

# Blockchain Technology Potentials (Could Boost Indian Economy)

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## 1. AN INTRODUCTION

By saying “THE BLOCKCHAIN TECHNOLOGY POTENTIALS COULD BOOST INDIAN ECONOMY” What I mean is that anything which we seems in dark always have some sin or problems spread all around that thing. In same way in India we have many problems related to different region, states, sectors, societies, industries, institutions etc. which directly or indirectly effects our economy, so if we find a thing or technique which could be proof the panacea for that deadliest problem then we must explore that. BT is the same which we should explore and invest into research and development projects so the researchers could found the procedure to implement this technology into different area of country to solve the problems related to different sectors.

A blockchain is essentially a distributed database of records or public ledger of all transactions or digital events that have been executed and shared among participating parties. Each transaction in the public ledger is verified by consensus of a majority of the participants in the system. And, once entered, information can never be erased. The blockchain contains a certain and verifiable record of every single transaction ever made. Bitcoin is the most popular example that is intrinsically tied to blockchain technology. It is also the most controversial one since it helps to enable a multibillion-dollar global market of anonymous transactions without any governmental control. Hence it has to deal with a number of regulatory issues involving national governments and financial institutions. However, Blockchain technology itself is non-controversial and has worked flawlessly over the years and is being successfully applied to both financial and non-financial world applications. Last year, **Marc Andreessen**, the doyen of Silicon Valley’s capitalists, listed the blockchain distributed consensus model as the most important invention since the Internet itself. **Johann Palychata** from BNP Paribas wrote in the Quintessence magazine that bitcoin’s blockchain, the software that allows the digital currency to function should be considered as an invention like the steam or combustion engine that has the potential to transform the world of finance and beyond. Current digital economy is based on the reliance

on a certain trusted authority. Our all online transactions rely on trusting someone to tell us the truth—it can be an email service provider telling us that our email has been delivered; it can be a certification authority telling us that a certain digital certificate is trustworthy; or it can be a social network such as Facebook telling us that our posts regarding our life events have been shared only with our friends or it can be a bank telling us that our money has been delivered reliably to our dear ones in a remote country. The fact is that we live our life precariously in the digital world by relying on a third entity for the security and privacy of our digital assets. The fact remains that these third party sources can be hacked, manipulated or compromised. This is where the blockchain technology comes handy. It has the potential to revolutionize the digital world by enabling a distributed consensus where each and every online transaction, past and present, involving digital assets can be verified at any time in the future. It does this without compromising the privacy of the digital assets and parties involved. The distributed consensus and anonymity are two important characteristics of blockchain technology.

Blockchain was invented by Satoshi Nakamoto in 2008 to serve as the public transaction ledger of the cryptocurrency bitcoin. The invention of the blockchain for bitcoin made it the first digital currency to solve the double-spending problem without the need of a trusted authority or central server. The bitcoin design has inspired other applications. There are some experts who have given the definition to this important technology in the meaningful way which are as follow.

In the word of Don & Alex Tapscott, authors Blockchain Revolution (2016), “The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.”

**Features of BT:** on the base of above definition there are the features of BT in the following way.

1. **Provide real time data:** BT is open distributive ledger, with the passage of an entry all the miners get the same copy of the newly passed transaction.

2. **No central administrator:** As the entry passed and record on the network of BT all the participant on the network get the update copy of transactions, so there is no need of any intermediary to store and passed the information to the participants.
3. **Distributed ledger:** This is the most important feature of BT. Because it make the network more democratic all the participants get the real time picture of all transactions listed on the records.
4. **Irreversible and Immutable:** The transactions which records on the BT networks goes through the huge process of replication and duplication after that these transactions can not be deleted or altered by any one. So BT records are irreversible & immutable.
5. **Authenticity:** the entries which passed in this network are uploaded to the different computers or servers for verification until all the participants give their approval the transaction can nit take place on the records, after getting approval from all the network's participants the transaction uploaded on network and all the miners get their copy.

## 2. BENEFITS OF BT

The BT is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value. So by follow the above studies about different area and explained the objectives of my study in the following manner. After studying the studies done by the other peoples around the world I abstract some important areas in which we can deploy this tech. in our country in which there are immediate need of technology like this.

**BT use in banking and finance:** As we know that firstly BT developed & device in accounting of bitcoins. The first and most important benefit of BT for our country is to device it into banking business, so that we can avoid the scams like recent one in banking sector "PNB scam" which involved '11,500 crore' rupees. These types of scams arise because of lack of transparency & data upgradation system, the issuance of letter of credit in favour of a client of bank without the transaction update and proper accounting of accounts of that client. The BT can remove the existing "transaction reconciliation system, which do not result of immediate notification.

