



# Real Estate Marketplace using Blockchain

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# Overview

- ◇ Introduction
- ◇ Traditional Real Estate Marketplace
- ◇ Blockchain, Smart Contracts and NFT
- ◇ Real Estate Marketplace using Blockchain
- ◇ Demo
- ◇ Conclusion
- ◇ References



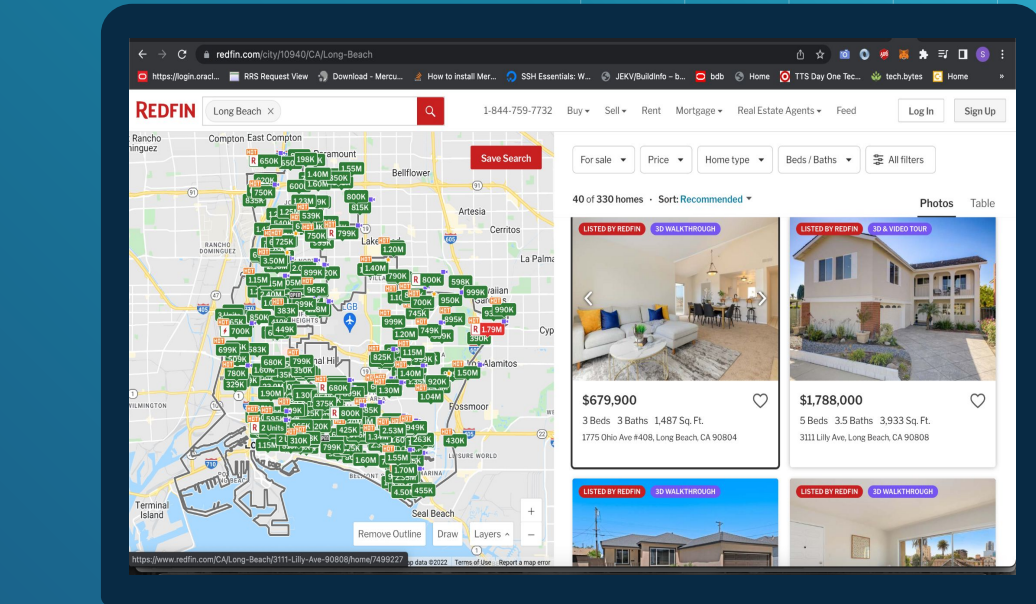
# Real Estate Marketplace

- ◇ An online platform that connects realtors, brokers, and property managers with their customers.
- ◇ Can browse through various houses, compare properties, and buy or sell them easily.

# Popular Real Estate Marketplaces

◇ Redfin

◇ Zillow



# Why Real Estate Marketplace?

## Convenience of Data

Data collected helps in recommendations.

## Scalability

Online growth adds vendors and attracts customers..

## Expanded Reach

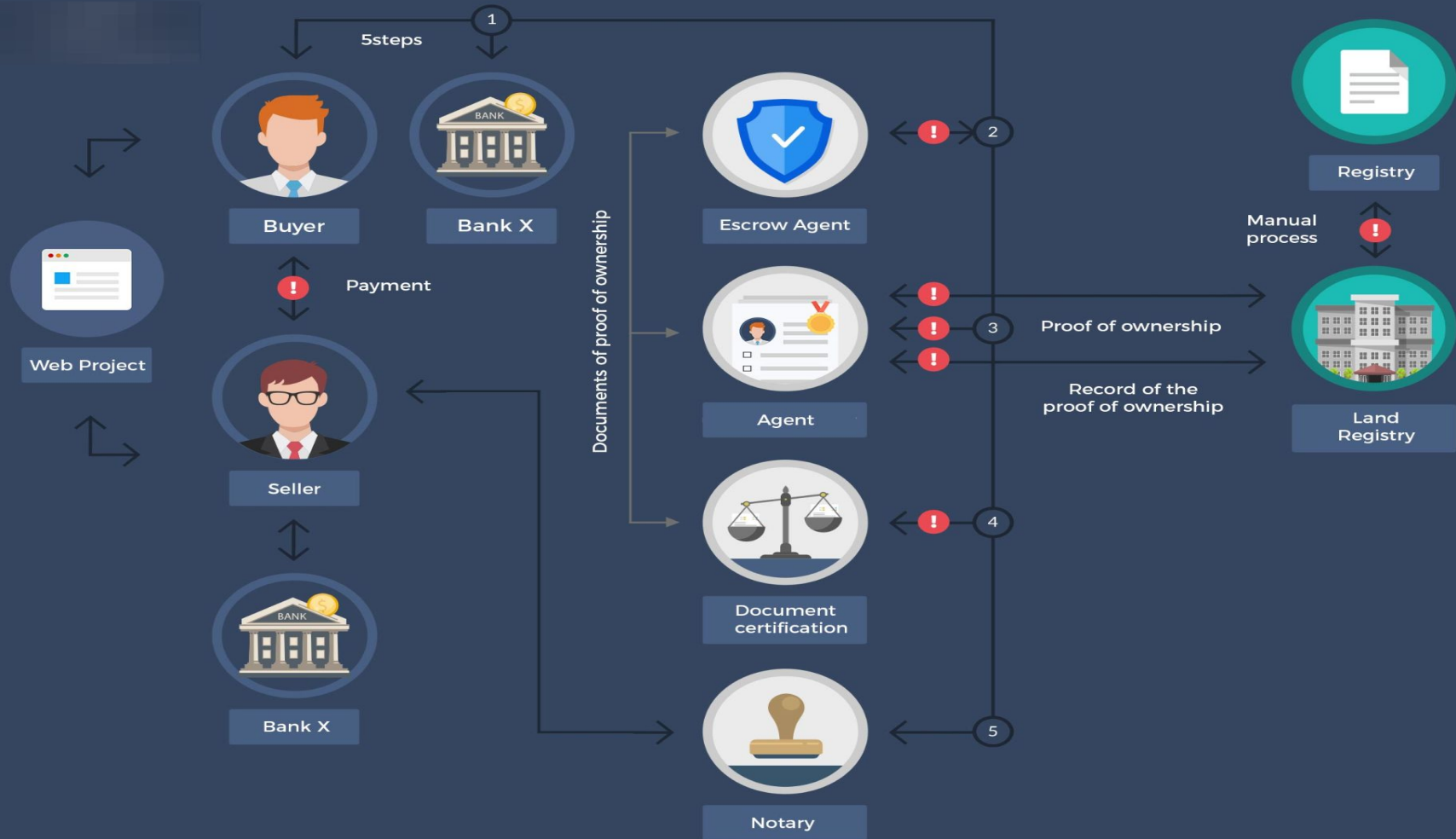
Accessed from almost any device.

