RESO for India

Making a Global Impact with the RESO Data Dictionary and Exploring Real Estate Ontology

An initiative by Indunia
Snapshot of emerging Indian Real Estate Market

- 900M mobile internet & 500M social users
- 20M homes, 170M people
  Affordable Housing for all by 2020
- 100 Smart Cities & 55M new homes (now 300M, 110M in urban)
- Big Data Standardization
  For ARCs, $20B REITS, millions of Developers, Lenders, Brokers/Agents, ...
Drawing parallels from USA RESO initiatives

**Time to Market**

Same real estate data is unnecessarily being reprocessed multiple times by developers, brokers, listing sites and others in the real estate value chain. Inventory remains in various formats, digital and non-digital, waiting to be processed into a transferable and usable format.

**Cost**

Repetitive and redundant work and IT infrastructure results in wastage of funds, resources and efforts.

**Data Accuracy, Reliability & Transparency**

Unnecessary and non-standard data reprocessing as well as difficulty to extract data from non-standard formats result in outdated and inaccurate data. This hampers regulatory bodies to intervene and make appropriate decisions in a timely manner.

**Empowered Value chain**

Lack of transparency breed new business models that try to cut off the Realtor.

**Accelerated Innovation**

Breakthroughs like IOT, SmartCities are not covered from a Data Standards / API perspective.
What is indunia?

The next generation Indian real-estate marketplace for buyers, sellers, brokers, developers, service providers & lenders.

**One of the largest real estate data player in US**
- More than 15+ years of real estate expertise
- Aggregator of Terabytes of real estate Data
- Data supplier to many real estate ecosystem players

**SMC - One of India’s Largest Financial & Real Estate Services Company**
- More than 7,20,000 investors using their brokerage platform
- More than 2500 offices spread across 500+ cities in India
- More than 25 Years in stock broking, real estate & capital market

**Founders**
- Matt Kumar
- Antony Satyadas
- DK Aggarwal
- Jacob Cherian

**Core Team**
- Anshad Ameenza
  - Chief Architect
- Ajith Kavirajan
  - Product Lead
- Abhilash Kumar
  - User Experience
- Santhosh Kumar
  - Development Lead
- Sunitha G
  - Usability Analytics
- Suresh Kumar
  - Core Product

**Partners**
- IBM
What is unique about indunia?

Chat, Learn, Play, Get Recommendations, Discuss” and consume via “Mobile, Web, TV, VR”

600+ GB Data lakes Growing 1T+ In 2015
One stop shop for India Real Estate data
India Real Estate RESO based Dictionary v 0.1

Derived from RESO Standards

Modified for Indian RE Market

Full Range of Meta Data Support

Data Dictionary v-0.1

Property: Derived from RESO but customized for India RE. **No.Fields: 586**

Project: Created by Indunia by taking few fields from RESO. **No.Fields: 610**

User: Created by Indunia for India RE Market. **No.Fields: 74**

Broker: Derived from RESO but but customized for India RE. **No.Fields: 56**

Developer: Created by Indunia for India RE Market. **No.Fields: 51**

US RESO Data Dictionary – v 1.4

India RESO based Data Dictionary – v 0.1

- Property
- Member
- Office
- Contacts
- Media
- History Transactional
- Saved Search
- Open House
- Teams
- Team Members
- Enumerations
- Deleted Elements
- Deleted Enumerations

- Property
- Project
- Developer
- User
- TBD - Commercial
- TBD - Land & Plot
- TBD - Insights
- TBD - Social
- TBD – IOT Data
- TBD – Service Provider
- TBD – Lender

www.indunia.com
Open standard based indunia Data API

RESTful Service with HTTP based accessibility

NoSQL based Data Store

Ability to auto generate API’s from Data Models

Storage & Transport Specifications

JSON Format

Built on top of NODE.JS high speed framework

Fully Open Source stack including OAuth

Multi-level data privacy and security controls

Indunia API Examples

<table>
<thead>
<tr>
<th>Search for all properties within the system</th>
<th>Search for properties within the City NOIDA</th>
</tr>
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<table>
<thead>
<tr>
<th>Search for properties where State is Uttar Pradesh</th>
<th>List All Resale Properties</th>
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RE Ontology in the world of Drones and IoT

Relationships  Attributes  ➔  Semantics

Streams of big data

act  →  identify

advise  ←  infer

Apache Jena

application code

HTTP

Fuseki

RDF/XML

Turtle

N-triples

RDFa

parsers

and

writers

RDF API

Ontology API

SPARQL API

Inference API

none  built-in rule reasoner  external reasoner

Store API

in-memory  SDB  TDB  custom

?  SQL database  native tuple store
Next Steps

1. **Certify** indunia Data Standard v1 for India through RESO

2. **Expand Partnerships:** RESO, CREDAI, IBM, RE ecosystem

3. **Innovate:** Real Estate Ontology – drones, IoT, videos ...

4. iRESO (India RESO) **certification** program for Indian RE ecosystem
Questions?