



Application of Blockchain in Project Management

Theme of the paper: Digital transformation

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ABSTRACT

Abstract— The purpose of this article is to discuss the application of blockchain technology in project management. This article analyzes the framework and challenges of applying blockchain to project management and discusses how blockchain technology can contribute to the development of tracking or governing of numerous projects, assets management and in data handling.

Implementing of the block chain can bring following benefits:

(1) Improvements in the quality and quantity of project (2) greater transparency and accessibility of data to management & people involved & (3) development of Information-sharing across different organizations which are closely working or with the counter parts.

However, information security, cost and reliability are still major problems in application. Thus, establishing a general application platform of blockchain technology and developing management standards are crucial for promoting and applying blockchain in

Project Management Blockchain provides an effective way of making Project management services more efficient and standardizing the Management system, processes and responsibility for the members involved in the block chain

Keywords—*Blockchain; Smart contracts; Project mangement*

INTRODUCTION TO BLOCKCHAIN

Blockchain technology, which was first proposed by Satoshi Nakamoto in 2008, has been the subject of much attention in many countries and different fields in recent years. Although “Satoshi Nakamoto” proved to be a pseudonym and no one knows his actual identity, Nakamoto’s work is being used all around the world.

Generally, blockchain is defined as a distributed ledger that maintains a continually growing list of publicly accessible records cryptographically secured from tampering and revision. It is believed to create a persistent, immutable, and ever-growing public ledger that can be updated (i.e., by appending information using cryptographic digital signatures) to represent the latest state of a blockchain.

It was originally used to record historical transactions of encrypted digital currencies such as Bitcoin. At present, the application of blockchain technology has been extended to the Internet of Things, intelligent manufacturing, supply chain management, digital asset transactions, and other fields.

In the recent past with increase in the application of big data, IOT & other digital technologies, the blockchain is leaping forward which works integrated with all digital technologies.

The majority of the companies now have work space across the globe working with different location almost it can be said as the decentralized network in the workspace, supply chain, manufacturing supplies, but when it comes to managing the data cost and scheduling of the project it's still a centralized network.