In same direction to discuss the importance & use of BT in banking sectors and others area a conference is going to be held on 12<sup>th</sup>-13<sup>th</sup> may, 2018 in Aerocity New Delhi. On the line of south asia biggest blockchain conference "WORLD SATOSHI SUMMIT-2018

**CYBER SECURITY:** These days depending on technology and digital machines increased day-by-day, with the development in IT sector, new inventions the digitalization of

different activities increased and with this enhancement new gaps and opportunities for hackers arises. In India the govt. mandatory the adhaarno. to get different services of government's different schemes but with the acknowledgement of center the data of adhaar card holders had been leaked in supreme court, criticized the govt. ability to secure the public data in the centralized Database, in case of Adhaar it is "the unique identification authority of india" UIDAI database is a central server with super-high- security protected by cryptography. But unfortunately, hackers are always ahead of the game, and have broken into the super secure system like the NSA (National security agency) in USA, and Britain's NHS (National health services).

Last year the Supreme Court of India has given a landmark judgement, when the Right to Privacy has been termed as a fundamental right under the Indian constitution, is a big deal. So This types of acknowledgment of govt. leads to arise the questions on the govt. credibility. That is where the blockchain comes in. it has distributed database shared among a network of computers all of which must approve a transaction before it can be recorded. So it essentially a universal ledger of digital records (or identify one that's shared between various parties, it can only be updated by consensus of a majority of participants, and once enter information can never be erased.

Now if Adhaar will built on blockchain platform most of concerns could be prevent. The database would be immensely difficult to hack, besides getting around the state of art cryptographic protection, the hackers would need to hack into multiple nodes or server rather than just one, the multiple entities would have to agree on it and authenticate it rather than one central authority. So BT potential ensure the security of online data storage.

**Supply chain management:** India is seventh largest country in the world. it has huge drainage system in the form of many big rivers, all types of environment, different types of soils etc by asses this one can understand that india is good place for any type of production. The largest production always need the proper management supply system, india supply chain management is not good as compaired to other countries in the world. The logistic cost of India is very high. According to Assocham-2016 report it was 14% to the respect of gross domestic product compare to US (9.5%) and in Germony(8%). On the other hand because of black marketing the inflation arises farmer don't get the fair prices for their crops results many of them get suicide because of debt, instead of the huge amount of schemes and incentives these types of incident take place in different part of county. We should need a system that can track all the production, stockpiling, movement, exports, imports or demand and supply of the product so that the farmers get fair price for their crops and pay their debts, fulfill the demands arise in different part of country so to control the inflation, reduce wastage of production by tracking the stockpile in different places and use them efficiently, reduce

the logistic cost by invest in the money at right time and right place etc

So after analyses the problem and features of BT we can say that BT could become the perfect solution for inadequate supply chain management by improving the following tasks on supply chain

1. By recording the production; assume that all the states record the transaction related to their produion after harvestin season of a particular crop.
2. Records of stockpiling; if there is single distributed ledger of which all the states have same copy of transactions then after passing the entry of their production they know the total stock the country have. This would be beneficial for satisfying the domestic demand and export the surplus.
3. Tracking; the entry of purchase order, Sales orders, shipments etc help in tracking the movement of goods.
4. Sharing in formations; by sharing information the govt. of center and states would have the proper and verified data about all the information related to that product. It also help in making the futures plans related to country's economy.

**Voting:** the Abraham Lincoln quote “government of the people, by the people, for the people” shall not be perished from earth. But it seems that this is going to erase from the mind of people and so from the earth. Day- by- day the news related to mismanaged elections come ahead, like the recent one related to US presidential election, 2016. In which Donald Trump became the president of world's power full country the United states of America, the Cambridge Analytica UK based private company, Apolitical consulting firm which maintain data with strategic communication for electoral process, alleged role in influencing the behavior of voters in 2016 presidential election campaign.

In India the debate on EVM (electronic voting machines) hacks began after the assembly elections in five states. The political debate on EVM has put the credibility of the electoral process in the country and election commission on stake. So to maintain the credibility of election process and so of election commission there is need of improved tech. in the form of BT.

By following the steps given below the election procedure could be make more transparent.

1. The first transaction will take place on blockchain network at the time of voters registration. At this point all the necessary information related to voters registered on network.
2. At this steps the voters will cast their votes.
3. The counting stage.

BT is already used in Estonia for shareholders voting, and NASDAQ recently ruled that the Estonia experiment safe enough to allow firm to start using BT for proxy voting.

Blockchain technology will improve the way we vote.

**Governance and public benefits:** Every year govt. launched the different types of schemes, by the central govt., by states govt., by the different department of different ministeries etc. these schemes are launched on the line of providing the benefits to the public like the recently one “the Ayushman Bharat Yojana” officially on the birth anniversary of Dr. B.R. Ambetkar for the 2018 to 2022. For taking two major initiatives in health sector 1) establishment of health and wellness centers and 2) national health protection schemes.

These types of schemes may be more beneficial for the peoples of a coutry if implemented in the proper way, and managed in the right way. Generally these types of schemes generate huge amount of data, if not stored and utilized proper way then may be result of leakage of data or the benefits of schemes could divert to wrong direction.

