



NGDRS And Implementation of Blockchain in land Records of Assam

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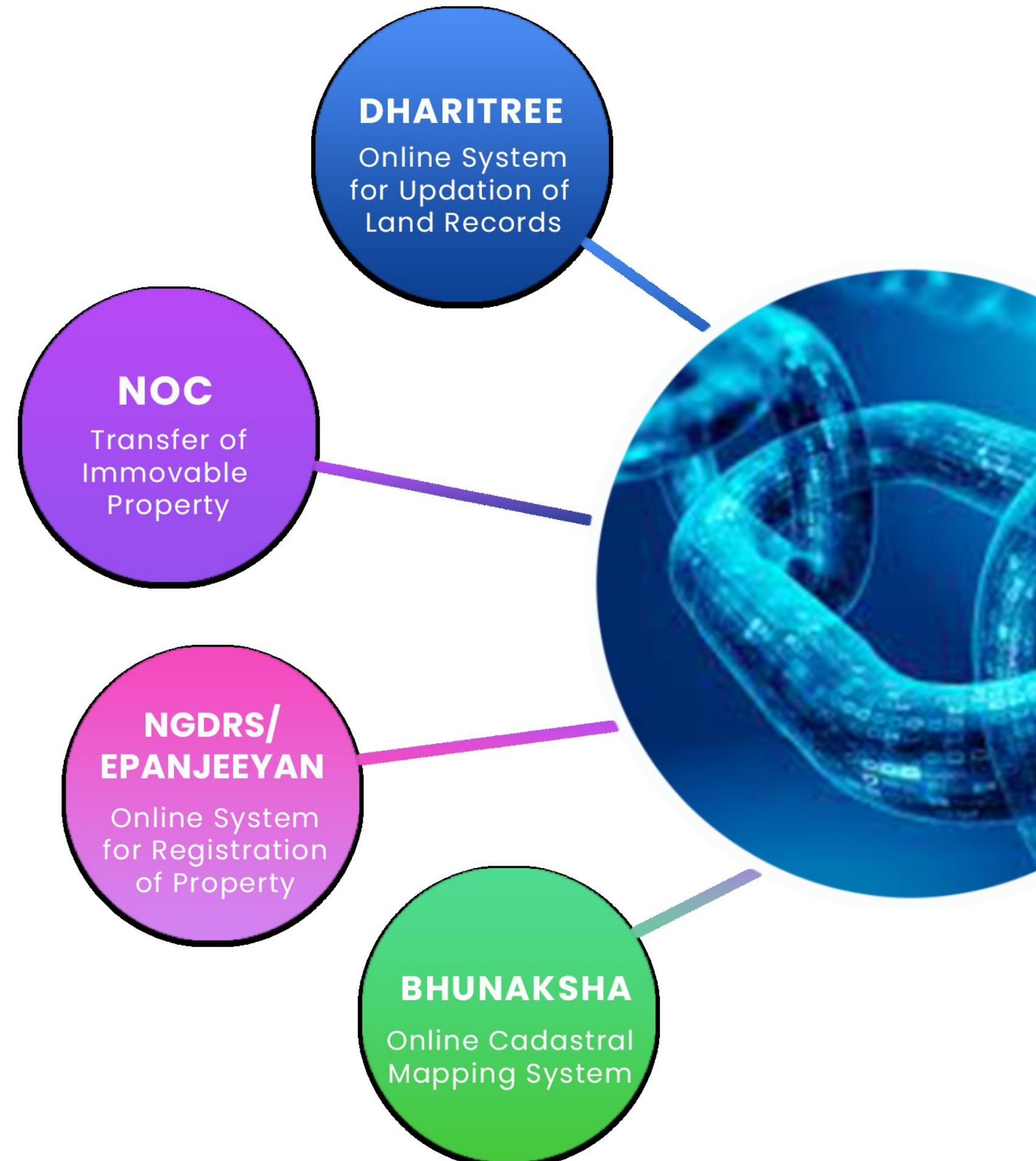


ILRMS

Empowering Assam's Future:

Seamlessly unifying lands, communities, and progress with Integrated Land Records management.

