Blockchain Specialist Program

Zeeshan Hanif
Qasim Shabbir
Hammad Ahmed

Blockchain and Cryptocurrencies are shaking the system

TECH

Cryptocurrencies are ‘clearly shaking the system,’ IMF’s Lagarde says

PUBLISHED WED, APR 10 2019 • 9:15 PM EDT

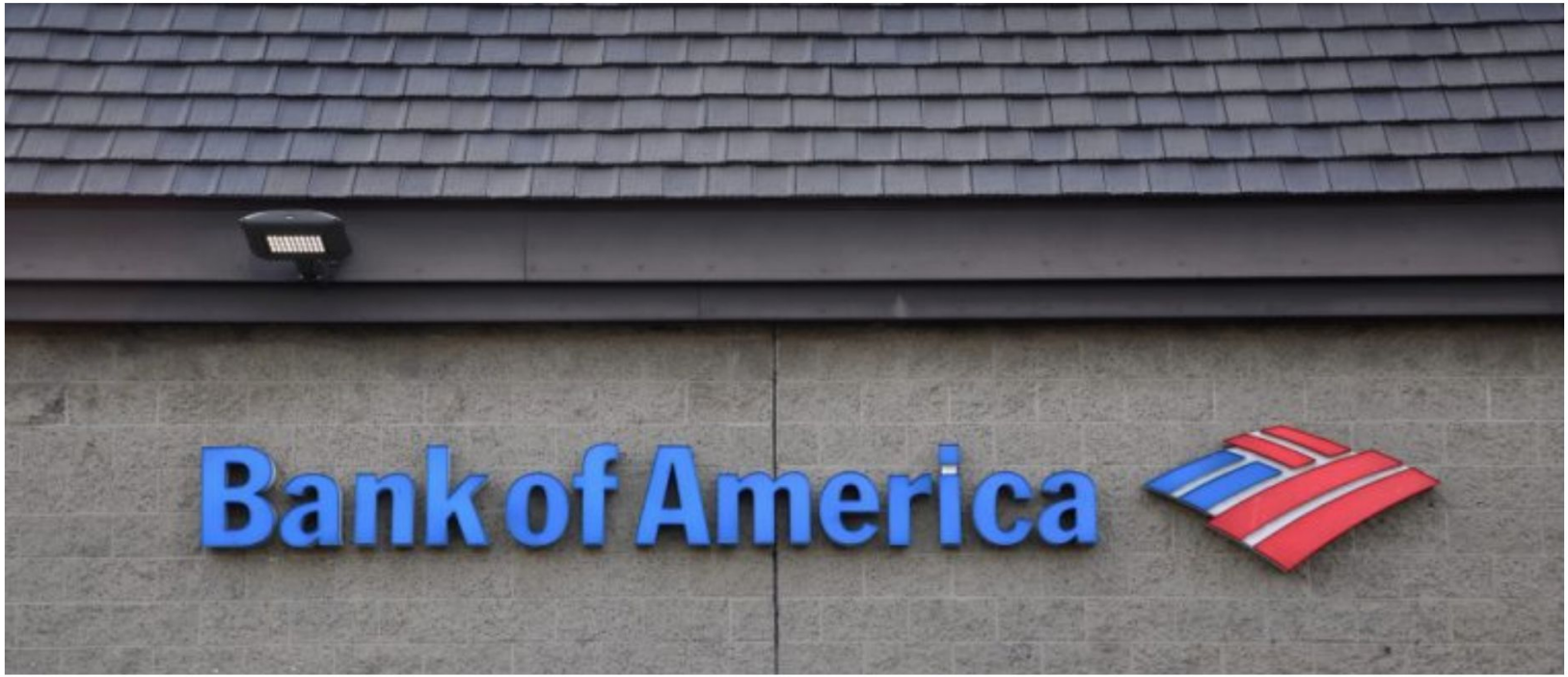
Elon Musk: 'Paper money is going away'

Published Wed, Feb 20 2019 • 11:52 AM EST • Updated Mon, Apr 8 2019 • 10:21 AM EDT

Catherine Clifford
@CATCLIFFORD

BANKING FEBRUARY 23, 2018 16:31

Bank of America Admits Cryptocurrencies Are a Threat to Its Business Model



Is Blockchain Technology the New Internet?

