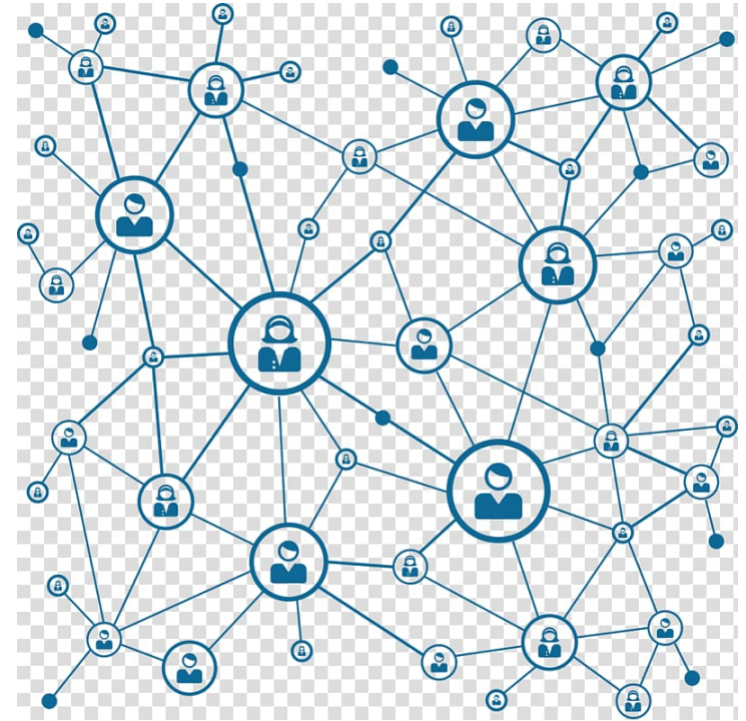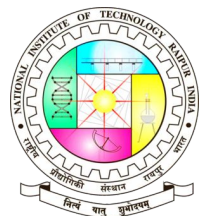# Blockchain as A Ledger

Dr. Preeti Chandrakar
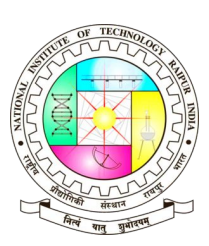**Assistant Professor**
Department of Computer Science & Engineering

Contents

- General Ledger

- Public Ledger

- Distributed Ledger

- Blockchain and Distributed Ledgers

- Limitations of Blockchain as a Ledgers

General Ledger

- A general ledger represents the record-keeping system for a company's financial data, with debit and credit account records validated by a trial balance.

- Transaction data is segregated, by type, into accounts for assets, liabilities, owners' equity, revenues, and expenses.

General Ledger

Cash A/C ($)

Jan 01	400,000	Jan 02	1000
Jan 29	20,000	Jan 03	15,000
		Jan 07	800
		Jan 30	1,000
Jan 30	402,200		

Trade Receivables A/C ($)

Jan 01	24,000	Jan 29	20,000
Jan 30	4,000		

Salary A/C ($)

Jan 30	10,000
Jan 30	10,000

Service Revenue A/C ($)

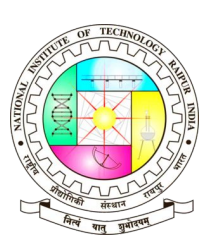|	
Jan	50,000
Jan 30	50,000

WallStreetMojo
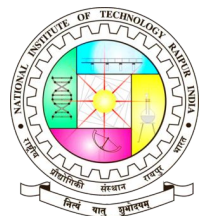
Public Ledger

- Used by all the available members
- No one have control over this as owner
- Anyone can write but no one can delete or modify
- Every one view all entries

