A Review based study of Block Chain insights for Real Estate Industry in Kanpur City

Sanjay Shahi

Research Scholar
Capital University
Jharkhand

Abstract- **Real Estate has lot of significance in the economy but there has been loop holes too in the current system like land transactions that happens around us is a long process which may even take months to complete not only it may take time it may also cost extra charges for intermediate people and also for transactions and we are facing other problems like labour shortage strain, inflation and interest rates, geopolitical risk, hybrid work, supply chain disruption, fraud and corruption, trust issues and so on. The introduction of Blockchain in the Real Estate Industry is a technological advancement that can revolutionize how land records are saved and which can help prevent corruption and title fraud. The Blockchain and Real Estate can go hand in hand. Blockchain technology could create a system of real estate Tokenization, which will pave the way for the fractionalization of real estate. This study focuses on understanding the impact of future implementation of Blockchain Technology in Real Estate considering a particular geographical area i.e. Kanpur. This research found that there are various dominant factors which influence Real Estate Industry in Kanpur City towards implementation of Blockchain Technology in it as Block chain is super secure, open for the entire public to see so we have very less cases of Money Laundering and almost no land disputes going forward.**

Keywords: **Block chain, Smart Contracts, SHA256, Consensus Algorithm, Tokenization.**

1. INTRODUCTION

In a Real Estate Industry land transaction is a long process which may take long time even months for the change of ownership from one person to other or from seller to buyer; even in the new world of technology. Not only the time but also it may cause unwanted cost for the land transaction. The lack of a proper system to maintain land records and provide persons with conclusive titles results in frequent and long drawn legal conflicts. Determining who the unchallenged land owner continues to be is a difficult task since registering any transaction under the Registration Act, 1908 is just an evidence of the transaction, which does not confer any title on the landowner. The system envisaged under the Registration Act runs parallel to the records maintained by the revenue department. These are supposed to reflect the changes in either record. However, this does not always happen. Even though we may have got a faithful third party, there is no guarantee that there had not involved any fraud activities in the land transaction. Real estate or property transaction is an area where many fraud activities are involved. Many fraud activities were reported in the past and still it is continuingon. The main fraud activity that is involved in this field is double spending. The seller can sign multiple agreements of sale on the same piece of property with multiple buyers with the help of multiple third parties (In most cases the third party will bea victim).

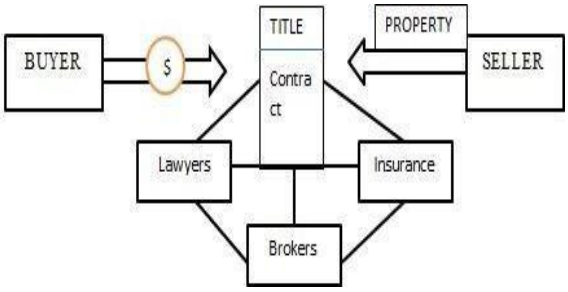

Figure 1. Land transaction without Blockchain

Blockchain technology is now appearing in the real estate sector because it can make the processes of the real estate sector much simpler. These processes involve documentation, records, due diligence, registration, and closure. The buyer will get a passcode/private security key from the seller with blockchain technology. The buyer will be able to access previous property records such as ownership, maintenance payment, etc.

The title records, property tax, encumbrances, etc., can also be accessed by the property buyer after identifying it. With the digitalization of the records, mortgage, transference of payments, and property registration can be completed very easily. Hence, blockchain technology makes the real estate process much more seamless, faster, and more efficient. Blockchain Technology in the real estate sector would also benefit in several other ways, such as through title fraud elimination, growth of tax revenue collection, removal of government-level corruption, reduction of property disputes, lower transaction costs because of minimal involvement of intermediaries, and complete removal of the physical storage of property papers.

