

# Blockchain Worldwide Database



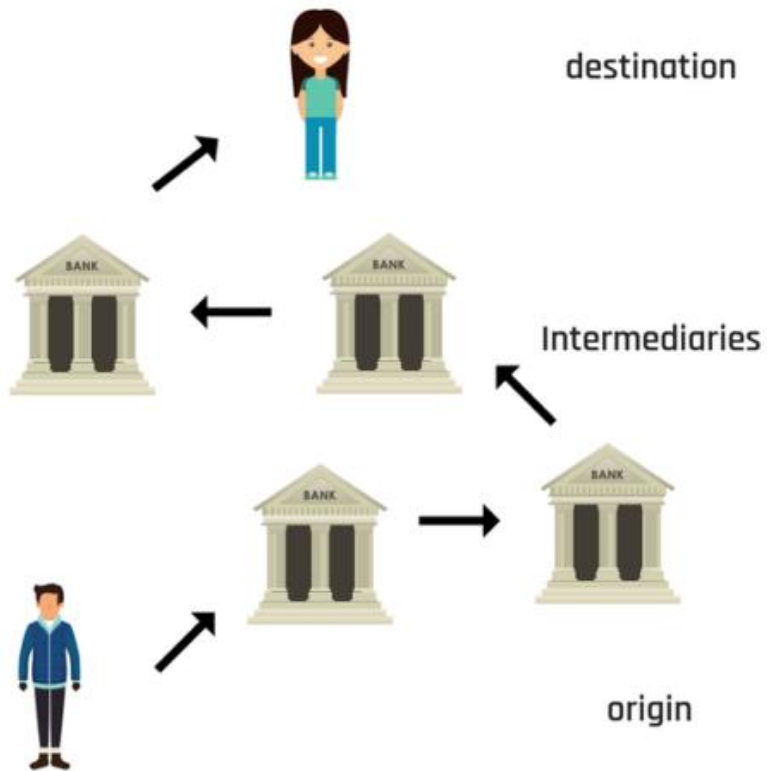
# Second generation Internet

- › **Internet democratizes information**
  - › **Blockchain will democratize value creation**

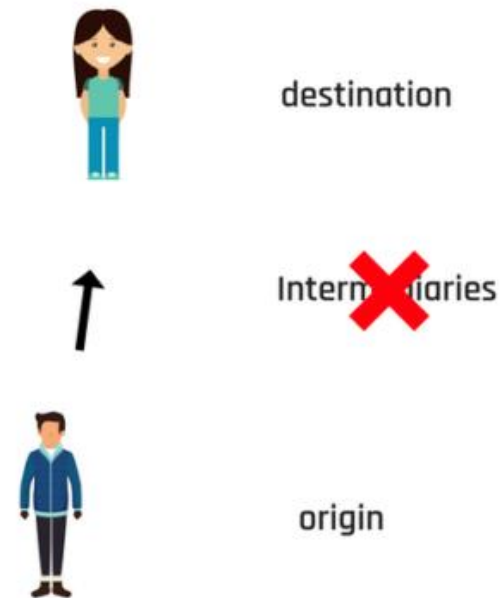


# Peer-to-peer transfer

## Traditional transfer



## Blockchain-based transfer



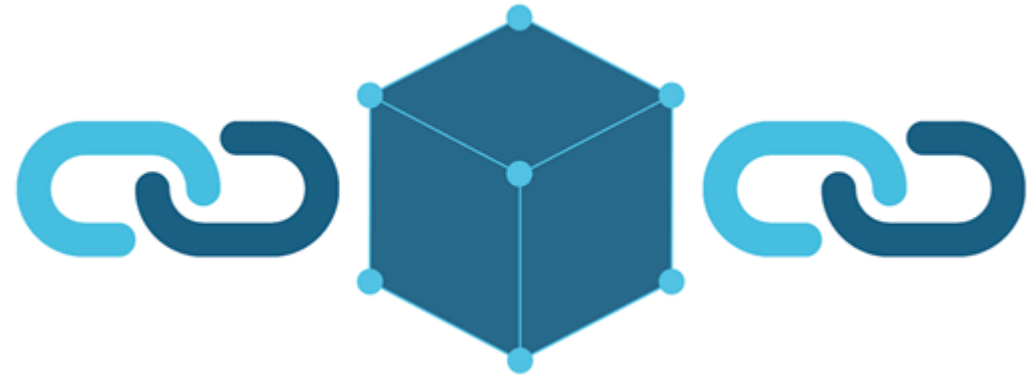
# Blockchain – The idea behind

To visualize the idea of blockchain:



Imagine an accounting ledger... but distributed across a network

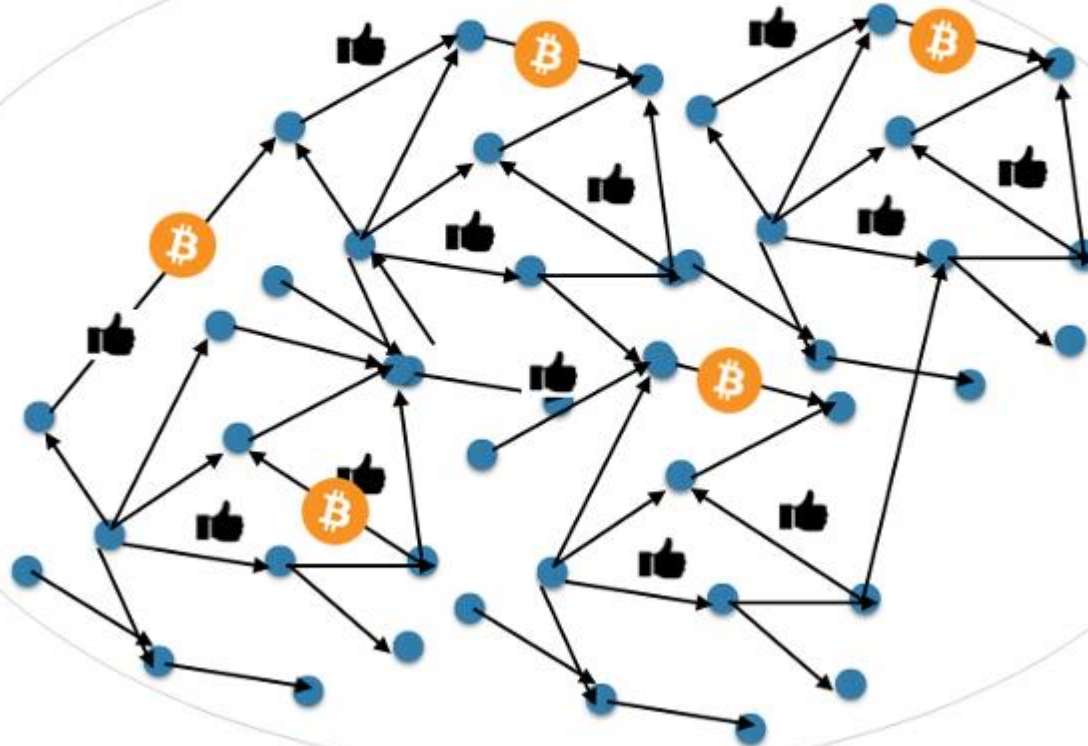
# Blockchain



- **Decentralized**
- **Persistent:**
- **Immutable:**
- **Public (auditable)**



# The “Central Bank of Internet”



# Blockchain technology

Peer-to-peer transactions without an intermediary  
to establish trust”



# Tokenization

Is the process of replacing sensitive data with **unique identification** symbols that retain all the essential information about the data without compromising its security.





