

**Colliers Radar**

India Office

23 May 2018



# Constructive disruption or destructive disruption?

Impact of blockchain on Indian real estate

## Surabhi Arora

Senior Associate Director | Research  
[surabhi.arora@colliers.com](mailto:surabhi.arora@colliers.com)

## Saif Lari

Assistant Manager | Research  
[saif.lari@colliers.com](mailto:saif.lari@colliers.com)

Full adoption of blockchain technology in Indian real estate may appear a remote possibility. However, in our view low transparency provides an incentive for adoption of blockchain rather than an obstacle; and we see several near-term applications for the technology. These include digitisation of land title, recording of transactions, multiple listing services and fractional ownership of real estate assets. Other sophisticated services such as smart contracting, notary services and due diligence should follow over the longer term. Blockchain has the potential to shorten real estate processes materially. However, the fate of blockchain depends on wider acceptance and proactive support from government authorities.

## Executive Summary

Blockchain technology is slowly making its appearance in India with the Digital India campaign picking up fast as one of the focus areas of the current government. India's first blockchain exploration consortium was launched for the banking industry in 2017. Now after the experience of Aadhaar card<sup>1</sup> implementation, blockchain technology is being explored in other non-financial service industries such as telecoms, healthcare life sciences, hospitality, energy and real estate.

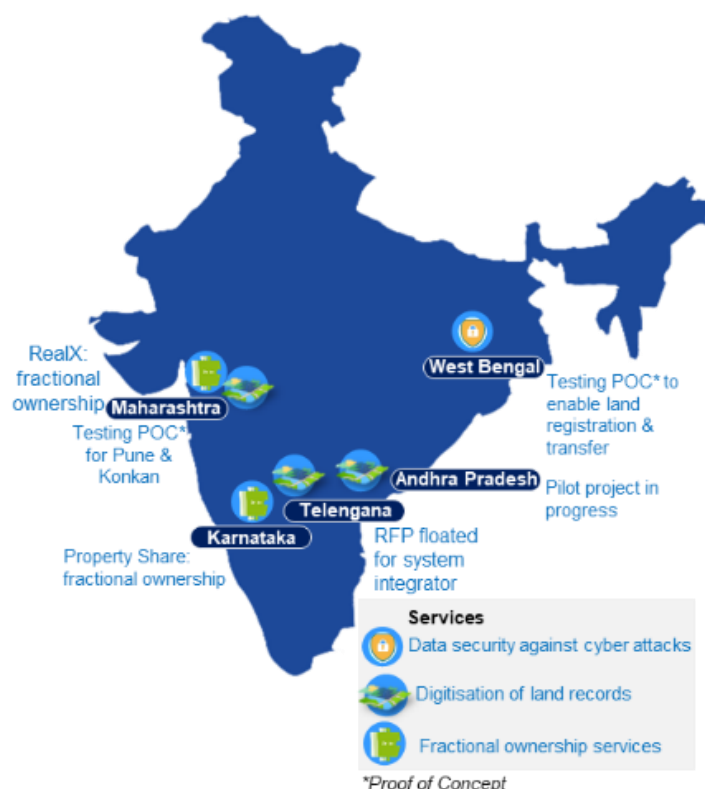
<sup>1</sup> Aadhar Card is India's unique identity system which stores the biometric data such as the fingerprints and iris scans of all the citizens. In the year 2017, the Indian government mandated all the citizens to have Aadhar ID numbers, rendering the details of citizens with the aim

In this report, we have considered the practical implications of blockchain technology for the real estate sector in India. In our opinion, blockchain will launch a revolution that will allow real estate to be traded in a faster and more cost-efficient way.

We expect the true blockchain-led revolution to come in the business world if it goes hand in glove with other new technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI). We expect it to streamline the entire real-estate life cycle. Every organisation should be assigning some of its resources to participate in the changing business ecosystem.

We suggest that industry stakeholders be ready to adopt and apply blockchain tools in their processes. As the technology in hand is not a low-cost solution or an easy alteration in the existing ways, blockchain adoption will take some time. We anticipate that it will undergo many changes and adjustments as the market and stakeholders mature over time.