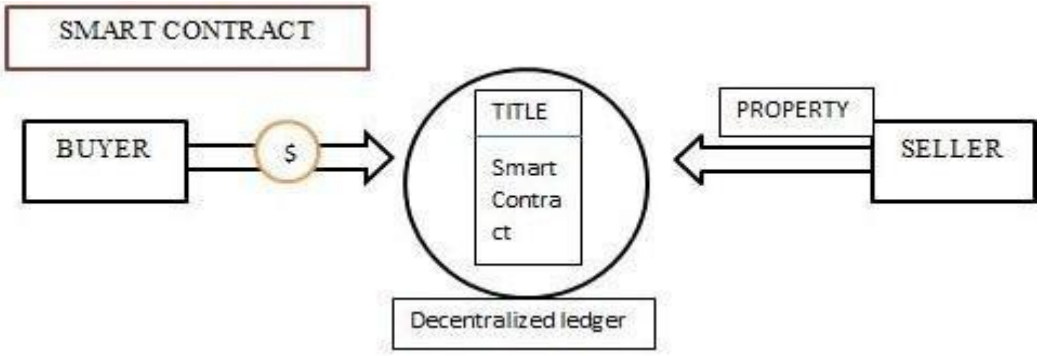

Figure 2. Land transaction with Blockchain

Blockchain Technology

Blockchain Technology can be thought of as a chain of transactional records stored in the form of blocks in the system. The technology allows transparency, decentralization, and encryption whilst making updating or modifying the information stored in the blockchain difficult. A single authority does not manage it. It is protected by a digital signature to verify the transaction's authenticity. Initially created to track the bitcoins available in circulation, blockchain technology's application has moved far beyond cryptocurrencies. It is even being used in unexplored arenas like the Indian real estate sector.

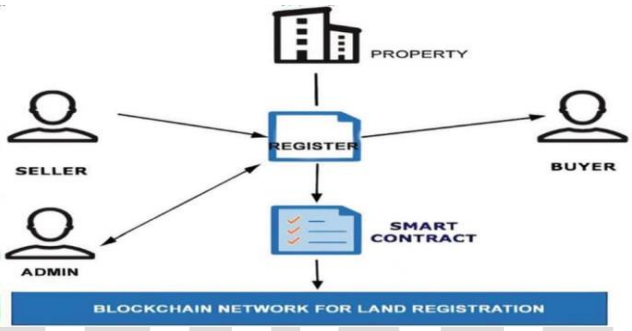

Figure 3. Blockchain network for land transaction

A Blockchain is a time-stamped arrangement of immutable records of information that is overseen by a cluster of computer's and not owned by any single entity. Each of these squares of information is (i.e., block) secured and bound to each other utilizing cryptographic principles (i.e., chain). The initial block is called genesis block and each block holds the hash value of the previous block except genesis block. The hash acts as a backbone of block chain. It is created using thealgorithm like SHA-256(Secure Hash Algorithm).

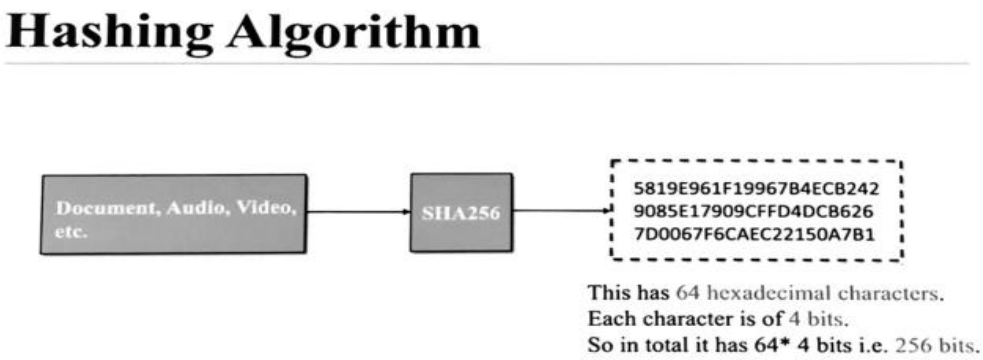

Figure 4. SHA256

Smart Contract

For the validation or proof of this Blockchain Technology in the land registry, the concept of the smart contract is followed. A smart contract is the legal proof of ownership and contain the history of the property. The buyer is

confident for land bought, that it is original without any duplicity, and the seller is the lawful owner of the land, which abandons the probabilities for any disputes later. The use of smart contracts gears up the procedure of land titling by updating the record automatically. Smartcontracts streamline the block chains, complex process. In simple terms it can be defined as block of code that is executed automatically when the predefined conditions are met. Smart contracts make the process fast, secure and also establishes trust among the stake holders as the terms and conditions are mutually agreed and executed automatically without any manual interference