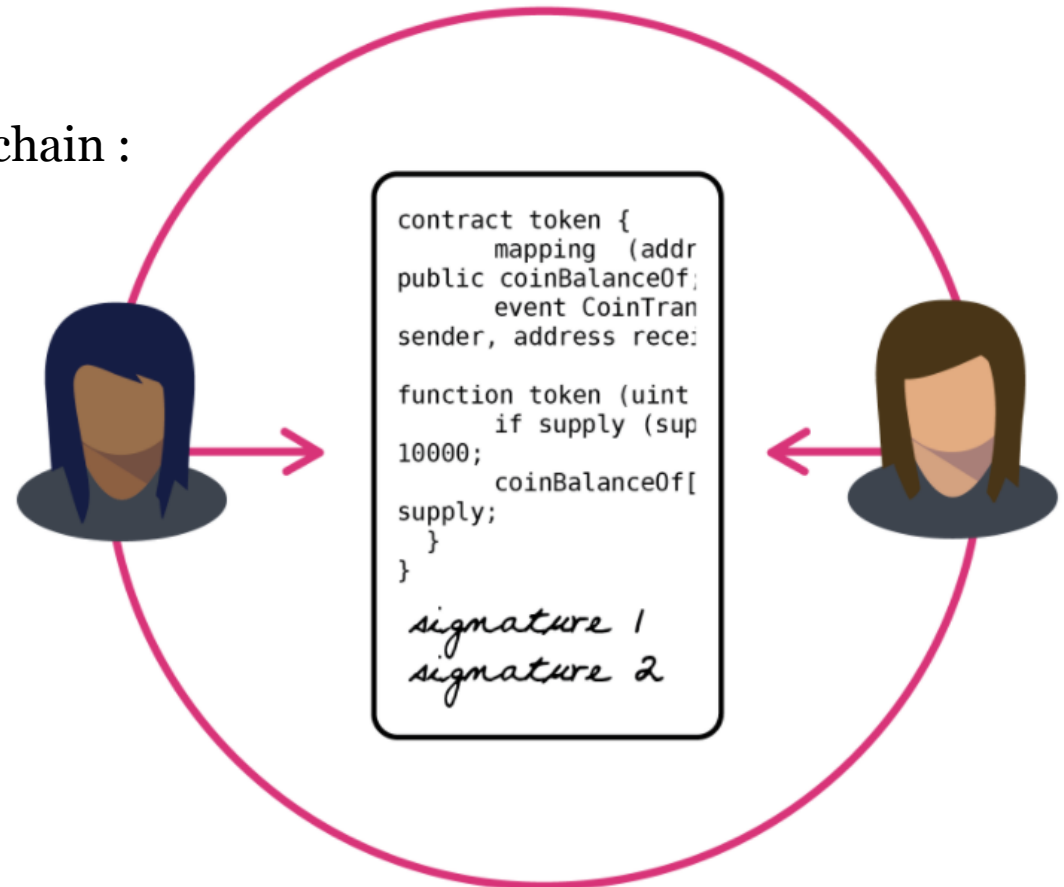
# The revolution → Smart Contracts

**SMART CONTRACT** = **Computer software coded** and introduced into the SHARED DATABASE

A little program stored in the Blockchain :

Everybody has:

- The same code
- The same data
- The same result



# Supply chain - use of smart contracts

## Logged as the Importer Bank

Demonstration: View, Edit, and ... x +

linux05.watson.ibm.com/openchain/

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Logged in as ImportBank (Sign out)

### My Contracts: Browse, Edit, and Monitor

#### New Contract Publish

Product: PartsDelivery

Vendor: SupplyCorp

Price: 1000000

Bank: ExportBank

Approvals: Trucker  
PortAuthority  
CustomsAuthority

Conditions:

#### Contracts Deployed By Me Update All

Contract Name	Contract Type	Signatories	Status	Update
PartsDelivery	LC_3	Trucker PortAuthority CustomsAuthority	Pending Pending Pending	

#### My Bank Accounts Update All

Bank Name	Account Balance
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#### Contracts Pending My Signature Update All

Contract Name	Contract Type	Signed By	Register Signature
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# Supply chain - use of smart contracts

## Logged as the Port Authority

**My Contracts: Browse, Edit, and Monitor**
Logged in as **Trucker** ([Sign out](#))

**New Contract** Publish

Product:

Vendor:

Price:

Bank:


Approvals:

Conditions:

**Contracts Deployed By Me** Update All

Contract Name	Contract Type	Signatories	Status	Update

**Contracts Pending My Signature** Update All

Contract Name	Contract Type	Signed By	Register Signature
PartsDelivery	LC_3		

**My Bank Accounts** Update All

Bank Name	Account Balance

Signatories	Status
Trucker	Pending
PortAuthority	Pending
CustomsAuthority	Pending

Contract Type	Signed By

Number of blocks added to chain: 3

# Supply chain - use of smart contracts

## Logged as the Supply corporation

Demonstration: View, Edit, and ... x

linux05.watson.ibm.com/openchain/

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**My Contracts: Browse, Edit, and Monitor** Logged in as SupplyCorp (Sign out)

**New Contract** Publish

Product:

Vendor:

Price:

Bank:

Approvals:

Conditions:

**Contracts Deployed By Me** Update All

Contract Name	Contract Type	Signatories	Status	Update

**Contracts Pending My Signature** Update All

Contract Name	Contract Type	Signed By	Register Signature

**My Bank Accounts** Update All

Bank Name	Account Balance
ExportBank	2000000

Number of blocks added to chain: 6

Search

Logged in as ImportBank (Sign out)

Update All

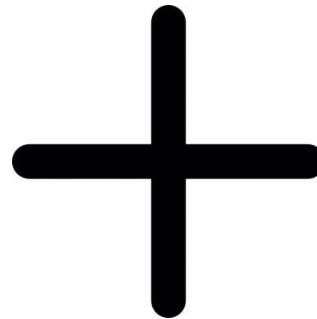
Signatories	Status	Update
Trucker	Signed	
PortAuthority	Signed	
CustomsAuthority	Signed	

