

BUILDING AN INTERNET FOR TRUST ON A TRUSTLESS INTERNET:

APrIGF

Macau

July 1st 2015

**An Evolving Governance Model for Emerging
Blockchain and
Smart Contract Technologies**

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Chairman

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Today's Panel

- [Janos Barberis](#)
 - Senior Research Fellow at the Asian Institute of International Financial Law, Academic
- [Filipe Farinha](#)
 - Founder and CEO of Macau Source Limited, Private Sector
- [Leonhard Weese](#)
 - President, Bitcoin Association of Hong Kong, Civil Society
- [Pindar Wong](#)
 - Chairman, VeriFi (HK) Ltd, Hong Kong, Private Sector
- [Matteo Ventura](#)
 - President, Macau Digital Currencies Association, Civil Society

Setting the Scene for Panel Discussion

- Evolving Governance Model
 - Understanding the Existing Governance Models
 - Understanding the Key Innovations
 - Governance Challenges of Financial Technology (FinTech)
- Key Innovation: Blockchain and Smart Contracts
 - Tech Understanding 101 and BIP 101
- Save the Date:
 - October 12-13 @ Cyberport in HK
 - [Smart Contracts for Smart Cities](#)
 - November 10-13@João Pessoa in Brazil
 - [UN Internet Governance Forum \(IGF\) 2015 WS 239](#)

Sharing Insight on the Key Innovations

- Understand Rationale Behind:
- World-Wide-Web Consortium (W3C) – Please JOIN! 😊
 - Driven by Agile Technology Companies + Agile Traditional Companies
 - [Web Payment Interest Group](#) - (June 16-18 NYC)
 - [Cryptoledgers Community Group](#)
 - [Credentials Community Group](#)
- Current Investment Interest In
 - Blockchain Technology (e.g. Bitcoin Protocol Standards)
 - [BlockchainWorkshops.org](#) (e.g. October 12-13 Hong Kon)
 - Smart Contract Technology (e.g. Smart Contract Standards):
 - [Lex Cryptographia](#)
- Increase Policy Awareness, Involvement and Deliberation: e.g. UN [Internet Governance Forum 2015](#)
 - [APrIGF – Macau, July 1](#) Today
 - [IGF – Brazil, November, Nov 10-13](#)

EXISTING GOVERNANCE MODELS

Known Governance Models

- Layered (Horizontal), Siloed (Vertical) – Networked?
- Multi-stakeholder
 - ICANN, IGF
- Multi-Lateral
 - ITU
- Characteristics:
 - Open/Closed? Membership Fee or Free? Individual/Corporate?
 - Document Driven Processes (Draft Request for Comments (RFCs))
 - Translation where necessary (Global Internet)
 - Induction + Training Wheels
 - Importance of Technical Competence, Leadership and Neutrality
 - Many Interests at Stake (Registrant, Registrar, Registry)
- Other
 - Trade Associations and Foundations
 - [Linux Foundation](#) / [Bitcoin Foundation](#)
 - Technical Standards Bodies ([IETF](#), [W3C](#), ITU-T)
 - Patent Non-Aggression Models (Intellectual Property)
 - [Open Invention Network](#) (Linux Kernel)
 - [Extensible Messaging and Presence Protocol \(XMPP\) Standards Foundation](#)

The FinTech Ecosystem Opportunity?

- [What is this?](#)
- [New York City DFS BitLicense](#)
- How do you regulate what you can't control?
 - Have we been there before? YES ... the Internet!
- [More Money Invested Than in 1990's Internet](#)
- [State of Bitcoin 2015](#)
- Key Understanding:
 - This is an Ecosystem Build!
- Key Question:
 - What are the Keystone Species?

