

# BLOCKCHAIN & CRYPTO

A STUDY ON THE IMPACT OF  
BLOCKCHAIN ON THE  
FINANCIAL INDUSTRY

# ABOUT ME



HYPERTRENDS GLOBAL INC.


**“INNOVATION AS A  
RELIGION”**



THE BLOCKCHAIN  
WILL DO TO THE  
FINANCIAL  
SYSTEM WHAT  
THE INTERNET DID  
TO MEDIA.

- Harvard Business Review



An aerial photograph of a two-lane asphalt road with a yellow center line, cutting through a dense, lush green forest. The road is positioned vertically on the left side of the image, extending from the top to the bottom. The forest is composed of various types of trees, with some showing early autumn colors. The overall scene is captured from a high angle, looking down at the road and the surrounding woods.

# A TRIP DOWN INTERNET'S MEMORY LANE...

- DoD and Universities.
- Core aim to build a “network”.
- Open Architecture – HTTP, TCP/IP
- Every layer of the Internet unlocked decades of technology innovation.
- Commercial Interest after Internet’s killer application ‘Email’ (SMTP) was revealed to the masses.



# BLOCKCHAIN TECHNOLOGY

- Open, De-centralized
- Permission-less, Trustless
- Based on Protocols at every level
- Will allow interoperability as multiple Blockchain networks evolve.
- Massively scalable

BITCOIN -  
BLOCKCHAIN'S  
KILLER  
APPLICATION





HOW IT ALL

BEGAN

**2008**

**FINANCIAL**

**CRISIS**





# SATOSHI NAKAMOTO

## Bitcoin Whitepaper - OCT 2008

### Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto  
satoshin@gmx.com  
www.bitcoin.org

