<u>Lesson 4 - - Blockchain Intro</u>

In a nutshell, through resource sharing and consolidation, blockchain applications offer the advantages of simplification by logically centralizing processes while mitigating multiple negative effects of operating over a distributed network. The are sometimes referred to as De-centralized Applications, or dAPPs.

<u>Permanent means Immutable</u>

Thus far we've noted that blockchain solutions consist of an encrypted ledger, distributed and shared across a network, that can be managed in a highly secure manner. Part of the security is derived from the fact that recorded transactions are immutable and immediately propagated to all copies of the ledger residing across the network, creating a permanent historical record. Immutable means once a record is added it cannot be altered or deleted, ever. Having copies everywhere makes tampering attempts easy to detect.

<u>A Ledger Can Track Anything</u>

A digital asset can be tangible or intangible property that one party either owns or controls. The information recorded for each transaction includes all the related documents like contracts, orders, invoices, pictures, certificates, or other artifacts, which remain viewable to permissioned parties forever.

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Think of a ledger record as a blank sheet of paper that be used to keep track of anything. A blockchain ledger can securely track the exchange of goods, services, money, votes, data, intellectual property, etc.

Since blockchain applications function across a peer-to-peer network without a central hub, copies of the single shared ledger of these chained blocks of transaction records are replicated and synchronized across nodes around the network, which is why it is called a distributed ledger.

Public or Permissioned

A blockchain ledger is either open to the public, or requires permission to access. Regardless, all parties to a transaction must give consensus before a new record is appended to the blockchain.

Permissioned blockchain applications are far less complicated to design and manage than public implementations, and are rapidly expanding into numerous other industries like medical, pharmaceutical, the food industry, insurance, and manufacturing. From the supply chain to the food chain to the voting booth blockchain ledgers can be used to improve efficiency and prevent fraud.

Efficiency can be obtained when distributed ledger technologies expand the number of financial actors and enable new areas of value transactions directly with other financial

actors both within and across borders allowing the direct exchange of assets virtually instantaneously without the help of intermediaries.

These will provide new ways for a small to medium enterprise to raise working capital apart from obtaining a bank loan.

Expectations are especially high in the financial industry because use of a blockchain ledger to eliminate intermediaries can dramatically reduce the time it takes to complete a complex financial transaction from a few days or weeks to a few minutes or a few seconds. Blockchain has improved global money remittance through the use of smart contracts and automated banking ledgers.

As stated previously, smart contracts are computer programs stored on the ledger that follow a protocol to handle verification and enforce the negotiation or performance of a contract thereby eliminating the need for trusted third parties to serve as intermediaries. The actual business contracts and related documents and files are embedded into the ledger making a permanent record for each transaction. As conditions surrounding a pending transaction change, events are automatically triggered that eliminate delays, risks, and uncertainties of completing the transaction.

Read 7 short explanations of basic blockchain terminology aimed at developers new to the space. click here to read

The blockchain industry is relatively young. Ethereum has been credited for bringing a new paradigm and the second generation of blockchain technology. Other prominent emerging players to watch include QTUM, Cardano, NEO (in China),and there are many more with grandiose plans.

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