

Research possibilities in Blockchain Technology

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Outlines

- Discuss the fundamentals of Blockchain Technology
- Technological growth of Blockchain and Application areas
- Blockchain Technology Promises
- Application architecture of Blockchain Technology
- Smart Contract
- Consensus Mechanism
- Loan Approval process through blockchain Technology
- Open discussion with participants

Blockchain Fundamentals

Blockchain is not a new concept just we can say “Old Wine in New Bottle”.

The idea of blockchain is really very simple.

Family member of database technology



Blockchain Technology

A Database	<i>A list of records / transactions, like a ledger, that keeps growing as more entries are added;</i>
Which is Distributed	<i>Copies of the entire database are stored on multiple computers on a network, syncing within minutes / seconds;</i>
Adjustably Transparent	<i>Records stored in the database may be made visible to relevant stakeholders without risk of alteration;</i>
Highly Secure	<i>Malicious actors (hackers) can no longer just attack one computer and change any records;</i>
Immutable	<i>The mathematical algorithms make it impossible to change / delete any data once recorded and accepted.</i>

Various Definition of Blockchain

Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system.

Blockchain is a peer-to-peer distributed ledger that is cryptographically secure, append-only, immutable (extremely hard to change), and updateable only via consensus or agreement among peers.

A business point of view a blockchain can be defined as a platform whereby peers can exchange values using transactions without the need for a **central trusted arbitrator**.

Application Area

Can we apply Blockchain Technology at any where?

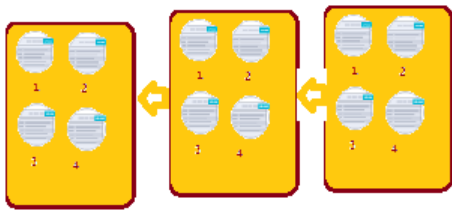
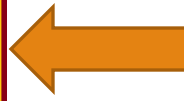
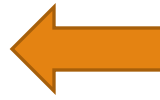
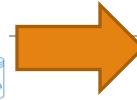
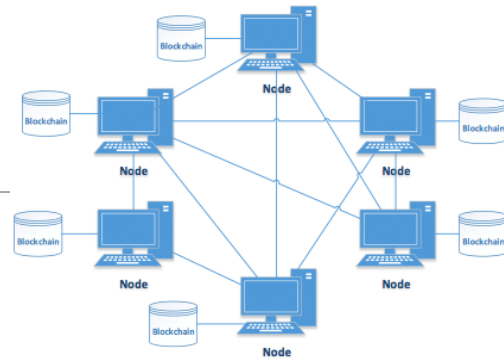
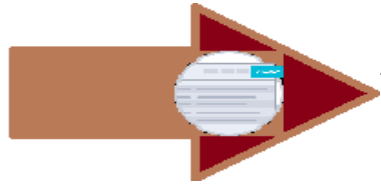
OR

Can we implement all kind of applications through Blockchain Technology

Blockchain Technology Promises

- The most common benefits of Blockchain applications are:
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- Transparency
- Removal of intermediaries *
- Decentralized
- Trust
- Security
- Wide rang of potential uses
- Reduced Cost
- Increased Transaction Speed.



Some on Request a transaction

Requested Transaction Broadcast to P2P Network

P2P Node validate the transaction using algorithm

Verified transaction can involve contract, record and other information

Once verified, the transaction Combine with other transaction To create new block of data for ledger