**Figure 1: Real-time application of blockchain in Indian real estate**



Source: Colliers International India Research

to bring all the population of India under a common documentation system.





# Contents

Executive Summary.....	2
Indian Real Estate and blockchain - the present ecosystem .....	4
Digitisation of Land titles.....	5
Fractional ownership services .....	6
Multiple Listing Services (MLS) .....	6
Smart identities and universal database.....	6
Due-diligence .....	7
Smart Contracts .....	7
Roadblocks in Implementation .....	7
Conclusion.....	8

## Indian Real Estate and blockchain - the present ecosystem

The application of blockchain in real estate can range from property search to signing smart contracts. In India, the use of blockchain technology is still at a nascent stage of development. However, some progress has been made recently in real estate sector. For example, a few state governments are exploring digitisation of land records and some start-up companies have started offering fractional ownership services via blockchain (see Figure 1).

The real estate sector in India mostly relies on manual records, and thus transparency is relatively low (although this true in many other markets too, including developed ones). Blockchain technology makes it practically impossible to alter or reverse any information once it is added to the blockchain system. The use of this technology will legitimate the government-mandated record of real estate transactions and improve the overall transparency level in the system. The blockchain technology uses a digital database system which continuously records transactions.

As explained further in our APAC report titled "[Tame or transformational? Assessing blockchain's commercial real estate impacts in Asia](#)" published on 15 March 2018, each 'block' in blockchain represents a transaction - anything from a purchase to the updating of an online record - that rather than being stored centrally is distributed across a network of computers. This ensures

that no single party has control over the data and that any changes are visible across the entire network immediately.

Every computer on the network verifies the identity of the party behind the transaction, and if approved the transaction is added to a 'chain'. In essence, blockchain eliminates the need for a central authority to approve transactions and verify identities. Blockchain enforces the confidence of the counterparties to a transaction in dealing with each other without involving any third party in the process.

The implementation of a reliable database system can help the sector immensely. We have listed a few areas where blockchain can make a significant contribution for Indian real estate sector.

**Figure 2: Real Estate in India the current ecosystem**

	Property search	Due diligence/ Title search	Mortgage	Contract	Payments
					
Current Reality	Online websites/ Third party	Manual process via third party	Largely manual/ Partly online	Manual process/ Registry at courts	Online/ Cheques
Future Possibilities	Distributed ledger technology in multiple listing services	Tokenising of records; faster due-diligence	Faster process for mortgage due to ease of availability of information	Smart contracts	Online/ Wallets/ Cryptocurrencies if approved by Govt.

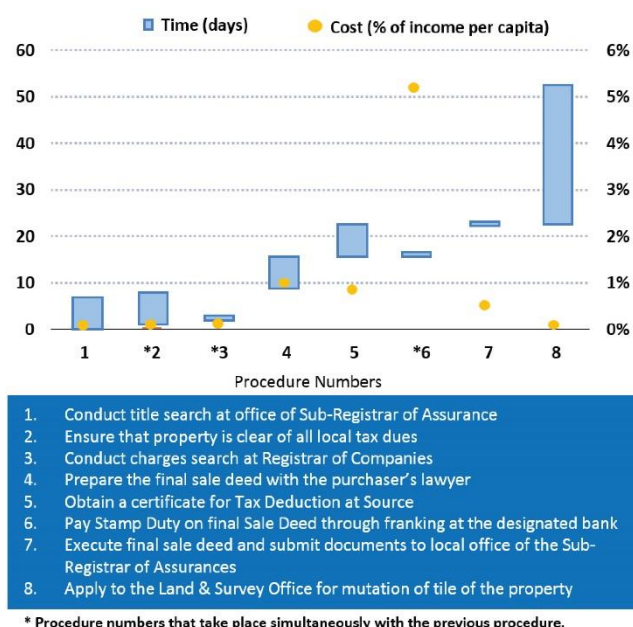
Source: Colliers International India Research



## Digitisation of land title

The authenticity of land title is one of the major concerns for the real estate sector in India. Until now, the land records and the registration process have been mostly offline and manual. According to the World Bank's "Ease of Doing Business" (2018) report, in Mumbai, it takes around 53 days to register a property (refer to Figure 3). The central government has been contemplating digitising land records through the Digital India Land Records Modernisation Programme (DILRMP). This aims to modernise management of land records, minimise the scope for land or property disputes, enhance transparency in the land records maintenance system, and facilitate an eventual move towards guaranteed conclusive title to immovable properties in the country.

