

# Introduction to Blockchain

Nabeel Amjad – PTCL



18 April, 2017

**Blockchain**

```
graph LR; Blockchain[Blockchain] --> Themes[Common themes]; Themes --> Bitcoin[Bitcoin]; Themes --> VirtualCurrencies[Virtual Currencies]; Themes --> DistributedLedgers[Distributed Ledgers]; Themes --> SmartContracts[Smart Contracts];
```

**Common themes**

**Bitcoin**

**Virtual Currencies**

**Distributed Ledgers**

**Smart Contracts**

# Blockchain

Contains **financial transactions**

Replicated across **multiple systems**

Usually exist in **peer-2-peer networks**

hard to change **historical records**

Cryptography & **digital signatures**

Read/**write roles**

## 1. Networked

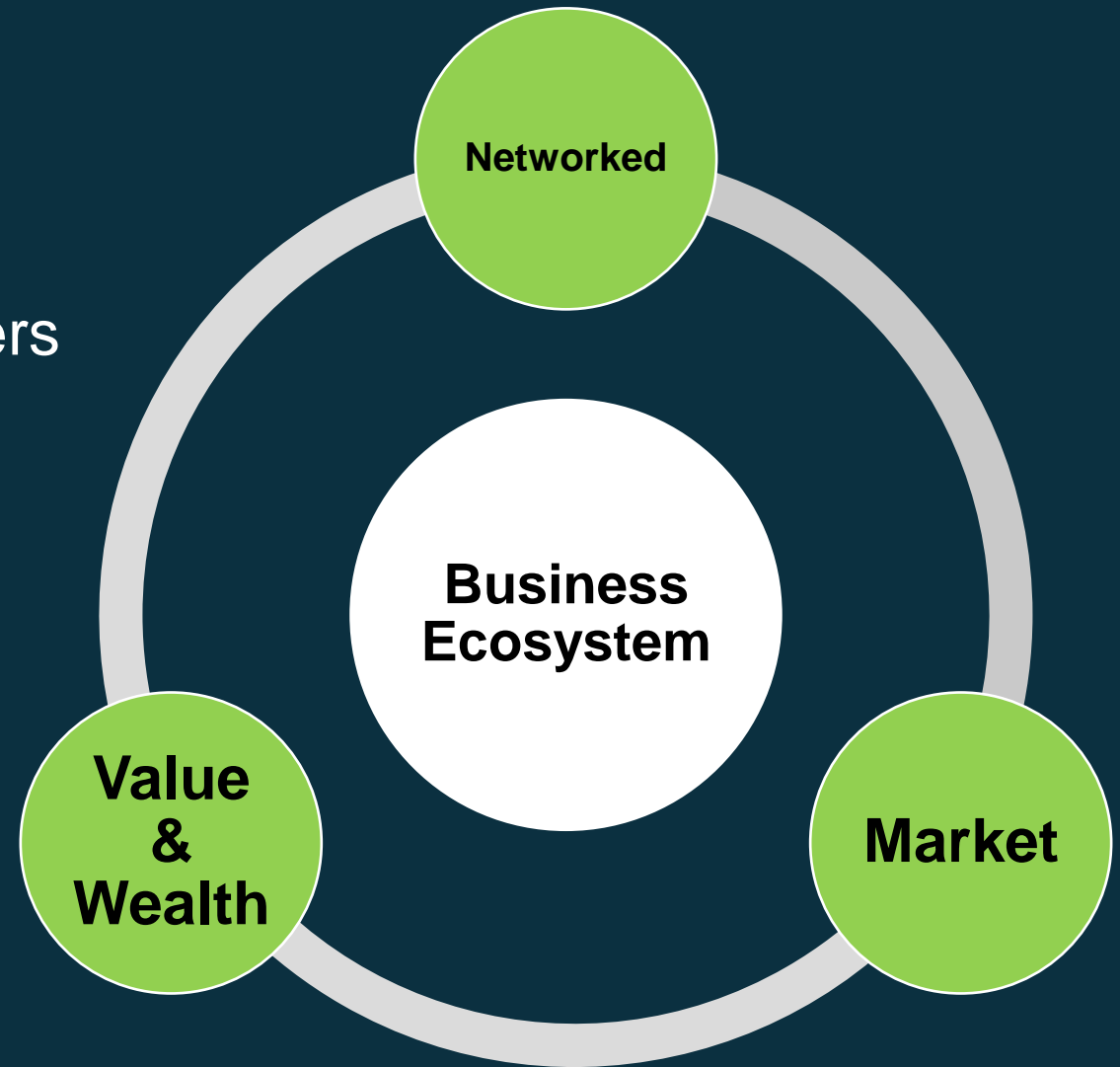
- Do not operate in Isolation
- Bonded through Suppliers and traders