### 3. NEED OF BT IN INDIA

In the following point I explained the certain areas from the huge potential BT in which by the help of BT we could improve the performance of these areas.

- Banks and finance: BT could prevent bank frauds like PNB and other scam
  1. Improve monitoring being as a distributed ledger technology
  2. Increase transparency in transaction, update info among blocks. transaction reconciliation system at present do not result a immediate notification
- Digital business environment: It may offer an increasingly digitalies business environment. Which may help in the Prime Minister's Digital India programme, to make India digital there is need of a credible technology like BT.
- Cyber security: In the field of cyber security data is verified and secured using cryptography, resist to unauthorized changes & hacks, eliminate the need of middlemen. It could save the data on the different platform from hackers. In the case of Adhaar the data of people, which was on UIDAI database breached by hackers.
- Supply chain management: Proper Supply chain management could be possible by BT. Transactions are recorded in permanent decentralized record, monitored securely & transparently. In this way we can save time, costs, labour mistakes and emissions etc. by understanding the environment impact of product also verify authenticity or fair trade status of product.

- Online data storage: The centralized server are vulnerable to hacking, data loss & human error in online data storage like recent facebook case one. blockchain allow cloud storage to be more secure & robust against attacks for example the Storj. Io provide decentralized cloud storage.
- Charity: Common complains in the charity space include inefficiency and corruption, BT can help donation to where there are going for example BITGIVE lets donors see where their donations go.
- Voting: blockchain will disrupt voting, can be used for voters registration, verification & vote counting, immutable, public viewable etc. ledgers of recorded votes would make elections more fair & democratic for example the apps like Democracy Earth & Follow My Vote aiming to disrupt democracy.
- Governance & public benefits: BT can reduce bureaucracy and increase security, efficiency & transparency in government operations Ex: Dubai is aiming to puts all its documents on the BT by 2020. on the other hand the public benefits schemes also suffers from slowness of bureaucracy. BT can help to assess, verify, & distributive benefits. Ex: Govcoin in UK helping the govt. to distribute public benefits by using BT.

The above are certain examples of potential areas of blockchain technology, by investing in the research and development programme of this we can find more areas of this technology in which we can exploit this technology. In many countries the people have understand the benefits of this and have deploying it into different fields.

#### 4. BT STATUS IN INDIA

In the following points i explained some points which shows the blockchian technology status in India.

- Recent visit to India by Canadian Prime Minister '*Justin Trudeau*' has brought all the good news for both the economies. Canadian and Indian companies signed **66 new commercial contracts and agreements** – worth more than **\$1 billion** – which will help grow both our economies. As per one of the agreement, India's National Association of Software and Services Companies (*NASSCOM*) will work with Canada's Blockchain Research Institute (*BRI*) to help developers understand more about Blockchain platforms for creating tools within the nation.
- "Distributed ledger system or the block chain technology allows organization of any chain of records or transactions without the need of intermediaries," said

finance minister Mr. Arun Jaitley while presenting the Union Budget 2018-19 in Parliament.

- Raj, co-founder, Koinex. "The encouragement for blockchain technology will boost digital economy and will usher in transparency and efficiency in the economy," Subho Ray, president IAMAI, said.
- "The government has said that they want to eliminate use of crypto assets illegitimate financial activities and we align with the government on their point of view. The statement essentially leans more towards the need for having robust regulations and framework to curb malpractices in the market and we are happy to support the government to help them in this endeavour," said Rahul
- Satoshi summit 2018 was held at arocitydelhi in may 2018, these types of conerence could become the source of new dimation of BT in INDIA. THE FOUNDERS, CEO OF THE COMPNIES, STUDENTS, ADVOCATES ETC participated and spoke in that summit from all around the world.
- On December -2017, SEBI chairperson Ajay Tyagi said that there should not be any regulatory over sights on blockchain. This is usefull technology which should be encouraged, we are also encouraging it .
- RBI's working group on FINTECH & Digital banking said " market participants in other securities market are exploring the usage of BT or distributive database technology to provide various services such us clearing and settelmenttrading, the report noted ". Indian securities market may also see such development in the near future and there for there is a need to understand the benefits, Risk and challenges such developments may pose .
- SBI was convinced of BT had already implemented it in its reconciliation system and in several cross country payment gateways. SBI deputy manager and chief information officer MRUTYUNJY MAHAPATA "in blokchain from source system it will try to match the transaction so one can immediately verify any transaction using BT. But simply depend on technology to prevent frauds is fraught since they take place when an official with correct authentication can misuse the system " SUVEE KUMAR GUPTA CEO OF SHIVALIC MARCANTILE COPRATIVE BANK SAID "BT would ensure easy tracking of entries, immutable and distributed ladger which means that anything recorded on them can not be change or deleted and instantly uploaded to all users on that blockchain.
- There are some startup which use blockchain as a technology for their startups are as follow.
- **Primechain Technologies:** Founded in 2016 by RohasNagpal and ShinamArora, Pune-based Primechain

Technologies is key to developing blockchain-based solutions for the banking system of India. As part of **BankChain**, a collaboration of 27 banks from India and the Middle East, Primechain is developing a blockchain powered technology platform for authentication, verification and storage of electronic records. The startup has already filed a provisional US patent titled **“Transparent self-managing Know Your Customer (KYC) program using blockchain and smart contracts”**. Besides BankChain projects, Primechain is also developing some blockchain-based customised projects for Canada and Singapore-based companies. The blockchain startup has developed a series of products which includes Primechain-KYC, Primechain-CONTRACT, Primechain-LOAN, Primechain API, Primechain-MONEY.