Digital Trust for a Civil Internet Society

- Encryption in Binary but Trust is Not: Depends on Context
- Global Commission On Internet Governance
 - [Toward a Social Compact for Digital Privacy and Security](#)
- Examples of **Centralized Analog** Fiduciary Trust Structures
 - Backed by the State: Central Public Registries
 - Backed by Community: Regional Internet Registries (APNIC)
 - Rule of Law vs Consensus Policy Processes
 - Periodicity: Daily, Monthly, Yearly
- Evolution to **Decentralized Digital** Fiduciary Trust Structures
 - Backed by Mathematics: Decentralized Public Ledgers
 - Rule of Code vs. Consensus Policy Processes
 - Criticality of Consensus Code -> Importance of Thorough testing
 - Periodicity: Real-Time

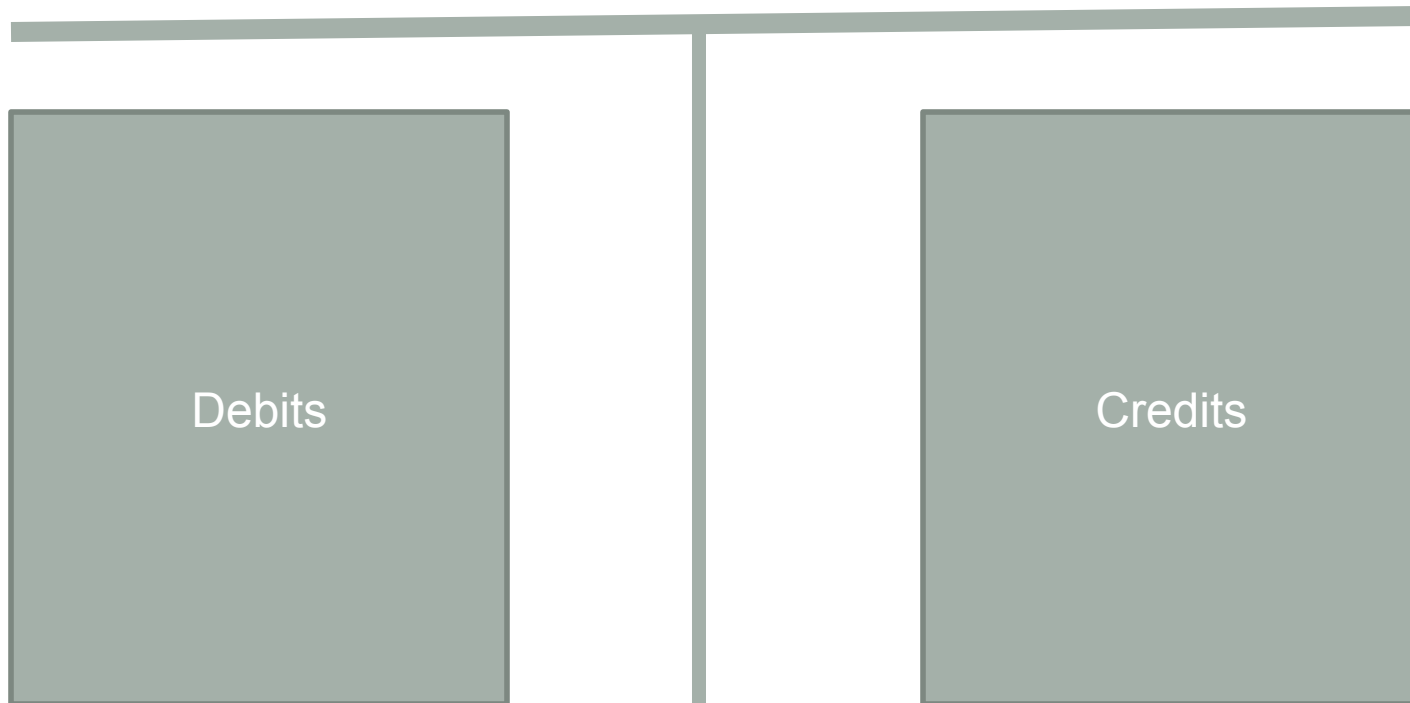
What We've Learnt: Major Internet Trends

- Coordination Not Regulation
 - Don't Regulate what you can't control
 - Complexity is the Enemy: Diversity, Granularity, Cross-Border
 - Velocity makes small wins/errors -> BIG + FAST :
 - Rate of Innovation and Information
- Cooperation without Coordination
- Identity – still the major issue (multi-level Know Your Customer KYC)
- Security and Privacy – Not Mutually Exclusive

KEY INNOVATIONS 101: BLOCKCHAIN SMART CONTRACTS

Accounting: The Language of Business

- Cooking the Books: Existence, Completeness, Valuation, Rights and Obligations, Presentation and Disclosure
- International Trade: Renaissance Innovation Due to International Trade
- Double Entry Booking Innovation



Accounting Revolution Continued

Existence. That the assets and liabilities reflected on the balance sheet are true and accurate as of the balance sheet date.