**Abstract.** A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

# HOW DOES IT WORK



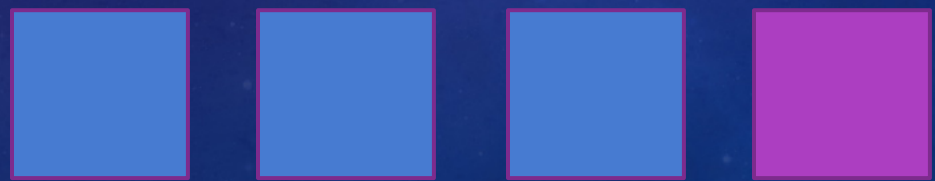
Alice has Bitcoins

I paid Anup \$5  
Candidate Transaction



Miners  
Validate  
Transaction

Put it on Blockchain



Miner gets rewarded



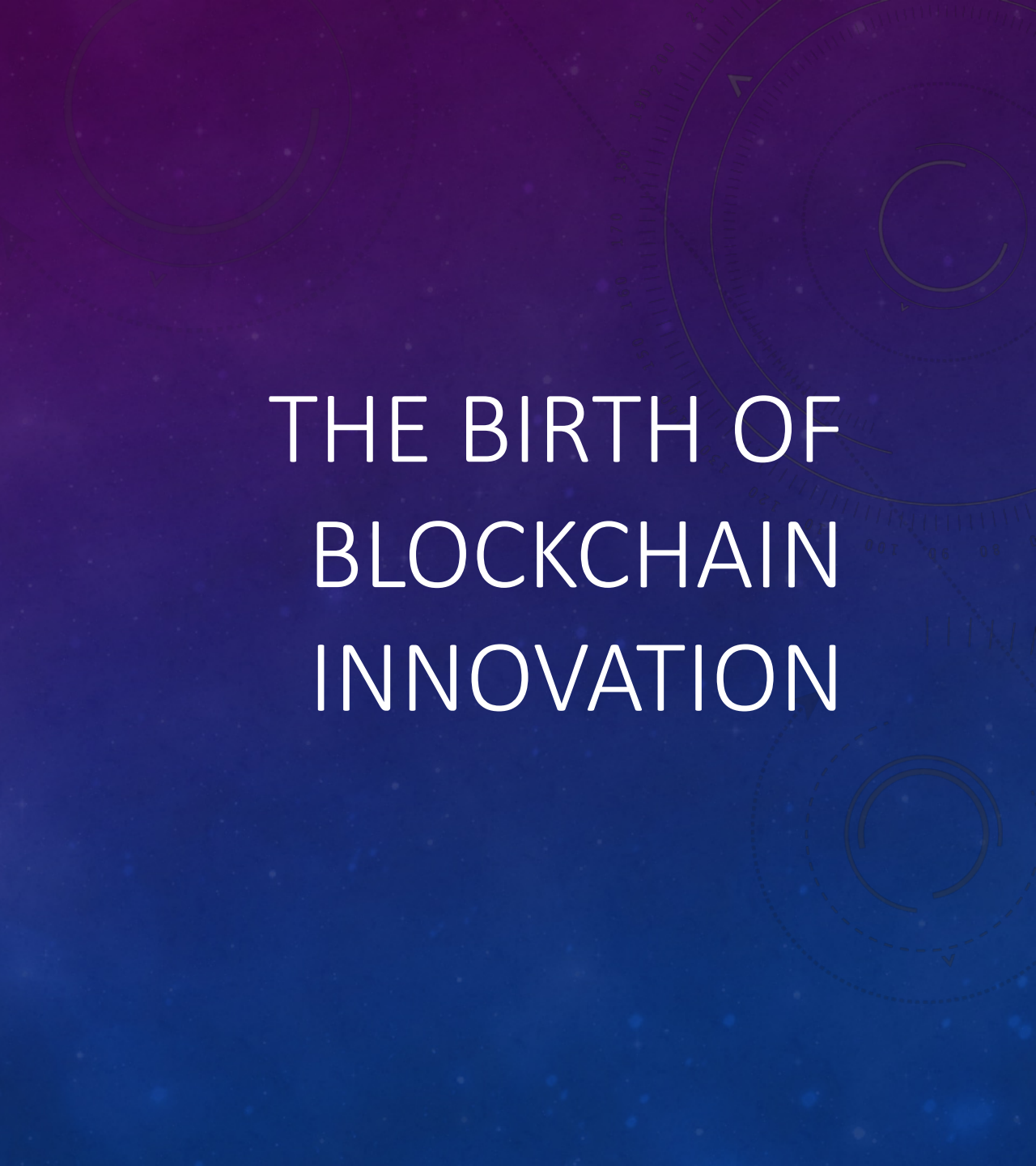
# BITCOIN FEATURES

- Runs on top of the Blockchain
- Peer-to-Peer
- HARD CAP: 21 MILLION
- New Production through code
- Network checks for compliance
- Resistant to attacks, Robust Ecosystem
- Real Value – very much like gold





# THE BIRTH OF BLOCKCHAIN INNOVATION



# SO WHAT IS A BLOCKCHAIN?

## Chain of Blocks

Each containing information



What makes it so special?

Once You Write Data To It, It's Impossible To Change It

# HASH

- Given the same input, the output will always be the same.

ANUP



SHA256 HASH

f689144ae4268455a  
0314ee1016ba13e1  
2fb037e772840a6eb  
e60bc7a9b77f26

ANUP,



SHA256 HASH

790688e8a6749767b93  
940076e2180a073b3ab  
6cbb934e4441ce3ca28  
93e4bb4

EXAMPLE HASH

ae3172b7a0adb1165c4ef50ae95d647b6f2862a3e18e  
6bfdfd1fad72bb855fe9

DECLARATION OF INDEPENDENCE

# BLOCK CONTENTS



Data (e.g.: "Alice spent \$2")

Hash Of Data (e.g.: 121212aefb343d)

Hash Of Previous Block



# EXAMPLE BLOCKCHAIN

Genesis Block



Hash:  
**111**

Prev. Hash:  
**0**



Alice has \$10



Hash:  
**222**

Prev. Hash:  
**111**



Alice gave Bob \$2



Hash:  
**333**

Prev. Hash:  
**222**

# EXAMPLE OF TAMPERING

Genesis Block



Hash:

**111**

Prev. Hash:

**0**



Alice has \$15



Hash:

~~222~~ **232**

Prev. Hash:

**111**



Alice gave Bob \$2



Hash:

**333**

Prev. Hash:

**222**

X



# DECENTRALIZED BY NATURE



# BLOCKCHAIN PROPERTIES

- **Distributed** – Everyone has a copy of the same database. Append-Only.
- **Global Singleton** – Large Computer where everyone can execute code (through Smart Contracts).
- **Accessible** - Anyone can download and participate.
- **Verifiable** – Every transaction can be verified
- **Unstoppable** – No single entity can prevent use

# PROMINENT BLOCKCHAINS



## ETHEREUM

- Open Source
- Public, Permission-less
- Smart Contracts
- Turing Complete, EVM
- BYO Crypto

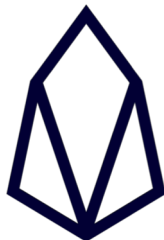


## HYPERLEDGER

- Open Source
- Linux Foundation
- Permissioned
- Tech Framework
- No Cryptocurrency



- Open Source
- Public, Permission-less
- High Throughput
- Scalable
- Highly Reliable



CRYPTOCURRENCIES  
ARE NOTHING BUT  
*'DIGITAL CASH'*  
TOKENS ON THE  
BLOCKCHAIN



# CRYPTOCURRENCIES

- Ethereum has Ether (ETH)
- Bitcoin Blockchain has Bitcoin (BTC)
- Stellar has Lumens (XLM)
- Dragonchain has DRGN

“You can build  
your own  
Token on  
Ethereum in  
minutes.”

# THE RISE OF CRYPTOCURRENCIES



STEEM COIN - \$59M paid in rewards for Social Media Content



Earn money by hosting files on unused disk space on your computer.



Allows banks a reliable, on-demand option to source liquidity for cross-border payments.