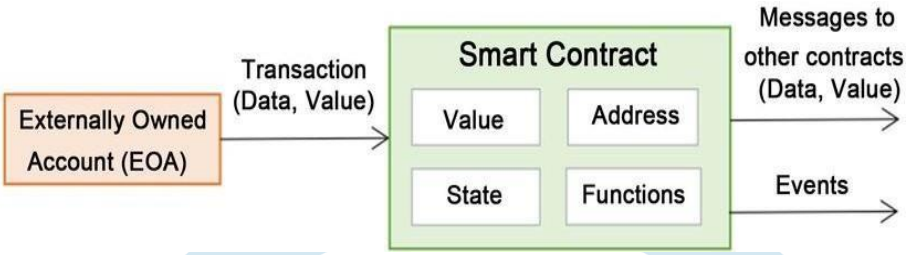

Figure 5. Smart Contract

Tokonization

Through tokenization of fungible resources, buying property in real world and changing over into a token, movingthe assets can be more helpful, speedier, and less demanding to split. In land, tokenization helps in digitization of assurances,discretionary sources, and financial units. With Ethereum Blockchain advancement, programmed sources might be changed to incorporate ownership rights, substitute records, and guidelines to guarantee valuable asset issuance, scattering and activities.

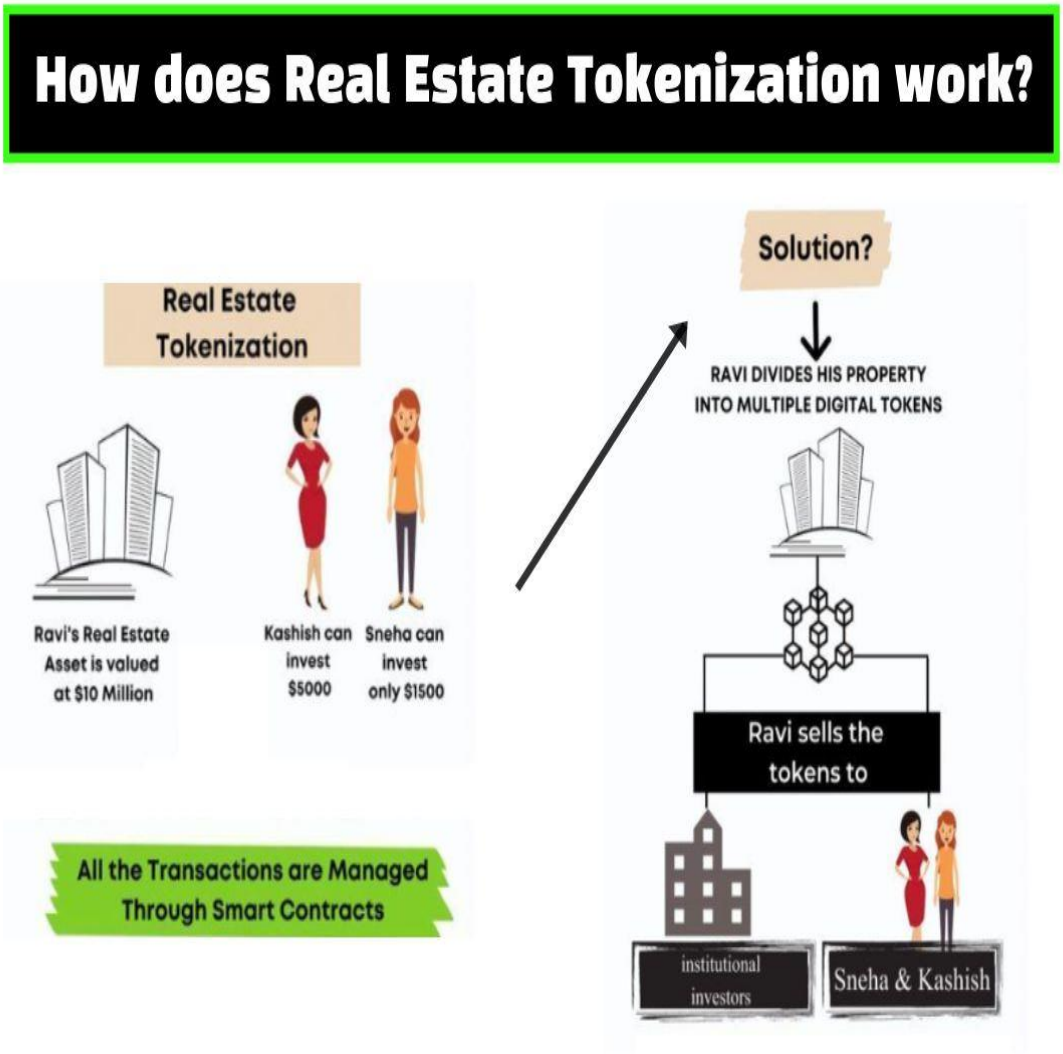

Figure 6. How does Real Estate Tokenization work?

II. LITERATURE INVESTIGATION

Many reviews have examined Blockchain's potential, benefits, and challenges within the Real Estate Sector but have mainly concentrated on one area, such as land administration (Ekemode et al., 2019; Ferreira, 2021). Bennett et al. included Blockchain Technology in their systematic research synthesis of emerging data technologies in the global land administration sector and provided a detailed outlook of Blockchain's potential in land administration in 2019 (Bennett et al., 2019. However, Bennett et al. concluded that in 2019, it was simply too early to make broader claims about the potential impacts of blockchain on the sector. Additionally, the real estate sector, especially land administration, is mentioned as one potential blockchain application in systematic literature reviews conducted from other perspectives, such as Smart City and e-government (Khanna et al., 2021; Majeed et al., 2021), Smart Contracts (Alotaibi and Alshamrani, 2021; Xu et al., 2021), or