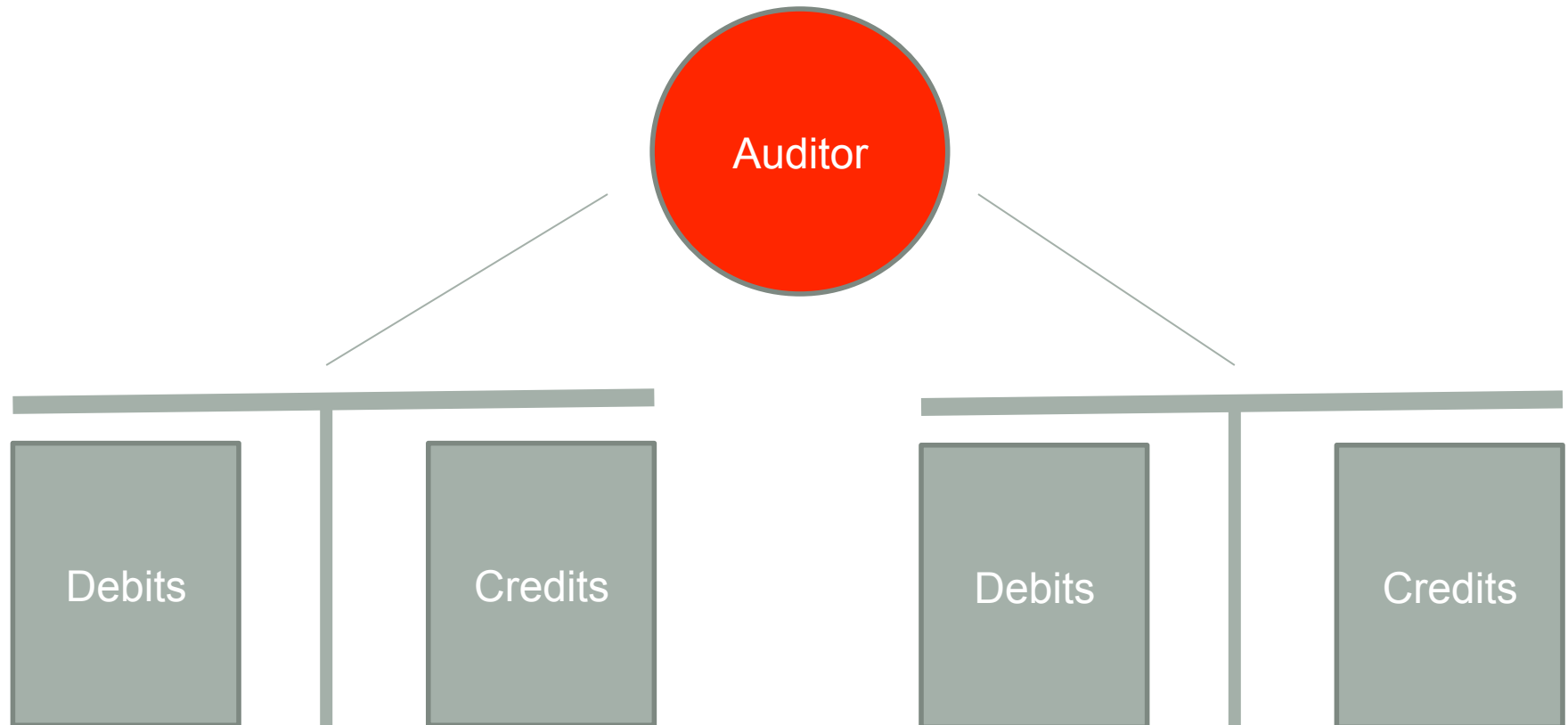
Completeness. That the financial statements represent all of the firm's activities during the time period in question.

Valuation. That the amounts on which the financial statements are based are correct or reasonable under the circumstances.