PUBLIC BORD as PUBLIC LEDGER
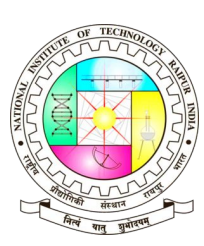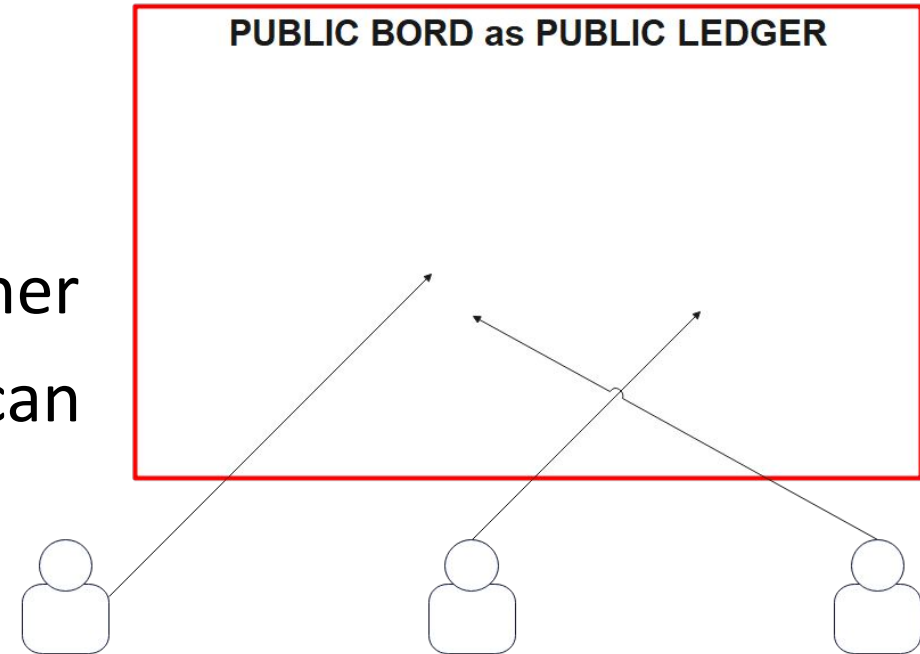
Distributed Ledgers

- A distributed ledger is a type of database that is shared, replicated, and synchronized among the members of a decentralized network

- The distributed ledger records the transactions, such as the exchange of assets or data, among the participants in the network
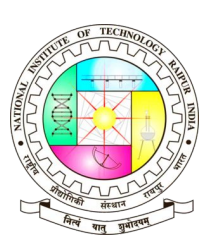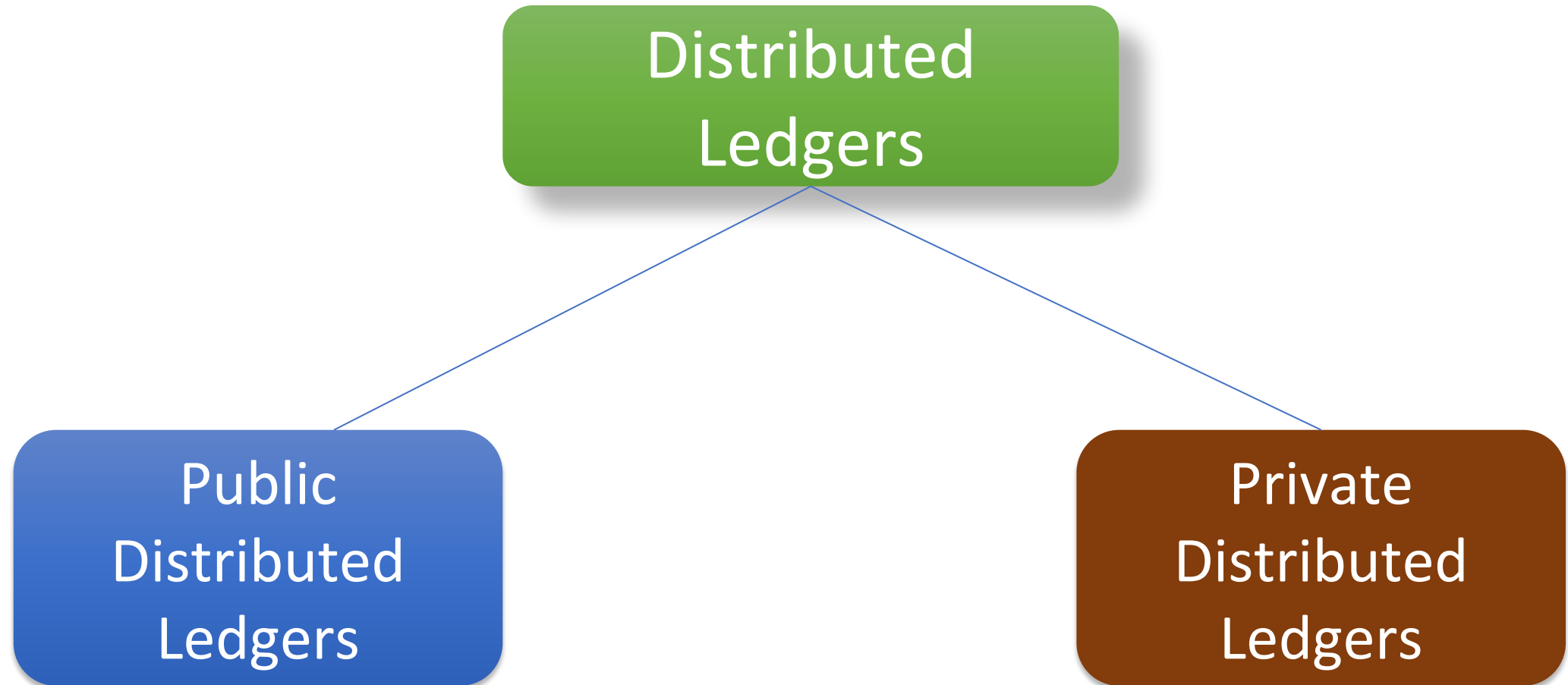
Properties of Distributed Ledgers