## 2. Generate **Wealth** and **Build Value**

- Trade
- flow of goods & services
- Transferring and owning assets

## 3. Transact through **Markets**:

- Across the business network



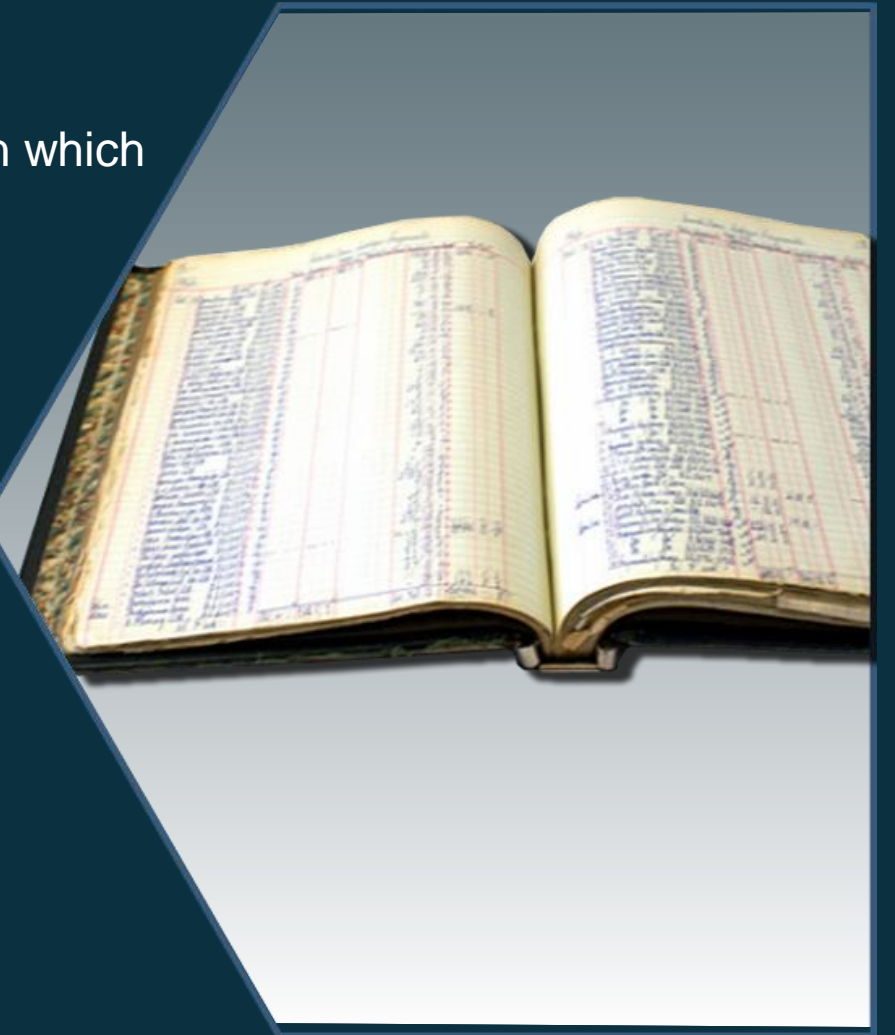
**Wealth growth goes down in an inefficient network**

# Transforming the Ledger legacy

Today businesses have multiple ledgers for multiple business networks in which they participate