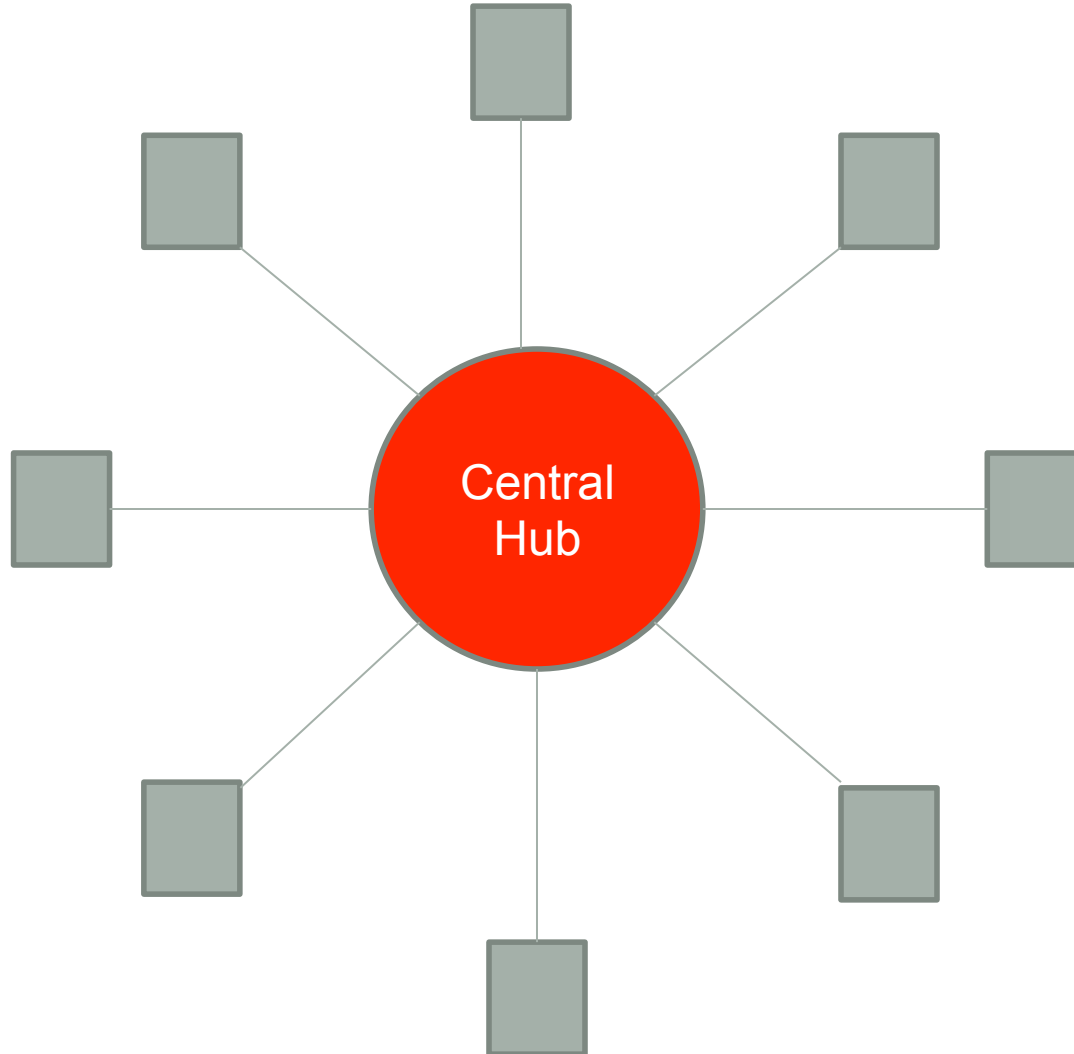
Rights and Obligations. That what is owned and owed as reflected by the balance sheet is true and correct.

Presentation and Disclosure. That the items in the financial statements are valued and described in the proper way.