- No central authority

- No third party member

- Transparent, Secure and Immutable

- Everyone in the network agreed on consensus
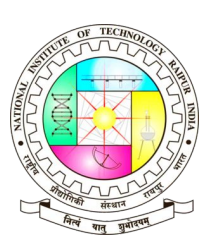
- Working with timestamps and cryptography
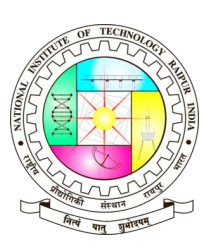
Types of Distributed Ledgers

Distributed Ledgers

Public Distributed Ledgers
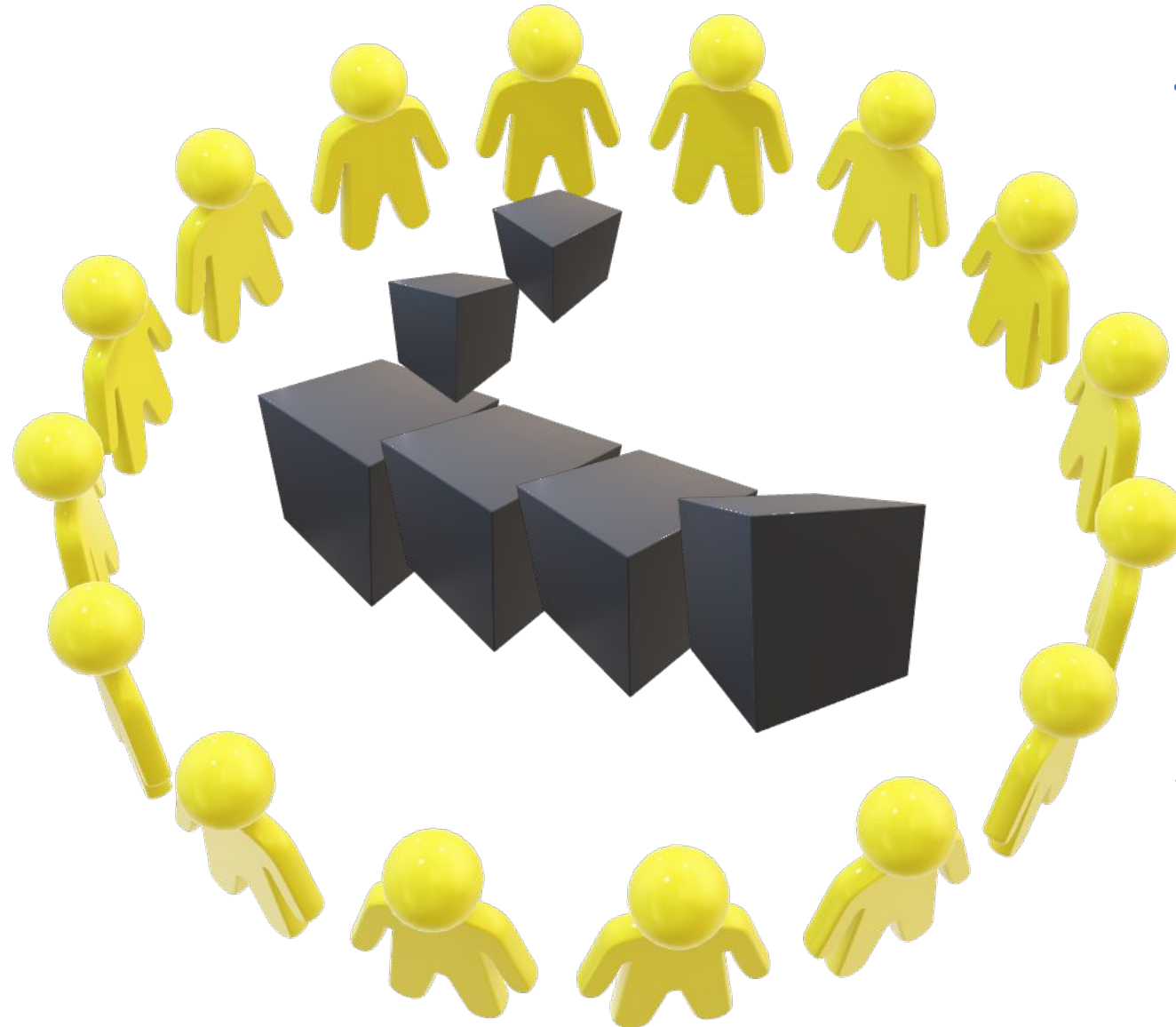
Private Distributed Ledgers