- **Elemential Labs:** Mumbai-based Elemential is a blockchain middleware for enterprise. While the founders Raunaq Vaisoha, Anil Dukkippatty, Sahil Kathpal and Aaryaman Vir Shah dub Elemential as the wordpress of the blockchain space, Elemential products are sector agnostic and are being used to create a KYC utility by NSE, enable instant allotment for asset registries, manage royalty payments for media licenses. NSE has already implemented Elemential Labs blockchain-based solutions, and as per Raunaq Vaisoha, Project Manager-NSE, like WordPress, Elemential enables users to build their own chain and the startup's product provides these users with the support and development experience required to take blockchain to production.
- **Sofocle Technologies:** Sofocle designs and develops blockchain powered enterprise solutions for Smart Contracts, Supply chain, Finance, Insurance, Healthcare, and Manufacturing. Delhi NCR-based Sofocle was founded Nidhi Chamria in 2016. **Built on hyperledger**, this blockchain startup caters to supply chain and finance. The product helps suppliers avail loan against approved invoices by the manufacturer with no paperwork needed. Sofocle recently won the 'Fullerton India Supply Chain Finance Challenge' at Vizag Blockchain Conference. Among the other products, while Sofocle streamlines the international trade settlements, Sofocle focuses on recording and verifying the transfer of assets.
- **Cateina Technologies: Founded by Sanachit Mehra in 2017**, Cateina Technologies provides blockchain solutions for business process automation. The solution helps ensure hassle-free continuity of trade. Transactions are guaranteed to be private and encrypted at all times, even when dealing with third-party APIs. Earlier this year, YES Bank had announced that it has implemented a multi-nodal blockchain transaction to fully digitise vendor financing developed by Cateina Technologies. **Cateina is using Hyperledger**, an open source platform to write the codes for blockchain solutions. With a focus on DLT, EAI and IoT are vital parts of the startup's business, with clients in USA, Spain, Singapore and West Asia.
- **EzyRemit:** Bengaluru-based EzyRemit provides blockchain powered solutions to the remittance market. The blockchain solution offerings are focused towards bigger ecosystem and organisation trying to adopt blockchain and cryptocurrency technology for trust validation, distributed computing and simplification of processes. The startup was founded in 2015 by Vishal Kanvaty and Abhijit Jaswal, its products include EzyRemit, EzyHedge, EzyRemit B2B.
- **Auxesis :** Auxesis is one of the oldest Indian blockchain-based startups that focus on building enterprise-grade blockchain solutions. With a global footprint, Auxesis is currently focussing on private blockchain solutions with its enterprise-grade blockchain infrastructure, production-readiness – security, performance and scalability. Founded back in 2015 by Kumar Gaurav, the company has also collaborated with Gaurav's London-based Cashaa, e-cell of IITB, and Mumbai-based Blockchain Lab for the R&D and customised application developments. The blockchain startup has build applications in insurance, supply chain, capital markets, cross-border remittances among others. Some of its products include **AuxLedger, AuxCE, AuxPay, Darwinsurance, Token Bazaar.**
- **KrypC :** KrypC Technologies was co-founded in **February 2016 by Ravi Jagannathan and Venkatraman Viravanallur.** With offices in Bengaluru, Netherlands and USA, KrypC has created a B2B platform to ease adoption and usage of blockchain in different sectors. The startup integrates and creates real-world business applications to the DLT Network. By using its proprietary connectors, businesses can create digital assets, build business rules for asset flow and obtain validation information of transactions and digital assets in the DLT network
- As claimed, the startup's specialised connectors for financial industry are custom built for money transfer, trade finance and pre-approved loans. With vast experience in digital signature certificates, security and cryptography, KrypC has multiple patents in the areas of mobile wallet, digital currency, security and payments solution. **KrypC recently released KrypCore**, the MVP version of their middleware platform that addresses the

threads of enterprise resistance to the blockchain. By using KrypCore, enterprises can create a custom-built blockchain for their needs with zero coding effort

