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Session : Smart Grids for Smart Cities

Common GIS Map for all Domains in a Smart City

Presented By

Daleep Singhal, Manager-GIS, The TATA Power Company Ltd (Mumbai)

Challenges faced by Power utilities with Underground Network in Mumbai

Unplanned Excavations



Leading to UG Cable Faults



Forced Outage to Customer



Impact on Customer



Leading to higher tariff rates



Cost Incurred to repair faults

Utilities in Mumbai City with GIS



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Power

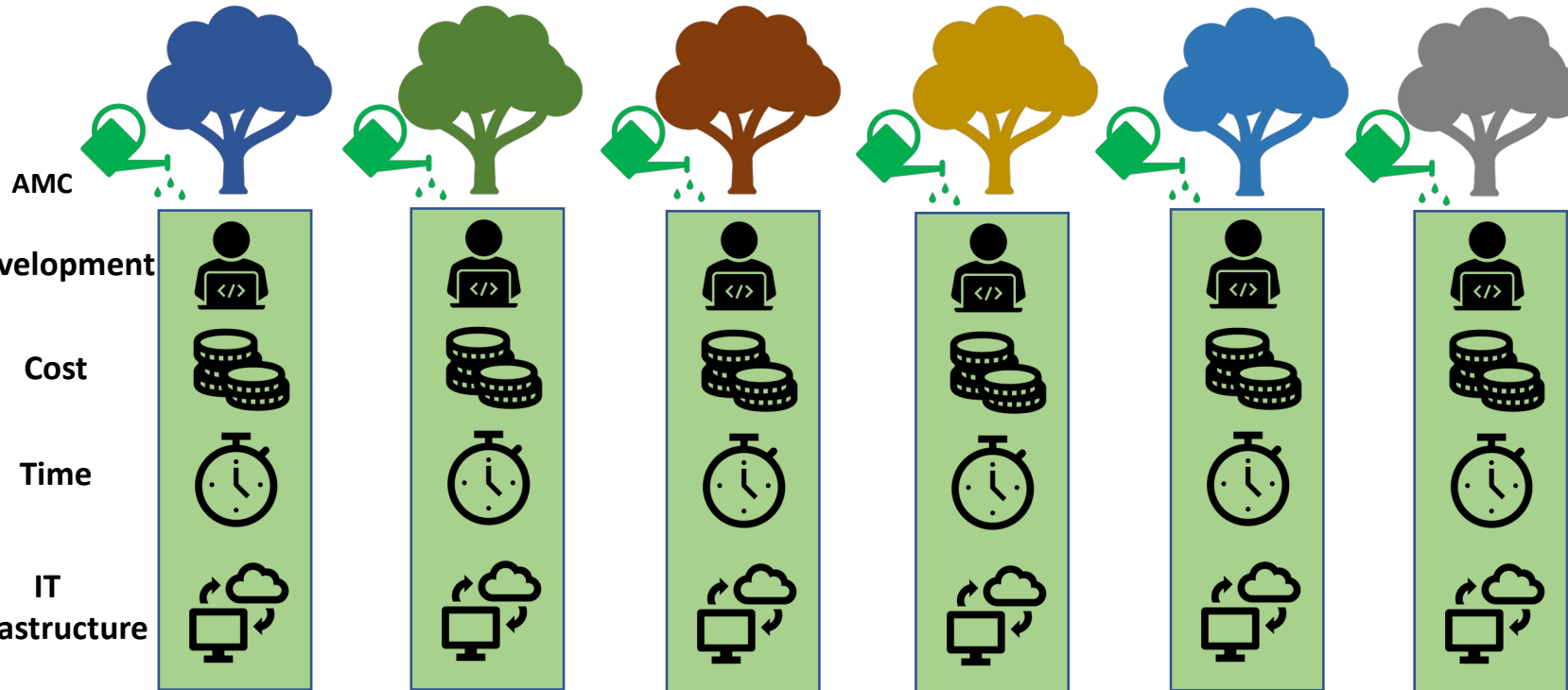
MCGM

Adani
Electricity

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Gas

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All these utilities operate in Mumbai with underground network, and they maintain their separate GIS and land base.

This leads to duplication of efforts in collecting field data, variation in collected data and separate maintenance costs.

