

# Use Cases of Blockchain

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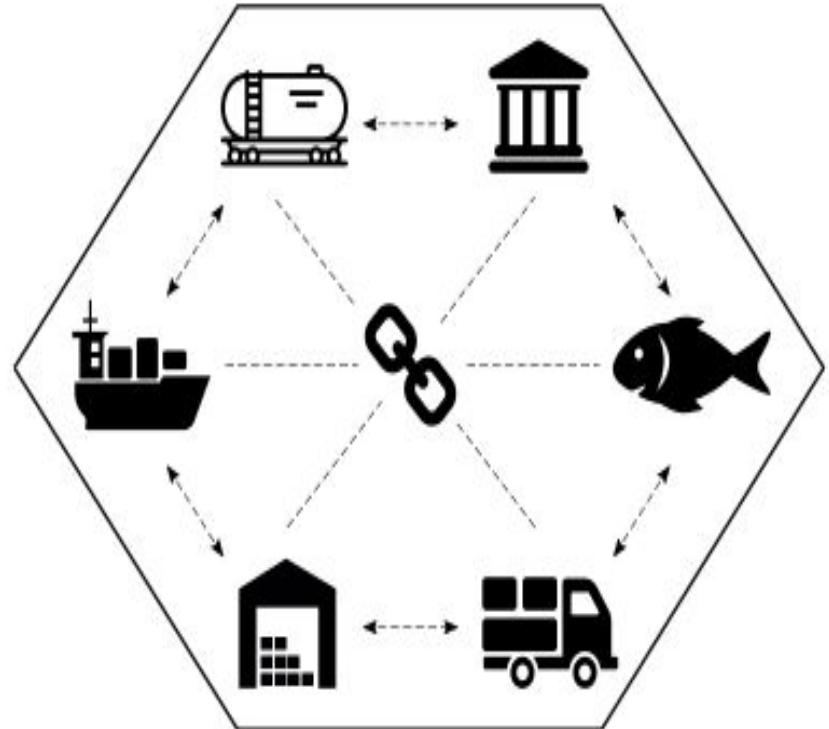
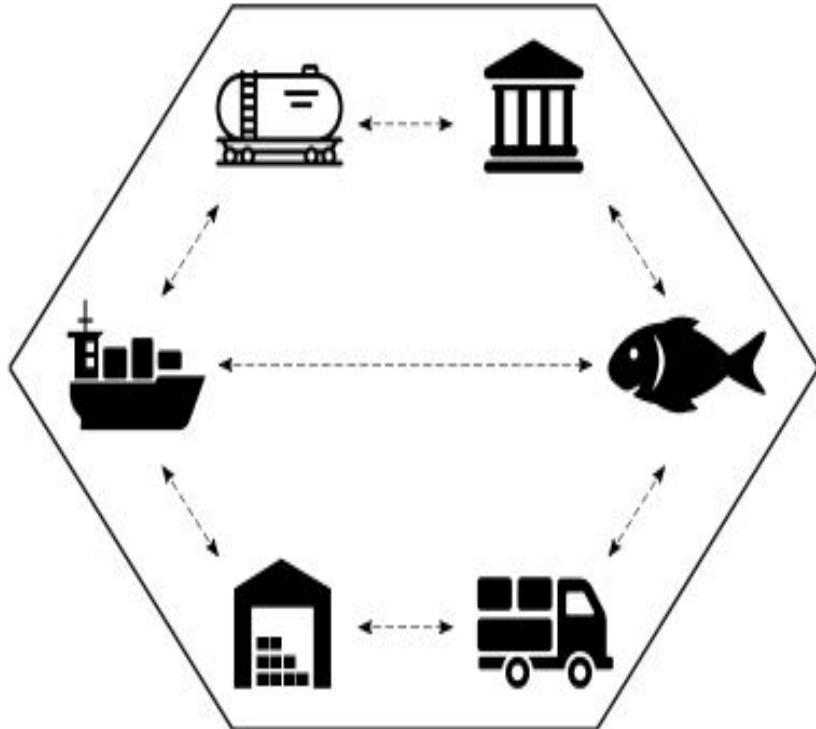
# Key Concepts and Benefits of Blockchain for Business

- Shared Ledger
- Security
- Smart Contracts
- Consensus

# Sample Use Cases

Financial Services	Public Sector	Retail	Insurance	Supply Chain & Logistics
Trade Finance	Asset Registration	Supply Chain Loyalty programs	Claims Processing	Supply chain finance
Cross Currency Payments	Citizen Identity	Information Sharing (Supplier - Retailer)	Risk Provenance	Maintainance tracking
Mortgages	Medical Records		Asset Usage History	Provenance
KYC	Medicine Supply Chain Management		Claims file	Supply chain compliance
Cross border Tax				