## Hyperledger Project

**Linux Foundation:** open source collaborative effort



# Blockchain – Applications in Business



# Blockchain – Underlying Technology for Bitcoin

First Blockchain application

Peer-2-Peer network of replicated Databases

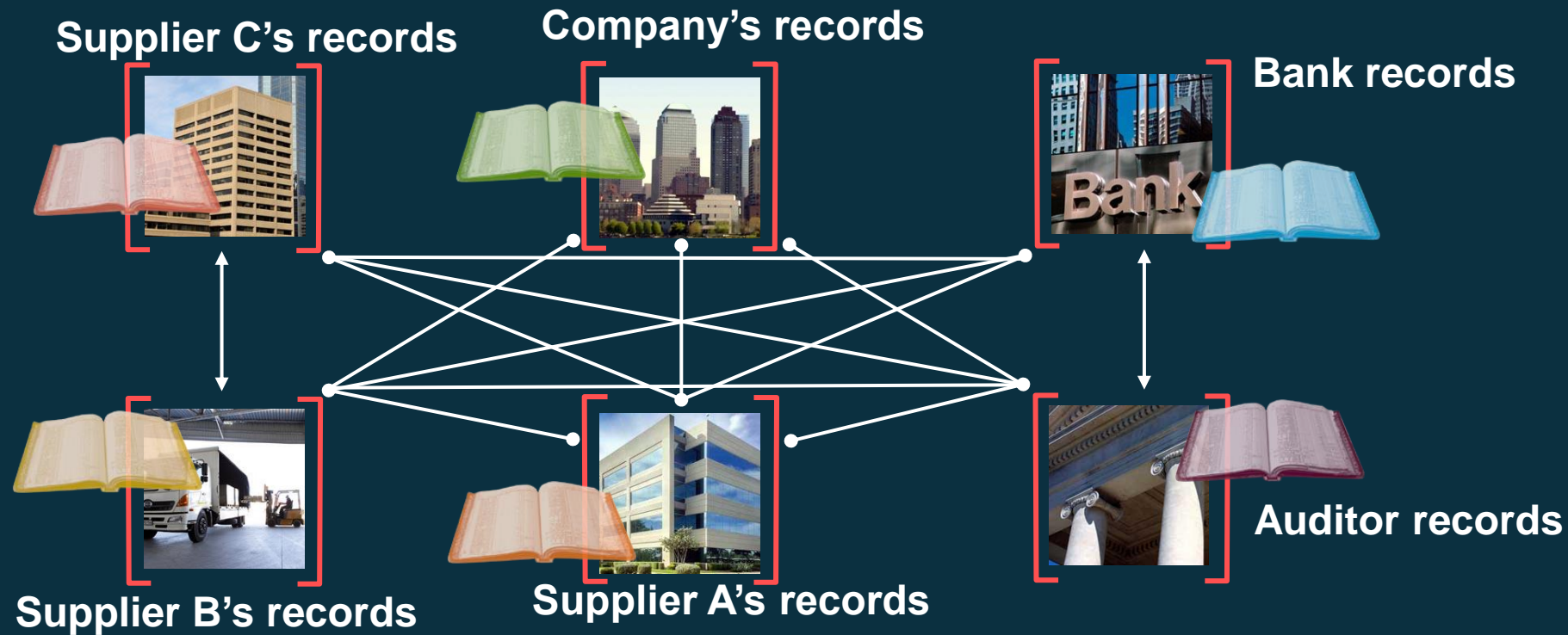


BUT

**BLOCKCHAIN**

is not *bitcoin*

# Construction Industry – Use Case



**Multiple companies, dependencies & systems of record**

**Tedious to manage using standard ERP**

**Vulnerable, expensive & inefficient**





?

**Blockchain**  
So What is the Solution

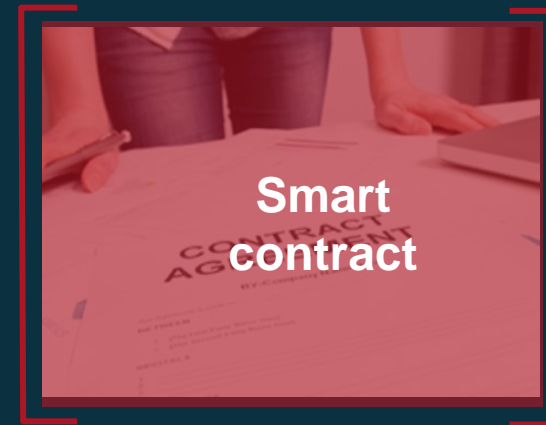
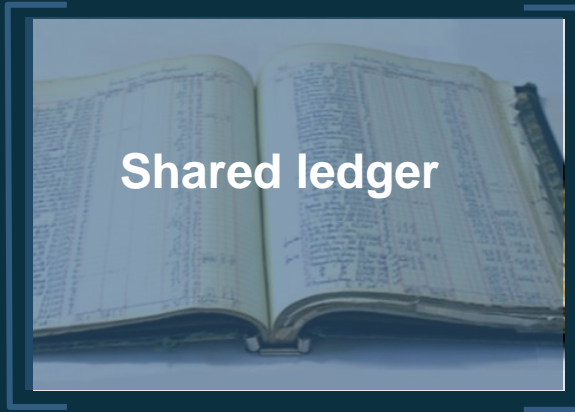
# Blockchain - DNA