Integrated Land Records Management System (ILRMS) developed by the **National Informatics Centre (NIC)** is a major initiative taken by the **Revenue & Disaster Management Department, Government of Assam** in **2017** towards e-governance of a transparent, efficient, and accountable system.





Components of ILRMS

1 Dharitree

- 30 districts of Assam
- 83 lakh land parcels (approx.)
- 3 crore pattadars (approx.)
- More than 30 service modules
- Jamabandi transliterated into 22 different
- Indian languages and accessible online

3 NGDRS

- 77 SRO offices across the state.
- NGDRS rolled out to all 77 SRO offices
- Integration of NGDRS with Dharitree and NOC.
- 18,31,399 documents registered in ePanjeeyan.
- 48256 registered in NGDRS.

2 Bhunaksha

- Land-related geospatial services
- Customized reports and queries.
- Successful generation of ULPINs for numerous villages in different Assam districts
- Offers variety of APIs for sharing spatial data with other digital components.

4 NOC

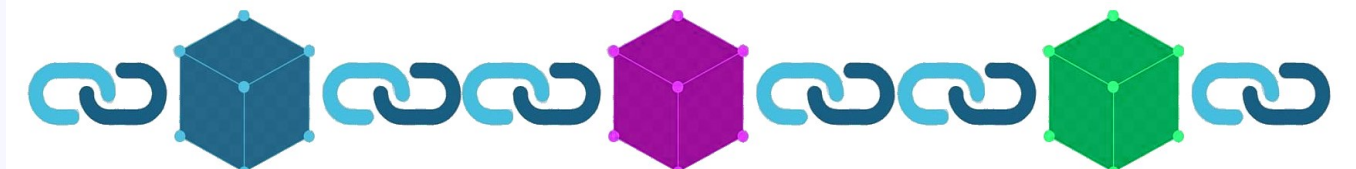
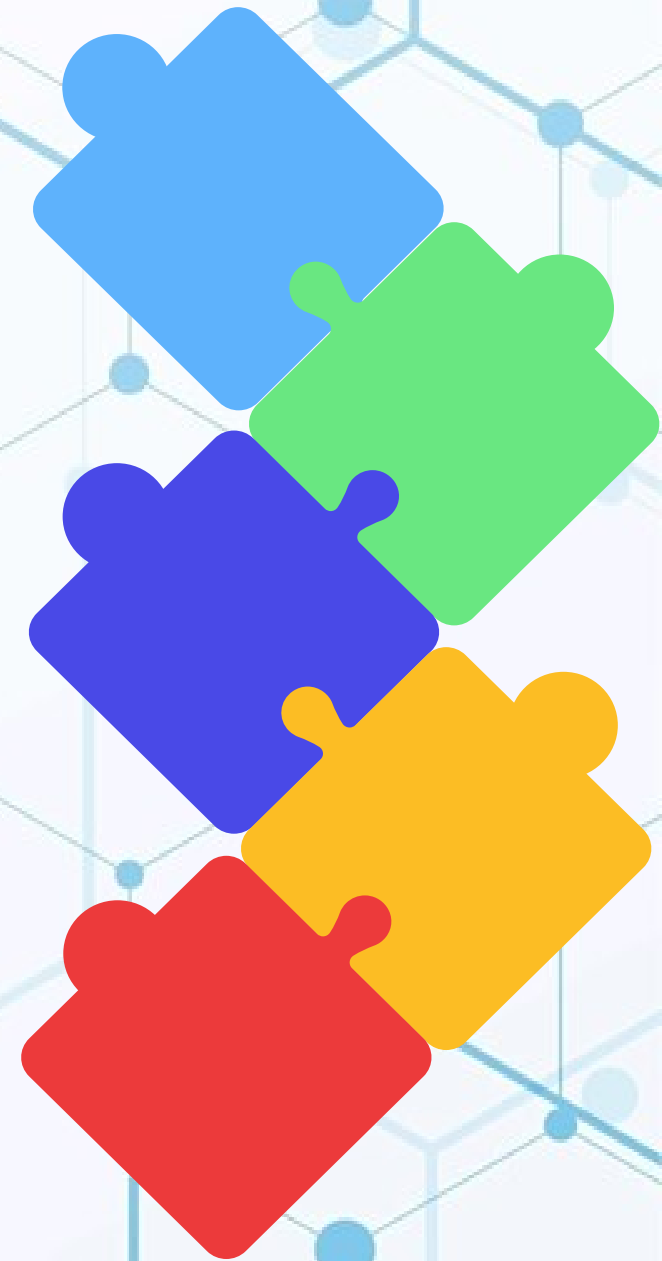
- Integrated with Sewa Setu portal.
- Integrated with Composite Land Transfer for auto mutation.
- 4,84,804 NOC applications (excluding composite service) registered.
- 1,08,760 NOC applications disposed.