## Profitable Business Model

Marketplace grows the business profitability.



# Traditional Real Estate Marketplace





# Traditional Real Estate Marketplace

- ◇ Multiple intermediaries like brokers, escrow services, etc.
- ◇ Plenty of paperwork
- ◇ **Buyer** works with real estate agent
- ◇ **Seller** lists home for sale
- ◇ **Bank** approves mortgage
- ◇ **Real estate agent** works for seller or buyer
- ◇ **Escrow agent** serves as neutral stakeholder
- ◇ **Land registries** are responsible for the final verification of the property transaction
- ◇ **Notary** is responsible for all monetary exchanges



# Issues with Traditional Real Estate Marketplace

1 High Investment Cost

2 Time Consuming

3 Inefficient Process

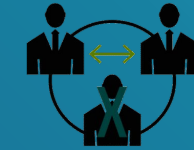
4 Expensive Middlemen

5 Market Conditions

# Blockchain



# Smart Contracts



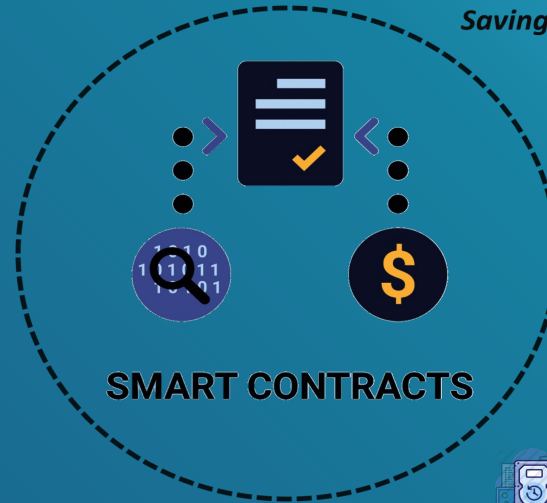
*No middlemen*



*Savings*



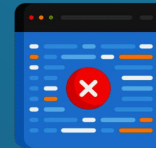
*Autonomous  
Execution*



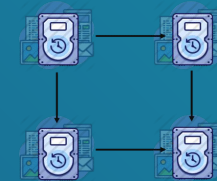
*Code Is Law*



*Trustless  
Execution*



*Avoid Manual  
Error*



*Default  
Backups*



# NFT

- ◆ NFT stands for Non-Fungible token, which is a digital asset that represents real-world objects like art, music, physical items and videos.