Public Distributed Ledgers

- Public Distributed Ledgers are parts of public blockchains
- Records each transactions
- Maintain transparency
- Do not believe in access control level
- Try to enforce consensus to each node
- Nodes are anonymous
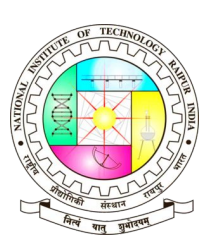
Example of Public Distributed Ledger


Trusted
Equal Rights

All nodes gets copy blocks and
synchronize to update ledger

Private Distributed Ledgers

- Private Distributed Ledgers are parts of private blockchains
- Records each transactions not needed
- Pre verification for nodes are required
- Access control level maintained in this ledger
- Owner or maintainers can control consensus
- Nodes are not anonymous

# Example of Private Distributed Ledgers
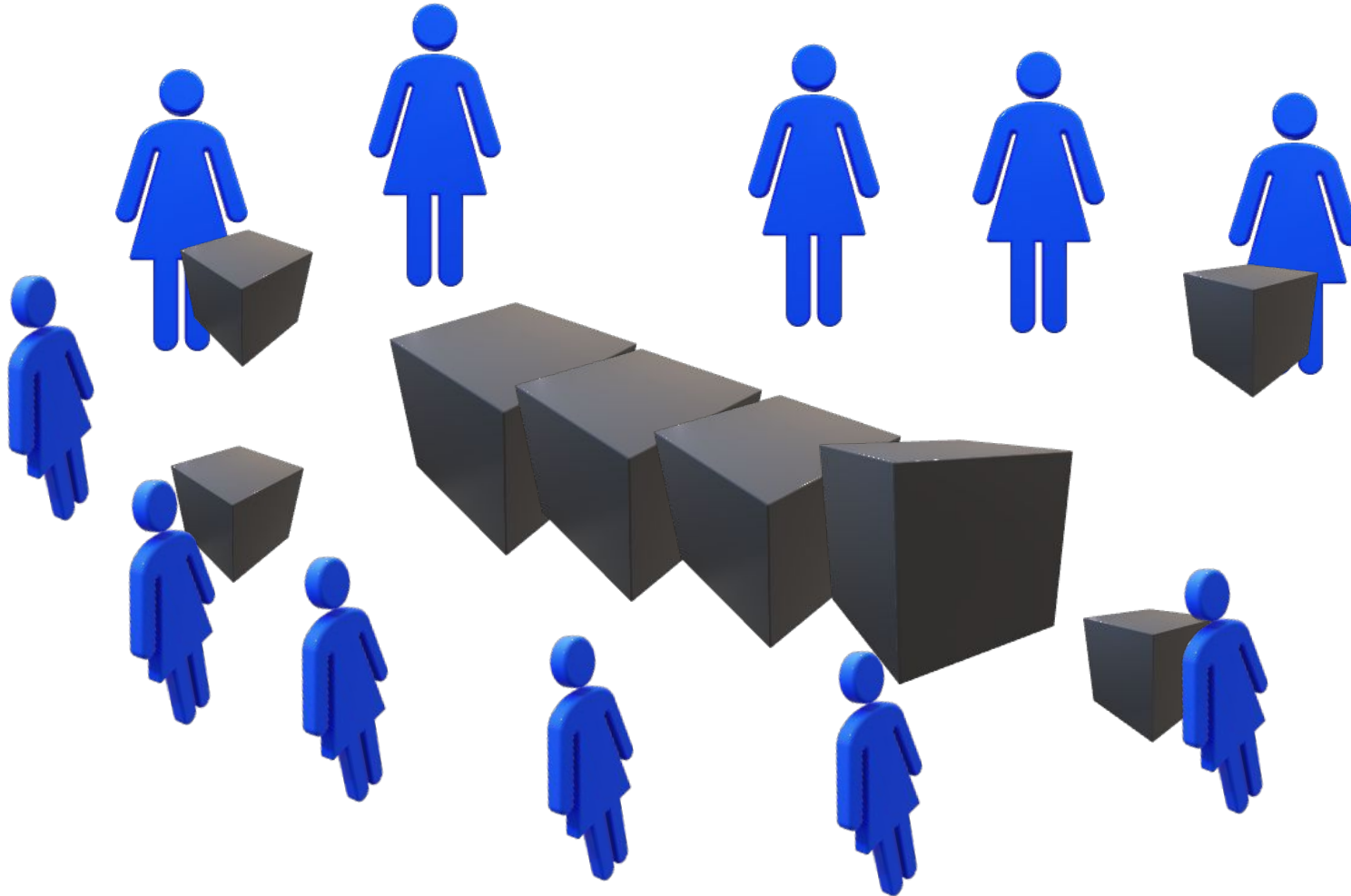
Relation between blockchain and Distributed Ledger

- Are blockchain and distributed ledger technology the same?
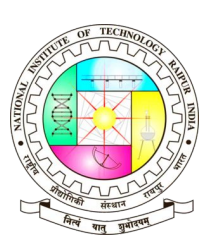
No

- A blockchain is essentially a shared database filled with entries that must be confirmed and encrypted.

- The most important difference to remember is that blockchain is just one type of distributed ledger

- Although blockchain is a sequence of blocks, distributed ledgers do not require such a chain
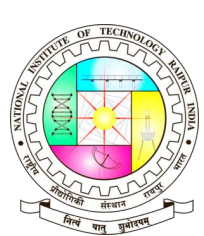
Relation between blockchain and Distributed Ledger

- Distributed ledgers do not need proof of work and offer – theoretically – better scaling options.

- Unlike blockchain, a distributed ledger does not necessarily need to have a data structure in blocks.

- A distributed ledger is merely a type of database spread across multiple sites, regions, or participants

- CORDA from R3 is Distributed Ledger but Ethereum is Public Blockchain

Limitations of Blockchain as a Ledgers

- **Scalability-** Poor scalability to handle large amount of transactions
- **Security-** It may attract any unknown visitor monitoring your wallet. So additional security and privacy filters are require for the existing ledgers
- **Cost-** Blockchain run cost is very high as mathematical problem solving required massive hardware working
- **Speed-** Due to unavailability of the miners in some cases, transaction speed and verification speed are reduced and usability of the blockchain is decreased