Blockchain as a new business process, increasing the trust and bring efficiency in Indian companies

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Abstract: In India we use a lot of co-operative management in business and agricultural products manufacturing and marketing, Blockchain with is distributed ledger concept can work in business environments where trust is deficit between players. Certain places decision making becomes easier if all have the data, hence there is a large potential of using Blockchain business processes in India. The article is an effort in looking at the potential wherein we can use Blockchain as a business process. Blockchain is going to change how people do business, the same way how Internet changed the way how people access information (Matt Lucas; 2017).

Key Words: Blockchain, Business Process, Start-ups, Industries

INTRODUCTION

Blockchain Meaning in Data Science:
"A Blockchain is a digital, immutable, distributed ledger that chronologically records transactions in near real time. The prerequisite for each subsequent transaction to be added to the ledger is the respective consensus of the network participants (called nodes), thereby creating a continuous mechanism of control regarding manipulation, errors, and data quality."
Simply put, Blockchain is a protocol for exchanging value over the internet without an intermediary.
Every data has a value, a preceding data, it is connected to next set of data, when we have to exchange data between entities, we need to have permissions from central authority controlling data and its multiple intermediaries hence a trust is there in between the them, in a normal data where housing.
A block is a group of people between whom the data is shared in a chain as a distributed ledger between all the players and intermediaries, hence the trust is increased and transfer of data is immediate between all intermediaries. If a data is to be changed it has to be changed across the network.
The agency that controls the logarithmic encrypting of data in a Blockchain and maintaining the blockchain environment, control the Bitcoins as its currency. The first blockchain was conceptualized by a person (or group of people) known as Satoshi Nakamoto in 2008. A Blockchain, if it is public, provides anyone who wants access to observe and analyse the chain data, given one has the know-how. The process of understanding and accessing the flow of crypto has been an issue for many cryptocurrencies, crypto-exchanges and banks. The reason for this is accusations of blockchain enabled cryptocurrencies enabling illicit dark market trade of drugs, weapons, money laundering etc. A common belief has been that cryptocurrency is private and untraceable, thus leading many actors to use it for illegal purposes. Most cryptocurrencies use Blockchain technology to record transactions. For example, the Bitcoin network and Ethereum network are both based on Blockchain. In 2018 Facebook confirmed that it would open a new Blockchain group soon. Slowly now major banks of world like UBS, IMF, Daeutch Bank, Barenberg Bank etc. are accepting this technology disruptor. The use of Block chain business processes are appreciated by Govt. of India, in some of Govt. projects also they have started using it , but crypto-currencies in trading are banned in India by RBI considering it to have a dark side, but globally it is going on.

Blockchain as a business process:
In a business one can use this concept of distributed ledger and Blockchain processes are emerging as a process technology disruptor. Many companies, from a plethora of non- Financial services industries like telecom, healthcare and life sciences, travel and hospitality, and energy, are also keeping a close watch on the potential Blockchain use cases to positively disrupt their traditional business models. Blockchain business process technology is being explored several industry sector and experimenting new ways to:
• Execute transactions quicker for an enhanced customer service.
• Ensure cost efficiency in its operations.
• Assure transparency to customers and regulators.
With huge volumes of data getting generated every day owing to digitization of records, it becomes important for every organizations to effectively manage the security threats and achieve significant cost efficiencies.
This is where Blockchain, with its promises of decentralized ownership, immutability and cryptographic security of data, is catching the attention of the C-suite executives. Multiple use cases are also getting explored across industries as everyone has started realising the disruptive potential of this technology.

For common persons understanding about working of Blockchain, we can consider a small women's kitty party, where they collect monthly kitty amount among their group and announce a winner every month as a small block chain. We have been using some Blockchain business processes technology for long in several areas but did not know of it. Another e.g. is of a group of people who buy a tractor in village and they take turns to use the tractor, pay its EMI by contributing their share at month end. Hence one can say potential is immense for Blockchain in India.

Objective : To study Blockchain as a business process, how it is working as a technology disruptor and understand how start-up companies are coming in India, bringing products of Blockchain for use of public & Industry.

Method: The study is based on analysis of secondary data on use of Blockchain process in various Industry segments in India. Character of a Blockchain business process:

Following are the character of a block chain process:

- Near real time: near real-time settlement of recorded transactions, removing friction, and reducing risk.

- No intermediary: being based on cryptographic proof instead of trust, allowing any two parties to transact directly with each other without the need for a trusted third party.

- Distributed ledger: The peer-to-peer distributed network records a public history of transactions. The Blockchain is distributed and highly available.

- Irreversibility & Immutability: prevents past blocks from being altered and in turn stops double spending, fraud, abuse, and manipulation of transactions.