- **RecordsKeeper** :Founded by Toshendra Sharma in 2016, RecordsKeeper aims to replace the cloud storage technologies like Dropbox or Google Drive. It is a Blockchain-based, peer-to-peer structured document storage for Businesses & Individuals. The platform allows users to store document, data & any transaction immutably in private-blockchain securely without the need of central authority. The blockchain-based data security solution allows creating verifiable & immutable records of any types of data which are not possible in traditional technologies like MySQL, Oracle, and MSSQL. This can also be used as a tool to generate a Proof-of-Existence, Proof-of-Authenticity & Proof-of-Integrity of a file, record, document, certificate, degree on the blockchain.
- **Signzy**: Based in Bengaluru, Signzy Technologies offers digital trust solutions based on blockchain and AI, aiming to simplify and secure digital regulatory processes. The blockchain startup launched its first application programming interfaces (APIs) in May 2016, helping customers streamline their identity verification and contract management processes. Currently, it offers these digital onboarding solutions for banks, NBFCs and other financial institutions. Most banking services are going digital but one key process that is still offline and hampers consumer experience is regulatory compliance. There is a pressure to dilute digital KYC however digital has a higher risk. We at Signzy believe that through a combination of Artificial Intelligence and blockchain we can ensure that digital compliance is convenient but yet secure. The startup was founded in 2015 by Ankit Ratan, Arpit Ratan and Ankur Pandey and has its applications in banking, insurance, mutual fund, payments, cryptocurrency.
- **GetXS** Mumbai-based GetXS is developing blockchain based digital identities for users to authenticate securely over the Internet. The startup has created **40,000+ XS IDs so far**. While accessing their IDs, users don't need to remember multiple passwords. The password has been tackled by giving users unique digital keys that can be used at all the correlated platforms. Founded in 2016 by Hitesh Malviya, GetXS is working on developing applications in property management, Healthcare, Online Marketplace, Financial Services.
- **Accubits Technologies Inc** Based out of Kerala, Accubits is an AI & Blockchain focused development and solutions company with its development offices in India and Dubai. The company is developing Blockchain-as-a-service platform in sectors ranging from fashion technology to complex CRMs. Accubits' key application areas include finance, retail, supply chain and

manufacturing. The startup has launched a couple of products too viz. iCosys, Reinsurance, BaaS Solutions.

- **Somish Solutions Ltd** With hands-on experience in building a private, permissioned or public blockchain MVP using underlying frameworks like Ethereum and HyperLedger fabric, Somish Solutions develop and provide blockchain-based solutions for applications such as P2P insurance, aviation maintenance, distribution log, tokenised fund transfers etc. Its flagship blockchain product GovBlocks aims to develop Dapps (decentralised applications) based on Ethereum blockchain platform. Founded in 2006, the startup has applications in areas such as finance, retail, supply chain, manufacturing among others.
- **StaTwig** Hyderabad-based, StaTwig involves IoT and blockchain to provide real-time tamper-proof end-to-end tracking that identifies problems and inefficiencies in the supply chain. The solution provides real-time tracking and visibility of the life journey of a product, including geographical location, changes in temperature, along with all of the transactions, contracts and payments associated with the product as it moves through the supply chain. The blockchain startup was founded in 2016 by Sid Chakravarthy.

The above-mentioned Indian blockchain startups are catering to almost all the verticals where blockchain can be plugged in and are set to change the face of Indian industries.

However, barring Andhra Pradesh and Telangana, other states are yet to show their interests in blockchain-based solutions. While AP government has already digitised all of its public services and also aims to enable blockchain in their services by 2019, other states lag far behind.

In private sectors, while supply chain and fintech companies are adopting blockchain at a faster pace, manufacturing, agritech, energy, real estate, telecommunications, tourism, and media & entertainment, in India, have a long way to go in this regard.

## 5. BT STATUS IN THE OVER ALL WORLD

**RUSIA**: Aiming to overcome infrastructural limitations to its economic growth, Russia is now relying on an increased university-industry collaboration to integrate breakthrough technologies in building a new economy for the country. The National University of Science and Technology (NUST) MISIS has been mandated to create centres of excellence that can act as a playground for government departments and private companies to test new ideas.

One such centre that has come up in recent times is the "Center of Blockchain Competencies". Set up in collaboration with NUST MISIS and Vnesheconombank (VEB), a government-run bank, it is a first-of-its kind centre to help government services to implement **blockchain technology**.

Vladimir Demin of Vnesheconombank, who oversees the implementation of this technology in the Russian economy and the country's public administration system, believes that blockchain creates value and its use will soon spread to other sectors of the economy.

The centre brought together leading world experts as well as Russian researchers for implementing pilot projects based on blockchain technologies in various areas of public administration — from registration of real estate transactions to monitoring supply chains to subsidised medicines in the country — where there are chances of corruption.

**DUBAI:** the Dubai Government agency entrusted with making Dubai the world's happiest and smartest city, said it was close to rolling out 20 blockchain applications in a number of civic agencies including the Roads and Transport Authority in order to bring greater efficiency.

"Blockchain will improve people's experience," Aisha BintButi bin Bisher, the director general of Smart Dubai, told *The National* on the sidelines of Unlock Blockchain Forum on Sunday.

"The applications are in various fields, some of them are in RTA, road and transport, some of them are in energy, health and education. These 20-use cases are under pilot, and we are looking forward to see the results so we can scale it."