Update All

Contract Type	Signed By	Register Signature

Number of blocks added to chain: 6

# “Killing the middleman” + Global DB



# Impact on Business

## Make Blockchain real for Business



**Shared Ledger**  
single source of  
truth



**Secure**  
tamper proof  
(extra security)



**Permissioned**  
Participants  
Identity



**Private**  
un-linkable identity  
**Audit-able**  
prove identity &  
ownership



**Consensus**  
Modular protocol



**Smart Contracts**  
business logic



**Digital assets**  
Record depository

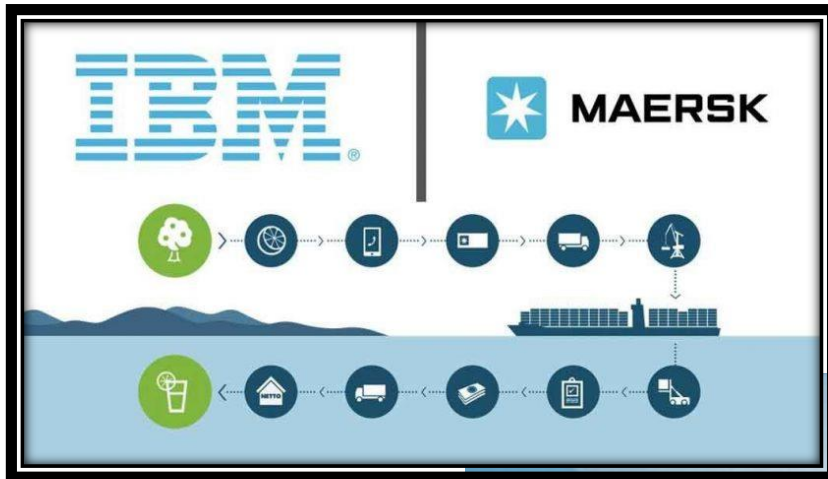


**Confidential**  
permission  
control



**Viable**  
100+ year  
architecture

# Supply chain efficiency



SIGNIFICANTLY REDUCE  
**DELAYS AND FRAUD**

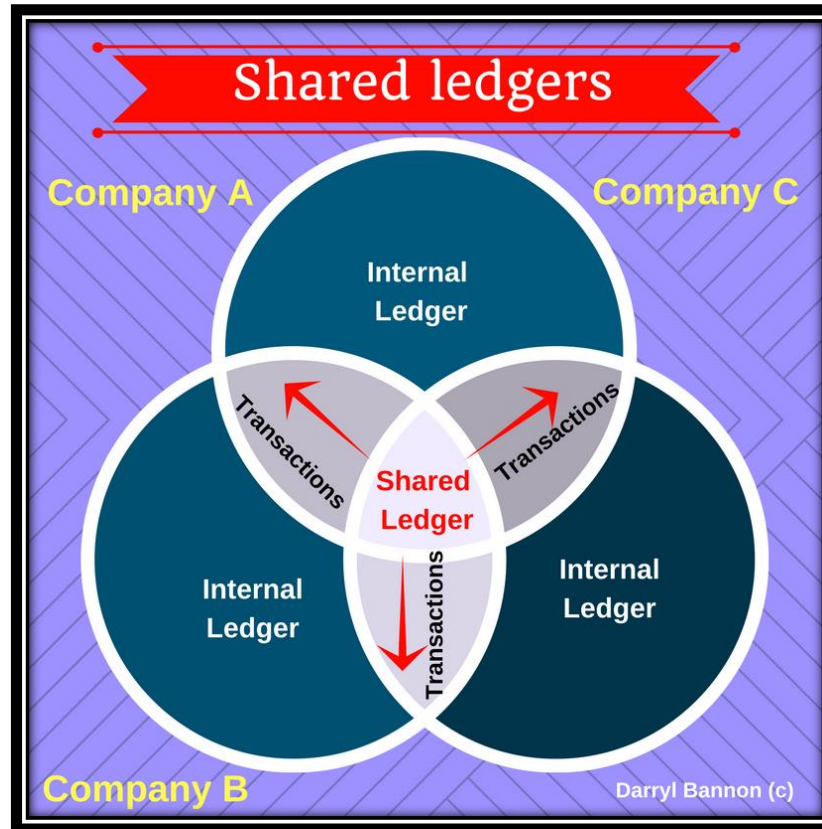
SAVING  
**BILLIONS OF DOLLARS ANNUALLY**

# Origin and destination guaranteed





# Accounting and reporting



- **Internet of Things integration.** E.g. “I’m a widget machine and I belong to Bob Ltd, here’s a digital signature to prove it”.

# Bullet proof accounting systems for Stronger governance



## Blockchain-based Taxation



Citizens pay taxes



a blockchain keeps a  
record history



Government tax  
officials easily audit  
everything

# Loyalty programs

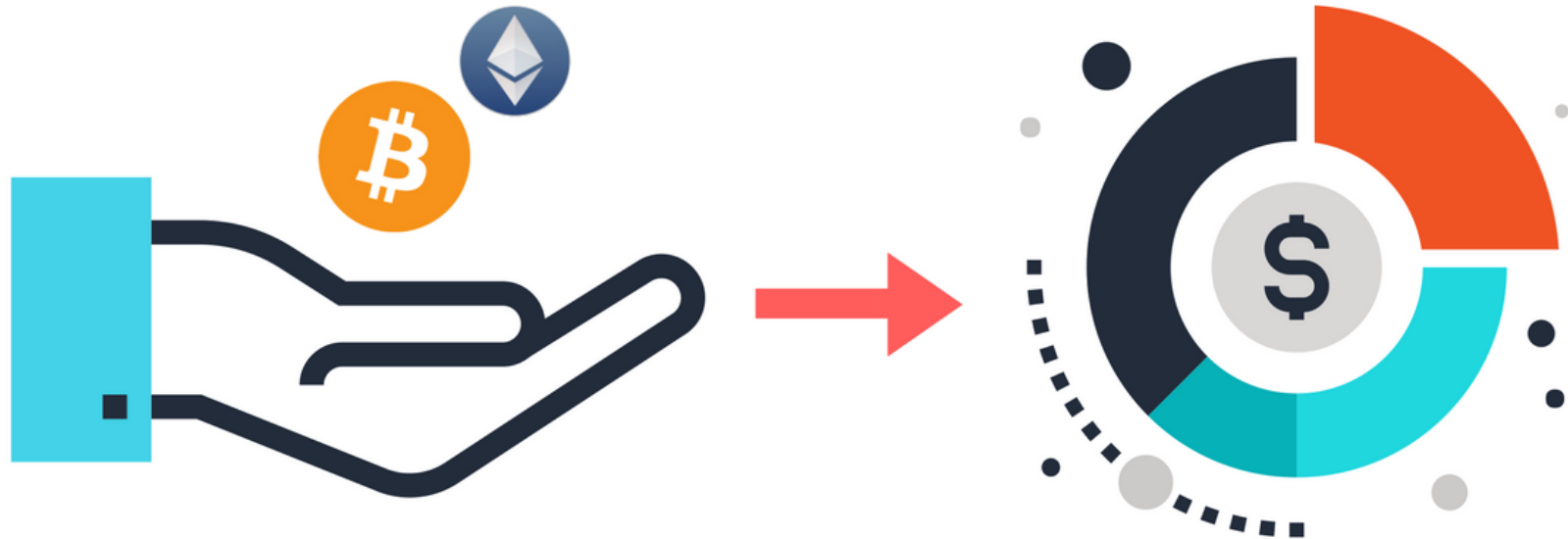


## Chain of Points

### Make Easy loyalty Programs



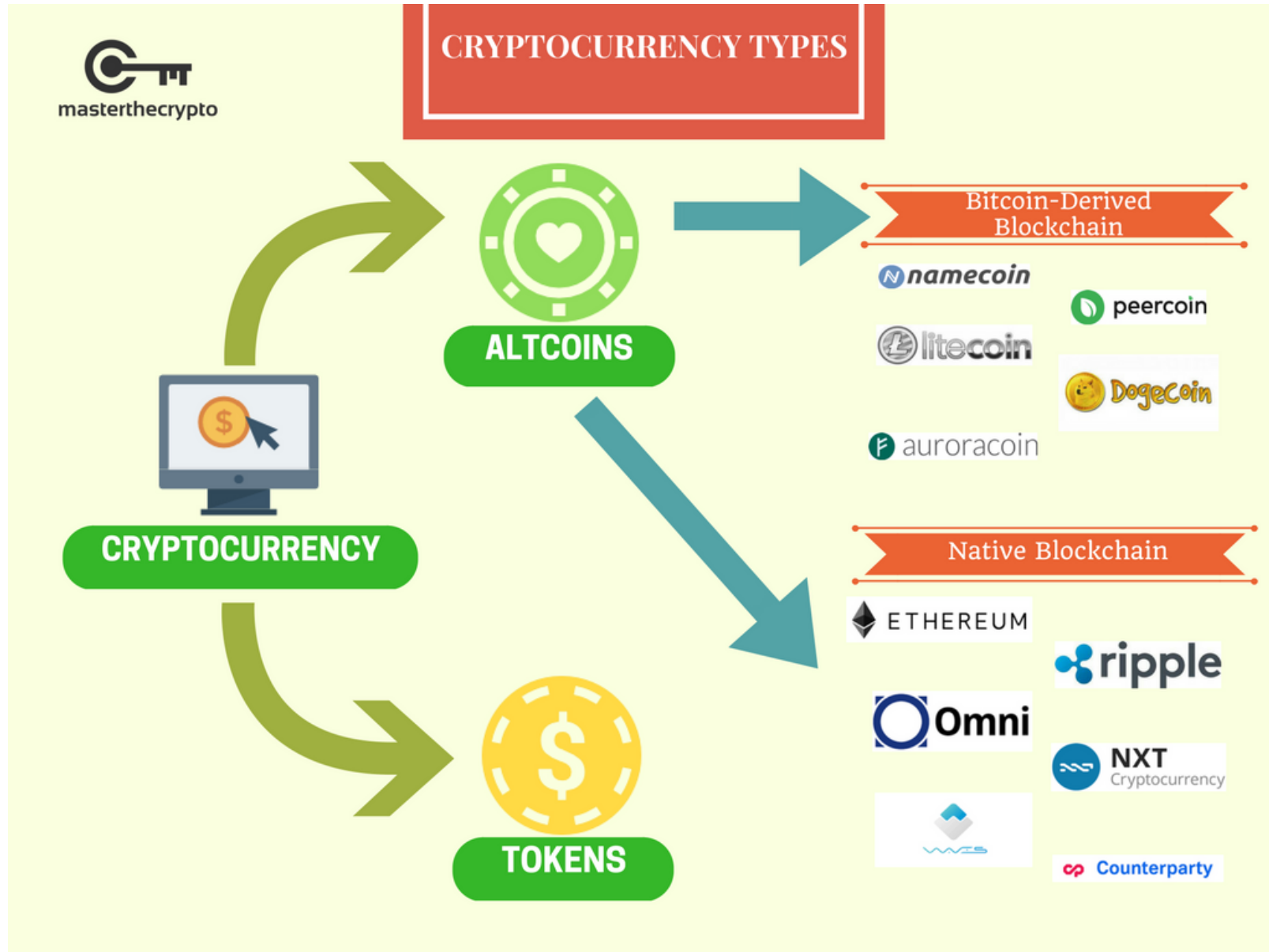
# Funding - Initial Coin Offering (ICO)