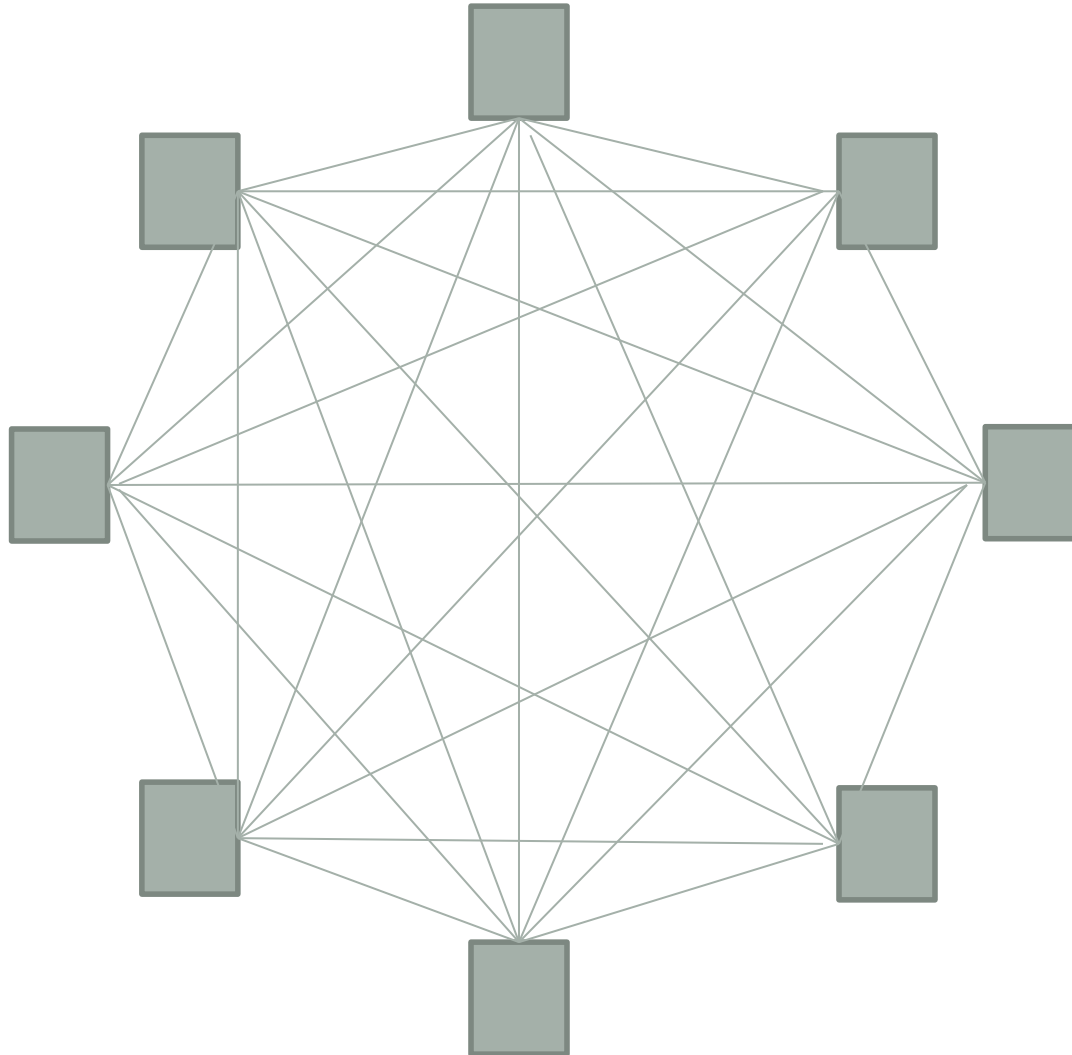
Double Entry Bookkeeping



Coordination and Control

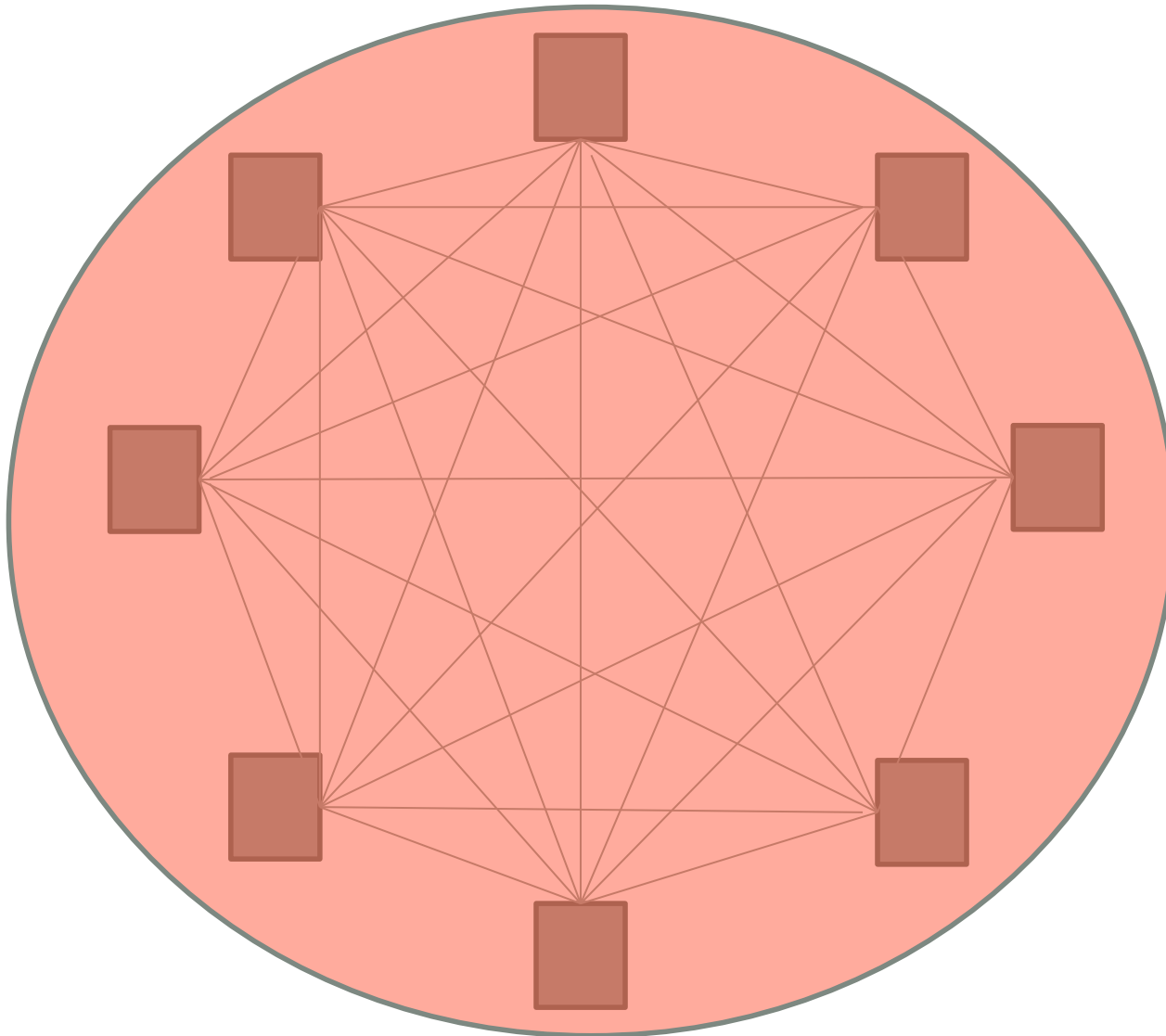


Peer-To-Peer Mesh