Blockchain- A key player in Digital Transformation

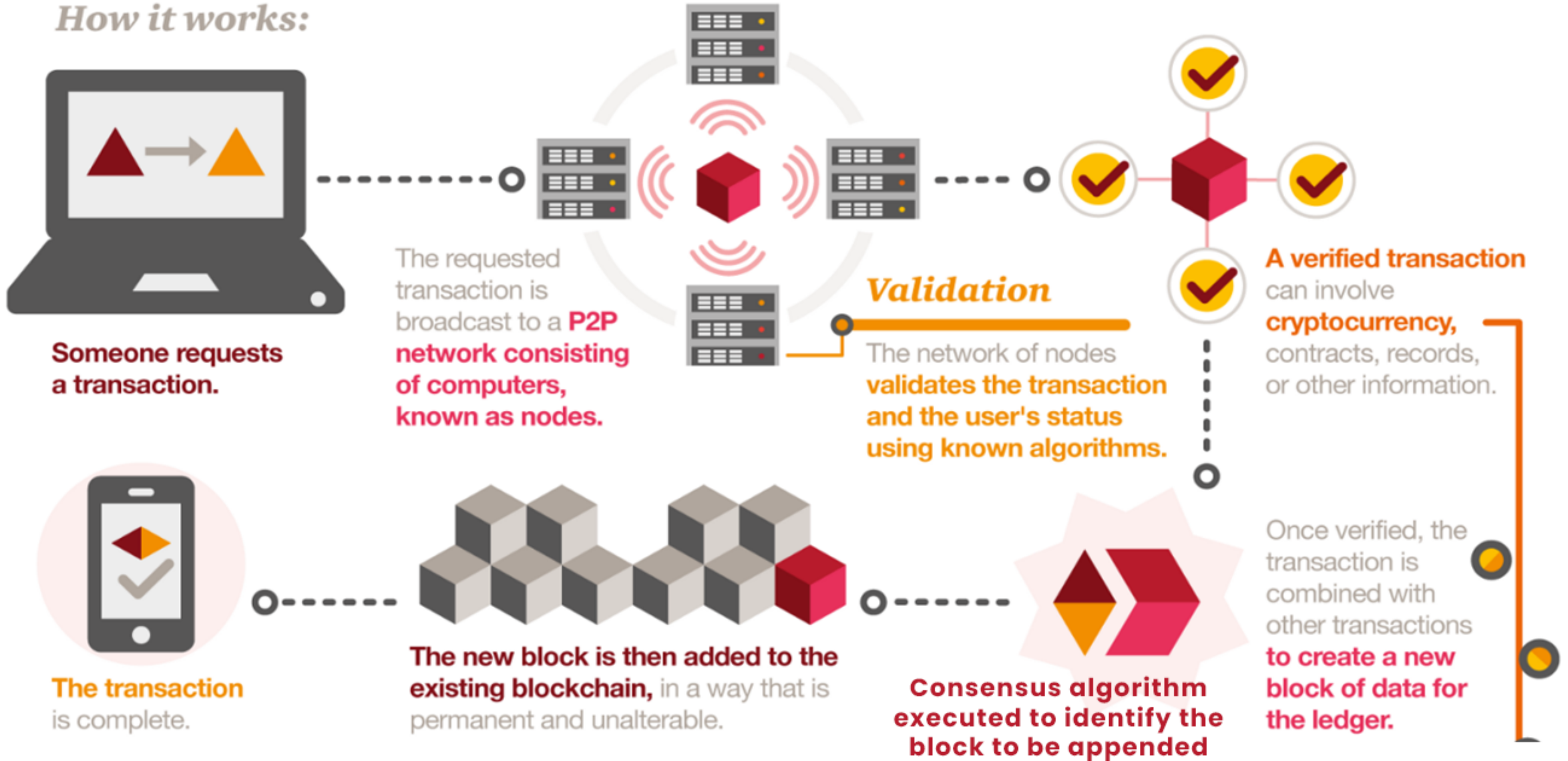
- ➔ To ensure **authenticity and tamper-proof data** with full traceability of all transactions.
- ➔ Blockchain plays a key part in application modernization to **replace centralized data management structures with distributed systems.**
- ➔ **Potential to revolutionize how information is stored and transactions are conducted** by providing a secure, transparent, and decentralized infrastructure.