Ms Bisher said Smart Dubai had set a deadline for 2020 to roll out its blockchain strategy but it was likely to be able to do it in 2018. Already, she added, blockchain was being used in land registry transactions. Smart Dubai said last March that the move to blockchain, involving the use of highly secure distributed electronic ledgers, is expected to improve the delivery of basic government services, saving over 25 million productivity hours per year. The government agency partnered with IBM and Consensus who are acting as strategic consultants and advisers, Ms Bisher said. The Dubai Land Department, Dubai Municipality, Dewa and the Department of Naturalisation and Residency Dubai are among those running blockchain pilot projects, it was reported last year. Meanwhile, Dubai Customs, Dubai Trade and government-owned ICT firm Dutech are working with IBM on Blockchain ledger projects.

"While others were still debating the prospects of this new technology, we went to work and today we are making Dubai the blockchain capital of the world and we have already begun," Ms Bisher said.

**Sierra Leone:** the tiny West African nation of Sierra Leone has become the world's first country to have blockchain-powered elections. The applications for blockchain technology – the decentralized tech that underpins cryptocurrencies – are virtually limitless. One of the more exciting – and controversial – areas is voting. Electronic Voting Machines (EVMs) and their software security have in the past been the targets of hacks and fraud, and blockchain has been offered as

a viable tech alternative to traditional electronic voting methods. its National Election Commission (NEC) authorised Agora, a Swiss company offering digital voting solutions, to use allowed blockchains to tally the votes in the country's most populous district (that also houses the capital Freetown). The exercise has been a success; Agora stored over 400,000 ballots on its blockchain-based voting system, which also lets registered voters see the vote tally. The goal was to improve transparency and reduce suspicion of corruption in a significant democratic exercise in the country. Leonardo Gammar, CEO of Agora, told TechCrunch, "Anonymized votes/ballots are being recorded on Agora's blockchain, which will be publicly available for any interested party to review, count and validate. Similar proofs-of-concept and pilot projects using blockchain in elections and voting have been previously demonstrated in Denmark and Estonia, but this is the first time the exercise has been conducted on such a scale in the real world

**UNITED STATE OF AMERICA**The application of US retail giant Walmart to patent its "Smart Package" system has been released by the US Patent and Trademark Office (USPTO) on Thursday, March 1, Fintech Finance reports. Walmart's "Smart Package" patent employs a Blockchain-based tool to track package contents, environmental conditions, location, and other details. The device described in the application is intended to be used in new technologies like autonomous vehicles and unmanned drones. According to the application, Blockchain will record the "key addresses along the chain" such as "seller private key address, a courier private key address, and a buyer private key address." In the patent application, Walmart noted the need to design a tool providing "greater security in the shipping packaging that the items are shipped in." The application says that the existing tracking instruments do not yet provide "such desired functionality". Walmart first filed its "Smart Package" application in August, 2017, reports Fintech Finance. "Smart Package" is not the first instance of Walmart utilizing Blockchain technology. In November, 2016, Walmart partnered with IBM to use Blockchain to detect and remove recalled foods from its products list.

Actually, there are so many projects that are conducted by governments. One can see the projects driven by governments around the world in the tables below. Table contains various projects conducted by governments, based on blockchain around the world.

NATION	PROJECT
Australia	Australian senators launch parliamentary friends of blockchai group. Announced in August 9, 2017 The Australian Securities Exchange (ASX) announced that they will use blockchain technology to clear and settle trades by replacing the outdated Clearing House Electronic Subregister System, also known as CHESS. Announced in December, 2017. The proposed transition is expected to take place in March 2018.

China Social security funds management system Announced in 2016 Mortgage valuations on blockchain Announced in 2016 Blockchain-based asset custody..system (PSBC) Successfully executed more than 100 real business transactions on the blockchain since the system went live in October 2016 Blockchain city project (By Wanxiang Group) The project was announced by Wanxiang Group in 2016 and backed by Chinese.

Dubai Government documents management system to be enacted by 2020, Ongoing Global blockchain council (GBC) was established in 2016 with 32 members, including government entities, international companies, leading UAE banks, free zones, and international blockchain technology firms, Ongoing Digital passport based on blockchain Announced in June 2017 Real-time information system about shipments to Dubai Announced in 2017.

Estonia eID (electronic ID management system) The government is currently upgrading the existing system with blockchain technology. E-health (medical information management system) The government is currently upgrading the existing system with blockchain technology. e-Residency (a first-of-a-kind a transnational digital identity) Since 2015, more than 27,000 people from 143 countries have applied and 4272 companies have been established as of December 2017.

Switzerland The city of Zug (the capital of the canton of Zug) started accepting bitcoin as payment for city fees. The large number of companies engaged in cryptocurrency are located in Crypto Valley in Zug Since July 2016 (Crypto Valley was named by Ethereum co-founder MihaiAlisie) Zug offers blockchain-based digital identity to their residents Announced in 2017.