The Blockchain Innovation ... ? Is an Accounting Revolution!

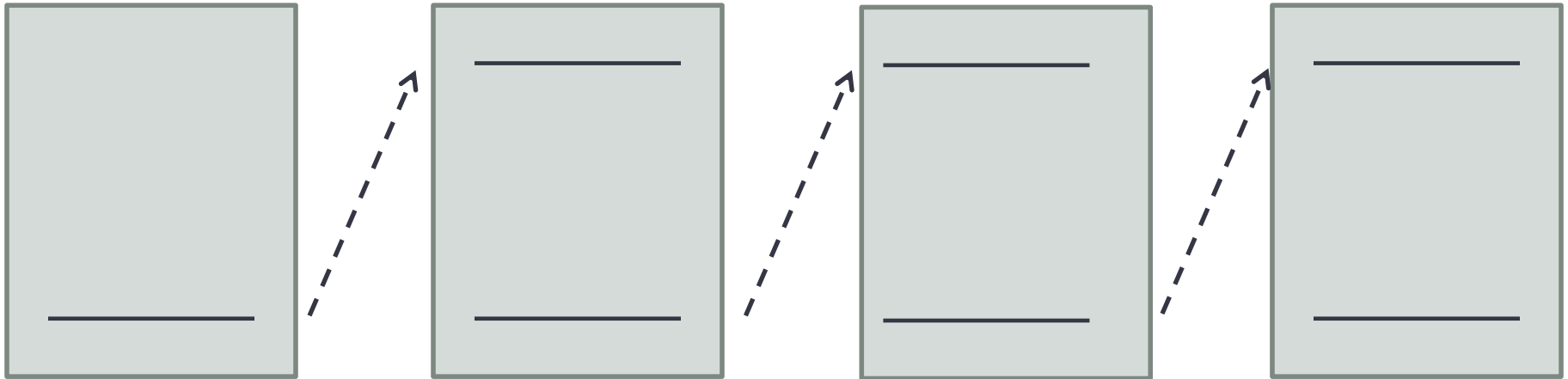
Peer-To-Peer (Distributed) Real-Time Audit