Blockchain as a whole

How it works:





Property Chain Platform

➔ Integration of Land records with Blockchain a collaborative effort of the **Revenue & Disaster Management Department**, Government of Assam; Centre of Excellence on Blockchain (CoE) **NIC Karnataka, NIC Assam, NIC New Delhi** and **NGDRS NIC Pune**.

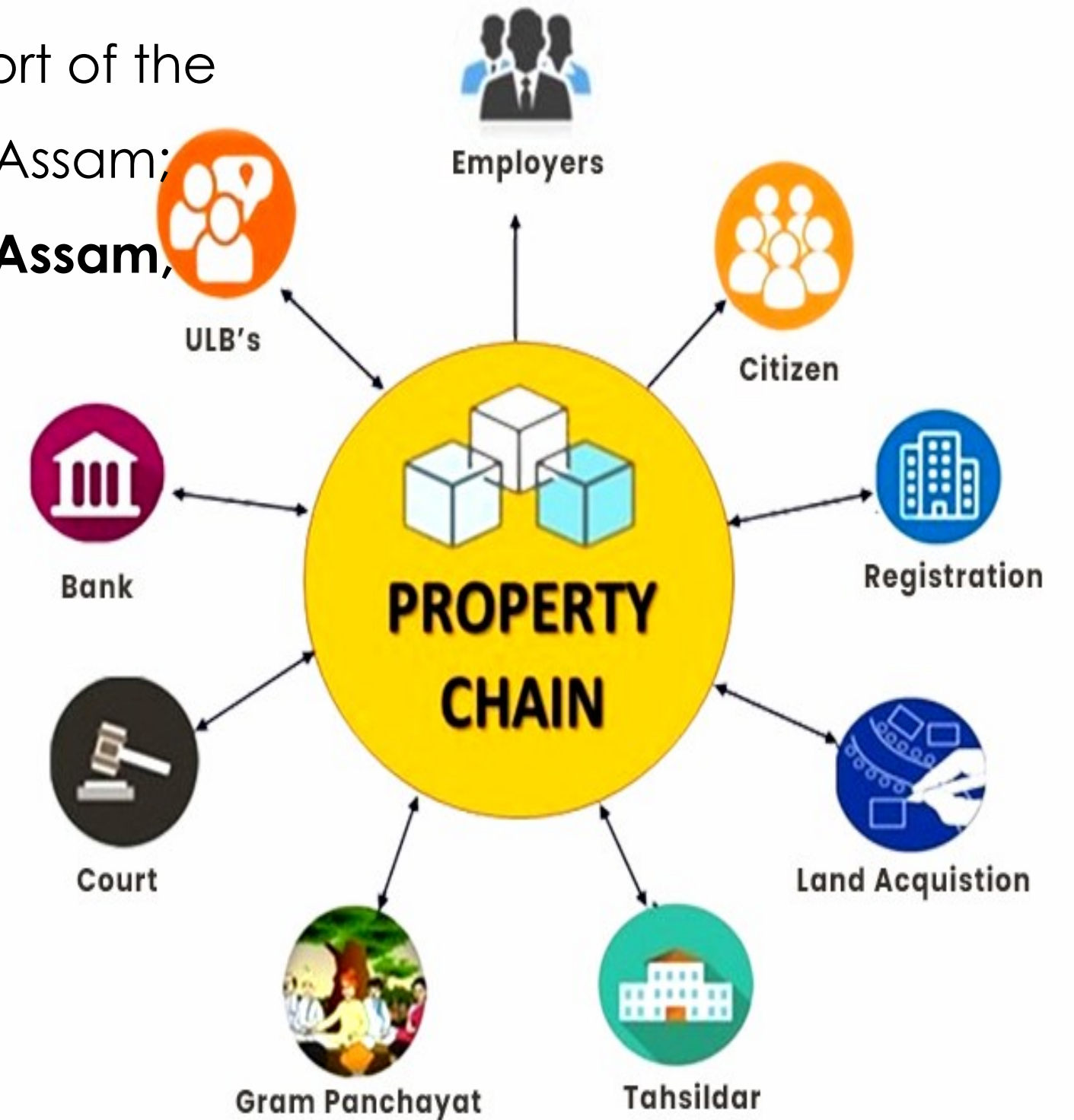
➔ The Property Chain is a Blockchain platform of **NIC**