# Cryptocurrencies vs Tokens






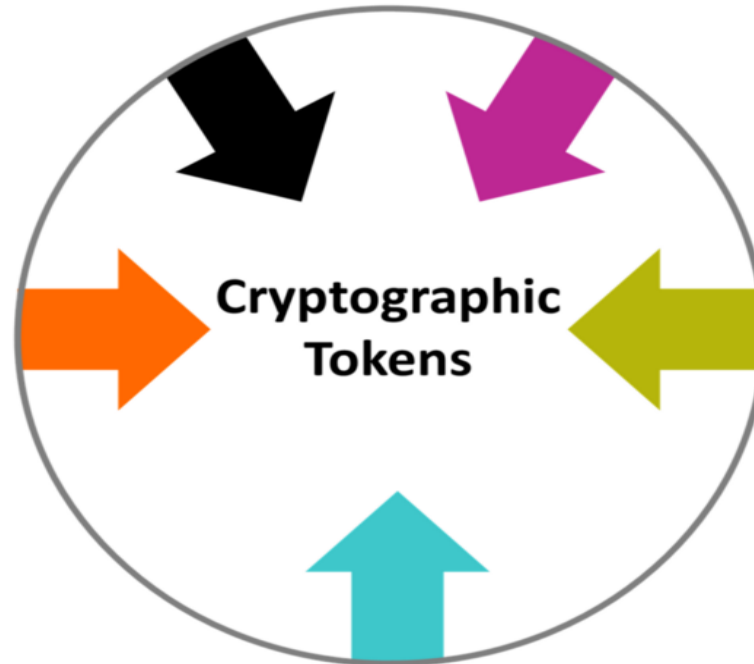
# Cryptocurrencies vs Tokens






Purpose	
What is the token's main purpose?	
Cryptocurrencies	
Network Tokens	
Investment Tokens	 

Utility
What utility does the token provide?
Usage Tokens  
Work Tokens
Hybrid Tokens

Technical Layer
On which system layer is the token implemented?
Blockchain-Native Tokens 
Non-native Protocol Tokens  
(d)App Tokens 



Legal Status
What is the token's legal status?
Utility Tokens 
Security Tokens  
Cryptocurrencies 

Underlying Value
Where does the token derive its value from?
Asset-backed Tokens 
Network Value Tokens  
Share-like Tokens



# ARCHETYPES



## Crypto-currency

- Used as store-of-value or means-of-payment; unit of account
- Not issued by a central authority
- Can be mineable or pre-mined



## Tokenized Asset

- Gives access to assets like gold, even in a micro transaction scale
- The underlying asset needs to be held by the issuing party
- Thus introduces counterparty risk, contrary to cryptocurrency



## Tokenized Platform

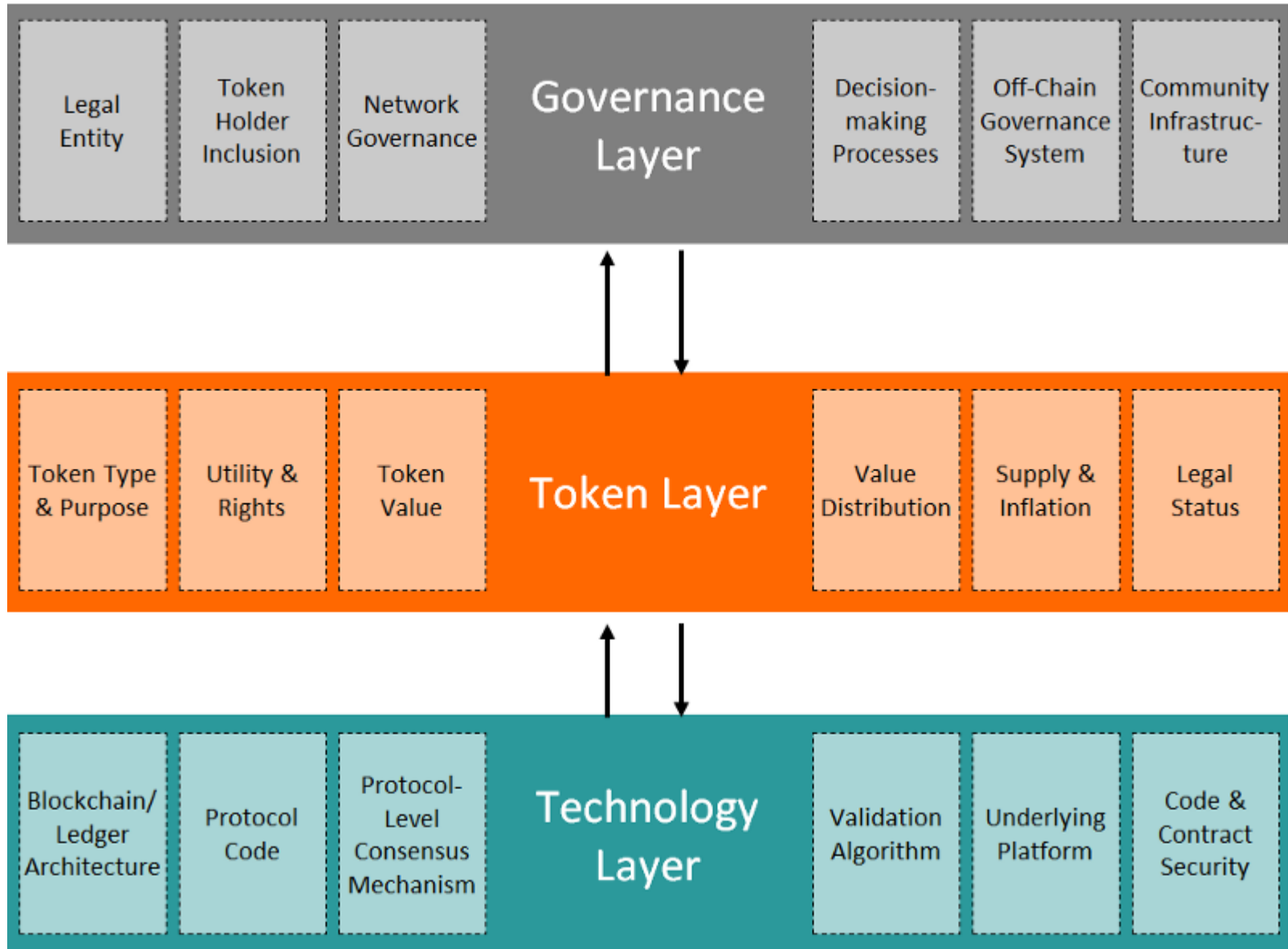
- Platform-like network, not owned & operated by a single entity
- Before users had limited roles in a platform, now roles are distributed and available to every network participant
- Value (financial/utility) flows freely through the network



## Token-as-a-share

- A tokenized instrument to invest in companies (though currently on no regulated basis) that has characteristics of stock and currency (e.g. ICO replacing IPO)
- Shares on steroids: flexible, programmable via smart contract
- Currently a highly uncertain token class as regulatory frameworks are only beginning to emerge

# DLT SYSTEM LAYERS



# New financial system?

FORTUNE

This Big Cryptocurrency Acquisition Could Create a Wall Stre...



