NPTEL ONLINE CERTIFICATION COURSES

Blockchain and its applications

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Lecture 56: A Potential Use Case – From a Critics Perspective

CONCEPTS COVERED

- **Land Registry Records – Can we use a Blockchain?**

KEYWORDS

- Requirement analysis
- Tradeoff analysis

Maintaining Land Registry Records

- Historically, land registries were paper-based
  - Can be lost, destroyed, falsified, or otherwise manipulated
- Selling a property (land)
  - Owner has to prove the ownership
- A complex business network – multiple realtors, inspectors, appraisers, escrow
  - Help people to do the best purchase / sell of the property

Real Estate Scams and Frauds

Home / Cities / Pune News / Beed police arrest addl collector N R Shelke in land scam

PUNE NEWS

Beed police arrest addl collector N R Shelke in land scam

The Beed Police arrested additional collector N R Shelke from Aurang
Sunday, in connection with a multi-crore land scam in Chinch
district.

Home / Cities / Lucknow News / Shine City fraud case: Three accused booked under Gangsters ...

LUCKNOW NEWS

Shine City fraud case: Three accused booked under Gangsters Act in Varanasi

Commissioner of police, Varanasi, A Satish Ganesh said real estate and multi-level
marketing company's chief managing director Rashid Naseem, its managing director
aseem and director Amitabh Shrivastav had been booked under the Gangsters

Seniors often targeted in realty fraud

EW SICHELMAN ANDREWS MCMEEL SYNDICATION
2021 6:00 AM

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SBI ex-chairman held for fraud in selling Raj hotel below market price

TNN / Updated: Nov 2, 2021, 03:38 IST

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Odisha high court's payoff rider for govt on Cuttack land

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News > Crime

Business owners and property buyers warned about scam costing victims £2m

Business owners and people buying or selling properties are being warned about a type of fraud which has seen victims lose over £2million in six months

By Ian Hirst
Saturday, 6th November 2021, 7:00 am

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Can a blockchain help?

City

CRIME

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below

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Can a blockchain help?

What is the business network?

Who are the participants?

Who will maintain the blockchain?

What are the transactions?

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The People in the Business Network

- Government
- Real estate agents (?)
- Buyers
- Sellers
- Investors (Crowdfunding)
- Startups (real estate business)

The Assets

- Lands
- Properties (buildings, etc.)
- Money

The Transactions

- Buy lands and/or properties
- Sell lands and/or properties
- Crowdfund an investment
- Return from a crowdfunded investment

Public or Private Blockchain

- **Public Blockchain**
  - Pros: Open network, anyone can invest or participate as a startup
  - Cons: You do not know to whom you are investing

Public or Private Blockchain

- **Private Blockchain**
  - Pros: The identity of the participants are known, better security (?)
  - Cons: Who will validate the authenticity? May fallback to a centralized system

Advantages of using blockchain

- Provides a decentralized platforms and marketplace
- Can avoid intermediaries
- Liquidity in business – can be traded readily
- Fractional ownership and crowdfunded investments
- Reduced cost of transactions
- Better transparency

But there are many important implementation questions …

- Who are going to be the full nodes of the system?
  - Government?
  - Investors?
  - Startups?
  - Buyers, sellers?

But there are many important implementation questions …

- **Everyone is a full node**
  - I'll sell my property for once … why should I download the entire blockchain?
  - Should I sign out once I am done? How do I resolve a query that comes later on?
    - Do I need to keep my keys forever?
    - What if I loose the keys?

But there are many important implementation questions …

- **I am not the full node**
  - Which full node should I trust?

But there are many important implementation questions ...

- **Blockchain, by default, is <u>world-readable</u> and <u>world-writable</u>**
  - Isn't it a privacy concern?
  - Say, I am an investor. Everyone can see where I have invested and how much money I have invested

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    - <u>Cross-argument:</u> Use keys to secure the channel

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  - Isn't it a privacy concern?
  - Say, I am an investor. Everyone can see where I have invested and how much money I have invested
    - <u>Cross-argument:</u> Use keys to secure the channel
      - Who is going to provide the key?

But there are many important implementation questions ...

- **What should be the credential to participate as an investor or a start-up?**
  - Who will validate that a start-up is not a fraud
    - Trusted third party?
      - Then why can't that trusted third party maintain a database?
        - **Note:** There are methods for blind signatures, you don't need to reveal all information to the TTP

Conclusion

- There are many fundamental questions that need to be solved before putting an application to the blockchain
- The application designer needs to analyze all possible trade-offs
  - Is the benefit more than the cost?
- Digitizing the land and property records might solve many of the problems! Need to think of it ...

Conclusion

- We have seen the idea of decentralized identity management
  - Can explore whether that can be coupled with other applications to solve some of the problems that we mentioned

Thank you