**Figure 3: Registering Property in Mumbai – Procedure, Time and Cost**

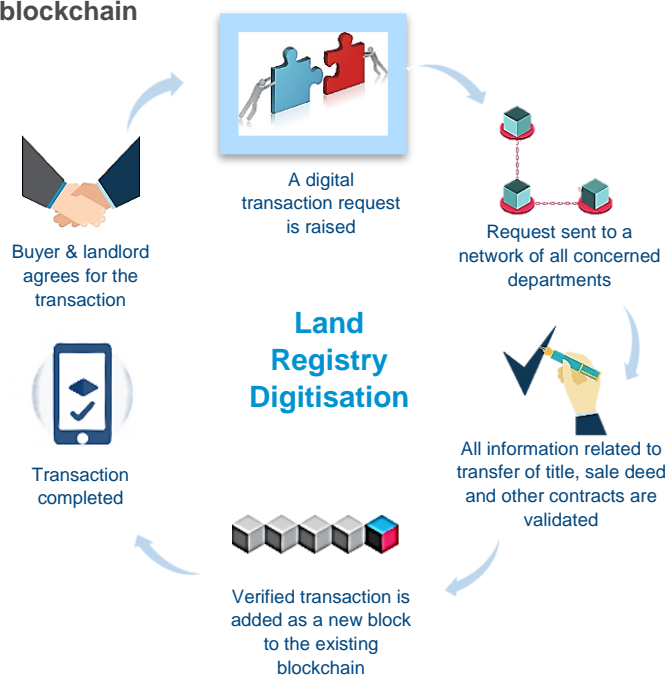


Source: The World Bank "Ease of doing business" 2018 (India)

However, looking at the size of India, digitisation of all land records sounds like a mammoth task requiring several years. Moreover, the regulations related to land differ from state-to-state, and there is no central authority to keep the land records. The land records are manually kept by 'Patwaris'<sup>2</sup> for multiple villages. The ownership documents or lien rest either with the individuals, developers, courts, or with the banks. Thus, migrating documents to the equivalent blockchain platform

<sup>2</sup> 'Patwari': the term refers to an individual in the local authority who maintains the land ownership records for a specific area and also undertakes the collection of land taxes

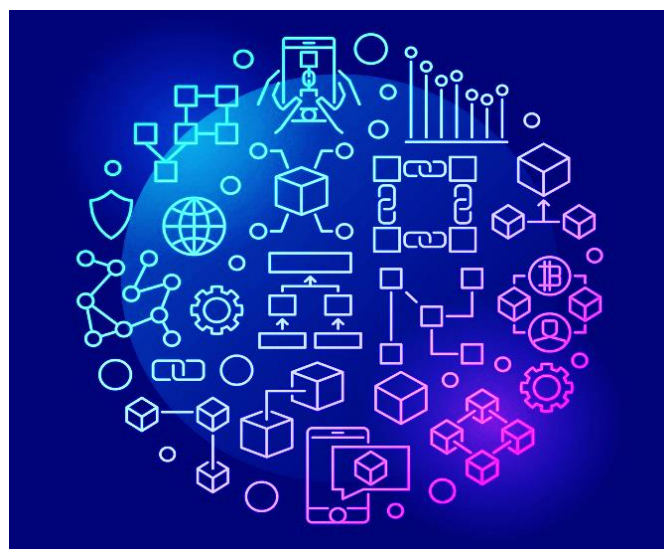
**Figure 4: The transaction process after adopting blockchain**



Source: Colliers International India Research

requires participation from all the stakeholders in land ownership at the same time. Moreover, the records entered into the system should be indisputable.

In our opinion, digitisation of land title can only be done through a piecemeal adoption approach. Blockchain could be introduced to the lands belonging to the government and various authorities such as railways, defence and ports in phase one. Subsequently, it could be implemented on mortgaged land and private land. As blockchain-secured land records should be less risky, they may command a premium over time and so may command higher investor interest.