THE LEDGER • CRYPTOCURRENCY

## This Big Cryptocurrency Acquisition Could Create a Wall Street-Style Financial Giant



*Circle Trade, one of the world's biggest "over the counter" trading desks for cryptocurrencies.*

*will announce today that it is buying*

*Poloniex, a crypto exchange*

*A move that immediately makes Circle one of the largest and most influential companies in the industry. Fortune's Robert Hackett profiles a company that hopes to leverage the technology **behind Bitcoin to become the bank of the next century.***

# New financial system?

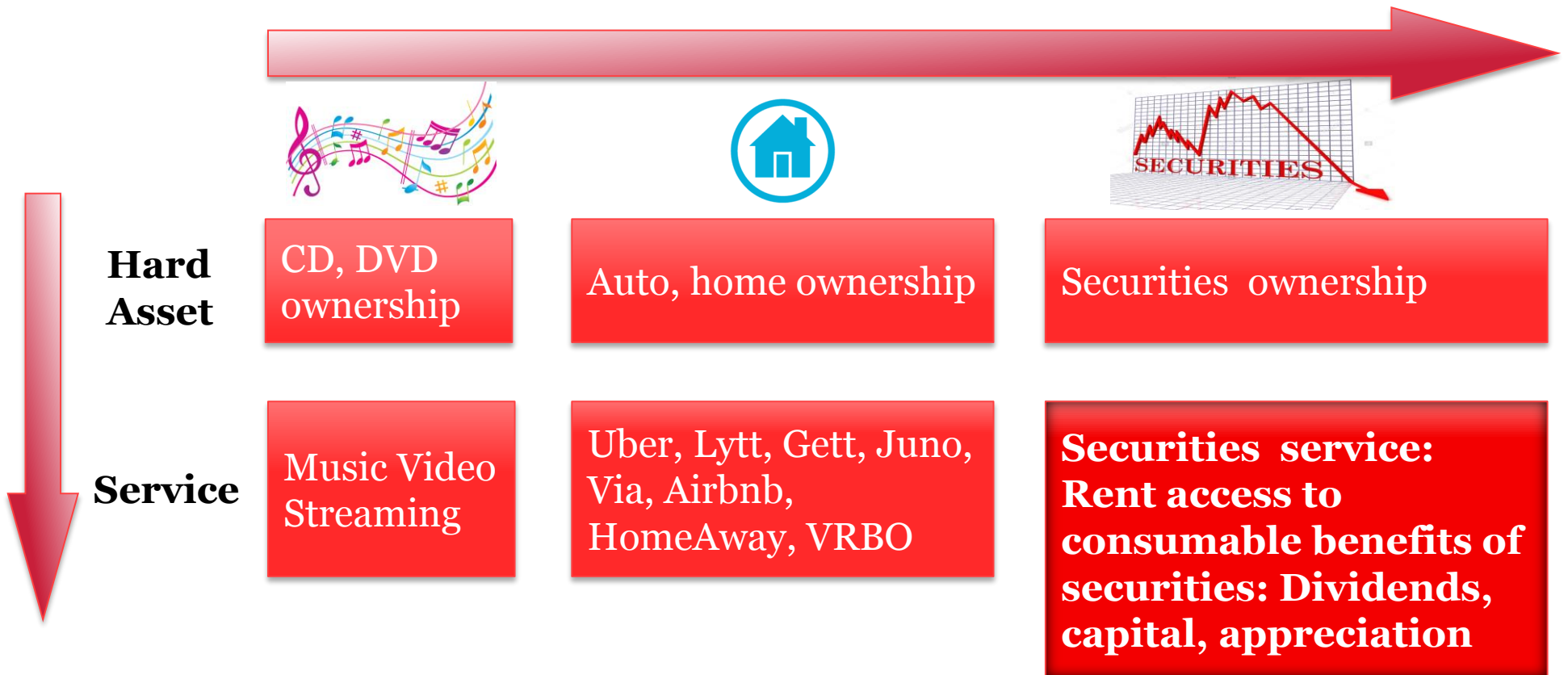
## Circle Trade

The desk handles more than **\$2 billion a month in cryptocurrency transactions** with deal size from \$250,000 to \$200 million

## Customers:

- Early investors whose coins have soared in value
- Coin “mining” operations
- Cryptocurrency business ventures:
  - Other exchanges
  - Hedge funds
  - Projects that have hosted “initial coin offerings”

# Reinventing Finance – “Assets as a Service”



- Access to the consumable benefits of assets, no ownership required
- Based on trust of future availability

# Tokenization of assets



=



1 digital blockchain-based  
token

1 square meter of land  
(10.76 square foot)



=



3 digital blockchain-based  
tokens

3 square meters of land  
(32.29 square foot)

