Blockchain in a nutshell: decentralised, distributed record keeping

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By Special to The Nation

BLOCKCHAIN, the core technology behind the cryptocurrency bitcoin, is gaining publicity and interest from the financial-services industry, and other sectors are starting to take note of its potential disruption.

A blockchain is in essence a “digital ledger” where identical copies of all transactions are maintained in a network of computers controlled by different entities, which you may think of as a peer-to-peer network.

Trust is facilitated through the collective record-keeping maintained by each computer (node) ensuring the security and accuracy of the distributed ledger. Transactions are logged in an encrypted form that can be reviewed by participating nodes and entries are only allowed by a consensus of participants and can never be erased.

The key features and corresponding benefits of blockchain are:

_ Its benefits include a decentralised and distributed approach to record keeping, and reliability and availability resulting from a large network of nodes sharing a blockchain and no single point of failure, thus making it resilient against outages and attacks.

_ It provides an irreversible and immutable policy for transaction entries. Transparency, increasing auditability and trust as all transactions are visible and irrevocable, so changes cannot be made without detection, reducing opportunities for fraud.

_ It allows near-real-time settlement of recorded transactions. Transactions can be verified and settled in minutes, reducing time needed to transfer funds or complete transactions.

In considering the features and benefits of blockchain, the potential challenges arising from this technology should also be evaluated before further exploration.

The greatest uncertainty surrounding blockchain is the commercial application of the technology and its regulation. Investments are flowing into exploring the concepts and potential applications of blockchain in every industry.

The greatest amount of interest and activity is coming from the financial-services industry, exploring applications for both public and permission blockchains. Three types of blockchains currently exist.

Public blockchain: for example the bitcoin blockchain that anyone can read, transact and validate through a consensus.

Consortium blockchain: for example R3, a consortium of financial institutions with a pre-selected set of nodes to control the consensus process.

Private blockchain: with write permissions centralised to an organisation but read permission can be public or restricted.

Blockchain seems to be a promising way to reduce the risks in securities trading with almost no latency in settlement, which helps simplify middle and back-office processes.

Other industries are exploring the application of blockchain for securely storing medical records, recording contracts, accruing loyalty points and more. How the technology is going

to be adopted across industries is still uncertain, as most applications currently use cases being tested and prototyped.

Organisations should realise that as with all digital technologies that have enabled greater efficiency in processes, blockchain has the same potential to transform industries with its distributed ledger technology to simplify processes further, save money and minimise risks of fraud or unreliability.

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