The above are few examples of the government-led projects around the world which are successfully deploying the blockchain into different fields .India should learn from these types of initiatives and should initiate the process to use the panacea in the problems spreading different sectors of the country.

## 6. LITERATURE REVIEW

- India uses paperless electronic voting machines (EVMs) for its state and national elections. These machines use a simple embedded system architecture that makes them considerably different from the complex electronic voting systems found in the U.S. and Europe (where almost all prior research has focused). Despite growing suspicions of fraud, Indian authorities have never permitted a serious, independent review of the machines' security. Hyderabad-based engineer Hari Prasad spent a year trying to convince election officials to complete such a review, but they insisted that the government-made machines were "perfect," "infallible," and "tamperproof." Then, in February 2010, an anonymous source gave him access to one of the machines for study. E-voting

researchers J. Alex Halderman from the University of Michigan and Rop Gonggrijp from the Netherlands join him in India for the study. The team discovered that, far from being tamper-proof, the machines suffer from serious weaknesses that could be exploited to alter national election results.

- After Independence there has been a significant improvement, in the health status of people. But the situation is not much better as per study of WHO. It has placed India in 145th position among 195 countries of the world. behind its neighbours like China, Bangladesh, Sri Lanka and Bhutan, according to a Lancet study. The Global Burden of Disease study, however, mentioned that India has seen improvements in healthcare access and quality since 1990 A serious drawback of India's health service is the neglect of rural masses. According to health information 31.5% of hospitals and 16% hospital beds are situated in rural areas where 75% of total population resides. Moreover the doctors are unwilling to serve in rural areas. According to the study, India performed poorly in tackling cases of tuberculosis, rheumatic heart diseases, Ischaemic heart diseases, stroke, testicular cancer, colon cancer and chronic kidney disease among others.
- At nearly Rs10 lakhcrore, India's pile of bad loans is bigger than the gross domestic products of at least 137 countries. But so far, the RBI's attempts to reduce Non-Performing Assets (NPAs) in the banking sector have yielded little result. The share of gross NPAs in India could inch up to 10.2% by March 2018, from 9.6% in March 2017, according to the FSR. In September 2016, gross NPAs were at 9.2%.Currently, the worst-hit are the state-owned banks, which dominate the Indian banking system. In March 2017, the average bad loans of PSBs stood at 75% of their net worth. These bad loans are squeezing banks' profitability and capital positions, threatening the health of some of India's biggest banks. In the report, the RBI cautioned that the situation could get worse with any unforeseen stress in the economy. Another pressing concern for the banking regulator is the increased number of fraudulent transactions at Indian banks. What's adding to the concerns is that banks often seem reluctant to report these cases "Almost all corporate loan-related fraud cases get seasoned for two to three years as NPAs before they are reported as fraud," the RBI said in the report. In the last five years, the volume of bank fraud has increased by 19.6% to 5,064 cases
- Good governance helps create an environment in which sustained economic growth becomes achievable. Conditions of good governance allow citizens to maximize their returns on investment. Good governance does not occur by chance. It must be demanded by citizens and nourished explicitly and consciously by the nation state.. The presence of a strong civil society



including a free press and independent judiciary are pre-conditions for good governance. It is true that both the Government of India and the State Governments have been allocating a fairly good size of public funds to health, education and other schemes but the principal feature of the scheme of effective delivery of services needs to be seen in the context of the fact that demands have to flow from the bottom up and not the top down. The Indian administrative scene is marked by few successful innovations and practices in public service delivery and a large number of pathetic performances. The general weakness of accountability mechanisms is an impediment to improving services across the board. Bureaucratic complexities and procedures make it difficult for a citizen as well as the civil society to navigate the system for timely and quality delivery of services. The lack of transparency and secrecy that have been associated with the administrative system from colonial times, besides generating corruption, has also led to injustice and favoritism.

- Cyberspace comprises IT networks, computer resources, and all the fixed and mobile devices connected to the global Internet. A nation's cyberspace is part of the global cyberspace. On the other hand "Cyber security" is concerned with making cyberspace safe from threats, namely cyber-threats. The notion of "cyber-threats" is rather vague and implies the malicious use of information and communication technologies (ICT) either as a target or as a tool by a wide range of malevolent actors. Aadhaar is one such highly sensitive and highly insecure project of India government that is neither prudent nor secure. It only has a false sense of security that government is projecting to divert the attention of critics of Aadhaar. But real cyber security professionals are well aware of the dangers of Aadhaar project that has put the lives and properties of Indians in great peril "WannaCry" is another example of cyber threat a crypto-ransomware that is also called WannaCrypt, affected at least 200,000 computers in 150 countries, including India, described as the largest ever of its kind.
- To address what it sees as an internet infrastructure flaw, the Sovrin Network will add a missing identity layer to it based on an immutable blockchain record, making secure and private self-sovereign digital identity possible for the first time, according to Phil Windley, chair of the Sovrin Foundation. The network is currently in beta, with pilots taking place among various Sovrin Foundation members, Windley said. It should be generally available to businesses sometime this summer. What's more likely to happen is they're going to go into their bank or credit union and they're going to say, 'We have this new way of logging into your account.' You'll download an app." Behind the scenes, the bank and customer will exchange non-correlatable identifiers; they'll simply scan a QR code and will be signed up for the new identity

