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Blockchain for India

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***Abstract*-With the realization of block chain's Importance and its implementations and Applications, the world is set to move towards a More Block chain cantered functionality.In this Research paper, we see why block chain is Important for the world and why India should Move towards creating a more block chain Friendly environment.**

***Keywords*- Blockchain , India, Cryptocurrency, bitcoin.**

I. INTRODUCTION

A blockchain as the name suggests, is a chain of blocks where the blocks are actually records which hold information. Essentially, blockchain is the sequence or a chain of these blocks. Each block contains a time stamp , the transaction data and the cryptographic hash of the previous block. The traditional way of transferring data or transactions took place in such a way that, the copy of the transaction was sent rather than the actual or the original transaction itself. This was very limiting in a way that any changes made to a transaction was not updated in all places that the transaction ended reaching. Blockchain solved this problem by allowing the transaction to be distributed rather than copied, therebyon its way to becoming the backbone of a new type of internet.

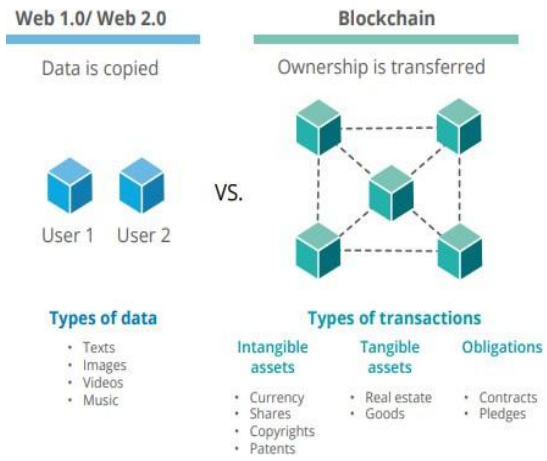

Fig. 1 web vs blockchain.

Originally devised for bitcoin, a crypto-currency , is now finding its uses in many sectors of the world.Lets us understand the working of blockchain before diving into the actual application of it. Let us take the example of users opening the Wikipedia page. The way this works is that there is a request and response process that goes on which is normally the case for all web page retrievals. The site(Wikipedia) in this case sends the master copy of its database to the clients through a server.This means it is a centralized way of accessing the web site. The problem with this is, tough maintenance on the centralized server , and higher number of resources working to ensure the smooth functionality of the server responsible for holding and functioning of the web site.

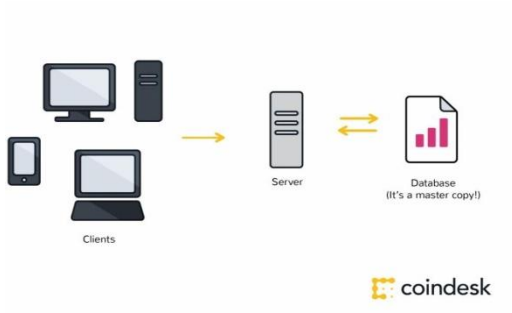

Fig. 2 Webpage request process.

The Wikipedia website's pillar is similar to the functioning of many centralized databases that the insurance agencies or government banks keep today. There is a risk of crashing of website in the case of the serverfailure.Blockchain essentially removes such risks, as it works on the de-centralized or distributed platform. The decentralized database created by blockchain has a different fundamental pillar, which is also the most important or unique feature of blockchain.

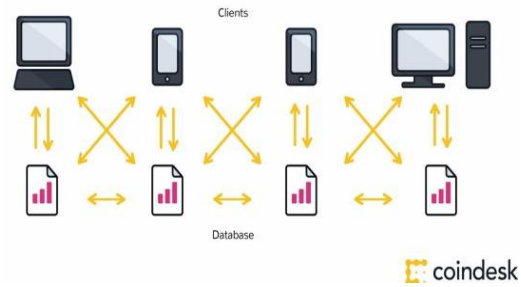

Fig. 3 request process in blockchain.

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In the case of blockchain , every individual or user or node reaches the same place, each therefore updating the records independently , with the most popular record becoming the original from then by default, thereby becoming the master copy of the site.Simply put, every node has the transaction broadcast and therefore all the nodes are creating their own updated version of the transactions or events that take place.This is precisely the reason which makes the blockchain technology exceptional , useful ,by creating an innovation or a revolution in information registry and distribution thereby eliminating the need or requirement of a trusted party to oversee or handle digital transactions or relationships.

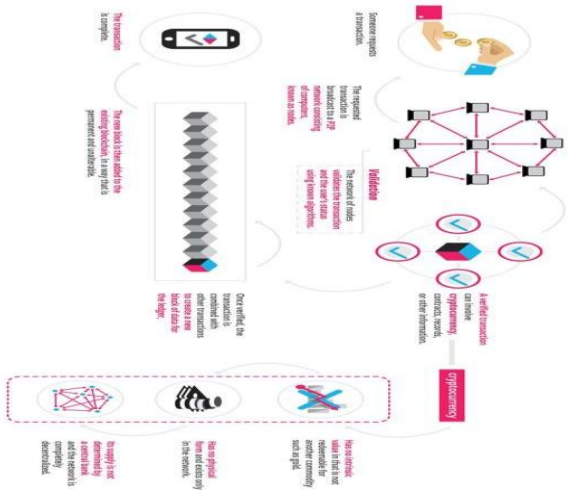

Fig. 4 Cryptocurrency transaction process

II. BLOCKCHAIN IMPLEMENTATIONIN INDIA

Being the innovative piece of technology blockchain is, there is a need to implement it in order to benefit from it. India is no exception when it comes to countries that have understood the importance of blockchain and it applications.Countries that have understood the importance of blockchain are well on their way to implementing it and in some cases already implemented it. Let us take a look at different countries and the blockchain penetration in those countries.