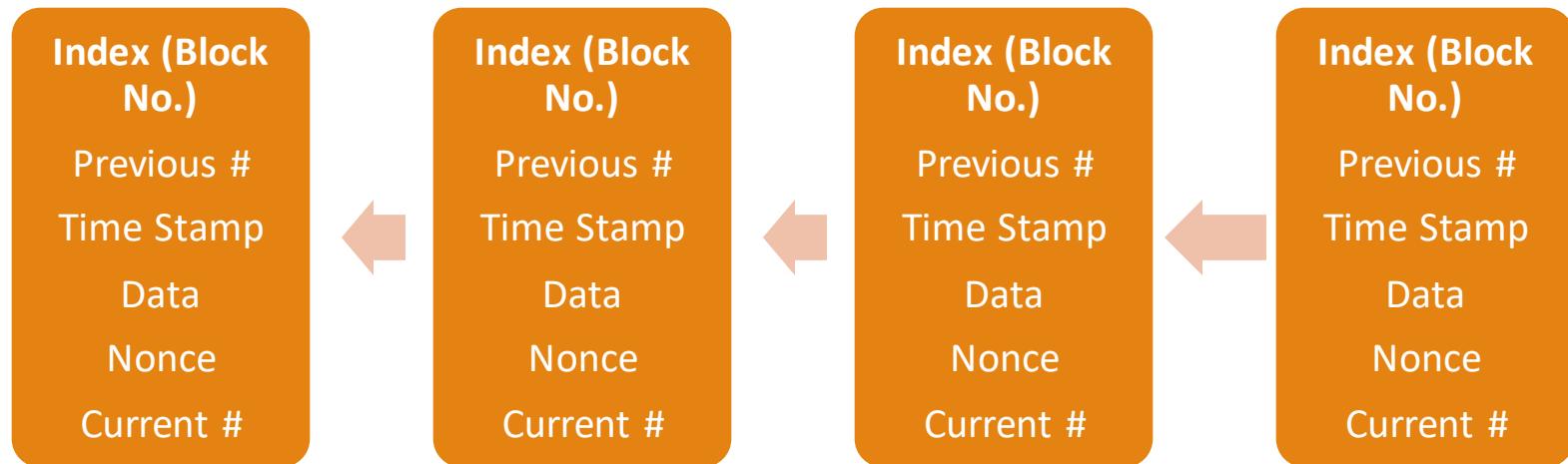
Authenticity Policies

New block append in the Existing Blockchain in form of immutable record

Component of Block

Index (Block No.)	(which block has index)
Previous #	Is previous block being validate
Time Stamp	When was created
Data	What information is stored
Nonce	A random unique number to prevent a reply attach on the blockchain
Current #	The hash that generated for current block

Blockchain



Genesis Block

Current Block

Smart Contract

- ✓ Research community of Blockchain Technology is agreed, Decentralized and Distributed is common property for all application of Blockchain Technology.
- ✓ In simple networking-based application various type of protocols and different kind functionalities are available to deal or maintained the transparency, reliability, availability, and securities of data.
- ✓ in the Blockchain Technology particularly transparency, reliability, and availability which is the heart of any decentralized and distributed application are maintained by **Smart Contract**

Smart Contract

A smart contract is a self-enforcing piece of software that is managed by a P2P network of computers. Smart contracts are efficient **rights management tools** that provide a coordination and **enforcement framework** for agreements between network participants, without the need of traditional legal contracts.



Smart contracts, therefore, provide a public and verifiable way to embed governance rules and business logic in a few lines of code, which can be audited and enforced by the majority consensus of a P2P network.

Consensus Mechanism

In any centralized system, a central administrator has the authority to maintain and update the database. The task of making any updates – like adding/deleting/updating the information.

blockchains that operate as decentralized, self-regulating systems work on a global scale without any single authority. They involve contributions from hundreds or thousands of participants who work on verification and authentication of transactions occurring on the blockchain application, or on the block mining activities.

Consensus Mechanism

One key property of a blockchain system is that the nodes do not trust each other, meaning that some may behave in Byzantine manners.