# TOKENIZATION – THE FUTURE IS NEAR

*“Democratizing ownership of assets on the Blockchain”*

*“Imagine paying for Starbucks coffee with your airline miles”*

*“Imagine owning a small part of a rare work of art.”*

*“Imagine buying Gold without the hassle of attaining physical Gold.”*

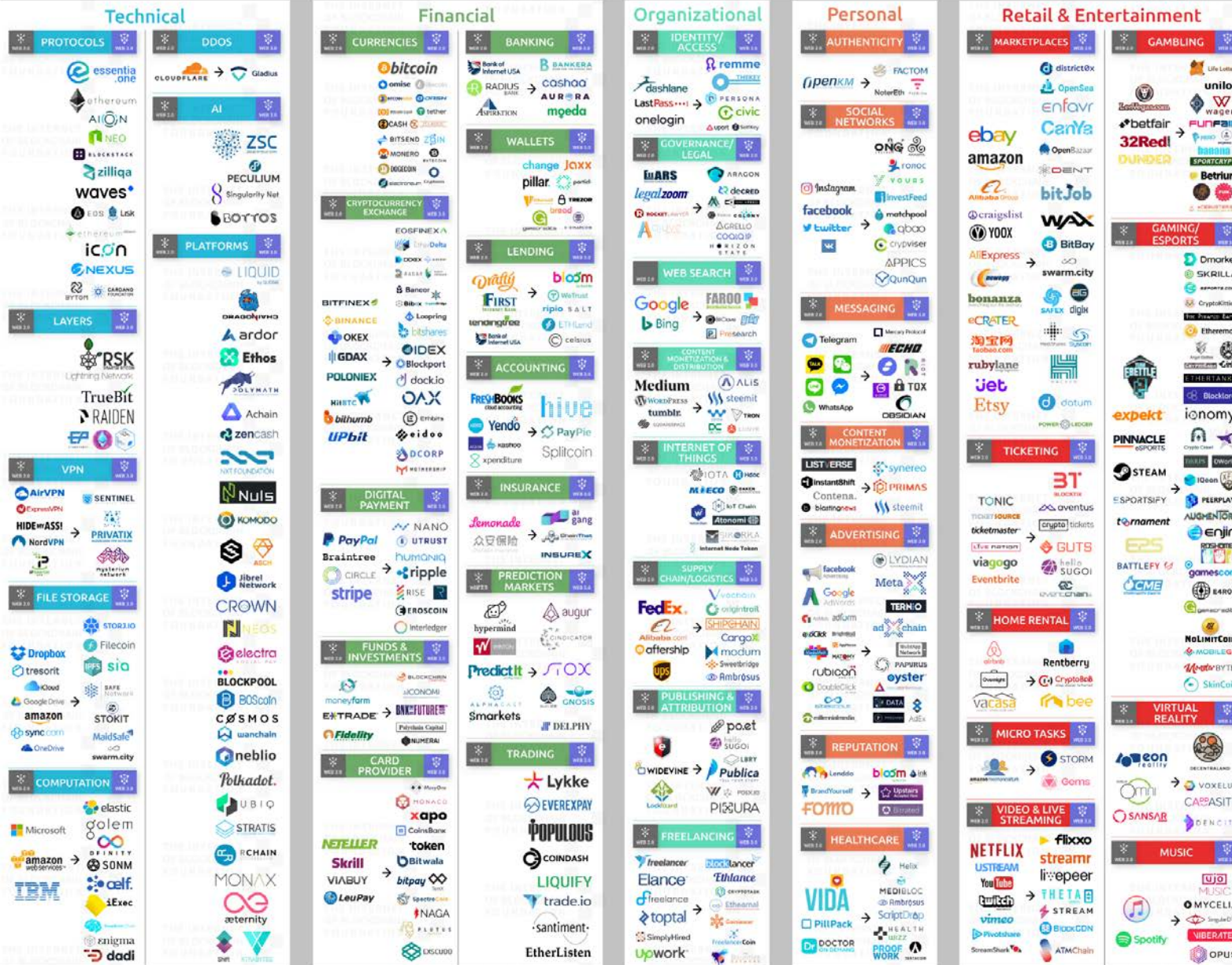


# TOKENIZATION – FEATURES

- Conversion of an asset into a “Token” that can be recorded and transacted on the Blockchain.
- Physical and Intangible Assets.
- Fungible and Non-Fungible Assets
- Every Blockchain is powered by “Tokens” (i.e. coins)
- Blockchain popularity propels the value of the coin.
- ICOs were a classic example of Tokenization.

# WEB 2.0 → WEB 3.0 COMPARISON LANDSCAPE.

## WELCOME INTERNET OF BLOCKCHAINS



BLOCKCHAIN IS  
TAKING OVER THE  
WORLD

# SECURITY TOKENS

Security Token is an actual financial security, meaning shares or equity in traditional assets, startups, venture funds and even real estate.



# NON-FUNGIBLE TOKENS



The screenshot shows the OpenSea marketplace interface. At the top, there's a search bar for "Search Collections & Users" and a "Ranking" dropdown. Below that, there are filters for "On Sale", "Has Offers", "Bounties", and "Bundles (124)". The main section is for the "CryptoKitties" collection, which has 1,092,477 items. A description states: "CryptoKitties is a game centered around breedable, collectible, and oh-so-adorable creatures we call CryptoKitties! Each cat is one-of-a-kind and 100% owned by you; it cannot be replicated, taken away, or destroyed." Below the description are tabs for "Activity", "Stats", and "Visit app". A "PROPERTIES" section lists filterable traits like "totesbasic" (218,240), "thiccbrowz" (165,561), "pouty" (149,059), and "granitegrey" (138,223). The main display area shows a grid of CryptoKitty listings. Two are visible: "Dieter Boboson" priced at 0.21 ETH and "Heffe Waltzock" priced at 0.31 ETH (previous price 0.008 ETH). Other listings for a grey cat and an orange cat are partially visible at the bottom.



# STABLE COINS

- Volatility is not good for average investors
- Need a way to peg crypto coin value to fiat currency or a portfolio of cryptocurrencies.