The following figure explain the state of progress of blockchain in differentcountries.in the US, the DHS and S&T unit of the Department of Homeland Security is engaging with public and private partners to test and explore blockchain-based solutions that revolve around identity, transactions, and contracts, as explained by DHS's Anil John and ConsenSys' Victoria Adams at a Digital Diplomacy Series event at the Embassy of Italy in Washington DC.

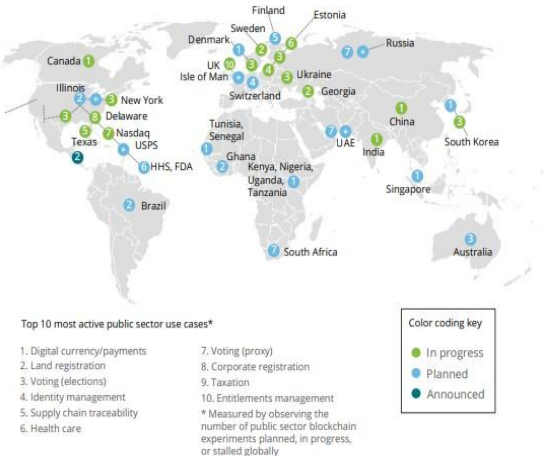

Fig. 5 countries implementing blockchain

President Emmanuel Macron and his government in France are ready to invest in the artificial intelligence , blockchain and data mining to revolutionize its slow bureaucracy instead of simply reducing budgets and jobs. An incredible 700 million euro is being invested inBeing the innovative piece of technology blockchain is, there is a need to implement it in order to benefit from it. India is no exception when it comes to countries that have understood the importance of blockchain and it applications.Countries that have understood the importance of blockchain is well on their way to implementing it and in some cases already implemented it. Let us take a look at different countries and the blockchain penetration in those countries. The following figure explains the state of progress of blockchain in different countries.IT projects over the next five years.

Arun Jaitely, The finance minister of India has recently said that the country would "explore the use of blockchain technology proactively". India's tech industry association NASSCOM is also partnering with Canada's Blockchain Research Institute(BRI) to understand and explore the use of blockchain in academic and government institutions, as well as institutions.The EU also has shown interest in blockchain. The EU has launched an initiative which focuses in highlighting "key developments of blockchain technology, promote European actors, and reinforce its engagement with many stakeholders in the blockchain activities".Even the Chinese government is looking at the future of blockchain, calling it a breakthrough in technology.

[1]There seems to be a focus on Ethereum , a blockchain computing platform . Governments are diverting their focus in Ethereum to benefit their citizens.Some of the examples are

[2] The government of Brazil had announced its views and intentions to move petitions and popular voting onto Ethereum.

- Canada has been testing Ethereum to provide transparency to government grants to calm the citizens' unrest or concern of misappropriation and corruption.
- The city of Zug, Switzerland - a long time crypto bastion has begun offering digital ID's registered on Ethereum in 2017.
- Chile also uses Etheruemto track finances and data from the energy grid, with the intentions of combating corruption and exploitation through transparent, immutable data available for every citizen to view.
- Dubai is a special case , where it is on the move to become an entirely integrated , blockchain powered city by 2020.
- Estonia has become the poster child of the distributed ecosystem and changed into the "digital republic " by transporting or moving many of its national systems onto the Ethereum blockchain.

III. BLOCKCHAIN IN PUBLIC SECTOR

[3]Blockchain being transformative, freeing the ledger from its isolation constraints , has its use in the public sector as well. Lets us take an example to understand the working of blockchain in public sector.Consider the customs in an international logistics, which scales a number of operations of the government and commercial world and involves multiple transactions.

A prominent problem in airports is the time taken for customs, identifying the shipment, transparency, traceability, and predictability of shipments coming in through the nation's ports. This lack of information could lead to costs being added on sap operations . As traditional supply chains have become digitized , using blockchain can reduce the above mentioned problems. Using blockchain for transparent, end-to-end manifesting could have greater impact through out the chains.

For custom agencies, throughout the world , it means eliminating delays in identifying the shipment , improved traceability , transparency , and faster inspection time, due to greater data accessibility. With much more to consider upon, we can understand that the blockchain technology hold immense potential to change or transform the society, making the life's of the citizen's better. Understanding this importance and blockchain's applications in various sectors, India needs to step up its game in order to not be left behind and actively participate in progressing and implementing the blockchain technology throughout various fields. India can benefit a lot from blockchain in the public sector, eliminating the corruption problem which predominantly exists in India's bureaucracy, also boosting India's already thriving IT industry, Security and also military needs.

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