➔ Provides flexibility for every state to determine the data format (schema).

➔ Every property data is uniquely identifiable.

➔ Property data can be submitted in JSON format.

➔ The JSON should be digitally signed by the Revenue officers.



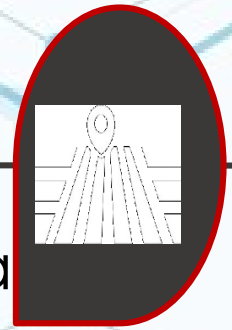


Stakeholders

- ➔ This Blockchain platform is used to integrate the property chain with the following stakeholder's application :
- ➔ **Dharitree** – in all processes of *chitha* updation
- ➔ **NGDRS** – property registration
- ➔ **Bhunaksha** – spatial data (ULPIN and GeoJSON coordinates) of land parcels
- ➔ Unique Land Parcel Identification no (ULPIN) is taken as the Blockchain ID so that data can be blockchained

DHARITREE

In all processes of *chitha* updation



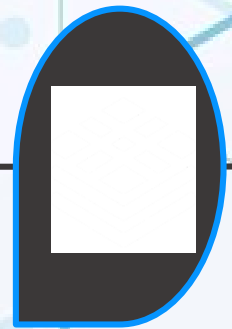
NGDRS

Maintain Property Registration



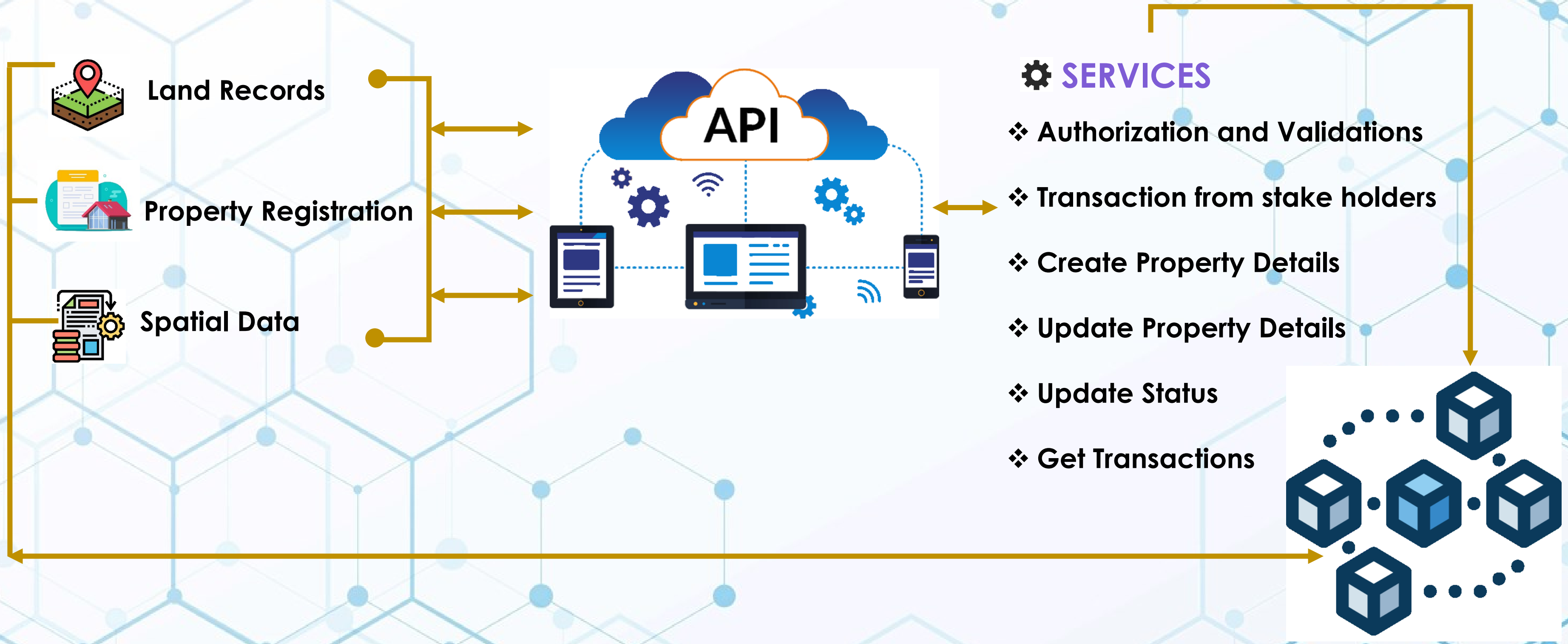
BHUNAKSHA

Spatial data (ULPIN and GeoJSON coordinates) of land parcels





Integration with property chain among stakeholders





The blockchain technology used in Securing land records



1. The Property chain used is a **Hyperledger-based** platform of **CoE, Bengaluru**
2. Permissive platform for registering the **data schema** of the user department.
3. Each process in **Dharitree** is identified against the schema of the user department registered in the property chain.
4. The data pushed to the property chain is verified against the schema.
5. Before any updation in **the Chitha at Dharitree**, the land parcel is uniquely identified using **ULPIN** from **Bhunaksha**
6. The Chitha data and spatial data are hashed, digitally signed by the **Circle officer** as in the case of **mutation** and stored in JSON format in Property Chain as per the data schema
7. When *Chitha* gets updated by a process, such as **mutation**, before **final order** by **the Circle Officer**, the hashed Chitha data is verified with the **hashed Chitha data** stored in the **blockchain**. If verified it allows the Circle Officer to pass the final order.
8. In **NGDRS**, the deed data is digitally signed by the **SRO** and stored in the blockchain after the approval of deed.



Key factors of Blockchain Integration

- ➔ **Textual and spatial land parcel data** are hashed and stored in the blockchain.
- ➔ **Digital signing of data** before making transactions in blockchain to ensure security, integrity, and authenticity.
- ➔ A **list of transactions** conducted against a particular land parcel can be retrieved from the blockchain.
- ➔ **Verification of land record** data is possible by comparing the local hashed data with the hashed blockchain data.
- ➔ **ULPIN** is used as a unique identifier for land parcels stored in the blockchain.
- ➔ Provisions are made for **onboarding multiple stakeholders** such as banks, the Agriculture Department, courts, etc. to view the authenticated information from the blockchain.