Append-only

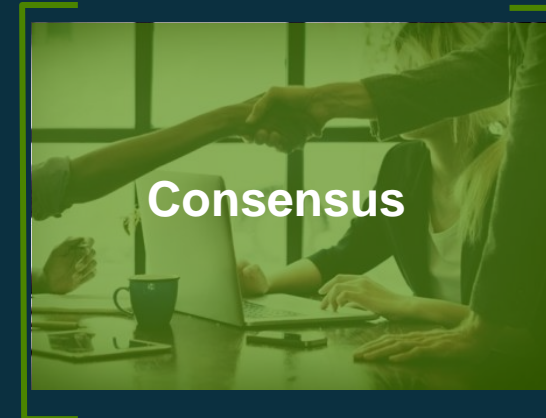
distributed system of record

shared across business network



Business terms embedded in transaction database & executed with transactions

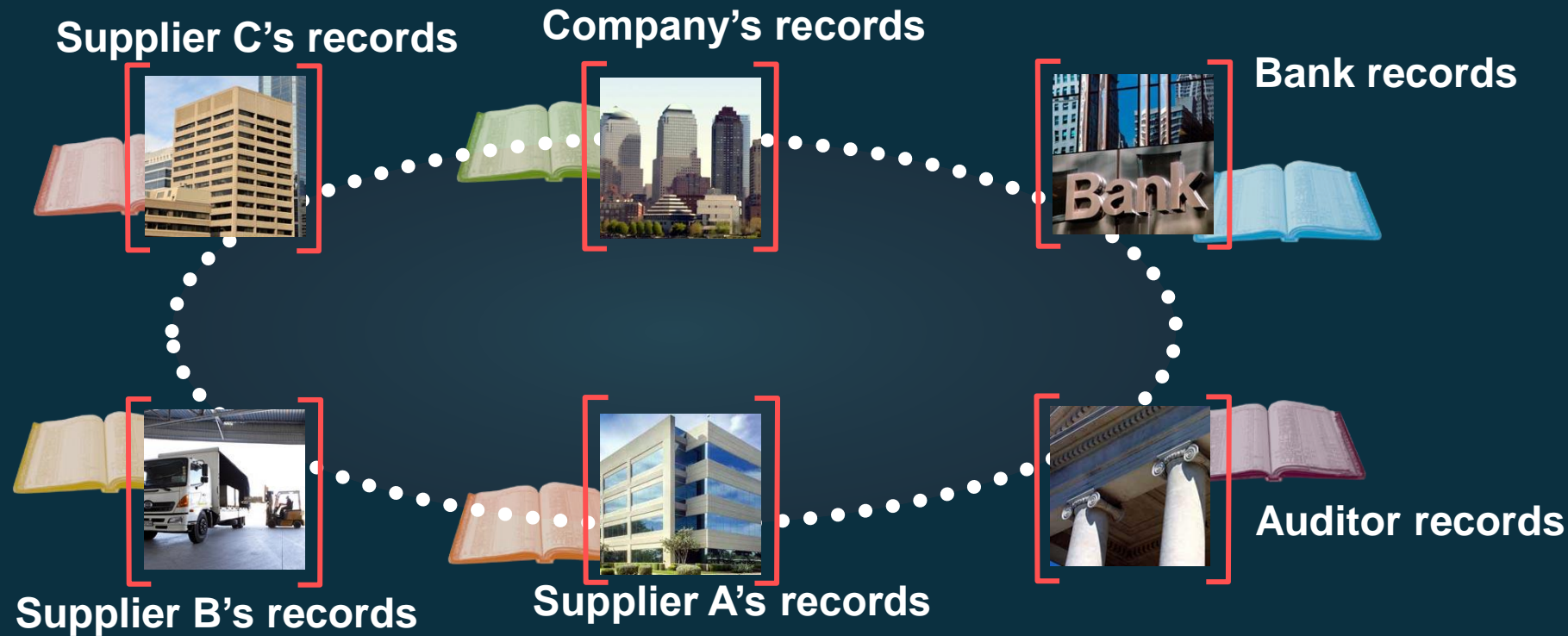
Ensuring appropriate visibility; transactions are secure, authenticated & verifiable



All parties agree to network verified transaction

**Broader participation, lower cost, increased efficiency**

# Construction Business – Blockchain Use Case



**Unified  
Records**

**Privacy**

**ONE  
Place**

**Same  
Participants**

**Transaction  
Consensus**

**No  
Tampering**

**Provenance**

# Benefits



**Saves  
time**

Transaction time  
from days to  
near  
instantaneous



**Removes  
cost**

Overheads and  
cost  
intermediaries



**Reduces  
risk**

Tampering,  
fraud  
& cyber crime



**Increases  
trust**

Through shared  
processes and  
recordkeeping

What Internet did for IT

is what Blockchain will do for trusted transaction

**Thank You**