- Smart Contracts: Stored procedures execute a commercially/legally enforceable transaction without involvement of an intermediary.

Advantages of using Blockchain business process:

1. Information Consensus across Multiple Parties: Sophisticated cryptographic authorization and verification mechanisms enable trust in shared data across complex multi-party networks
2. Time Stamping: Timestamped events are agreed upon across multiple, possibly hostile or non-trusting entities.
3. Security Secure: Encryption and verification technologies enable untrusted participants to securely share trustable information with a third party
4. Authenticity: Digital signatures provide authenticity and non-repudiation
5. B2B Ownership: End-to end asset lifecycles including ownership, custody and provenance can be tracked
6. Resilience: Resilience is achieved through replication across dispersed architecture.
7. Data Loss: Protection Universal data loss becomes a lesser issue.
8. Data Management: Master data management is executed without a controlling entity
9. Programmable Logic: Sophisticated cryptographic authorization mechanisms combined with programmable logic enable trust across complex multi- party agreements
Types of Blockchain:
There are 3 types of Blockchain: Public, Permissioned and Private

- Public Blockchain: Fully decentralized and Transparent - Anyone can read, send transactions & participate in the consensus process e.g. OTC Clearing & Settlement, Replacing Central Clearing (e.g. R3, Citi, JPMC, Santander, etc.) , FX Exchange, Replacing Intermediaries (e.g. Ripple) • Mutual Fund Issuance & Redemption, Replacing Transfer Agency, Insurance Claim with Medical Providers

- Permissioned Blockchain: Quasi decentralized where consensus is controlled by preselected set of nodes and Read permission is restricted to participants e.g. remittances, OTC Clearing & Settlement with Counterparties, Brokers, and Market Makers, Syndicated Loan Among Participants, Supplier Chain Finance (e.g. Barclays, DBS, SCB, BoA, KMB, etc.), Bancassurance

- Private Blockchain: Centralized–requires 'high trust' entity where Write permissions are centralized to one entity and Read to all participants e.g. KYC among Banks and Authorities, (e.g. Smart Entity Using Vault in UK, Singapore, etc.), Letter of Credit/Bill of Lading, Transaction costs dictated by one entity, Loyalty for customers or employee rewarding mechanism.

Blockchain processes used in areas of Industry:

1. Manufacturing & Supply Chain: There are billions of products being manufactured everyday globally, through complex supply chains that extend to all parts of the world. Hence vast potential is there for Blockchain processes as, there is very little knowledge of how, when and where these products were originated, manufactured, and used through their life cycle.

2. Retail & CPG: Warranty Receipts, the solution uses a Facebook messenger chatbot to store warranty receipts on the blockchain. It helps to reduce disputes between retailers and customers for lost receipts and unreadable receipts and track history of ownership

3. Oil and Gas: Digital Supply chain --A Blockchain-based tracking of oil (asset) through the entire supply chain, Immutable view of all events through the assets lifecycle. Smart contract based lease execution and termination resulting in reduction in legal costs and enhanced financial management of a lease due to better transparency in the network

4. Healthcare and Life Sciences: Patient Record Management Blockchain based record management system to enable companies to simplify claim processing, secure medical records, Monitor the pharma supply chain, Collaborate with network stakeholders.

5. Telecommunications: Roaming Fraud Smart contract based solution aimed at automatic triggering of roaming contract based on call/event data, near-instantaneous charging and reduction in roaming fraud. Cost savings from eliminating the third-party clearing house Cost savings from eliminating the third-party clearing house.

6. Public Sector: Land Registry Blockchain based land registration system exploring how Blockchain could reduce the risk of manual errors while creating more secure processes for transferring ownership of documents.

7. Financial Sector: Trade Settlement Faster transfer of securities and payments and reduced trading cost by removing intermediaries. Commercial Papers Issuance and Trading Smart contract based issuance and allocation of Commercial paper to investors, settlement of delivery and payments. Underwriting Verify identities, ensure completeness of applications, evaluate risk and complete quoting and binding. Claims Processing Smart contract enabled flood claims handling process. Trade Finance Streamline and shorten the trade finance process with minimal intermediary intervention. Regulatory Reporting and Compliance Store financial information to eliminate errors associated with manual audit activities, reduce reporting costs and potentially support future activities. Digital Identity Near-real time contract management for on-boarding partners/customers using Blockchain based digital identity management. Customer On boarding Improve customer on boarding experience leveraging digital identities over Blockchain

Start-ups with Blockchain business process solutions:

1. SOMISH- Blockchain Solutions, New Delhi (2006)**:** They are now advocating and building the Blockchain based solution in India and rest of the world having worked on a wide variety of Blockchain use-cases like:

- P2P Insurance
- Aviation Maintenance Log
- Subsidy Distribution
- Crisis Fund Distribution
- Bill Discounting
- Tokenized Fund Transfer

2. EzyRemit, Bangalore (2015): As the name suggests, they are working on easy remittances built on top of the blockchain. They are an innovative company trying to solve some of the long-standing issues of fintech, banking, and payments through their flagship blockchain-based products.