## Fractional ownership services

Fractional ownership of commercial buildings is not new in the Indian context. In the traditional Central Business District (CBD) areas of large cities, most of the buildings are sold on a strata-title basis and have multiple small owners. However, since there is no central data or authority to control the ownership, maintenance of these buildings is becoming increasingly difficult. Real Estate Investment Trusts (REITs) are one of the solutions that offer sophisticated fractional ownership service. However, REITs implementation is still at a nascent stage in India.

Recently, companies such as PropertyShare and RealX have started offering fractional ownership in a much more transparent manner and claims to be based on blockchain technology system<sup>3</sup>.

A company called RealX has recently completed its first transaction with ten investors buying fractions of one property for INR10 lakhs (USD15000). In our opinion, the above-mentioned companies are really ecommerce based tech-enabled platforms for investment in the commercial real estate. Internationally, there are more evolved versions of the fractional ownership services provided by companies such as Atlant which facilitates tokenisation, listing and trading of the assets on its platform.



<sup>3</sup> [www.propertyshare.in](http://www.propertyshare.in) and Forbes article dated 24 Jan 2018 'Fractional Ownership and blockchain make buying property in India easier than ever'

## Multiple Listing Services (MLS)

In the last few years, multiple websites have started offering listing services for real estate assets primarily in the residential sector. These websites provide listing facilities which capture essential details about the property, agent information and contact details of the owners. The data in these listing websites are often not updated, decentralised and non-accessible which dilutes the service utility while making a well-informed purchase decision. The repetitive listing of the same asset creates speculative demand and supply in the market. Currently, the system is not mature enough and to add on to the complexity, now these websites are restricting the data sharing on the paid subscription basis.

The distributed ledger technology can be used in MLS. Companies such as 'Imbrex', 'Ubitquity' and 'Propify' are already creating a global property listing service to connect buyers, sellers and agents.

In our opinion, the introduction of the blockchain in the real estate sector will rectify the issue of unverified data entries. It offers a solution in the form of shared database services, tremendously improving the accuracy of listing services.

## Smart identities and universal database

The Smart identities powered by blockchain technology entrust each user with a universal digital code, which in turn is stored in a universal database. This universal database holds details of all involved stakeholders including the land title history, developers' asset delivery track record and even the customers' credit history. As it provides customers all the required data at one place, it ensures a trusted transaction.

Recently, the municipal corporation of Bengaluru Bruhat Bengaluru Mahanagara Palike (BBMP) has proposed a unique digital door number for 19 lakh (1.9 million) properties within its limit. This alphanumeric code will contain details such as the history of tax payments, the

area of the site, built-up area, number of floors and many other details.

As an international example, Deloitte UK has come up with a Smart Identity prototype<sup>4</sup>, which enables users to create a universal digital identity. It enables easy tracking and management of assets, automated identification, and verification of customers, transactions and digitising traditional identity components. In our opinion, real estate in India also needs to adopt smart identities and universal database that can ensure automated identification and verification.

## Due diligence

Once the universal database is in place, due diligence can be facilitated by using the same platform. For example:

- > Notary services can be facilitated using verified digital signatures
- > Proof of existence can be processed by tokenising the assets on blockchain database
- > Financial verification can be done by peer to peer transactions which ensures full transparency

## Smart Contracts

At present, the property title is a piece of paper and the process of transferring ownership is lengthy. Further, the lack of streamlined property title records increases the overall cost.