List of transactions from Blockchain for a land parcel

Dharitree Menu

- Dashboard
- Basundhara
- RTPS
- Basundhara Pending
- Allow Re-Approve
- Detail in the Circle
- Process time
- Process
- Utility
- Reports
- User Management

Property Chain Id: R-10004-*****5KZLQH0

জিলা: কামৰূপ	মহকুমা: কামৰূপ সদৰ	চক্ৰ: উত্তৰ গুৱাহাটী
মৌজা: শিলা সেন্দূৰীঘোপা	লাট: ১ নং লাট	গাওঁ/ চহৰ: বনমাজা

দাগ নং	মাটিৰ শ্ৰেণী		কালি (বি.ক-লে)	পত্ৰাৰ নং আৰু প্ৰকাৰ	ৰাজহ(টকা)	স্বানীয় কৰ(টকা)
	কৃষি	অকৃষি				
১	২	৩	৪	৫	৬	
৫৫	আবা		০.৩-৭.০০০০	১৫৫, খেৰাজ ম্যাৰী	১৫.০০	২.৫১

<p>পত্ৰাদাৰৰ নাম: শ্ৰী আদিত চন্দ্ৰ কলিতা</p> <p>পিতাৰ নাম: পিঃ অৰূপ</p>	<p>পত্ৰাদাৰৰ নাম: শ্ৰী মতি ভাগ্যবালা কলিতা</p> <p>পিতাৰ নাম: স্বঃ অৰূপ</p>
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Transaction Details