Flowchart of owning a car in traditional way

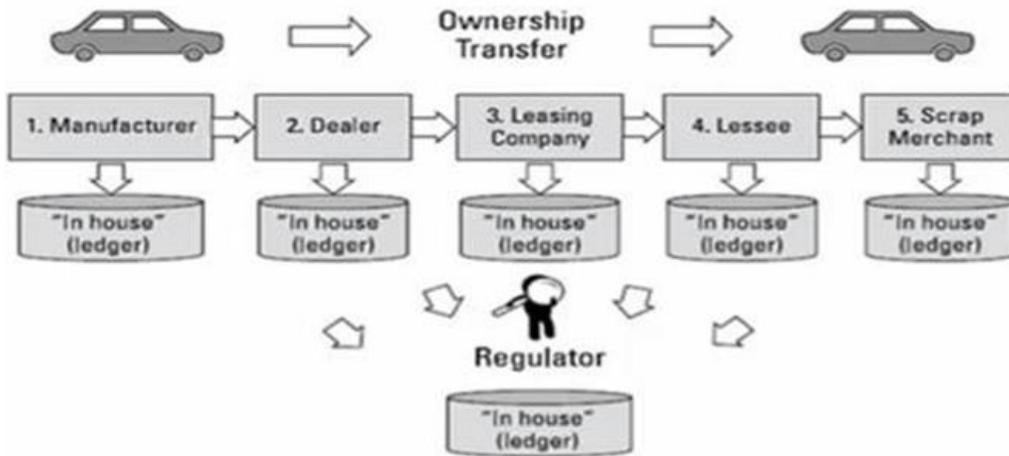


Fig 1: Traditional System in Car Purchase

Flowchart of owning a car in with blockchain

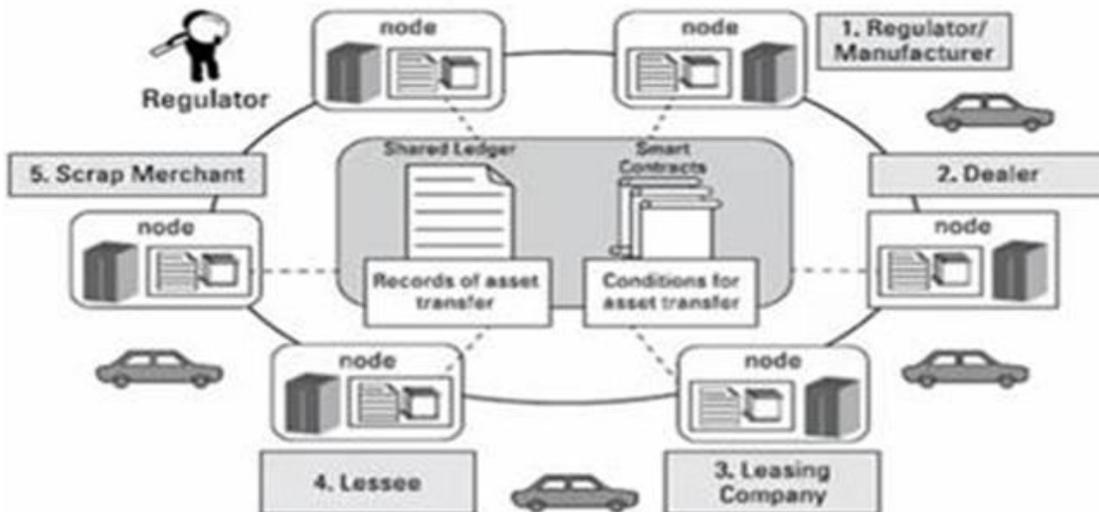


Fig 2: Application of Block Chain in car purchase

Blockchain here serves as the answer by providing the distributed ledger , where it cuts the middleman transactions documentation by storing the data across the network which eliminates risks that come with data being handled centrally which can be accessed to different users based on the open and closed network and through the private and public key.

Blockchain already been used in lot of fields like governance, supply chain auditing, file storage, prediction market, protection of IP, data management and so on. Blockchain will also be more effective because it enables superior operational workflow. Implementing a blockchain-based project will create business value. It will result in time-saving, cost removal, and risk reduction.

When time, cost, and risk are the concerns, who else but the project manager is the ideal person to manage these. In setting up the private blockchain network, the project manager is the expert in communicating with all participants in order to define requirements, scope, budget, deadlines, and deliverables that the blockchain will identify, verify, and validate as transactions.

APPLICATION OF BLOCKCHAIN IN PROJECT MANAGEMENT

DIGITAL IDENTITY

Most of the companies now operate globally; we have people working across globe with different identity, may be the work resources belong to one individual firm or from different firm or a shareholder firm, so identity management becomes the crucial in these scenario to have the required level of access to the documents, blockchain helps in creating the digital identity, this digital identity helps in to establish a reliable personal identity system. The digital identity includes personal identity

Authentication and digital signature functions and will provide reliable identification of individuals as a basic part of One-Stop Services.

By digital identity disclosing reliable information related to specific person becomes easy and specific .Example granting an optional folder access, sharing of the files securely, access to facility with no additional documentation to only certain people through private blockchain and private keys. Employee profile saving, Employee resources portal etc.,

It's also possible to monitor the resources allocation to the project and also the utilization of the resources globally.

SCHEDULING

A company which is working more than 50 countries and which has more than 200 offices and stake holders and pursuing large projects typically works with dozens of hundreds of vendors, the core problem associated here may be synchronizing schedules, today every company has their own systems and they don't talk to each other ,but all are interlinked in-terms of product, thus schedule synchronizing becomes tedious which also cause delay and involves in increased project cost .

