Blockchain Technology - Next Big Thing after Internet and its impact to ICT Vietnam

Do Van Long – Regional Chief Strategy Officer
Infinity Blockchain Labs
Email: longdv@blockchainlabs.asia
Growing number of blockchain initiatives around the world

- **Canada** - The federal government is considering the use of blockchain technology when advantageous to deliver government services and to enhance the security of private information.

- **United States** - The Federal Reserve discusses the creation of a blockchain based digital currency with IBM and expresses optimism over the technology.

- **Latin America** - The Bank of Mexico is considering blockchain to create a digital version of pesos.

- **Europe** - European Central Bank intends to assess blockchain for banking services like payments, securities settlement as well as collateral.

- **Russia** - The Central Bank establishes Blockchain Working Group to "analyse and evaluate" potential applications of blockchain technology within finance.

- **China** - People’s Bank of China weighs blockchain for digital currency.

- **Japan** - Financial Services Agency considers amendments to legislation to include virtual currencies such as Bitcoin as "fulfilling the functions of currency."

- **United Kingdom** - UK government exploring use of blockchain recordkeeping.

- **United States** - Linux Foundation leads 29 leading technology and financial firms to create open-source Hyperledger blockchain standard.

- **Dubai** - Government establishes Blockchain Council to promote the technology.

- **Singapore** - Monetary Authority of Singapore launches Smart Nation Initiative and commits over $167 million to support fintech and blockchain innovations.

- **Australia** - Government seeks to end double taxation on Bitcoin and is seeking new rules to govern the use of distributed ledgers in financial services.
1. Connecting to 30+ University in Vietnam
   Research & Educate Market and Expand Blockchain in Vietnam

2. VN pilot projects - applying Blockchain for real life
   1. "Mango Blockchain" - Dong Thap Province (Smart Agriculture Province)
   2. "Blockchain Organic Product" - Biophap - Gia Lai Province

3. Organizing, Support and Technical Partner for most of biggest Blockchain events in Vietnam 2018
   1. Vietnam Blockchain Week 2018 - Ho Chi Minh City
   2. Vietnam Blockchain Summit 2018 - Vecom & MoIT - Ha Noi City
   3. Blockchain Trending, Strategy and Development - VNExpress & MoST
A blockchain allows untrusted parties to reach **consensus** on a shared digital history, **without a middleman**.
The Blockchain network - Terms & Definition

Blockchain is a tamper-proof, secure, shared digital ledger that records the history of asset transactions between members in a public or private peer-to-peer network.
Summarize 4 key components in blockchain

- **Shared Ledger**
  - Database of transactions.
  - Append-only.

- **Cryptography**
  - Ensure transactions are secure, valid, authenticated.

- **Network**
  - Peer-to-Peer network.
  - The Ledger is shared across P2P network.

- **Consensus Mechanism**
  - All parties agree to verify transaction.
  - Responsible for updating ledger.
Smart Contract

Normal Contract

Applying Smart Contract
The worldwide blockchain technology market is forecast to reach $7.74 billion by 2024, with the financial services sector accounting for the majority of the future market growth.

Source: Grand View Research, 2017
# Blockchain use cases list by industry

## Financial
- Trading
- Deal origination
- POs for new securities
- Equities
- Fixed income
- Derivatives trading
- Total Return Swaps (TRS)
- 2nd generation derivatives
- The race to a zero middle office
- Collateral management
- Settlements
- Payments
- Transferring of value
- Know your client (KYC)
- Anti money laundering
- Client and product reference data
- Crowd Funding
- Peer-to-peer lending
- Compliance reporting
- Trade reporting & risk visualizations
- Betting & prediction markets

## Media
- Digital rights mgmt
- Game monetization
- Art authentication
- Purchase & usage monitoring
- Ticket purchases
- Fan tracking
- Ad click fraud reduction
- Resell of authentic assets
- Real time auction & ad placements

## Computer Science
- Micronization of work (pay for algorithms, tweets, ad clicks, etc.)
- Expansion of marketplace
- Disbursement of work
- Direct to developer payments
- API platform plays
- Notarization & certification
- P2P storage & compute sharing
- DNS

## Asset Titles
- Diamonds
- Designer brands
- Car leasing & sales
- Home Mortgages & payments
- Land title ownership
- Digital asset records