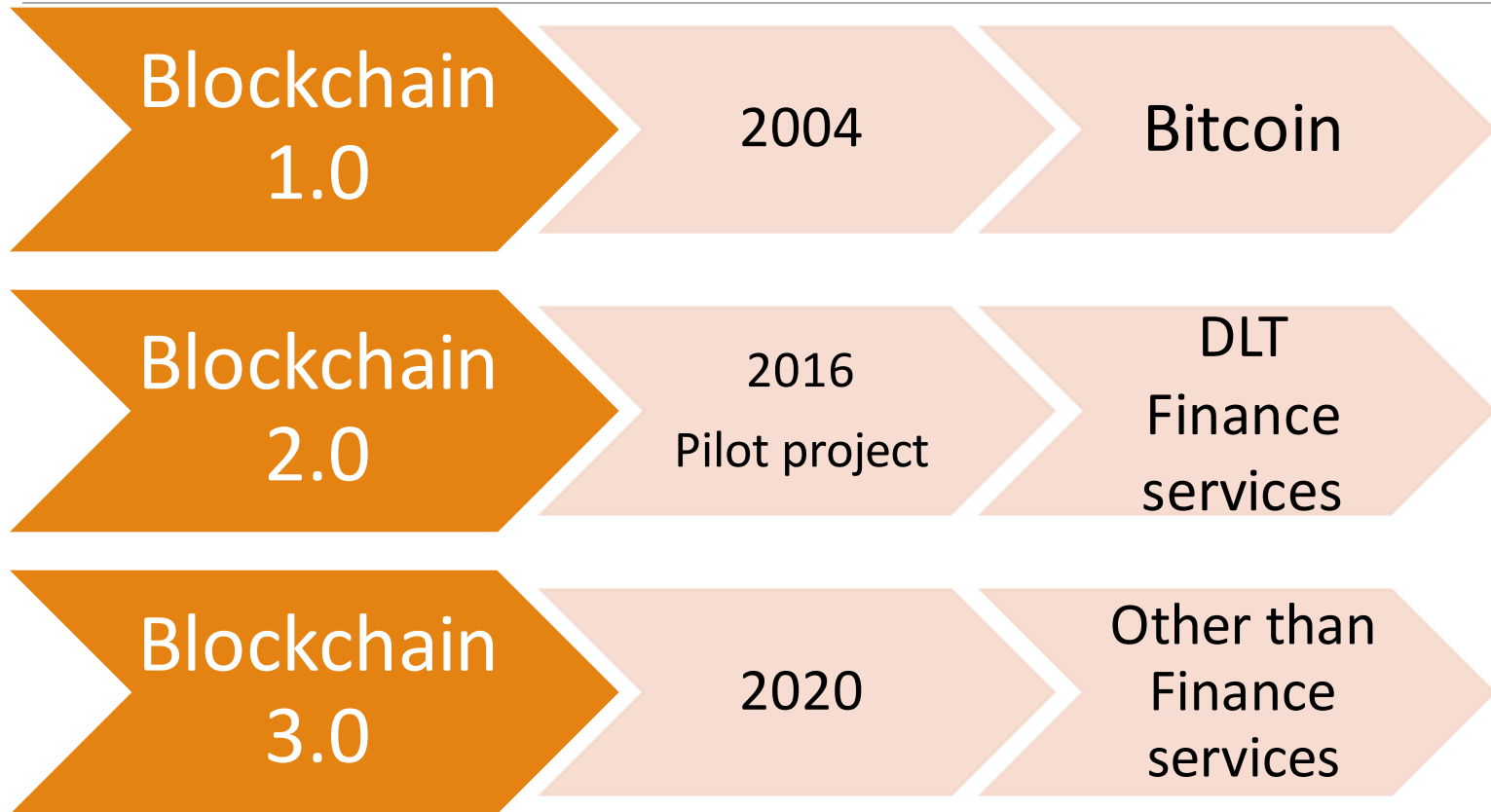
The consensus mechanism is a protocol that allows all peers of a network to reach a common agreement on the current state of a distributed ledger.

Play a very role to establish trust between unknown partners in a distributed computing environment