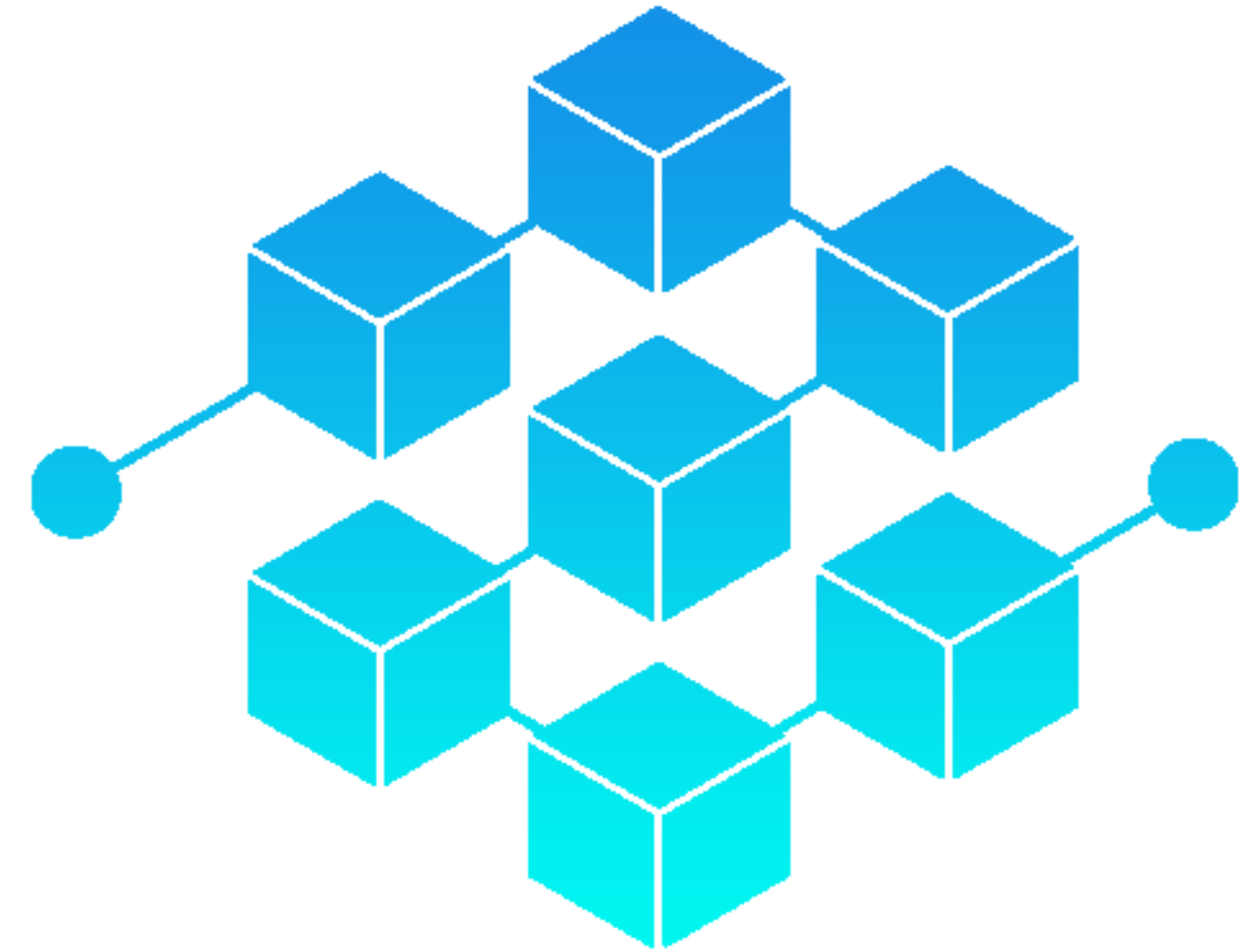
Show 5 entries

Sl No.	Property Id / Reference Id	Date Time	View
1	SD:2023/IGR004/1/1278/848LCFE5KZLQH0	09-10-2023 11:08:09	View
2	MAP:848LCFE5KZLQH0	13-09-2023 15:08:12	View Map
3	ROR:R-10004-848LCFE5KZLQH0	13-09-2023 15:07:48	View



Benefits of Blockchain

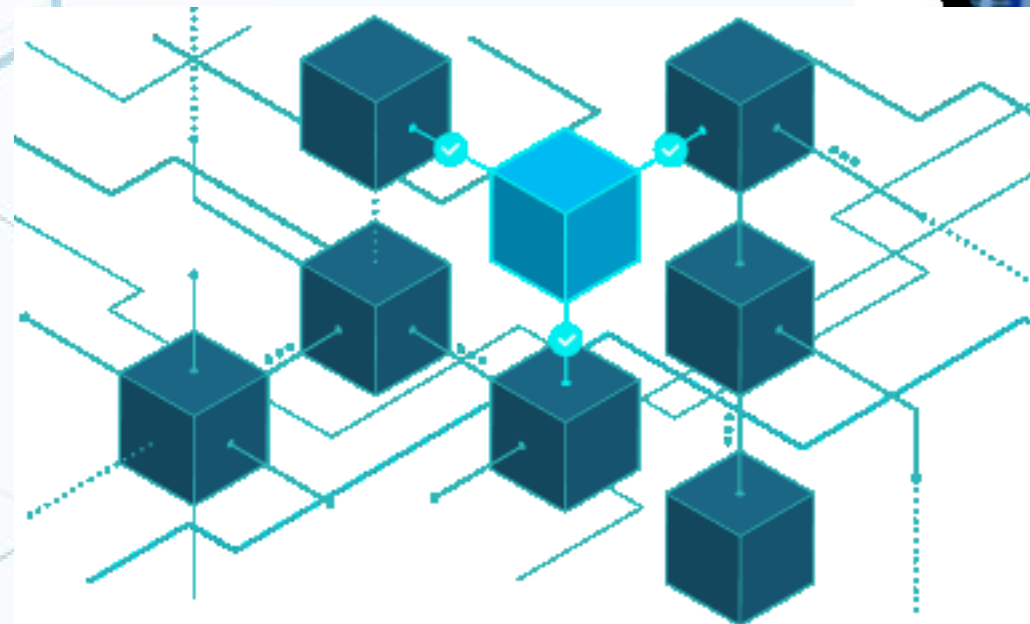
- ➡ View all **time-stamped** transactions
- ➡ **Verify ownership** details
- ➡ Avoids **illegal transactions**
- ➡ Reduce **document verification**
- ➡ **Faster execution** of transactions
- ➡ Minimizes **litigations**





Present Status of Blockchain Implementation in Assam

- ➔ Proof of Concept for Blockchain completed for Banmaza village under Uttar Guwahati Circle of Kamrup District
- ➔ Blockchain Pilot rolled out for Darrang District





Thank you