Blockchain general industrial applications (Sanka et al., 2021). However, compared with how often Real Estate is provided as an example of a potential Blockchain application in the academic literature, systematic reviews providing an up-to-date and thorough understanding of the potential of Blockchain for the whole Real Estate Sector beyond land administration are lacking (Ferreira, 2021). With Blockchain Technology developing at such a rapid pace, research is being increasingly published, leaving previous works quickly out of date. Moreover, most research on blockchain in the real estate sector has dealt with theoretical concepts instead of empirical settings. In fact, most research conducted on blockchain applications in general is on the conceptual level. The number of quantitative and qualitative business- related research studies is limited, and theory-driven empirical research is rare (Karamchandani et al., 2020; Risius and Spohrer, 2017;Prakash Bhalchandra (2015) In their paper entitled "Rational and Irrational Factors Affecting Real Estates Buying Behavior of Different Nationalities with Special Reference of Dubai: A survey" stated that once the deal has been over on 18 property purchase , there should be a reliable inquiry to check whether it was a' good deal' or not, if it is a reliable sound venture, then only the choice to buy the property must be taken into account.

III. EXISTING SYSTEM

Any time a property changes hands, one must pay the stamp duty and registration fees to ensure that the transaction is properly recorded in government records. Kanpur has an online property registration system introduced by the Uttar Pradesh government.