# BLOCKCHAIN AND BANKING

# INFLUENCE ON BANKING – IDENTITY SOLUTIONS

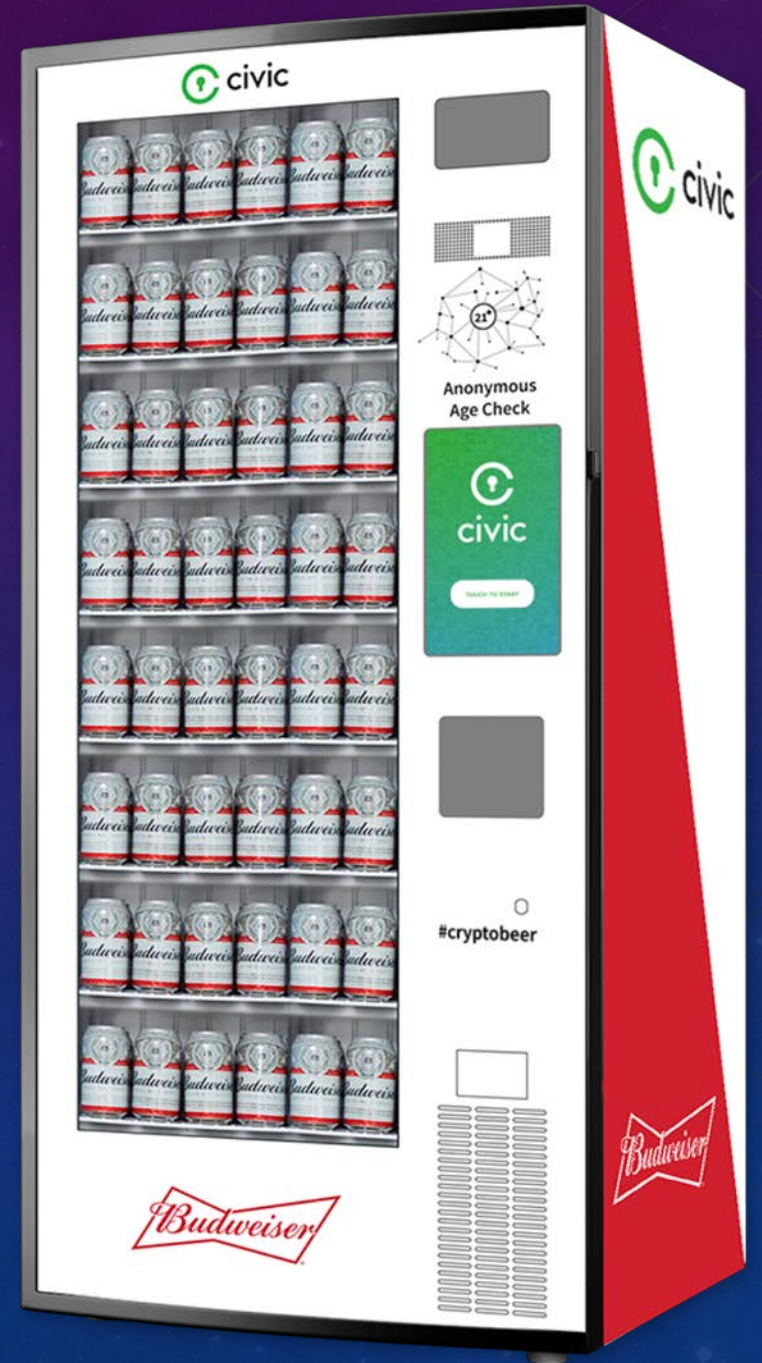
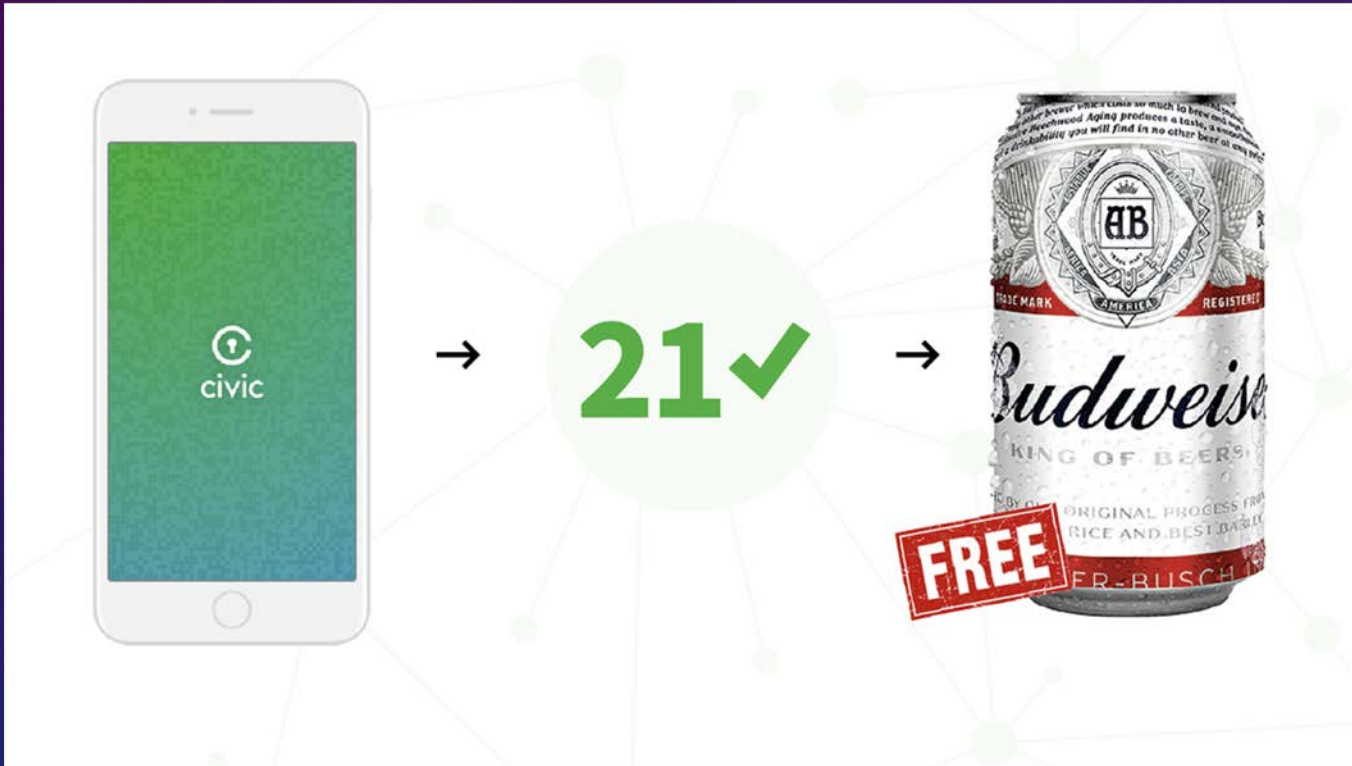