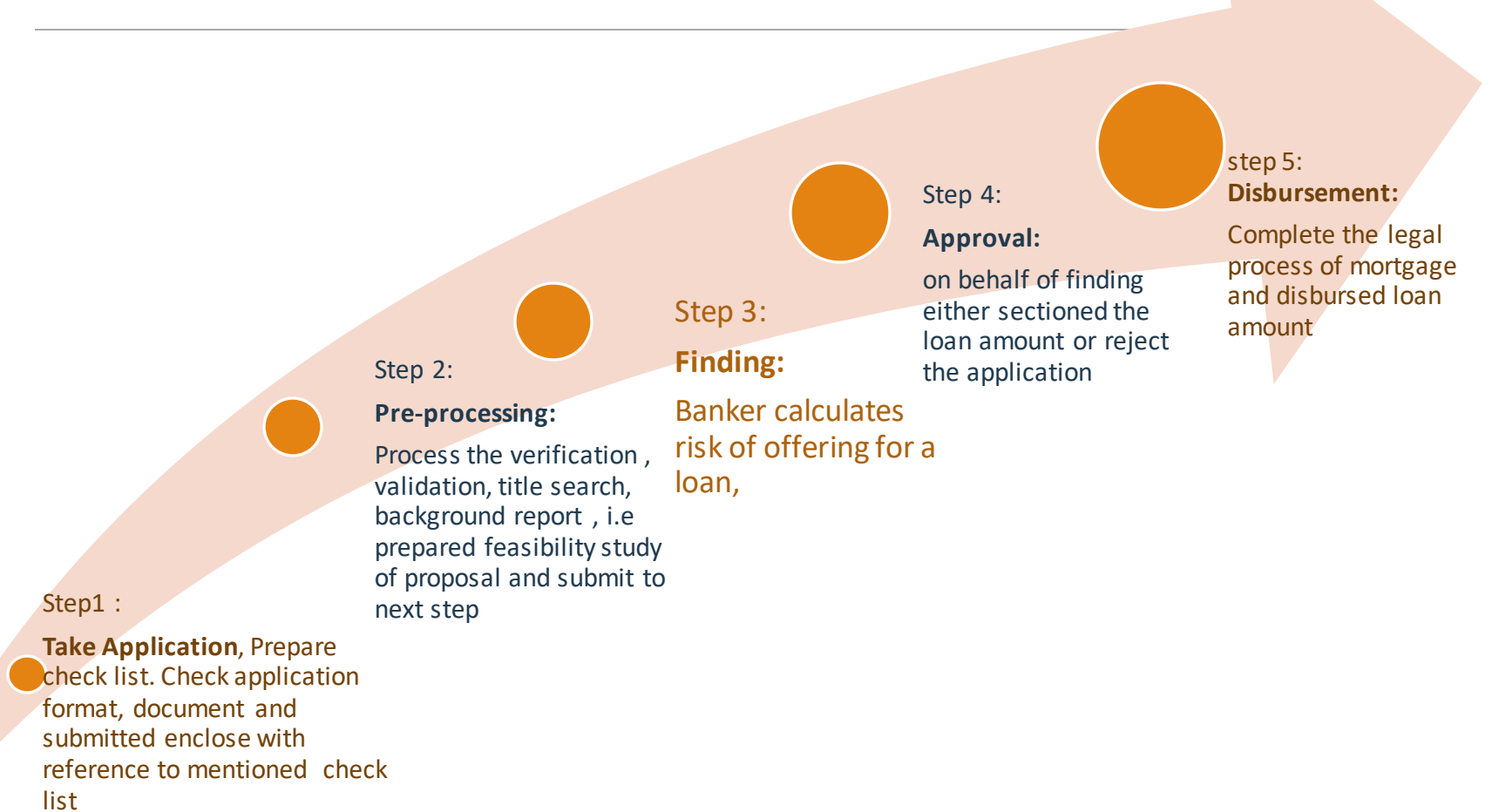


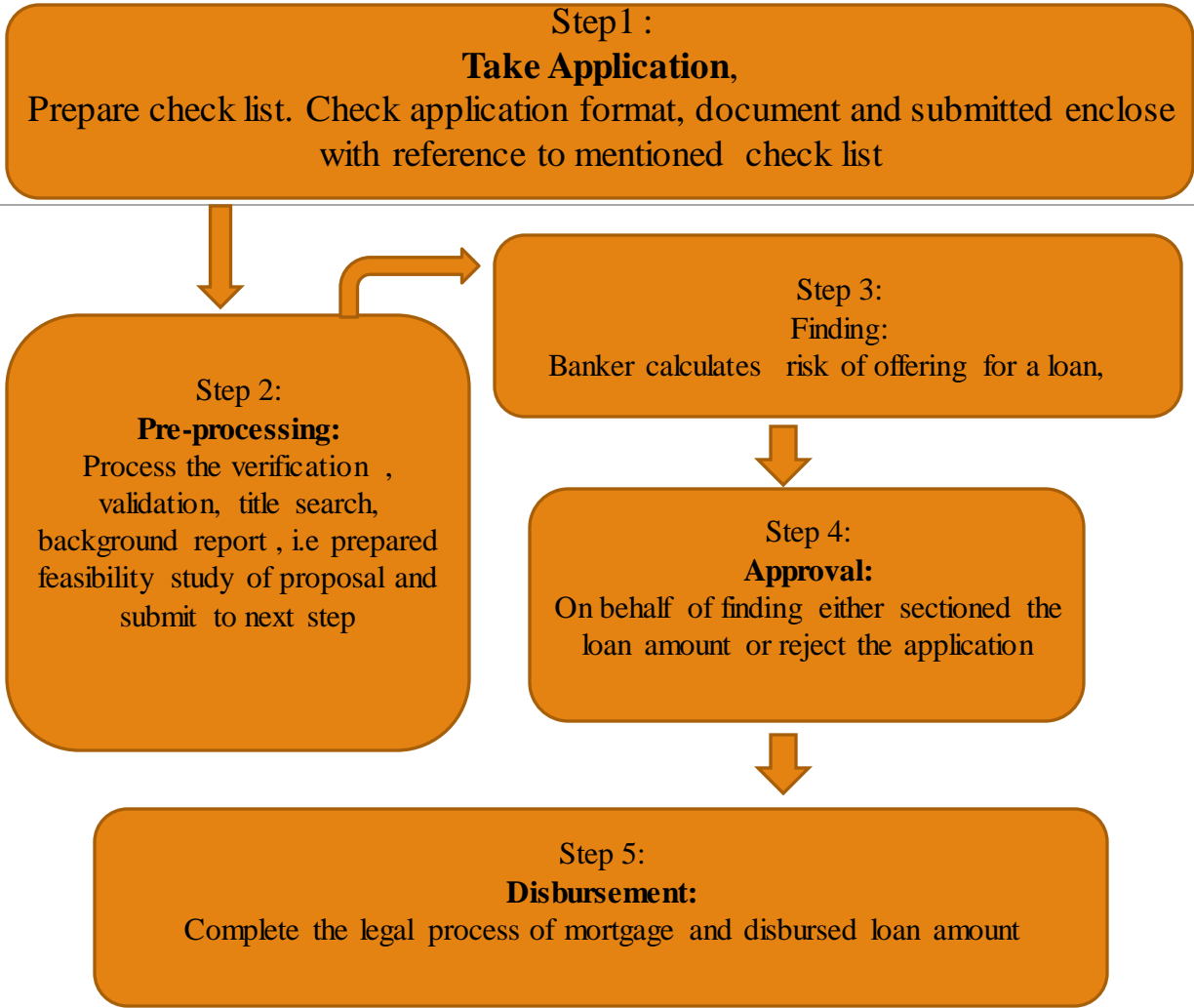
Due to dynamically changing status of the blockchain, publicly shared ledgers needed that should an efficient, fair, real-time, functional, reliable, and secure mechanism to ensure that all the transactions occurring on the network are genuine and all participants agree on a consensus on the status of the ledger.

Technological Growth and Application areas



Loan Approval process





Secured Loan Approval process using Blockchain(DLT)

Additional Steps: Involves Blockchain process

Step 1:
Take Application

Prepare check list. Check application format, document and submitted enclose with reference to mentioned check list

Step 2:
Pre-processing

Process the verification, validation, title search, background report , i.e prepared feasibility study of proposal and submit to next step

Step 4:
Approval /Rejection process on behalf of consensus protocols

Step3:
Finding: Banker calculates risk of offering for a loan.

Step 5:
Disbursement process and schedule repayment Calendar / Chart

Step 7:
Create a block with reference to repayment chart of an approved Loan store into DLT and update repayment

Create user category: UC-1, UC-2 and UC-3, in each user category create multiple groups, each group consist of multiple users. Create P2P (user to user) Network within groups.

After Step 2: completion of pre-processing, loan application block will created in particular format and share among the all groups under all user categories.

Share the finding and remarks of all user category with finding committee and finding committee report with all users .



Thank you!