Blockchain is backbone of New type of Internet: The Decentralised Era

1. The main frames with dumb terminals (1960s)
2. The Desktop (1980s)
3. The Internet, all desktops connected (1990s)
4. Walled Gardens, all powers with big companies (Facebook, Google, Apple and Amazon)
5. The Blockchain Era, a decentralised internet (WEB 3.0)

Web 1.0

Web 1.0 was just a set of static websites with a load of information and no interactive content

Web 2.0

The global sharing of information spawned the age of ‘Social Media’. Youtube, Wikipedia, Flickr and Facebook gave voices to the voiceless and a means for like-minded communities to thrive.

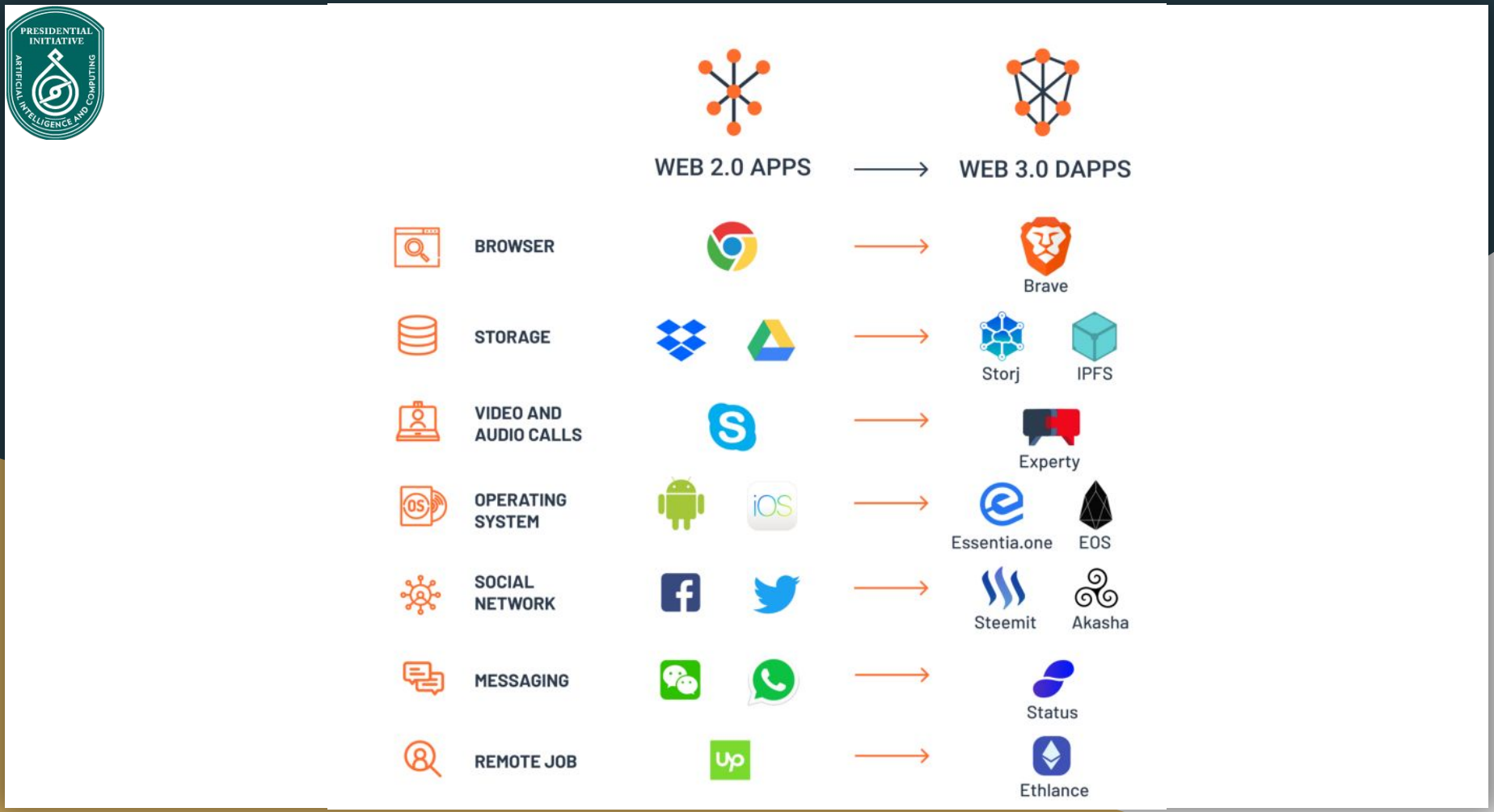
Information is money

As large companies realized the value of personal information they stockpiling the data in centralized server and start selling browsing habits, searches and shopping information to advertisers.