# Tokenization of natural resources

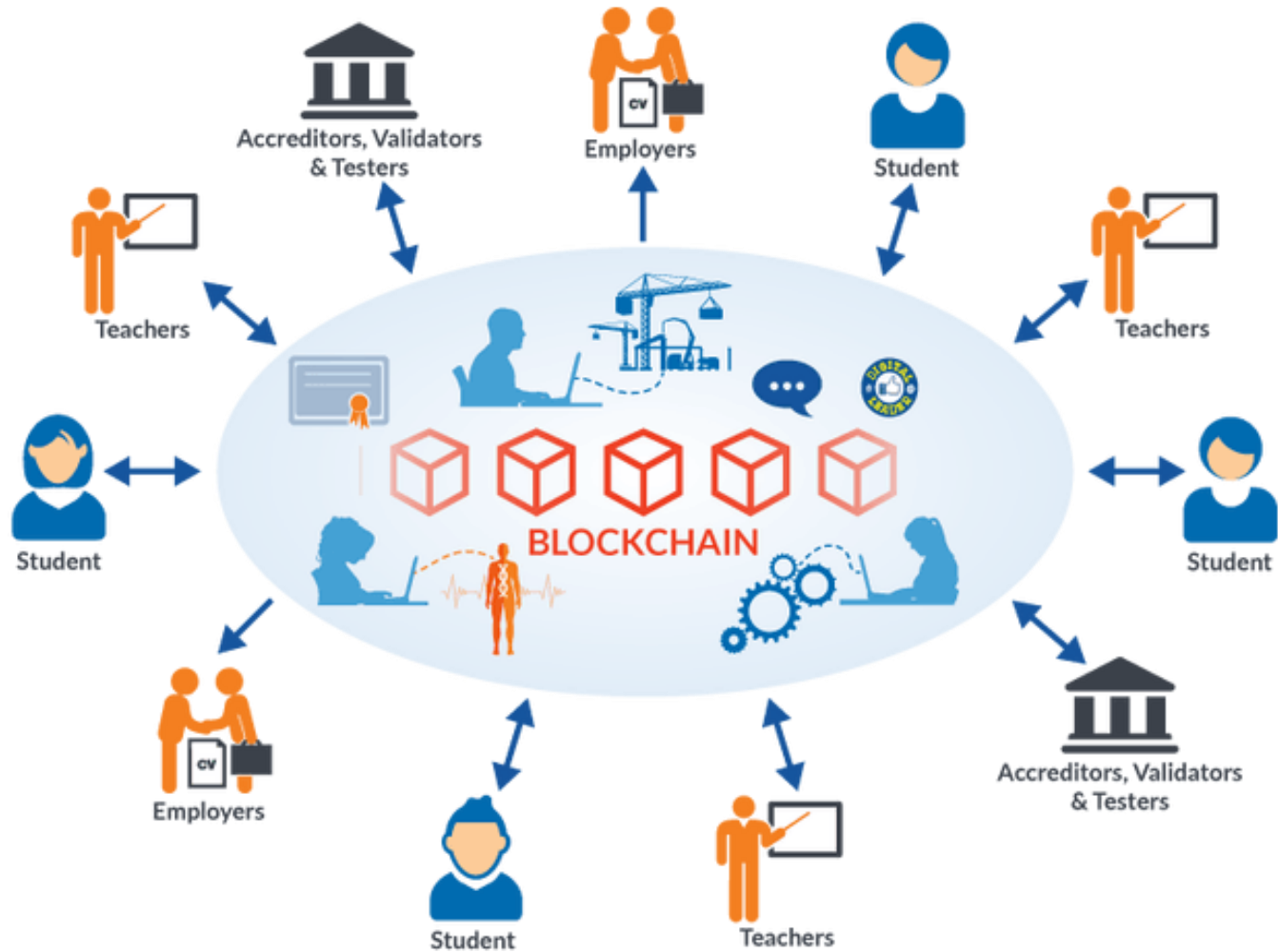


# Tokenization of Healthcare



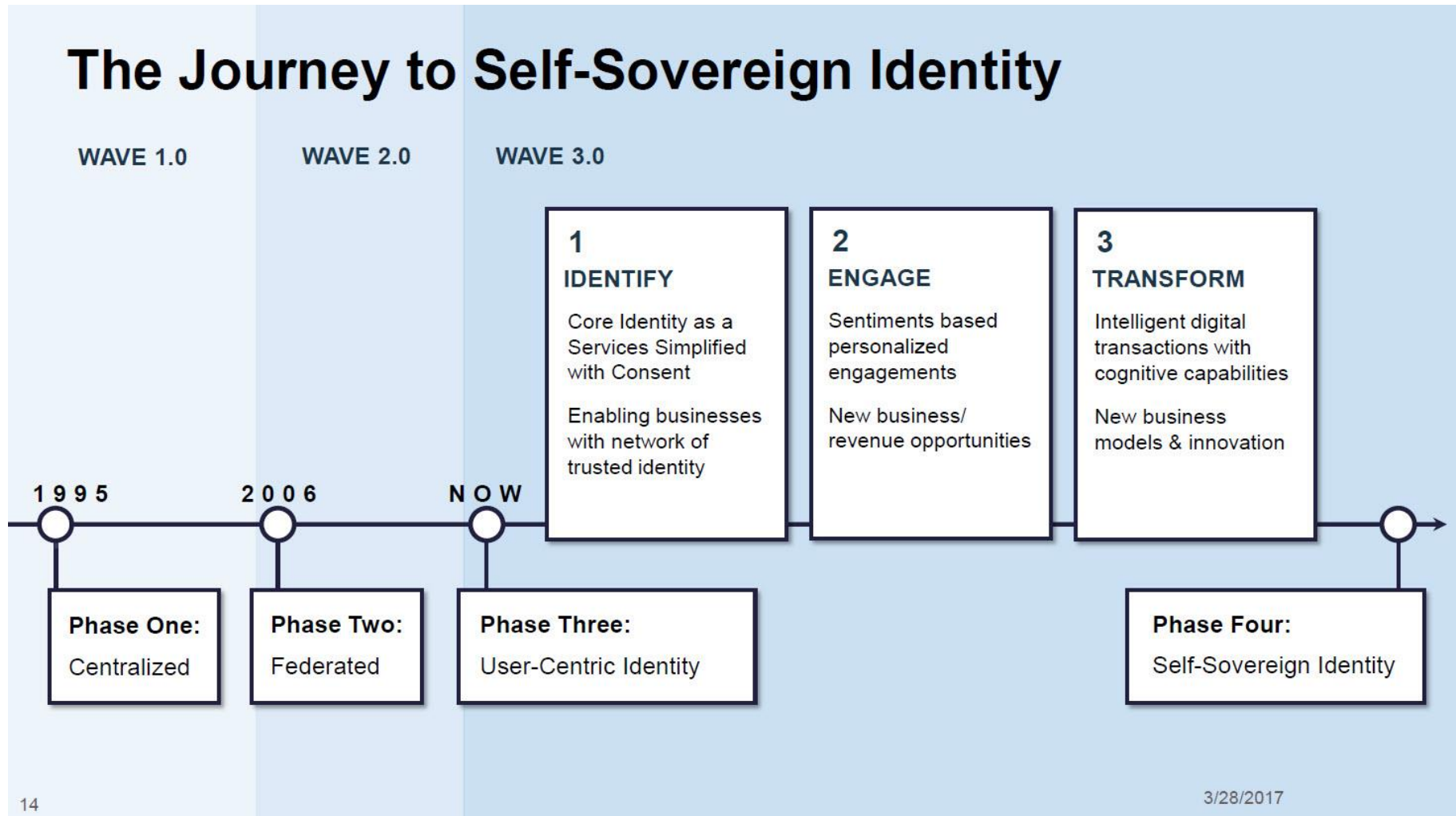


# Tokenization of Education



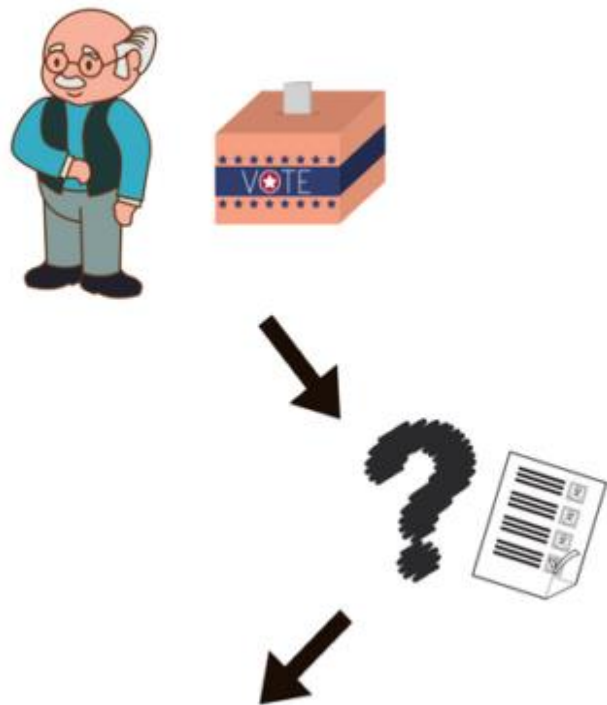
# Tokenization of identity

## The Journey to Self-Sovereign Identity



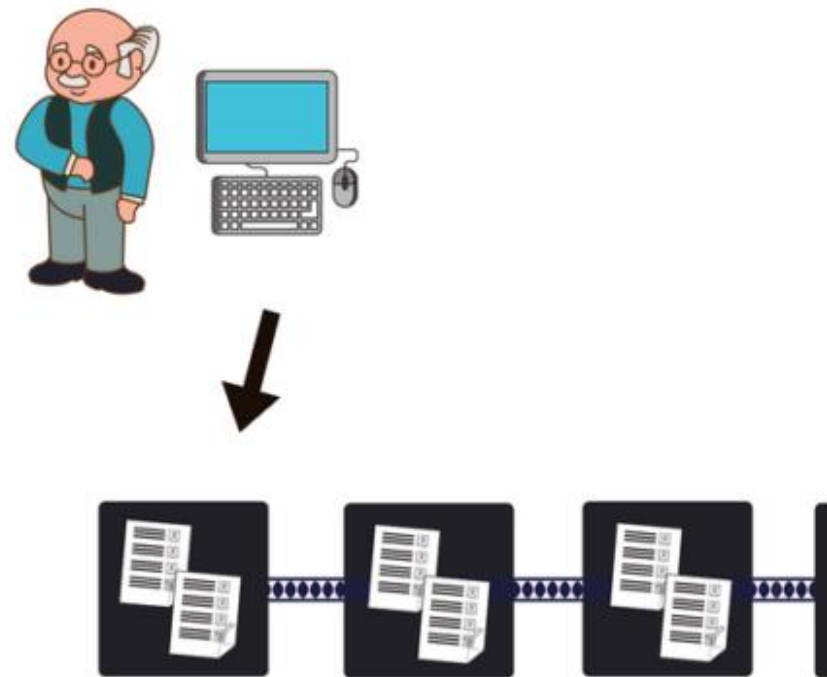