Multi-fold expenditure to create land base of same area

Need to Common GIS maps for every utility in Mumbai



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Infrastructure Planning

- Difficulty in comprehensive infrastructure planning, increase in duplication of efforts

Project Execution

- Issues related to infrastructure overlaps, conflicts, which increases project costs and slippage in completion date.

Resource Allocation

- challenges related to prioritize and allocate resources effectively, resulting in increased operational costs and potential service disruptions.

Regulatory Compliance

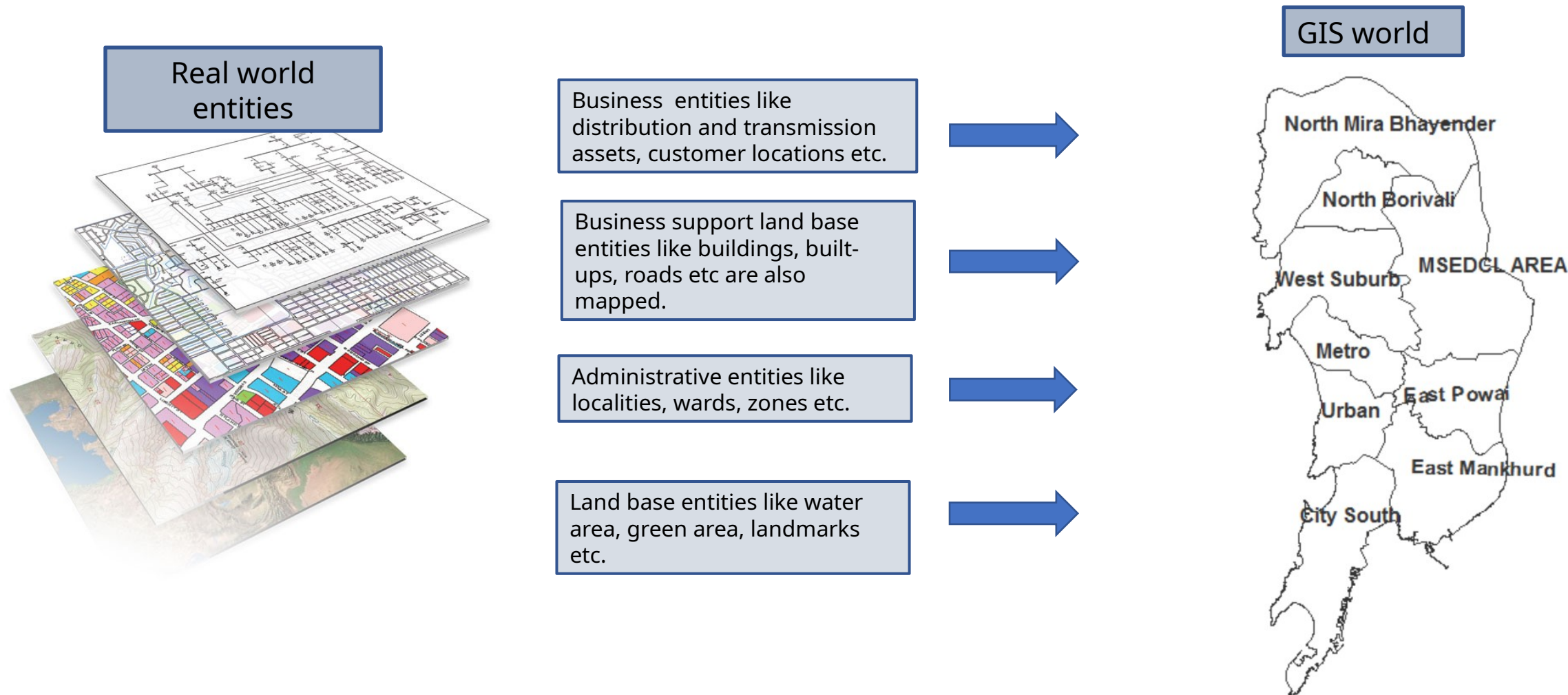
- Challenges related to ensuring compliance, leading to potential legal and regulatory issues that can impact both the utilities and the public