Peer-To-Peer = Distributed

- Internet – Network of Peers
- File Sharing – Bittorrent
- Digital Currency – Bitcoin
- Messaging – Telehash
- [Enter IBM and Samsung with ADEPT for Internet of Things Governance – Device Democracy](#)

The Blockchain



Like Your Monthly Bank Statements

The New Accounting Revolution

- Golden Rule: $\text{Asset} = \text{Liability} + \text{Equity}$
- Golden Bitcoin Rule: A transaction is fully spent.
- Blockchain innovation is an advance in
- Distributed Double Entry Bookkeeping
- Building an 'Internet For Trust on a Trustless Internet'
- Auditor = Independent Guarantor of Financial Information
- The Problem of Agency – Who do they really work for?
- Blockchain: Evolution of Double Entry – Networked Accounting
- There is no concept of Account of Currency!
 - Instead of an Account Holder having a balance of a currency
 - A currency has a history of Holders from which an account is calculated and continuously verified in real-time.

The Smart Contract Innovation ... ?
Is a Trust Revolution!
From **Analog** -> **Digital**
From **Centralized** -> **Distributed**

Building An Internet For Trust on a Trustless Internet*

Smart Contract(s)
Interoperable
Programmable Trust
Logic

Block Chain (s)
Interoperable
Digital Value Exchange
e.g. Digital Currency Initiative

The Asian Opportunity: Last Mover Advantage – Focus on Interoperability

- Europe: 27 Jurisdictions,
 - Harmonized Regulation,
 - Homogenous Market
- USA: 51 Jurisdictions,
 - National Regulation,
 - Homogenous Market
- Asia: 25 Jurisdictions – Horizontal Layered Approach instead of siloed sectorial approach
 - Limited Ability to Scale-Up given Heterogenous Market
 - 25 Infrastructures
 - 25 Sets of Regulation (c.f. Africa in the small)
 - Amending Mandates to include ‘promoting effective competition’ in the ‘interest of consumers’ c.f. UK Financial Conduct Authority (Financial Services Act 2012).

GOVERNANCE CHALLENGES OF BLOCKCHAIN + SMART CONTRACTS

What's the Same? What's Different?

For Example – Maximum Blocksize Debate (BIP 101)

Example: Maximum Block Size

- [Bitcoin Improvement Proposal \(BIP\)](#) – Existing Process
- Soft vs Hard Forks: Forked to Death?
 - [From 1 MB -> 8MB Maximum Block Size – BIP 101](#)
 - Software that Doesn't Evolve Is Software That Dies
- Upgrading of Consensus Code and
- Upgrading of Consensus Processes
- Example: [Chinese Mining Pool Operators](#)
- 'Mining Consensus' harder than 'Mining Bitcoin'? No
 - Importance of understanding Successful Ecosystem Builds
 - Hard Fork = Testing Hard
 - Importance of Face-To-Face(F2F) Meetings
 - C.f. APriGF, IGF, IETF, ICANN, W3C etc. to help establish trust and build consensus
 - Proposed F2F October 14,15@Cyberport in Hong Kong

Thank You! Please join W3C

- Last Meeting June 16-18 – NYC
- W3C Web Payment Community Group Chair
 - Manu Sporny msporny@digitalbazaar.com
- W3C Web Payment Administrative Contact
 - Ian Jacobs ij@w3.org
- MIT's – Digital Currency Initiative
 - [Joichi Ito – Director of the Media Lab](#)
 - [Brian Forde, Director of Digital Currency](#)
- HK's – Smart Contract Initiative
 - [Smart Contracts for Smart Cities](#)
 - 12-13 October 2015 @ Cyberport