## Government
- Voting
- Vehicle registration
- WIC, Vet, SS, benefits, distribution
- Licensing & identification
- Copyrights

## Identity
- Personal
- Objects
- Families of objects
- Digital assets
- Multifactor Auth
- Refugee tracking
- Education & badging
- Purchase & review tracking
- Employer & Employee reviews

## IoT
- Device to Device payments
- Device directories
- Operations (e.g. water flow)
- Grid monitoring
- Smart home & office management
- Cross-company maintenance markets

## Payments
- Micropayments (apps, 402)
- B2B international remittance
- Tax filing & collection
- Rethinking wallets & banks

## Consumer
- Digital rewards
- Uber, AirBNB, Apple Pay
- P2P selling, craigslist
- Cross company, brand, loyalty tracking

## Supply Chain
- Dynamic ag commodities pricing
- Real time auction for supply delivery
- Pharmaceutical tracking & purity
- Agricultural food authentication
- Shipping & logistics management

## Insurance
- Claim filings
- MBS/Property payments
- Claims processing & admin
- Fraud prediction
- Telematics & ratings

## Medical
- Records sharing
- Prescription sharing
- Compliance
- Personalized medicine
- DNA sequencing
There are six distinct categories of blockchain use cases addressing two major needs.

**Record keeping: storage of static information**
1. **Static registry**
   - Distributed database for storing reference data
   - Example: Land title, Food safety and origin, Patent

2. **Identity**
   - Distributed database with identity-related information
   - Particular case of static registry treated as a separate group of use cases due to extensive set of identity-specific use cases
   - Example: Identity fraud, Civil-registry and identity records, Voting

3. **Smart contracts**
   - Set of conditions recorded on a blockchain triggering automated, self-executing actions when these predefined conditions are met
   - Example: Insurance-claim payout, Cash-equity trading, New-music release

**Transactions: registry of tradeable information**
4. **Dynamic registry**
   - Dynamic distributed database that updates as assets are exchanged on the digital platform
   - Example: Fractional investing, Drug supply chain, Cross-border peer-to-peer payment, Insurance claim

5. **Payments infrastructure**
   - Dynamic distributed database that updates as cash or cryptocurrency payments are made among participants
   - Example: Initial coin offering, Blockchain as a service

6. **Other**
   - Use case composed of several of the previous groups
   - Standalone use case not fitting any of the previous categories
### Blockchain startup – helicopter view

#### Non-Financial Use Cases

<table>
<thead>
<tr>
<th>Digital Content/Documents, Storage &amp; Delivery</th>
<th>Authentication &amp; Authorization</th>
<th>Digital Identity</th>
<th>Marketplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>BitProof, Blockcai, Ascribe, ArtPlus, Chainy.Link, Stampery, Blocktech (Alexandria), Bisantyum, Blockparti, The Rudimental, BlockCDN</td>
<td>The Real McCoy, Degree of Trust, Everpass, BlockVerify,</td>
<td>Sho Card, Uniquid, Onename, Trustatom</td>
<td>Providing premium rights &amp; brand based coins: MyPowers</td>
</tr>
</tbody>
</table>

#### Smart Contracts
- Otonomos, Mirror, Symbiont, New system Technologies

#### Real Estate
- Factom

#### Diamonds
- Everledger

#### Gold & Silver
- BitShares, Real Asset Co., DigitalTangible (Serica), Bit Reserve

#### Reviews/Endorsement
- TRST.im, Asimov (recruitment services), The World Table
# Blockchain startup – helicopter view

## Blockchain in IoT
- Filament, Chimera-inc.io, ken Code – ePlug

## App Development
- Proof of ownership for modules in app development: Assembly

## Network Infrastructure & APIs
- Ethereum, Eris, Codius, NXT, Namecoin, Colored Coins, Hello Block, Counterparty, Mastercoin, Corona, Chromaway, BlockCypher

## Other
- **Prediction platform:** Augur
- **Election Voting:** Follow My Vote
- **Patient Records management:** BitHealth

