators.

**Initial Cost**

- Blockchain offers tremendous savings in transaction costs and time but the high initial capital costs could be a deterrent, which is a major concern for banks.

Source: Finextra, News Articles
Use Cases - Financial Services

Global Payments

Summary
Conducting international money transfers through DLT could provide real-time settlement and reduce costs, enabling new business models (e.g. micropayments), and institute newer models of regulatory oversight.

Insurance - P&C Claims Processing

Summary
Facilitating claims management for property and casualty (P&C) insurers on DLT can automate processing through smart contracts, improve assessment through historical claims information and reduce potential for fraudulent claims.

Syndicated Loans

Summary
Utilizing DLT to automate syndicate formation, underwriting and the disbursement of funds (e.g. principal and interest payments) can reduce loan issuance time and operational risk.

Trade Finance

Summary
Utilizing DLT to store financial details can facilitate the real-time approval of financial documents, create new financing structures, reduce counterparty risk and enable faster settlement.

Source: World Economic Forum
Use Cases - Financial Services --- Contd

**Automated Compliance**

**Summary**
Utilizing DLT to store financial information can eliminate errors associated with manual audit activities, improve efficiency, reduce reporting costs and, potentially, support deeper regulatory oversight in the future.

**Proxy Voting**

**Summary**
Distributing proxy statements via DLT and counting votes via smart contracts may improve retail investor participation, automate the validation of votes and, potentially, enable personalized analyses in the future.

**Asset Rehypothecation**

**Summary**
Utilizing DLT to track and manage asset rehypothecation via smart contracts can enable the real-time enforcement of regulatory control limits across the financial system and reduce settlement time.

**Equity Post-Trade**

**Summary**
Utilizing DLT and smart contracts to facilitate post-trade activities can disintermediate processes, reduce counterparty and operational risk and, potentially, pave the way for reduced settlement time.

Source: World Economic Forum
## Assets & Accelerators

### Solution Accelerators

<table>
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<tr>
<th>Multi-Signer enabled Title deed Transfer</th>
<th>Virtual Coin Issuance and Transfer</th>
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<tr>
<td>Cross Border, Cross Currency Routing framework</td>
<td>Integration Layer for Blockchain of Choice</td>
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<td>Fund Transfer Between Bank and its Subsidiaries</td>
<td>Simplify Participation Deal</td>
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<td>Bitcoin Acceptance Platform for Acquirer Merchant Services</td>
<td>KYC Processing</td>
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<td>Secured Document Transfer &amp; Verification</td>
<td>Loyalty points Issuance and Redemption</td>
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<td>Bill Payment leveraging Blockchain</td>
<td>Loyalty Point Exchange</td>
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<td>Simple solution for post trade clearing and settlement</td>
<td>Manage mortgage Transaction Lifecycle on Blockchain</td>
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### Frameworks/Partnerships

- **Under Development**
- **Other Frameworks Explored**
  - eris
  - Cambridge Blockchain
  - skuchain
  - MultiChain
  - Chamber of Digital Commerce
  - BIGCHAIN
  - ripple
  - chain
  - ethereum
  - bitcoin
  - hyperledger
  - STORJ
  - Stellar
  - IPFS
  - factom
Thank You