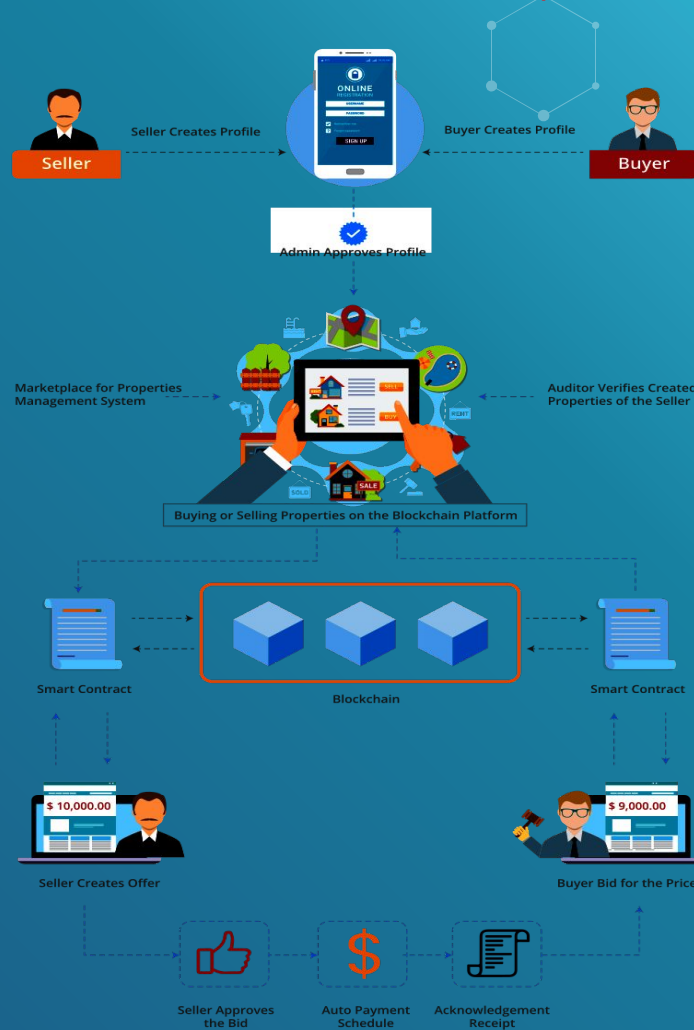
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# Real Estate Marketplace using Blockchain

# NFT Real Estate Marketplace



# Blockchain Architecture for Real Estate Marketplace





# Blockchain Enabled Real Estate Transaction



Someone requests a transaction.

The requested transaction is broadcast to a P2P network consisting of computers known as nodes.



**Validation**  
The network of nodes validates the transaction and the user's status using known algorithms.



A verified transaction can involve cryptocurrency, contracts, records or other information.



The transaction is complete.

The new block is then added to the existing blockchain, in a way that is permanent and unalterable.



Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.



## How smart contracts would work in a simple property sale



The smart contract can escrow the buyer's deposit to be automatically released to the seller on the completion date.



On the agreed completion date, once closing conditions have been satisfied, the transfer of the property will automatically complete.



the blockchain title register is updated



The 10% deposit is released to the seller



the balance of the completion monies is transferred to the seller

# Use Cases of Blockchain in Real Estate



Title Transfer and  
Transparency



Smart Contracts



Preventing Deed  
and Title Fraud



Preventing Email  
and Wire Fraud



Decentralizing  
Multiple Listing  
Services

Crowdfunded  
Investing



Tokenized  
Ownership



Decentralizing  
Airbnb



Fighting  
Mortgage Fraud



Property Inspection  
Transparency



# Benefits of using Blockchain in Real Estate

## 01 CUT OUT THE MIDDLEMEN

By using smart contracts, the business agreement can be executed without a lawyer or broker.



## NO CENTRALIZED DATABASE 02

Buyers and sellers are not dependants of platforms and marketplaces anymore.



## 03 DATA IMMUTABILITY

Data submitted to the blockchain can not be changed.



## TIME EFFICIENCY 04

The fully digital and decentralized process enables quick execution of business contracts.

## 05 IMPROVED LIQUIDITY

Tokenization improves the liquidity of Real Estate.



# Case Study

- ◇ PROPY - Decentralized title registry.
- ◇ ATLANT - Tokenized ownership.
- ◇ IMBREX - Ethereum blockchain.
- ◇ Agent Not Needed - Digitizing contracts.





# Issues with Blockchain Adoption and Use



## Conceptual Challenges

Require time to comprehend the blockchain concepts.



## Trust Issues

Blockchain do not eliminate the risk of fraud completely.



## Regulatory Challenges

Rules and Regulations around blockchain aren't yet fully worked out.



## Complexity and Dependency

Changing the way transactions are handled is difficult.



## Volatility and Market Risks

Tokenized fractional property ownership leads to greater volatility in real time.



# Implementation

## Technologies Used

### FRONT-END

- JavaScript
- Next.js
- HTML
- CSS
- MetaMask

### BACK-END

- Solidity
- Polygon
- IPFS
- Ganache
- Ethers.js
- Hardhat





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# Demo

A demo on how you can tokenize real estate

# Conclusion

- ◇ Blockchain offers unparalleled speed via Smart Contracts
- ◇ There is no need for intervention of third parties
- ◇ Could facilitate future real estate transactions
- ◇ All involved parties would be paid automatically
- ◇ A lot of time is saved in obtaining data related to property
- ◇ Unobscured way of selling and buying homes
- ◇ NFTs make transferring property ownership hassle-free
- ◇ Integration of blockchain with real estate will be the future



# References

- ◇ [1] Blockchain In Real Estate: 10 Possible Use Cases
- ◇ [2] Blockchain For Real Estate: How This Disrupts The Market
- ◇ [3] Real Estate Management System based on Blockchain
- ◇ [4] Real Estate Use Cases for Blockchain Technology