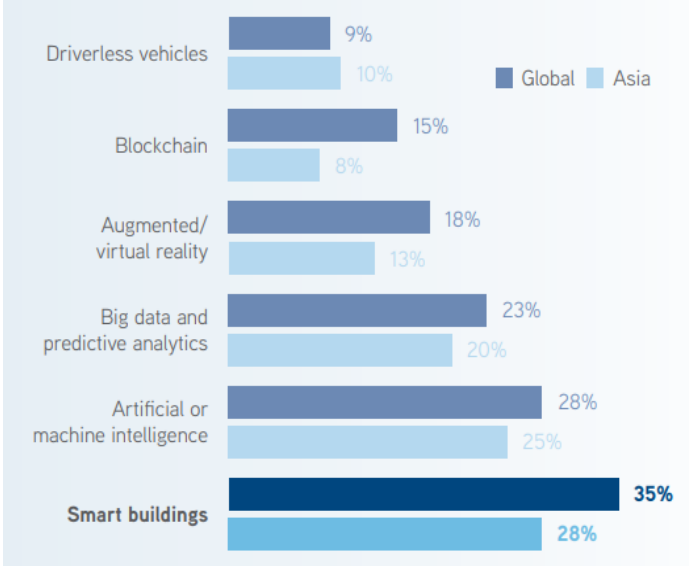
If the smart contracts are utilised in the real estate sector, the agreements that are executed during a transaction will be automatically guaranteed by the efficiency of blockchain mechanism without any human intervention. The same verifications will be undertaken to check the legitimacy of the transaction. No contract can be concluded if pre-determined terms do not match. These smart agreements are executed automatically once the pre-set requirements are met. The terms of the smart contract are transparent to everyone and so reduce the chances of future litigation.

According to our APAC report<sup>5</sup>, smart contracts open the possibility for transactions to be triggered by an enshrined set of preconditions without the need for human involvement; a deposit, for example, could be

transferred automatically from an occupier to an owner when both the parties have digitally 'signed' an agreement. Any such transactions would also be logged and added immediately to the 'blocks' of information on the given property asset.

**Figure 6: Poll comparisons between Global and Asian opinion on the future technologies**

*% of respondents who think these technologies will disrupt the commercial real estate industry*



Source: Altus Group, Singapore Business Times

These advantages could substantially speed up some of the processes in a typical real estate deal. Standard payments processed by a bank can take a day or two to clear, for example, whereas regular time taken on a bitcoin transfer is only 10 minutes. As noted by Oxford University<sup>6</sup>, this is perhaps too long a duration for the stock market trade, but would be considered perfect for a real estate transaction. Buyers and sellers are already experimenting with blockchain-based smart contracts in North America, Western Europe and the former Soviet Union countries. The world's first blockchain based transaction<sup>7</sup> was recorded in Kiev, Ukraine and as per the Russian Minister of Economic Development the number of blockchain-based real estate transaction may soon reach 5000 per month in Moscow<sup>8</sup>.

## Roadblocks in Implementation

As noted in our APAC report, the adoption of blockchain in real estate remains nascent and its practical implications are not always clear. Blockchain has already

<sup>4</sup> <https://www.deloitte.co.uk/smartid/>

<sup>5</sup> APAC Report "Tame or transformational? Assessing blockchain's commercial real estate impacts in Asia"

<sup>6</sup> PropTech 3.0: The future of real estate, Report of Said Business school, Oxford University

<sup>7</sup> Blockchain used to sell real estate for the first time, Newsweek article, published on 10 Dec 2017

<sup>8</sup> Russian Minister of Economic Development: 5000 blockchain property deals a month, Bitnewstoday article, published on 12 March 2018

reached the “trough of disillusionment” on the Hype Cycle established by research firm Gartner –the period in which initial experiments repeatedly fail to deliver. One recent survey showed only a small minority of property firms in Asia are convinced of its disruptive potential.

Despite all its potential, the actual adoption of the blockchain technology remains limited to a handful of instances. In common with many other new technologies blockchain will face several challenges in its journey to be a universally used tool in the industry. These include;

- > For blockchain technology to become successful, it requires mass adoption by the users. With the electronic payment transaction system still in its infancy stage, adaptability will remain a challenge at least for a few years. The Digital India initiative is picking up rapidly. However, the slow-paced adoption, especially in the rural areas will remain a challenge.
- > As the technology evolves, new laws will need to be tailored to ensure the proper execution of blockchain. The execution of smart contracts and electronic title transfers will have to cross many regulatory hurdles.

We may need regulation like mandatory digitisation of real estate assets with a strict deadline just like the linkage of Aadhar card with all the financial related services and transactions. Also, a Unique Identification like Aadhar card for properties can go together with blockchain. Without a clear-cut intervention by the law of the land, implementation of this magnitude seems hard to achieve.