Implementing the blockchain in scheduling it's easy for the vendor's subsystems suppliers to update the progress that is immutable and accessible to all participants with the correct electronic keys, instantly revealing when documents are missing or other errors or infractions.

These exchanges will not involve any regulatory or legal issues because they are simply the exchange of information, and yet that exchange is essential for the project to proceed efficiently.

COSTING

Crypto currencies are in buzz from few months like may be bitcoin, litecoin so many digital currencies and it has become so easy to send money home or abroad, these crypto currencies can be used as the global currencies which will be easy in terms of the invoicing, money transfer between the companies home and abroad. This transaction will

have very minute processing fees, very fast in transaction and it's very difficult to data breach the system as it's not a centralized system.

SMART CONTRACTS

Time-consuming contractual transactions can bottleneck the growth of a business, especially for enterprises that process a torrent of communications on a consistent basis. With smart contracts, agreements can be automatically validated, signed and enforced through a blockchain construct. This eliminates the need for mediators and therefore saves the company time and money

Statement of Work (SOW) is one will have set of requirements from the customers. When even there is an update or a change in SOW sharing with all members involved in project becomes challenging, because of dealing with different suppliers at different locations. With the application of smart contract, the project SOW can be directly put on block chain so that everyone is aware of the project execution rules, updates as and when required accessing permission like TCP etc., based on which the people involved can have the e-signature to attest as they are aware of the changes.

DATA SHARING

In different companies the sharing of the right data with right person is a challenge storage of the that data from vulnerabilities also is big risk with increasing data breach and hacking, in blockchain it's possible to create private ledger and you can control with whom you want to share data with their private and public keys.

When it comes to data handling; all the deliverables made are recorded and also stored safely for years together without the possible chance of manipulation / hacking.

Projects which are delivered in the past can be easily stored in the block chain which helps to clear our server space and ensures smooth work execution. All these would indirectly help in generation of our monthly metrics / key performances.

The readily available data helps in fast generation of our Metrics and helps in identifying the exact problem

ADVANTAGES OF BLOCKCHAIN IN PROJECT MANAGEMENT

Improving the Quality with digitalization

It provide a digital identity, this system will provide each employee involved with an 'individual credit 'and a verifiable digital identity, stored immutably in the blockchain platform.

Keeping excessive amount of proprietary information

By consolidating everything into a single platform, businesses can integrate services without disclosing an excessive amount of proprietary information to third parties with the help of private network and private key.

Promoting the Integration of Resources

The integration of resources from different sources extremely challenging; the block chain technology can help solve this challenge with shared public ledger which is immutable.

Robust asset management and tracking

For supply chain management, the blockchain technology offers the benefits of traceability and cost-effectiveness. Blockchain can be used to track the movement of goods, their origin, quantity and so forth. This brings about a new level of transparency to block to block ecosystems -- simplifying processes such as ownership transfer, production process assurance and payments.

DIFFICULTIES OF APPLYING BLOCKCHAIN TECHNOLOGY

- a) The Cost of Establishing a New Blockchain-based Platform
- b) The Long-term Preservation of Blockchain Platform Records
- c) The Information Security of Blockchain Technology
- d) Management Responsibility of the Blockchain Platform

CONCLUSION

Blockchain technology could change our paradigm for trusting records, digital identity; instead of turning to trusted third parties, for evidence, we could find ourselves turning to the blockchain.

Blockchain is of the immutable secured network which stores the log and data, which helps PM to generate the metrics in quick turnaround also the scheduling the project globally becomes ease with effective track trace and monitoring.

Smart contract eliminates the middleman and the delay with aid of digital and secured identity for the people and companies with help of private network.

As it's in a development stage still has both opportunities and risks, however, to date the lack of mature application in other field's remains the main problem in its application.

From this paper we can also understand that blockchain is a revolutionary technology that will rebuild many present business models,

Nevertheless, the potential for blockchain technology and its full range of use is still in the development stage which may require lot of capital.

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