# Tokenization of votes

## Traditional Voting



**Final Results after 24 hrs**

## Blockchain-based voting

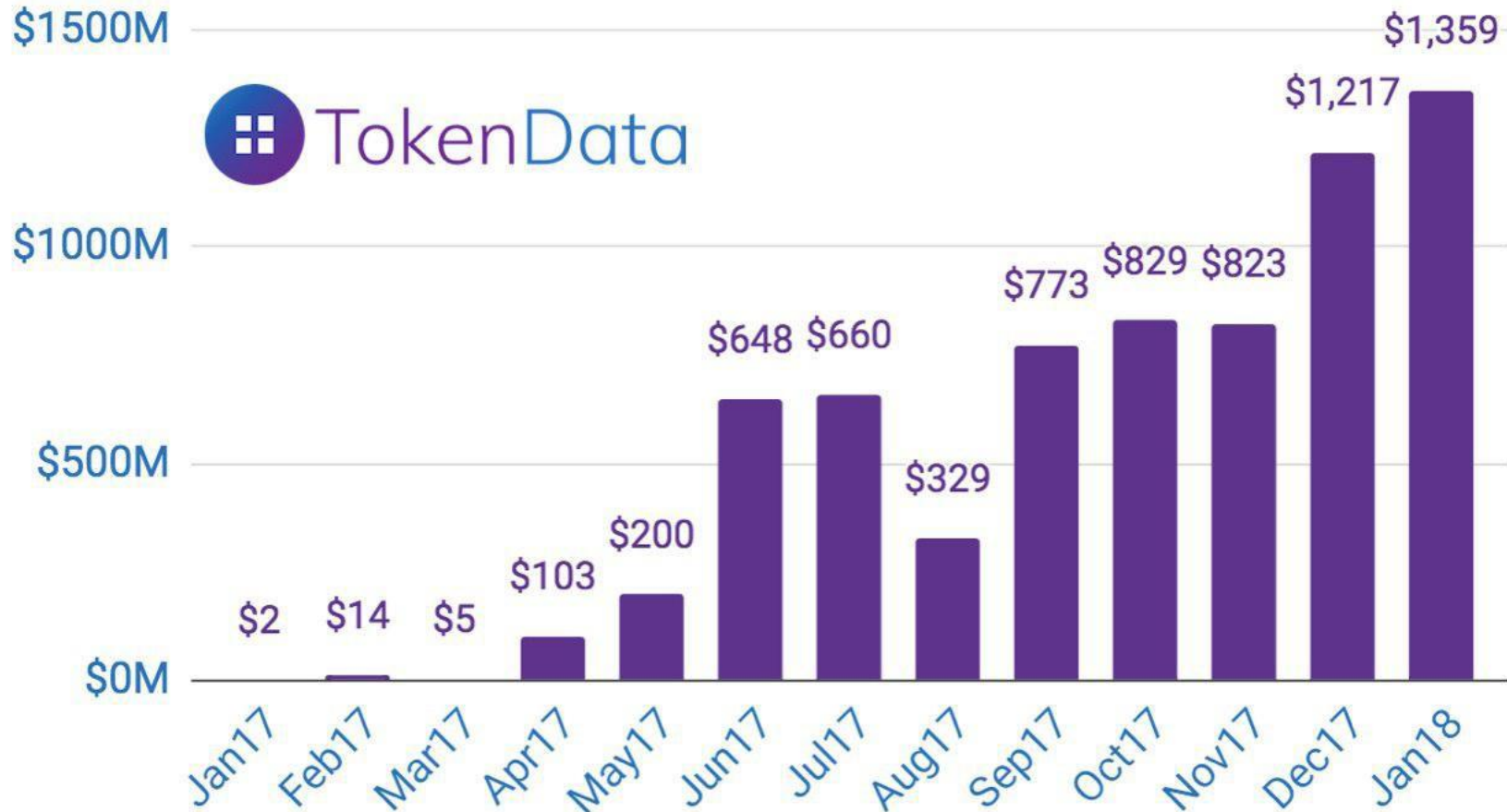


**Real-Time Transparent Results**

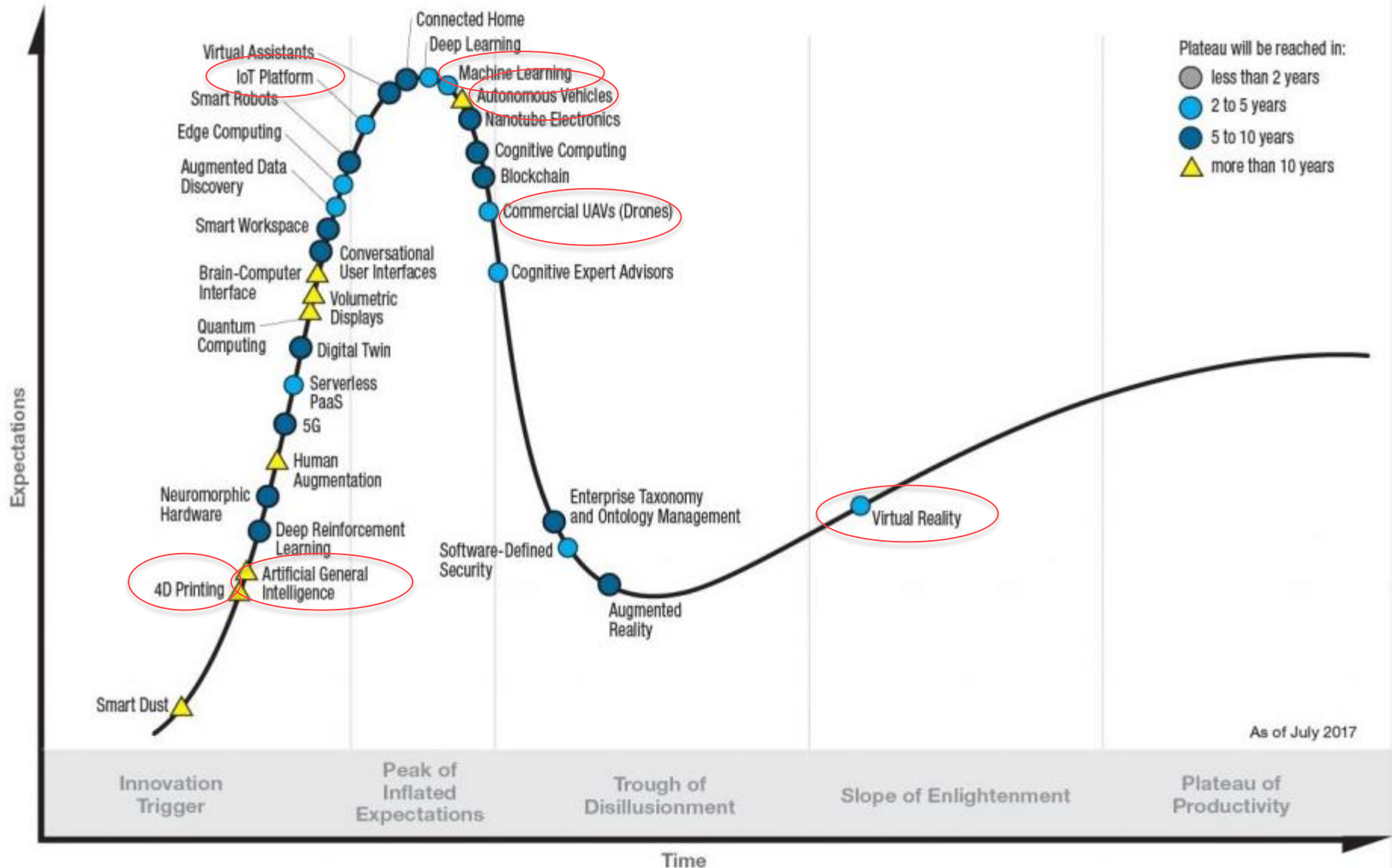
The internet is  
communication  
Blockchain is  
governance