**KYC INFORMATION**





# CRYPTO BEER



# BINANCE BANKING

- World's largest Crypto Exchange
- World's first Decentralized Bank
- Ownership structure based on tokenized equity products
- 5% Stake in Founders Bank at \$155M Pre-Investment Valuation





# ASIA RISING

- Hong Kong's Monetary Authority will launch own Blockchain with 21 banks.
- Singapore's Global E-Trade Services launches Open Trade Blockchain (OTB) connecting China's Silk Route with ASEAN
- 13M Transactions – Gross Merchant Value (GMV) of \$400B for first half of 2018



## ALL EYES ON USA

- BitPay receives a virtual currency license from NY Dept of Financial Services.
- AmEx wants to put proof of transaction on Blockchain
- You will be able to unlock a hotel door with your card
- Mastercard wins patent for Crypto payments

# JP MORGAN LEADING THE WAY



“The hope among Quorum’s developers is that blockchain can solve some of banks’ most intractable problems by replacing a web of connected databases with a single, shared, immutable record of transactions. The problems targeted include long and expensive settlement times, system breakdowns and lack of clarity about risk exposure.”

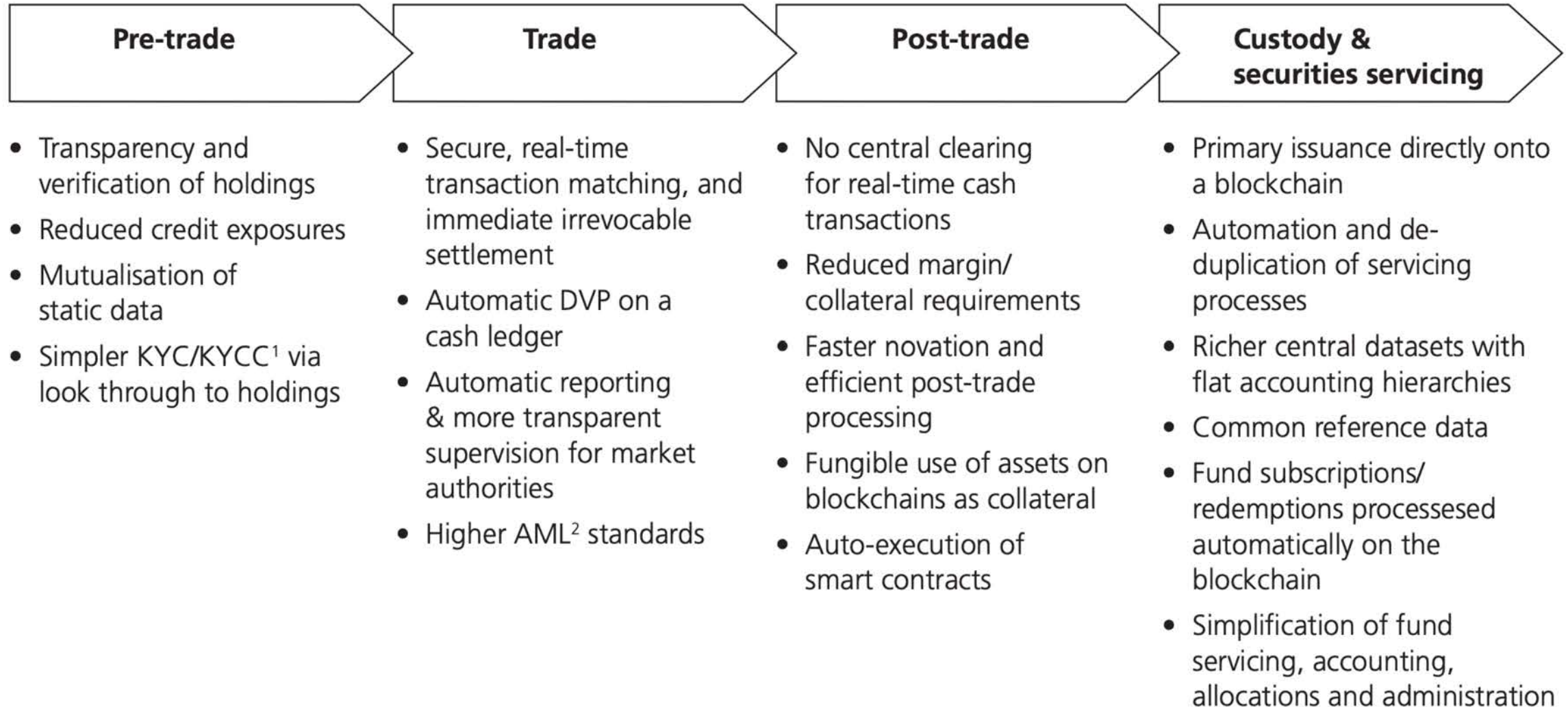
## IBM – HYPERLEDGER – BANK GUARANTEES FOR COMMERCIAL LEASING

“Rather than rely on a paper instrument, the rules to ensure the validity and integrity of a guarantee were instead codified and built into the operation of a shared ledger.”

# BUY SIDE OPTIMIZATION FOR ASSET MANAGEMENT

- Cost Savings and Identifying new sources of revenue
- Embedded and shared KYC and AML checks
- Automation of complex asset life-cycles through 'smart contracts'
- Direct reporting access for Regulators and Clients
- Acceleration of the post-trade process
- Near instantaneous settlement for funding transactions
- Automated, peer-to-peer collateral management
- Peer-to-peer distribution, linking fund manufacturers directly to their end clients opening up new revenue sources

# CAPITAL MARKETS & BLOCKCHAIN







# HURDLES

- Scalability – Hard work being done
- Regulation and Legislation
- Operational Risks – Transition Risks
- Governance



# HOW TO EMBRACE THE FUTURE?

- Build Concrete Proof-of-Concepts
- Challenge Service Providers
- Quantify Cost Savings
- Invest/Form Start-ups
- Narrative for regulators



# THANK YOU

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