## Conclusion

Despite the roadblocks, the blockchain disruption is a long-awaited reform that the real estate industry arguable requires worldwide. Its inherent characteristics of being faster, tamper-proof and transparent are the pulling forces which entice not only the institutional investors and government institutions but also retail investors.

At the moment, the fate of blockchain technology depends on the wider acceptance by a few innovation-friendly and future-ready real estate firms and government authorities. We expect many industries to be transformed through the adoption of this technology. The impact of blockchain can only be fully achieved when the allied industries adopt it entirely in their day to day operations. Since 2015, we have seen companies such

as Microsoft, IBM, and KPMG utilising the force of this disruptive technology. For example, ABN Amro and IBM have set-up a blockchain pilot program for commercial real estate clients, making use of the ‘Torch app’ onto which details can be uploaded and spread with the relevant stakeholders<sup>9</sup>.

We expect the true blockchain-led revolution to come in the business world if it goes hand in glove with next age technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI). We expect it to streamline the entire real-estate life cycle. Every organisation should be assigning some of its resources to participate in the changing business ecosystem.

We suggest the industry stakeholders be ready to adopt and apply blockchain tools in their processes. As the technology in hand is not a low-cost solution or an easy alteration in the existing ways, blockchain adoption will time to fully realise in the real-time world. We anticipate that it will undergo many changes and adjustments as the market and stakeholders mature over time.

---

<sup>9</sup> Blockchain pilot in commercial real estate, ABN amro press release, published on 15 Dec 2016



# 413 offices in 69 countries on 6 continents

United States: 145

Canada: 28

Latin America: 23

Asia Pacific: 86

EMEA: 131

## \$2.7

billion in  
annual revenue

## 2

billion square feet  
under management

## 15,400

professionals  
and staff

### Primary Author:

Surabhi Arora

Senior Associate Director | Research | India

+91 98 7175 0808 | [surabhi.arora@colliers.com](mailto:surabhi.arora@colliers.com)

Saif Lari | Assistant Manager | Research | NCR

[saif.lari@colliers.com](mailto:saif.lari@colliers.com)

### For more information:

Joe Verghese

Managing Director | India

[joe.verghese@colliers.com](mailto:joe.verghese@colliers.com)

Ritesh Sachdev

Sr.Executive Director | Occupier Services | India

[ritesh.sachdev@colliers.com](mailto:ritesh.sachdev@colliers.com)

Ravi Ahuja

Sr. Executive Director | Developer services | India

[ravi.ahuja@colliers.com](mailto:ravi.ahuja@colliers.com)

Colliers International | India

Indiabulls Finance Center, 17th Floor, Unit No. 1707,  
Tower 3, Senapati Bapat Marg, Elphinstone(W)

Mumbai 400 013 | India

+91 224 9249780



## About Colliers International Group Inc.

Colliers International Group Inc. (NASDAQ & TSX: CIGI) is an industry-leading real estate services company with a global brand operating in 69 countries and a workforce of more than 12,000 skilled professionals serving clients in the world's most important markets. Colliers is the fastest-growing publicly listed global real estate services company, with 2017 corporate revenues of \$2.3 billion (\$2.7 billion including affiliates). With an enterprising culture and significant employee ownership and control, Colliers professionals provide a full range of services to real estate occupiers, owners and investors worldwide. Services include strategic advice and execution for property sales, leasing and finance; global corporate solutions; property, facility and project management; workplace solutions; appraisal, valuation and tax consulting; customized research; and thought leadership consulting.

Colliers professionals think differently, share great ideas and offer thoughtful and innovative advice that help clients accelerate their success. Colliers has been ranked among the top 100 global outsourcing firms by the International Association of Outsourcing Professionals for 13 consecutive years, more than any other real estate services firm. Colliers has also been ranked the number one property manager in the world by Commercial Property Executive for two years in a row.

For the latest news from Colliers, visit [Colliers.com](http://Colliers.com) or follow us on Twitter: @Colliers and LinkedIn.

Copyright © 2018 Colliers International.

The information contained herein has been obtained from sources deemed reliable. While every reasonable effort has been made to ensure its accuracy, we cannot guarantee it. No responsibility is assumed for any inaccuracies. Readers are encouraged to consult their professional advisors prior to acting on any of the material contained in this report.



Accelerating success.