# Traditional SCM Vs Blockchain powered SCM



# Supply Chain - Everledger

- Everledger tracks provenance of diamonds from mines to jewellery stores to combat fraud
- Measures 40 or so physical attributes of a diamond such as cut and clarity, that can be used to uniquely identify a diamond; recorded on blockchain
- Unique serial number microscopically inscribed on diamond
- Over 2 million diamonds tracked
- Built on Hyperledger Fabric

# Blockchain for Healthcare: Use Cases

- Patient Consent and Health Data Exchange
- Pharma Supply Chain Provenance traceability
- Payments and Claims
- Rethinking Clinical trial management

# Blockchain and Government

- Government needs to maintain (in digital or in paper form)
  - Daily operations and activities
  - Government assets (land records, building etc)
  - Details of citizens, organizations and institutions
  - Records of people
  - Business Transactions

# Blockchain for Identity Management

- User Centric Design
  - user can give (a) consent for identity usage and (b) control identity attributes and identity profile
- Automated and real-time verification of identity through smart contracts - can verify identity without revealing the identity data
- No one can tamper with the identity information of individuals; auditable records of information access

# Citizen Identity

- Control the access through a Blockchain
  - Blockchain has information about who has accessed my data
  - I can verify how my data has been accessed
  - I can verify what part of my data has been accessed
  - Everyone can verify how the overall data is getting accessed
  - 'Access Auditing'

# Auditing and Compliance

- Put the date in Blockchain
  - Collects transaction records from diverse set of divisions
  - No one can tamper the date, but everyone can verify
- Blockchain is append-only
  - Once a transaction has been recorded, it cannot be removed without changing the view of others

# Auditing and Compliance

- Blockchain has multiple advantages
  - Reduces the cost of auditing - you do not need to talk individually to every division
  - Auditors have global view of the data
  - Compliance becomes passive to active
    - Can be checked and validated immediately when the transaction is recorded

# Blockchain for voting

The Switch

**West Virginians abroad in 29 countries have voted by mobile device, in the biggest blockchain-based voting test ever**

*Building a workable, scalable, and inclusive online voting system is now possible, thanks to blockchain technologies," writes Alex Tapscott, whom the Times describes as co-founder of the Blockchain Research Institute.*

# Blockchain and Perishable goods

BITCOIN (BTC), COMPANIES, CRYPTOCURRENCIES, NEWS

## Bitcoin Finds its Way to Walmart Store Shelves

BY SOFIKO ABESLAMIDZE ON WEDNESDAY, SEPTEMBER 5TH, 2018 12:48PM UTC | LEAVE A COMMENT

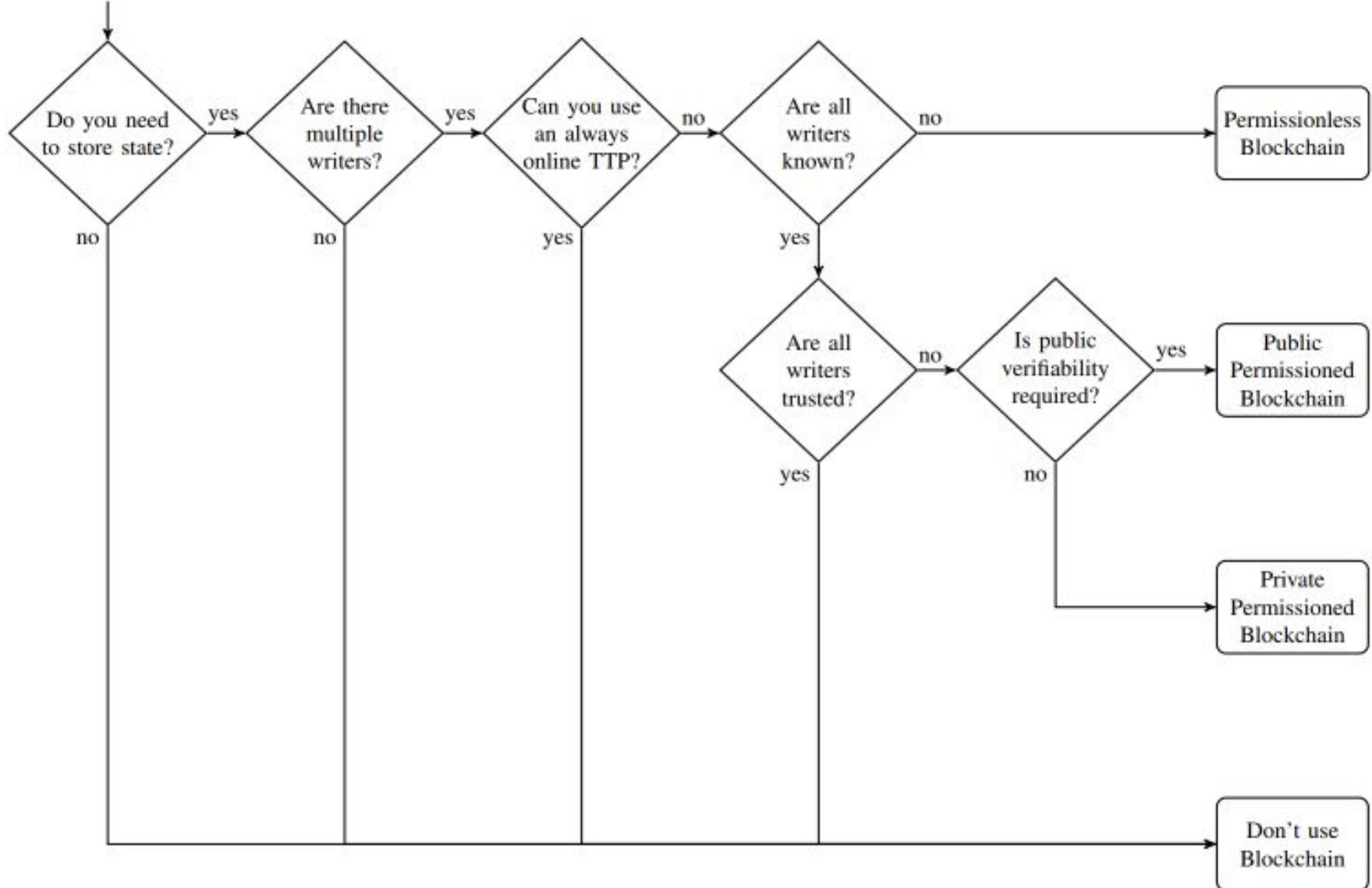
Bitcoin is entering the stores of American retail giant Walmart, but for now it is available only in the form of chocolate candy wrapped in a gold foil.