# When? VC investments in Blockchain

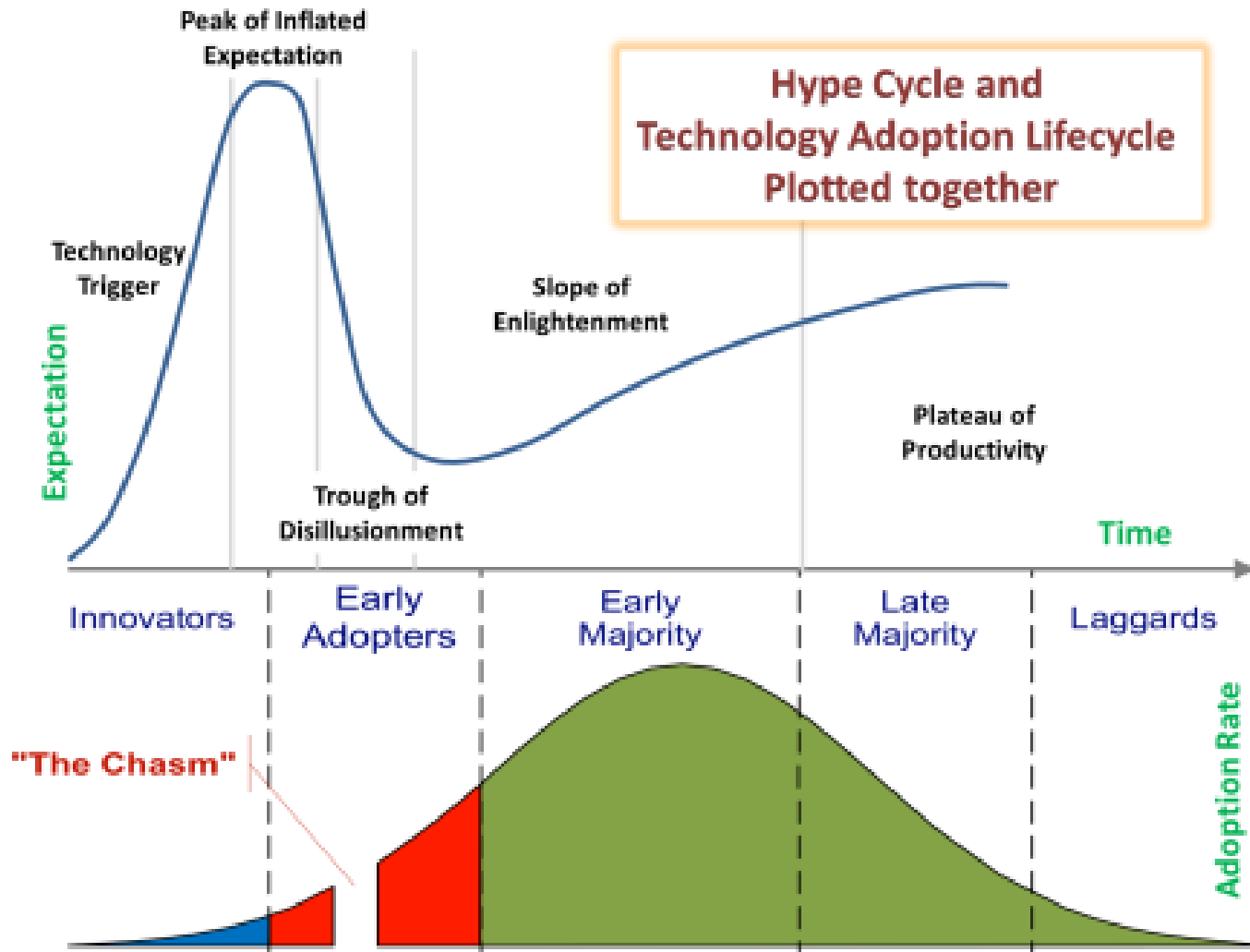
USD Raised by ICOs in 2017 - Monthly Totals (\$M)



# Gartner Hype Cycle for Emerging Technologies, 2017

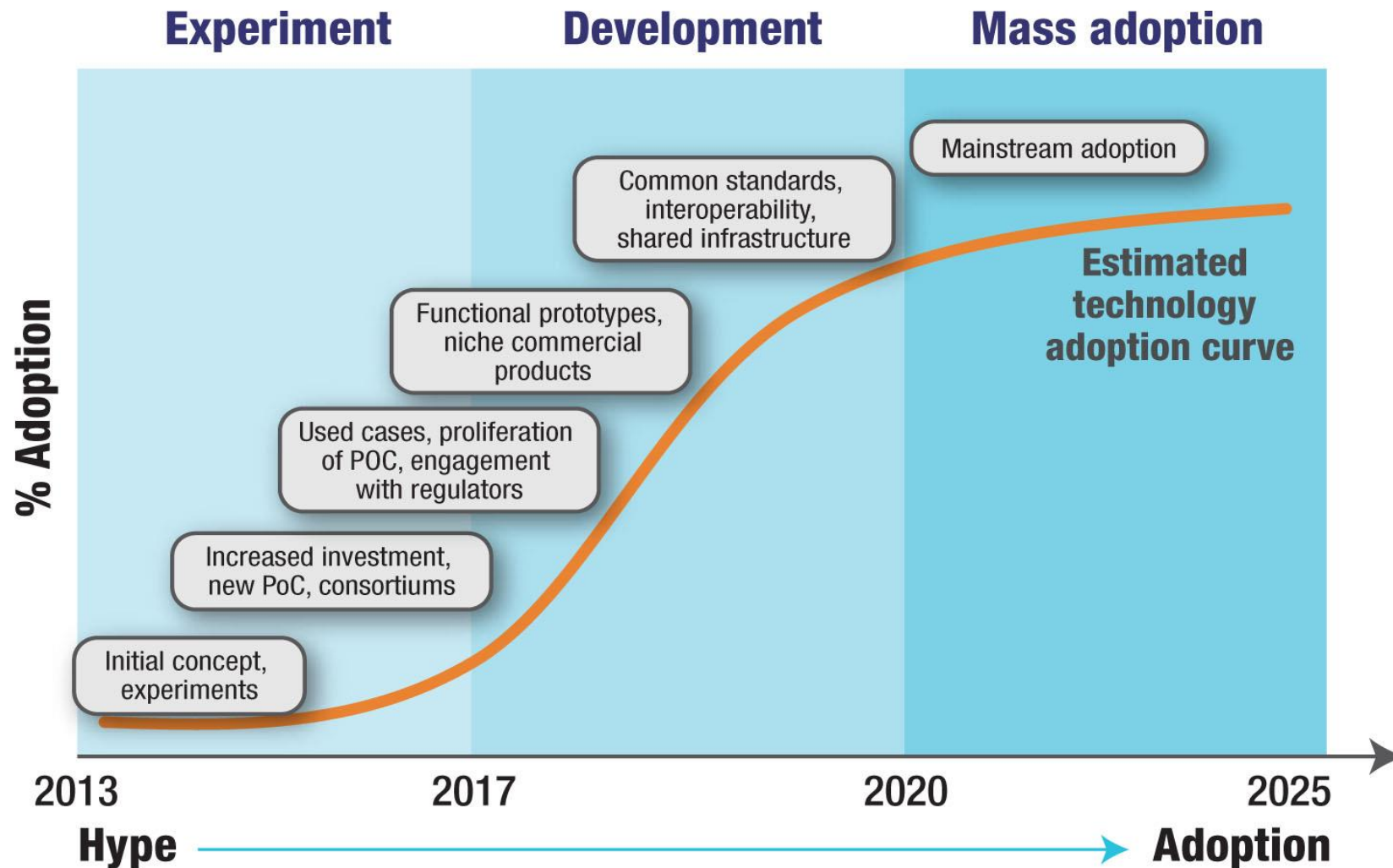


# Technology Adoption Cycle



# Mainstream adoption in financial services could take five to seven years

Figure 3. Estimated time frame of DLT adoption





# Blockchain + IoT

**In X years there may be sensors in clothes, in the car...  
You will not generate the information... your actions will.**