Figure 7. Stamp and Registration Department

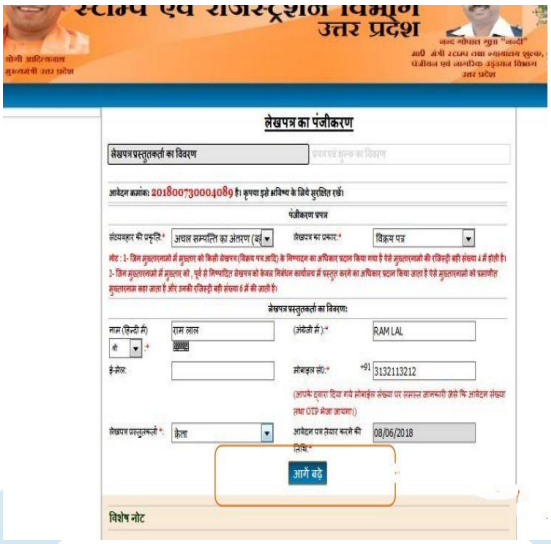

Figure 8. Enrollment Form

IV. BLOCKCHAIN IMPLEMENTED BY INDIAN STATE GOVERNMENTS

The Andhra Pradesh government has implemented a Bockchain-based land record management system to bring transparency and efficiency to land-related transactions in the state. The software, known as "Bhoomi" has been developed by the state government in collaboration with the blockchain firm, ChromaWay. Bhoomi stores land records and ownership information on a decentralized ledger, making them tamper-proof and reducing the risk of fraud. It is designed for online verification of property titles, reducing the need for physical inspections and documentation. The system also provides instant access to land records, eliminating the need for manual record-keeping and reducing the likelihood of errors. This can be seen as a breakthrough in the real estate sector with the help of blockchain technology. Maharashtra, India's second-most populous state, is leveraging distributed ledgers to revamp documentation of land property in the region. The government's decision to use blockchain technology in real estate was borne out of the desire to improve trust amongst industry participants and reduce incidents of fraud. Economic Times reported that the state's registry was the first to begin e-registration of real estate in India, stemming from the COVID-19 restrictions in 2020.

V. WHY BLOCKCHAIN IMPLEMENTATION IS REQUIRED IN REAL ESTATE INDUSTRY IN KANPUR CITY

Blockchain Technology has enabled an easy property search process that has conveniently ruled out the requirement of brokers in the process of purchasing real estate. Buyer no longer need to get in touch with lawyers and banks to carry out high-value transactions. Blockchain Technology provides solution for observing, recording and conducting developments on a single online platform that connects buyers and sellers. The tiresome tasks would function smoothly and effectively, streamlining future real estate processes.

Blockchain Technology has the potential to radically transform the lives of citizens and boost Kanpur City to a leading position in the global economy. For example, by using Ethereum blockchain technology we can create digital identities of any real estate asset called Tokens. Users who have such Tokens, can control and monitor the ownership rights, transparency of transactions, regulations compliance and so on.

VI. VARIOUS DOMINANT FACTORS WHICH INFLUENCE REAL ESTATE INDUSTRY IN KANPUR CITY

Blockchain technology is now appearing in the real estate sector because it can make the processes of the real estate sector much simpler. These processes involve documentation, records, due diligence, registration, and closure. The buyer will get a passcode/private security key from the seller with Block chain Technology. The buyer will be able to access previous property records such as ownership, maintenance payment, etc. The title records, property tax, encumbrances, etc., can also be accessed by the property buyer after identifying it. With the digitalization of the records, mortgage, transference of payments, and property registration can be completed very easily. Hence, Block chain technology makes the real estate process much more seamless, faster, and more efficient. Block chain technology in the real estate sector would also benefit in several other ways, such as through title fraud elimination, growth of tax revenue collection, removal of government-level corruption, reduction of property disputes, lower transaction costs because of minimal involvement of intermediaries, and complete removal of the physical storage of property papers.

VII. CONCLUSION

Despite Kanpur City has an online property registration system but this online system is based on centralized setup and it's also has various loop holes which only can be eliminated by effectively introduction of Blockchain Technology in real estate industry in Kanpur because Blockchain Technology helps to make the process of Real Estate Property registration transparent, straightforward and more accessible. It is very useful in the Real Estate Property registration where this Blockchain Technology enables us to know how, when, where, which, etc. about the land title. It also empowers us to know if there had been any activities in a particular land. It shows every record of the property registered. This application will indeed take us towards development and easy accessibility to life not only for us but also for the future generation. If Andhra Pradsh and Maharashtra State Governments have its existing a Bockchain-based land record management system to bring transparency and efficiency to land-related transactions in the people of this state, then Uttar Pradesh State Government must also try to implement the similar technology for bringing transparency and smoothness in Real Estate related affairs in the state then Kanpur City definitely will be benefited in overall Real Estate related activities along with other 74 districts in the Uttar Pradesh .

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