**Walmart** announced an initiative to improve food safety by utilizing blockchain tech to provide **better food tracking and consumer safety**. The project was launched in collaboration with **IBM** and **Tsinghua University**.

# Five Blockchain Product Use Cases To Follow This Year - Forbes

- Streamlined supply chains
- Forming smarter predictions
- Building decentralized apps
- Simplifying the Internet of Things
- Fortifying identity management

# Do you need a Blockchain?



# What makes a good blockchain use case?

- Identifying a good blockchain use-case **is not always easy**
  - However there should always be:
    1. A business problem to be solved
      - ✓ They cannot be more efficiently solved with other technologies
    2. An identifiable business network
      - ✓ With Participants, Assets and Transactions
    3. A need for trust
      - ✓ Consensus, Immutability, Finality or Provenance

# Understanding the Business Problem

1. What is the specific business problem / challenge that the first project will address?
  - ❖ Scope the business challenge up front
2. What is the current way of solving the business problem?
  - ❖ Understand current systems and areas for improvement
3. Assuming the business problem is large, what specific aspects of this business problem will be addressed?

# Understanding the Participants

4. Who are the business network participants (organizations) involved and what are their roles?
  - ❖ If there is no business network involved, then this is not a good use case
  
5. Who are the specific people within the organization and what are their job roles?
  - ❖ Understand the key users in a business network

# Understanding the Participants

- Who are the participants? How many types of participants?
- How will they access and interact with the blockchain?
- Will they be per nodes?
- Do you need web or mobile apps?
- Are gateways (such as exchanges or data providers) needed?
- Do you need to integrate to external data sources?
- Who will operate the blockchain? Who will govern /regulate the blockchain?
- What is the value / incentive for each participant to join the network?

# Identities

- Do you need to know your users?
- Pseudo-anonymous blockchain like bitcoin does not require user identities to be verified
- In most business use-cases, some form of identity is required
  - In public blockchains, an identity oracle (linked to a trusted database) could provide such information sources
    - Sources can come from governments, financial institutions or utility providers
  - In private blockchains, a gateway or controller ensures identity is verified before credentials are issued to the user

# Understanding the Assets and Transactions

6. What assets are involved and what is the key information associated with the assets?
7. What are the transactions involved, between whom, and what assets are associated with transactions?
  - Understand under what business or contractual conditions assets are under as they transfer from one owner to another

# Assessing Business Value

- It can be difficult to accurately quantify investment case for blockchain
- Things to consider
  - Existing pain points
  - Scope - participants, assets, transactions
  - Benefits: baseline, minimum viable ecosystem (MVE) & mature network
  - Blockchain Design points
  - References
- Cost-Benefit Analysis

# Additional Points of Understanding

- What are the main steps in the current workflow and how are these executed by the business network participants?
- What is the expected benefit of applying blockchain technology to the business problem for each of the network participants?
- What legacy systems are involved? What degree of integration with the legacy systems is needed?

# Defining Transactions

- What types of processes need to take place in your blockchain network?
  - Invoke actions - add, delete, change, transfer
  - Query
  - Do you need to control access to these functions based on participant types of roles?

# References

- NPTEL Blockchain Course

# Thank You