Web 3.0

Rather than concentrating the power (and data) in the hands of huge behemoths with questionable motives, it would be returned the rightful owners.

Decentralization was the idea; blockchain was the means.


WEB 2.0 APPS
WEB 3.0 DAPPS
BROWSER
Brave
STORAGE
Storj
IPFS
VIDEO AND AUDIO CALLS
Experty
OPERATING SYSTEM
iOS
Essentia.one
EOS
SOCIAL NETWORK
Steemit
Akasha
MESSAGING
Status
REMOTE JOB
Ethlance

Blockchain can do for business what the internet did for communication

Every second of every day, businesses exchange value with suppliers, partners, customers and others. By value, we mean goods, services, money, data and more.

Each exchange of value is a transaction. Successful transactions need to be fast, precise and easily agreed on by parties participating in the transaction.

Blockchain for business provides a way to execute many more of these transactions — a much better way.

Industries that can be Disrupted by The Blockchain

- Banking and Payments
- Supply Chain Management
- IOT
- Insurance
- Private Transport and Ride Sharing
- Online Data Storage
- Charity
- Voting
- Government
- Health Care
- Online Music
- Retail
- Crowdfunding

Problem with Traditional System

1. Centralized Control
2. Need to Trust
3. 3rd Party/Middleman
4. No Transparency
5. Mutable

It all started with Idea: A Digital Currency

1. David Chaum first proposed the concept of e-Cash in 1982
2. David Chanm then founded a company called DigiCash.
3. It uses cryptography security and anonymity
4. Idea had same problem as with traditional currency, it requires central clearing house or single point of trust
5. DigiCash declared bankruptcy in 1998
6. Many other tried faced the same fate

