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## Use of AI and Blockchain for Real Estate Valuation

### INTRODUCTION

The Valuation of land and buildings has long been a cornerstone of economic development, influencing investment decisions, tax assessments, and financial planning. In the dynamic Indian real estate market, characterized by its diversity and complexity, the need for accurate, efficient, and transparent Valuation processes has never been more critical. While technological advancements continue to reshape the industry, it is important to recognize the human expertise that has driven Real Estate Valuation for decades. Traditionally, Valuation relies on expert judgment, manual data collection, and comparable sales analysis. Valuers bring years of experience and intuition, which are invaluable in navigating complex, nuanced scenarios. However, this approach can be time-consuming and prone to errors, especially in India, where data systems remain fragmented. As the market



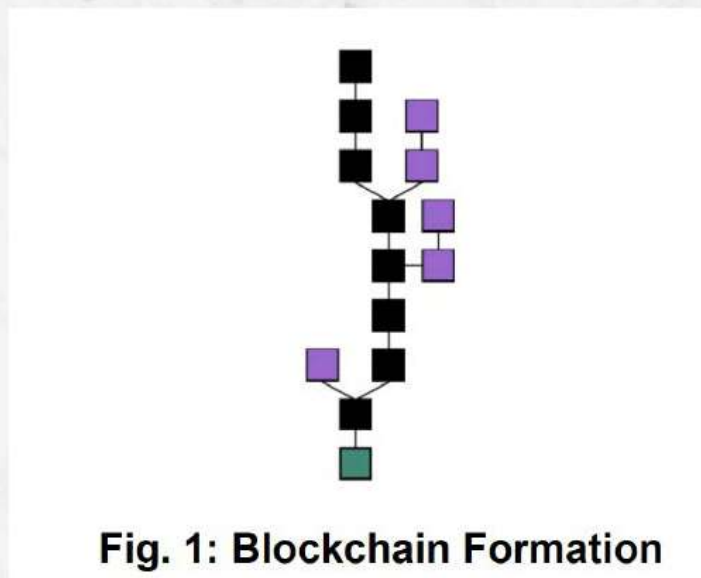
grows in complexity and scale, the need to complement human capabilities with technology becomes increasingly clear. This article explores both the fundamentals and advanced applications of AI and Blockchain in Real Estate Valuation, proposing a hybrid model that balances human expertise with technological advancements.

## ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN TECHNOLOGY REAL ESTATE VALUATION

AI enables the automation of data collection and analysis by processing vast amounts of information from sources such as property listings, satellite imagery, and market reports. For example, an AI tool could analyze historical property prices, current market trends, and location-specific data to predict the Valuation of a residential building in a metropolitan area. Civil engineers can also use AI-powered software to assess structural integrity by analyzing sensor data, reducing the need for extensive manual inspections. By integrating these inputs, AI provides real-time Valuations, identifies trends, and predicts value fluctuations with remarkable accuracy.

In the USA, platforms like Zillow and Redfin exemplify this potential by delivering accurate Property Valuations through the processing of intricate neighbourhood characteristics and historical sales data. However, AI is not a replacement for human judgment. Instead, it serves as a powerful tool that enhances the valuer's ability to interpret and contextualize data, making the process faster and more reliable.

Blockchain is a decentralized ledger technology that stores information in a chain of blocks. Each block contains data, a timestamp, and a cryptographic hash of the previous block, ensuring data integrity. In real estate, for example, Blockchain can maintain transparent, tamper-proof land records. A typical Blockchain formation consists of a main chain connecting the longest series of blocks from the genesis block to the current block, with orphan blocks existing outside the main chain, as shown in Figure 1.



**Fig. 1: Blockchain Formation**



This transparency helps address significant challenges in India's real estate market, such as fraudulent property transactions and unclear ownership histories. Blockchain can also facilitate seamless transactions through smart contracts—self-executing contracts with the terms of the agreement directly written into code. It secures land records and automates payments and agreements, allowing professionals to focus on interpreting and applying the records rather than verifying their authenticity. Blockchain does not replace the role of legal and Valuation professionals; rather, it supports them by offering a secure, verifiable framework for managing records and contracts. This fosters trust and efficiency without diminishing the Valuer's role. Blockchain's application in Real Estate appraisal is already in practice internationally, as demonstrated by JLL's use of the technology in Spain and the Bank of China Hong Kong's implementation for appraisal processes.

## CHALLENGES AND OPPORTUNITIES IN THE INDIAN CONTEXT

India's fragmented land records and lack of standardization present significant hurdles to the implementation of AI and Blockchain technologies in Real Estate Valuation. Despite these challenges, initiatives like Digital India and land record modernization provide a foundation for transformation. The initiative of adoption of Blockchain-based systems in state such as Andhra Pradesh demonstrates the potential to improve transparency, reduce legal disputes, and ensure more efficient land transactions.

AI complements this by offering predictive analytics and data-driven insights that enhance Valuation precision, as seen in platforms like StadimData. Tools like these can forecast property value fluctuations, identify investment opportunities, and mitigate risks. While regulatory and ethical concerns remain, India and its states can overcome these challenges by investing in data digitization, infrastructure, and workforce training. By combining AI and Blockchain with current efforts, India can fully harness the power of these technologies in Real Estate Valuation, fostering an industry that is more transparent, efficient, and reliable.

AI and Blockchain are not designed to replace human expertise but to complement and empower it. By adopting a hybrid model, the Indian Real Estate Valuation industry can leverage both technological advancements and human knowledge, improving accuracy, efficiency, and trust while preserving the invaluable human touch. Together, these technologies have the potential to redefine Real Estate Valuation, setting new benchmarks for India and beyond.

## CONCLUSIONS:

- **AI and Blockchain can transform India's Real Estate Valuation industry** by enhancing transparency, efficiency, and reliability while addressing challenges like fragmented land records and legal disputes.



- **A hybrid approach combining human expertise with technological advancements** will improve Valuation accuracy, mitigate risks, and foster trust within the Real Estate Sector, paving the way for more informed decision-making.
- **Investing in digital infrastructure and workforce training** is essential for overcoming regulatory and ethical concerns, enabling India to fully leverage AI and Blockchain in Real Estate Valuation for a more standardized and modern industry.