3. Signzy, Bangalore (2015): Signzy aims to couple artificial intelligence with the Blockchain to make secure, compliant and user-friendly products.

Their flagship Signzy API enables:

- Improved user experience with multi-device support.
- Faster on boarding using real-time APIs.
- Enhanced security and compliance.

They have three main products:

1. RealKYC – Bank-grade digital KYC in real-time
2. Digital Contracts – Secured digital contracts enabled by Aadhaar and Biometrics
3. ARI – Algorithmic Risk Intelligence
4. Primechain, Bangalore: They provide Blockchain solutions to industries such as banking, capital markets, government, healthcare & pharmaceuticals, insurance, manufacturing, aviation, shipping & logistics, telecommunications, and defence & military.

They have quite a few Blockchain-powered products:

- Primechain CONTRACT
- Primechain API
- Primechain LOAN
- Primechain Charge Registry
- Primechain KYC
- Primechain MONEY

They have also formed a community of banks called BankChain.

5. PSI PHI Blockchain Labs, Faridabad (2016): This start-up is building next-gen solutions for the digital economy based on distributed ledger technologies because they believe that the Blockchain is going to revolutionize digital economy.

They mainly work in three key industries:

1. Supply Chain
2. Telecom
3. Healthcare

Their core products are:

- CRYPTO LOCKER – Store and share documents on Blockchain using a set of APIs
- DIGI RAIL – Multi-party shared database to optimize supply chain data flow

6. Darwin Labs, Gurugram (2016): Darwin Labs is building applications for the Blockchain, virtual reality, artificial intelligence, and other technologies which will help mankind evolve. They are also working on Blockchain-enabled smart contracts across various industries such as healthcare, banking, trade finance, insurance, etc. under their flagship initiative Blocksmiths.

7. KrypC, Bangalore (2016): They have developed a proprietary framework for developers, clients, and IT companies to implement Blockchain tech effectively in less time and with less cost.

They follow a three-step strategy to do this:

- *STEP 1 Drag and Drop*

Define your innovation in the KrypC platform by simply dragging and dropping various elements of your innovative business models.

- *STEP 2 Quick API Integration*

Connect your business applications through the KrypC API framework.

- STEP 3 Unlock

Let your business team experience and adapt their innovative business models.

8. Sofocole Technologies, Noida (2016): Sofocole is a service-based company that provides Blockchain solutions to its clients across the globe.

They provide consultation on wallets, exchanges, private Blockchains, and smart contracts products.

Some of their products which are already on the market are:

- SofoCap – Supply chain financing solution

- SofoChain – Product supply chain solution
- SofoInsure – Autonomous claim processing solution

9. Unocoin, Bangalore (2013): Unocoin is a well-funded Bitcoin wallet based out of India.

They provide a liquidity exchange instead of a traditional peer-to-peer exchange. One can buy, sell, and store Bitcoin with Unocoin.

10. Zebi, Vishakhapatnam (2015): Zebi specializes in providing Blockchain based solutions to governments and enterprises to leverage, protect their high value & sensitive data.

11. WandX, Bangalore (2017): WandX is the world's first multi-blockchain decentralized token exchange ecosystem along with a hedging product powered by the Basket Protocol.

Blockchains being used by Indian companies:

ICICI Bank – Emirates NBD: Back in October 2016, ICICI Bank and Emirates NBD announced a pilot launch of Blockchain network for international remittances and trade finance. Both banks are first in their respective countries to explore Blockchain network for financial services.

Mahindra group and IBM: Mahindra group and global IT solution provider IBM since 2017 have a cloud-based blockchain-backed supply chain finance application which has a potential to reinvent the supplier-to-manufacturer finance transaction system in the country by invoice discounting, a process that helps supplies access to working capital finance by discounting and selling invoices. Being on Blockchain, the parties will update their part of the process and get the overall activity moving.

Bajaj Electricals – Yes Bank: Bajaj Electricals, Since February 2017, are using blockchain in smart contracting in area of vendor / supplier financing. With support from Yes Bank, IBM and a fintech start-up, Cateina Technologies, Bajaj Electricals has cut down its payment processing time from four to five days to almost real time. Vendor financing module is picked up first in the entire supply chain because it is easier to implement and will benefit the vendor and the bank.