Implementation of common GIS for Tata Power Mumbai



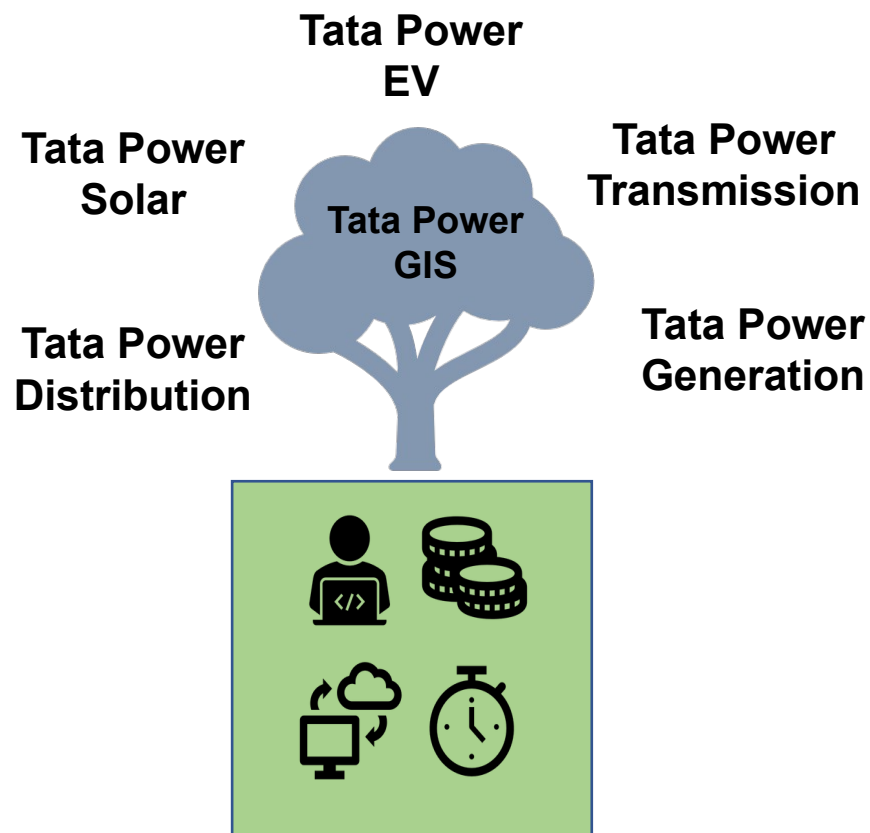
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The Distribution area of 485 sq. km of the Tata Power – Distribution (Mumbai LA) which extends from Colaba in Southern Mumbai to the Vasai Creek in the North has been mapped along with all the network assets

Tata Power has implemented **Geographic Information System (GIS)** for Mumbai. All UG and OH network assets are mapped in GIS up to the consumer location on the backdrop of common land base.



Benefits of common GIS in Tata Power Mumbai

1. Planning & execution of network rollout.
2. Operation and Maintenance of underground network.
3. LT fault maintenance teams for consumer complaint handling teams
4. Map sharing with MCGM for permissions related to Annual Excavation Planning.
5. Map Sharing with MERC for understanding of past and future network rollouts.