service." Later on, they'll see that as an [icon] on their phone," Windley said. One pilot the Sovrin Foundation is currently testing with IBM is verifying employee identification. IBM workers scan a QR code provided by their company, and they're automatically given an icon that a bank on the network can use to verify employment. Sovrin Founders include 22 businesses from a wide range of industries, such as ATB Financial, SICPA, a maker of security inks used in paper money, and T-Labs, the research and innovation unit of Deutsche Telekom. Evernym, another founding member, develops self-sovereign identity applications that run on the Sovrin network.

- "Transaction reconciliation systems at present do not result in immediate notification, "Using blockchain, all parties on the chain will be immediately notified about a transaction." The adoption of blockchain by India's banks could help avert frauds such as the one at Punjab National Bank as the disaggregated and transparent nature of the technology, which updates information across all users simultaneously, would have ensured that various officials would have instantly been alerted to the creation of the letters of undertaking (LoUs), according to bankers and blockchain specialists

## 7. OBJECTIVES OF STUDY

- The main motive of this study is to bring the technologies like BT into different sectors of India to put the data of vast country like India into safe hands.
- Transparency and security of the transactions are so important in present scenario of country, when the country is growing with its fastest pace.
- To improve the efficiency of the government by providing them a technology which is safe by all means.
- Blockchain technology is important so that the different transactions related to different kinds of schemes could be held in an efficient way, so that the benefits of the different schemes could be reached to the grass root level.
- To find out the potentials of blockchain into different fields like banking & finance, voting, cybersecurity, supply chain management etc
- To make analysis on the startups which already bring the technology into their administration, and assess the result so that the government also take advantage from the same.
- My objective is to understand the current research topics, challenges and future directions regarding Blockchain technology from the technical perspective..
- The research will be focus on revealing and improving limitations of Blockchain from privacy and security

perspectives, but many of the proposed solutions lack concrete evaluation on their effectiveness.

- It is important to identify what topics have been already studied and addressed in Blockchain and what are currently the biggest challenges and limitations that need further studies.
- Blockchain has been proposed as an innovative solution to areas such as clearing and settlement of financial assets, payment systems, smart contracts, operational risks in financial market, and so on, so it is important to bring this type of tech in india
- To improve the supply chain management, In supply chain management, blockchain technology provides a groundbreaking solution to product provenance. A shared, consensus-based public ledger is used to track the origin and the processes in the supply chain.
- The blockchain technology is still at an early stage of development and further research is needed to enhance its efficiency and security.
- Blockchain, as an emerging technology, has been considered to be a new means to deal with the needs of people, technology, and organization. Blockchain research is expected to address the issues of trust, sharing, and privacy as part of human society.
- To decentralize the system of different sectors of the society so that the issues related to different society could be analysed by the different intelligence minds presence in the sphere, which could give the better perspective for different issues

## 8. RESEARCH QUETIONS

- would blockchain be really helpful to eliminate the problem which mentioned in this paper?
- could blockchain become the panacea to mentioned problems of vast country like india?
- Could the complex technology like blockchain be understandable by the youth of india?
- Is the blockchain really a adequate technology for all these problems?
- Is blockchain really that much secure and reliable, to put all data on that?
- Could the government of India implement the technology like blockchain in the country with present scenario of information technology ?
- Is it beneficial for the country to invest in the technology like blockchain, which is still on it's nascent stage?

## 9. RESEARCH METHODOLOGY:

I prefer the analytical type of research or we can say the qualitative method of research I choose this method rather than quantitative because my all research is about the attributes/qualities(distributive, secure, reliable, accessible etc) of the BT, which are attractive to all field mentioned in this paper. After analysis the the work done on the same direction by other people around the world I prepare this research paper. I greatly exploit the internet from where I get fruit full information for my paper. I also use the study done by Deloitte the UK based pvt. Company, Wikipedia, google search engine, youtube videos etc

The above study shows that there are many problem which can handle by the single technology only the need is to explore that tech. to find the answer of my questions or to check the authenticity of objectives, which I have put on the basis of my study. The start up of our country and from around the world, which are using blockchain as the technology for their organizations could answer the questions which I have put in this paer. In future, I will also study on the their size, administrative area, way of business, human resource efficiency and area of business. Their size will tell us that how much size should be there to get the success by using BT, field of business would tell that in which particular area the blockchain could do well, administrative area will show the that how much bureaucracy would be involve in the policy making, implementation, and passing the transactions, way of business will told the methodology of the business like that is centralized one or decentralized one, human capital knowledge and skill is the most important part it will that would there be need of new skilled staff required or a small training would be enough to induce the tech in govt. departments etc. My future study could be provide the better result about block chain deployment in different areas.,)