Bankchain : Bankchain is a community of banks who came together to explore, build and implement Blockchain technology for use in banking system with a primary goal of information sharing between banks so that fraud handling and documentation sharing becomes easy. Established in February 2017, the community now has 37 members including 22 Indian banks – Indian public sector banks (State Bank of India, Bank of Baroda etc.), several Indian private sector banks (ICICI Bank, HDFC Bank, KMB etc.), 5 International banks (Citi Bank, Dubai Islamic Bank etc.) and 10 technology providers and consulting companies (such as Microsoft, IBM, Intel, Skylark, KPMG etc.).
Around 10 projects are currently in test implementation phase covering areas such as cross border remittances, KYC, document verification and storage, trade finance, NPAs etc. The Bankchain is being operated by Primechain Technologies, a blockchain start up. Data Security Council of India is the Cyber Security Advisor for the project.

SBI: SBI is currently pilot testing smart contracts and KYC on Blockchain. Once a full-scale implementation of Bankchain is done, this new system will transform the way banks will work. SBI is building an innovation centre at Navi Mumbai where it would like to explore emerging technologies such as Artificial Intelligence (AI), Machine Learning (ML), Robotic Process Automation (RPA), predictive analytics, etc.

ICICI Bank is testing Stellar platform for fund transfers while Axis Bank and Kotak Mahindra Bank (KMB) are testing Ripple for cross-border fund transfer. KMB has brought down its Letter of Credit (LC) time from 20 to 30 days to few hours, thanks to the help from Deloitte. The bank, along with its partner bank JP Morgan Singapore, is using blockchain for a wide range of services - from issuing LC for outbound transactions to transferring trade documentation for inbound LCs to facilitating the transaction funds using Swift.

Government of Andhra Pradesh: The Land Records Department and the Transport Department of the Government of Andhra Pradesh have recently implemented a blockchain pilot. Started in October 2017, the pilot made Andhra Pradesh is first Indian state to use blockchain technology. The outcomes so far are encouraging and plans are on to use it across all departments going forward.
The idea to use them for land records came from a genuine need of landowners – to prevent tampering. Property disputes form 66% of civil courts and a bulk of them are because of fraudulent or manipulated land record. The Governments themselves are still dependent on colonial era land records with little or no digitization. With blockchain, geo-mapping and such technologies, Andhra Pradesh.
Distributed ledger protects Governments against ransomware attacks such as that of WannaCry that showed how vulnerable India is. Zebi Data is being used to blockchain based solution for hosting land records that is being used in Amaravati, the Capital region of Andhra Pradesh. About one lakh land records with the CRDA (Capital Regional Development Authority) are now on blockchain. Similarly, the Transport Department is using it to streamline titles of vehicles.

TRAI: Telecom Regulatory Authority of India (TRAI) is in the process of implementing blockchain to keep irritating spam telephone calls and messages under control, perhaps the first of its kind usage in the telecom sector. The new distributed ledger system will phase out the currently in use Do-Not-Disturb (DND) system which is often crowd-sourced.

UIDAI's Aadhar and blockchain: Is now moving to a tamper-proof distributed database model such as the distributed ledger model offered by blockchain will help overcome the centralization disadvantage yet maintaining the privacy and security of information.

Niti Aayog and GNFC: One of the biggest advantage of blockchain is the use of Smart Contracts that pave way for quick and easy reconciliation of payments made with multiple parties with almost no human intervention. This is exactly what Niti Aayog and GNFC attempts to address when they came together to do joint research and showed their commitment by way of signing the Statement of Intent (SOI) in June 2018 to use the technology for fertilizer subsidy management. Fertilizer manufacturing units across the country disburse as much as Rs. 70,000 crores in the form of subsidies for selling around 31 million MT of fertilizers below cost. The turnaround time for subsidy payment which takes anywhere from four weeks to a couple of months will now get cut to become almost real time payments?

Conclusions:

Blockchain technology is a revolutionary innovation with capability to transform many existing traditional systems into more secure, distributed, transparent, collaborative systems while empowering its users. India has a great reputation for its IT skills. It is the third largest economy in Asia and fifth largest globally. A highly-populated country with decent banking penetration, it has one of the strongest regulator in the banking and financial sector. Our companies and start-ups have started working on the concepts of Blockchain in business processes and we have immense potentials as we have a large economy which is in co-operative management.

REFERENCES

[1] Abeyratne, S.A; Monfared (2016), Blockchain ready manufacturing supply chain using distributed ledger. IJERT Vol5, issue 9, pp1.

[2] Deloite (April 2017), Blockchain in India apportunity & Challenges.

[3] https// en.wikipediaorg/wiki/ Blockchain/

[4] https// coinsutra.com//Indian-Blockchain-Start-ups/

[5] Manda, V.K.; Polisetty, A. (2018), Status Check on Blockchain Implementations in India, SSRN Journal. www.researchgate.net/publication