Blockchain technology: Facilitating collaborative research via Intellectual Property sharing

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What is BlockChain

“Blockchain is a type of distributed database that stores a permanent and tamper-proof ledger of transaction data.”
Properties

• Distributed Ledger
• Open Ledger- Anyone can see it Public ledger
• Temper proof record of transactions onto a public ledger
• Everyone has an identical copy of a distributed ledger
• Hacking is extremely difficult- hacker would have to hack every computer and change every single copy
HOW BLOCKCHAIN WORKS

Individual 'transaction' events

BLOCKCHAIN

NEW BLOCK of transactions includes a security 'hash' of previous block.

BLOCKCHAIN new blocks are added approximately every 10 mins.

Multiple computer 'mining' servers check the validity of the blocks in the chain. The quickest to check the latest block, gets payment.

Successful transactions

OR

BLOCK validated as 'honest' part of the chain.

REJECTED
Types of Blockchain

• Public
• Private
• Consortium
Public Blockchain

• Decentralized,
• anyone can read and send transactions, e.g. Bitcoin, Ethereum,
• Anyone can verify and add a block of transactions
Private Blockchain

• Centralized under one organization which controls the right to view and send transactions
• Allow only specific people in the organisation to verify and add transaction blocks
• Everyone on the internet is generally allowed to view
Consortium based Blockchain

• Only a group of organisations (such as banks, universities) can verify and add transactions but the ledger can be open or restricted to selected groups.
• **Permissionless Blockchain**: Every node in the network participate in consensus procedure, e.g. Bitcoin Blockchain (Proof of Work)

• **Permissioned Blockchain**: Only Selected nodes (validators, e.g. Government or trusted nodes) participate in consensus procedure e.g. Hyperledger Blockchain
Forms of Intellectual Property

• Copyrights. ...
• Patents....
• Trademarks. .
Benefits of Using BlockChain in IP Sharing

• Decentralised

• Hacking is extremely difficult- hacker would have to hack every computer and change every single copy

• Accessibility-Open Ledger, anyone can see the Public ledger

• Temper proof record of transactions
Other Application Areas

• Financial Institutions-hyper ledger
• Elections(voting)-Democracy Earth, FollowMyVote
• Agreement of sales
• Diamond Sales – digital signature identifying its origins
• Government-Dubai is aiming to put all its documents on the blockchain by 2020
Programming Language

• Solidity is a contract-oriented, high-level language whose syntax is similar to that of JavaScript and it is designed to target the Ethereum Virtual Machine (EVM).

• Solidity is statically typed, supports inheritance, libraries and complex user-defined types among other features.
THANK YOU FOR YOUR ATTENTION

THE END
Q&A