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Make Technology Work

Applications of Blockchain

White Paper

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Blockchain technology improves transparency and efficiency, reduces cost and gives users greater visibility over data in a secure manner. It is finding acceptance as the underlying technology across various applications across different industries as a result

Blockchain – Industry -Agnostic

An entire parallel economy has been built around Bitcoins or cryptocurrency in the virtual world. From being traded in a market of its own, becoming a valuable investment, to being used as a means of virtual payment, they are silently but surely becoming a part of wealth building across the globe.

In recent times, the underlying technology of Bitcoin -- the blockchain – has also garnered much interest because of how some of its inherent features can benefit several industries such as financial services, technology, media, telecom, healthcare, transportation, and public sectors, across several functions. Blockchain is a virtual, public ledger where data is stored in a decentralized environment with interlinked network of computers. Data is owned by the users, and every action performed on the data is tracked in a secure and transparent manner. As a result, the transactions do not need third-party verification, authentication, and reconciliation or duplicative recordkeeping, enabling quicker settlement, and reducing errors. Databases can be accessed from everywhere, because of which multiple institutions can use it at the same time, thereby improving efficiency.

No wonder then that the global blockchain market is expected to grow at a CAGR of 37.2 percent to touch USD 7.59 billion by 2024, according to a Grand View Research report.

Benefits of Blockchain

Some of the benefits of using Blockchain include:

- Enhanced transparency
- Tighter security
- Higher traceability
- Greater efficiency
- Reduced costs

Enhanced transparency

Blockchain being based on a distributed ledger technology, transaction data is available to all network participants and cannot be changed once added to the Blockchain. A change in even one transaction requires alteration of all subsequent blocks on the entire network, making the data more secure, consistent and transparent for all the participants.

Tighter Security

Blockchain is more secure than other record-keeping systems since it needs collusion of the participants for changes being made to any record. The approved transaction is encrypted and linked to the previous transaction and stored across the network. As a result, the data cannot be compromised, thereby preventing fraud and unauthorized access, making this technology extremely relevant for industries such as financial services, government and healthcare where data security is crucial.

Higher Traceability

Audit trail is simpler in Blockchain based supply chain management systems as every record and any changes to it are automatically reflected in the entire network, thereby improving authenticity and preventing fraud.

Greater Efficiency

Shared documentation that does not need reconciling multiple ledgers every time a change is made to a record improves efficiency, reduces errors as well as clutter. It improves trust, reduces the need for intermediaries and speeds up clearing and settlement.

Reduced costs
Eliminating intermediaries, reducing documentation and improving trust also has a significant impact on cost. Consider the case of a middle man in a financial transaction. The agent charges a hefty fee on both the transacting parties. The concept of a middle man is circumvented in the Blockchain since it enables direct connect between the transacting members hence saving cost and time.

Applications across Industries

The transparency and security that blockchain technology offers are real boons to several data sensitive functions across different industry segments. In today's competitive world, cost and time efficiency can give that edge to organizations to keep ahead.

Some of the functions where blockchain is finding increasing use include:

Supply Chain Management

In B2B environments, processes such as ownership transfer, production process assurance and payments are simplified as organizations can track the movement of goods right from origin to its final destination along the supply chain better.

Quality Assurance

The root cause of any irregularity along the supply chain can be traced, and necessary action taken to resolve it at the earliest, preventing further recurrence of the error.

Auditing

As every change is recorded and verified at every node along the blockchain, it leaves a highly traceable audit trail sans human errors and the risk of tampering.

Accounting

Organizations can have a more efficient accounting process as they do not have to maintain separate records, and do not have to fear their financial information being compromised.

Smart contracts

Business partners can generate and validate contracts and agreements automatically, sign and enforce them on Blockchain without depending on mediators. The use of cryptocurrency can further help incentivize the entire transaction onto a single platform.

Instances of Blockchain] Usage

Blockchain, though still in its nascent stages, is finding application across functions, across the globe. Here are a few examples:

- The Russian government is testing the use of blockchain technology in local elections as a means to reduce electoral fraud.
- NASDAQ and other stock exchanges are enabling shareholder voting on blockchain technology
- Utility companies are using blockchain to improve tracking of clean energy as after it becomes part of the grid that also receives energy generated by fossil fuels, it can be hard to segregate them in the traditional certification methods
- Fast, secure and transparent transfer of funds across the globe using cryptocurrency

Challenges

Nothing good ever comes without its own set of challenges. In case of blockchain too, there are certain challenges that need to be overcome for it to become more widely accepted. A Deloitte report indicates that one of the primary challenges associated

with blockchain is the lack of awareness about the technology, hampering its growth and more widespread deployment.

The second, a counterproductive one, is that different organizations are creating different blockchains and applications instead of collaborating. As a result distributed ledgers that do not harness the network will be less efficient and lead to development in silos sans standardisation. This will be a drain on investments and defeat the purpose of implementing blockchain due to the high costs and lower efficiency.

A change in mindset is critical for successful implementation of blockchain solutions. The need to trust a decentralised network and the absence of a central institution can be hard to accept for many.

Regulation also needs to keep pace as the technology matures and its usage becomes more widespread.

The Indium Software Approach

Indium Software has two decades of experience and a team of domain and technology experts in the areas of quality assurance and cutting edge technology deployment. Though Blockchain is a relatively new kid on the block, Indium Software's team is well-equipped to provide a full stack solution for Blockchain, including interface, database and servers, on cloud or on premises. Its team of experts first understand the customer needs, and then design, develop and deploy solutions that can best network the client with its stakeholders to meet the organisational goals. It can also enable analytics leveraging the Blockchain-generated data to further improve business strategies and operations. Integrating with legacy systems and ensuring smooth IT infrastructure is one the areas of strengths for the company.

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