### Financial Use Cases

<table>
<thead>
<tr>
<th>Currency Exchange &amp; Remittance</th>
<th>P2P Transfers</th>
<th>Ride Sharing</th>
<th>Data Storage</th>
<th>Trading Platforms</th>
<th>Gaming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coinbase (Wallet), BitPesa, Billion, Ripple, Stellar, Kraken, Fundrs.org, MeXBT, CryptoSigma</td>
<td>BTC Jam, Codius, BitBond, BitnPlay (Donation), DeBuNe (SME’s B2B transactions)</td>
<td>La’zooz</td>
<td>Storj.io, Peernova</td>
<td>equityBits, Spritzle, Secure Assets, Coins-e, DXMarkets, MUNA, Kraken, BitShares</td>
<td>PlayCoin, Play(on DACx platform), Deckbound</td>
</tr>
</tbody>
</table>
**Potential Use Cases of Blockchain and their Benefits in Finance**

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Key Benefits</th>
<th>Cost Savings per Year</th>
<th>Examples of Solution Providers</th>
<th>Estimated Implementation</th>
</tr>
</thead>
</table>
| **KYC/AML**       | - Onboarding new customers and identity management and authentication for policy holders using blockchain as a central utility | - Removal of manual multiple duplicative KYC and accelerated onboarding process <br>- Up to 90% reduction in admin costs <br>- Reduction in AML risks/frauds, associated penalties and fines <br>- Increased transparency and transaction monitoring | - 6-8 $Billion
- Worth of Cost Savings in KYC Compliance | - Algorithmix, KYCChain, Synergyon, Trade, Turunox, ShinCard | 2018-2020 |
| **Trade Finance** | - Transfer of trade documents <br>- Provenance and supply chain management using IoT <br>- Loans and credit financing – focus on SMEs <br>- Use of smart contracts to automate payment process, elimination of need for financial intermediaries and instruments such as L/C | - Reduction in paper intensive and manual processes and document sharing/counter costs <br>- Reduction in the current trade finance gap – especially in emerging economies <br>- Freeing capital tied up in trade finance processes | - $30-40 $Billion
| **Insurance**     | - Underwriting/Pricing <br>- Payments and Collections <br>- Claim Management <br>- Risk Management <br>- New Products such as Microinsurance and P2P Insurance <br>- Automatic pay outs | - Reduce average claims administration costs <br>- Reduce damage from fraud <br>- Improve identification of claim events | - 40-50 $Billion<br- out in costs and expenses | - Axa, Axaevol, Safeshare, Kyobo, Generali, AXA | 2022 onwards |
| **P2P Payments**  | - Transfer of money using digital currencies or cryptocurrencies | - Elimination of paper based processes <br>- Lower processing fee <br>- Reduction in processing time | - 3-5 $Billion | - Versa, Abra, BinPesa, CoinPip | 2016-2019 |
| **Capital Markets** | - Mutualization of Data <br>- Automatic transaction matching, reconciliation and settlement <br>- Automatic DVP on cash ledger <br>- Repurchase agreements matching | - Removal in lag between trade and settlement time <br>- No central clearing system required <br>- Reduction in errors | - 50-60 $Billion<br-in operational and IT costs | - Digital Assets Holding, Equithumb, Clearmatics, NASDAQ | 2020 onwards |
| ** Syndicated Loans** | - Data communication <br>- Automatic position reconciliation | - Elimination of paper based processes <br>- Accelerated settlement time <br>- Removal of need for reconciliation <br>- Reduced errors and discrepancies | - 10-15 $Billion | - Synaptolans | 2018-2022 |
Blockchain applying on **Public Services**

Blockchain applying on **Supply Chain**

Track and trace **Chinese pork**
FIRST PIONEERS BLOCKCHAIN APPLICATION IN VIETNAM

BLOCKCHAIN TECHNOLOGY
FRUIT SAFETY & TRACEABILITY
TRACEABILITY FOR ORGANIC PRODUCT (PRESENTING TO VN MINISTERS)

Transparency Process & Trusted Information
Blockchain applying on **Crowdfunding (ICOs)**

- **TenX**: $67M
- **Tezos**: $232M
- **Bancor**: $150M
- **Filecoin**: $252M
- **Status**: $100M

**Brave ICO**: $35 million

30 seconds

Brendan Eich
My Token / ICO / Blockchain Capital Markets Landscape