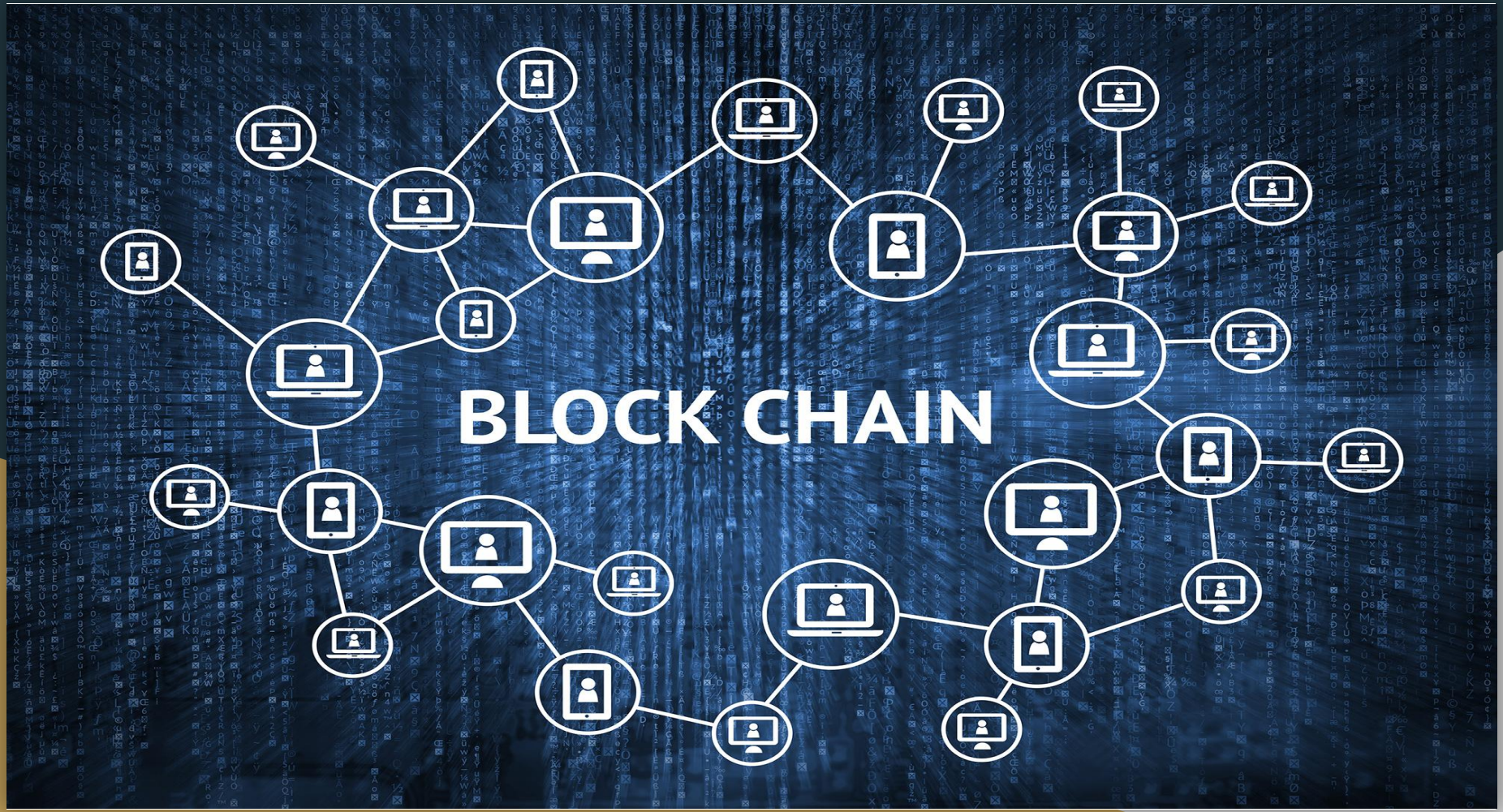
DIGI CASH®

Bitcoin

1. In 2008 a white paper was published: "Bitcoin: A Peer-to-Peer Electronic Cash System." by Satoshi Nakamoto
2. In 2009 first-ever block of bitcoin, known as the Genesis Block, was mined
3. Bitcoin uses:
    a. Secure digital signatures
    b. Not requiring the use of a third party
    c. Proof-of-work
    d. Hashing the transactions together to form a chain
4. Satoshi Nakamoto is unknown person or group of people, wrote the Bitcoin paper
5. Satoshi Disappears in December 2010

Bitcoin Properties

1. Decentralised – peer to peer ledger of balances
2. Immutable – can never be changed, transactions are permanent.
3. Fungible – each btc is equal, maintains it value (not like a banana)
4. Permissionless and without borders – anyone can participate by downloading software.
5. Divisible – down to 8 decimal places
6. Scarcity – 21 million coins ever
7. Transferrable – can send any amount in seconds, compare to gold.


BLOCK CHAIN

What is Blockchain

“The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.” – Don & Alex Tapscott, authors Blockchain Revolution (2016).

What is Blockchain

Many similar definitions

1. Blockchain is a distributed, decentralized, public ledger.
2. In Simplest of terms, Blockchain is a time-stamped series of immutable record of data that is managed by cluster of computers not owned by any single entity. Each of these blocks of data (i.e. block) are secured and bound to each other using cryptographic principles (i.e. chain).

0x8aa1d85a79756bffd81e1811cff21c7dad8aee258dd1de60e116ff0fb8906738


MINE!

The Core Principles of Blockchain

1. Distributed ledgers
2. Security,
3. Trustless
4. Decentralization
5. Group consensus
6. Immutability
7. Transparent

Blockchain Uses Old Technology

1. Accounting Ledger
2. Cryptography
3. Computer Network Technology/Peer-To-Peer network

Hashing, one way encryption

1. A hash function takes some input data and creates some output data.
2. To expand on this concept, a hash function takes an input of any length and creates an output of fixed length.
3. It takes an input string and created a string of random letters and numbers “a0680c04c4eb53884be77b4e10677f2b”.
4. This is referred to as the message digest.
5. It is also known as the digital fingerprint. This is because there is no way this digest can represent any other string. If I try and modify this the message digest will be completely different.

One Way Street

1. Another property of hash functions are they are one way.
2. It is really easy to calculate a message digest but given the digest, it is near impossible to figure out in the input.
3. Again, not impossible but it will take another billion years or so.

SHA-256 Hash Calculator

http://www.xorbin.com/tools/sha256-hash-calculator
https://passwordsgenerator.net/sha256-hash-generator

Understand Block and Blockchains

https://anders.com/blockchain/

Public-Key encryption Demo

http://cobweb.cs.uga.edu/~dme/csci6300/Encryption/Crypto.html