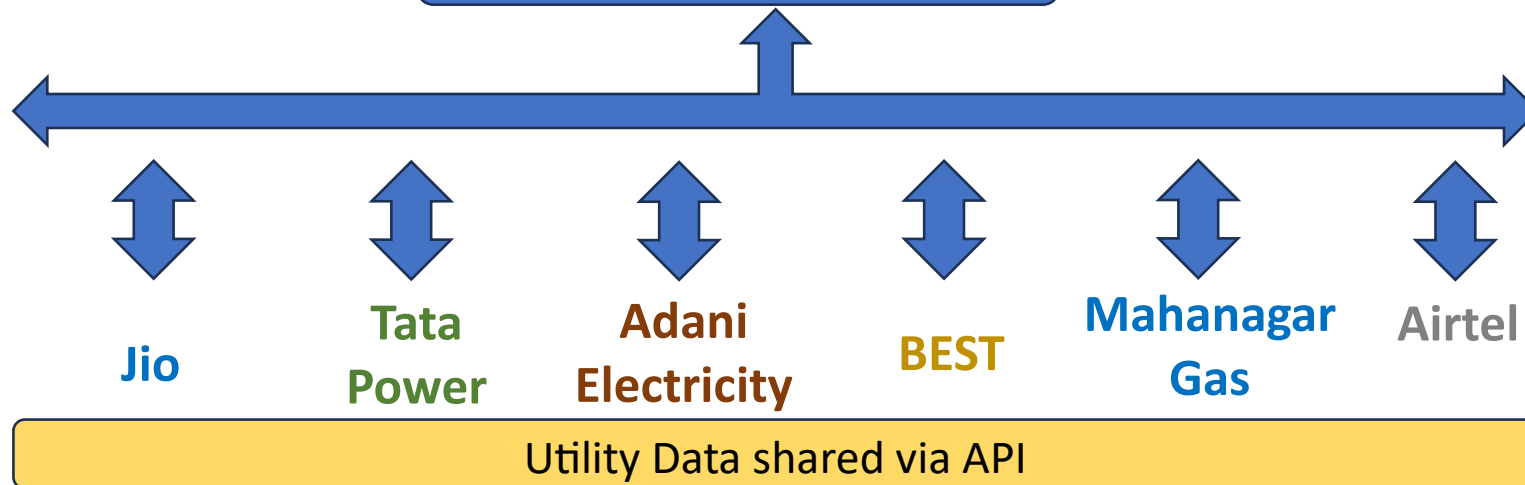
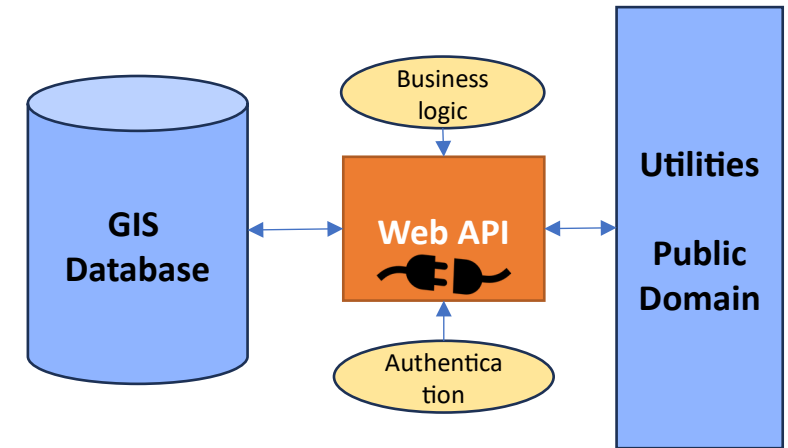
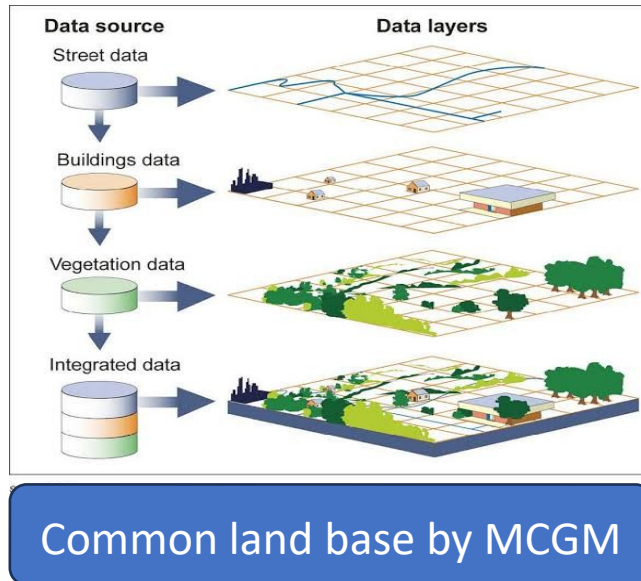
Proposed Approach for Mumbai



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For smart cities, the integration of a common geographic information system (GIS) map plays a critical role. Common GIS Land Base Map will act as a robust pillar for smart city initiatives.



- ❖ Common language of land base.
- ❖ Superior urban planning.
- ❖ Minimum interruption in public services.
- ❖ Integrated data sharing with MCGM

Integrated Data Sharing

- Implementation of common GIS map facilitates seamless data sharing among utilities and enables a holistic view of city infrastructure.

Enhanced Public Engagement

- Common GIS map provides up-to-date information to public about utility services, infrastructure projects and promote public trust.

Field Crew Tracking

- Accurate land data enables real-time tracking of field crews, enhance workforce management and reduce response time.

Streamlined Urban Planning

- Common GIS map allowing better coordination between stakeholder, improved infrastructure maintenance, and a resilient cityscape.

Responsibility Matrix

| Activity | Responsibility |
|--|----------------|
| Standardization of Land Base data for Mumbai region. | MCGM/Utilities |
| Correction in existing land base present with MCGM. | MCGM |
| Development of a Web API. | MCGM |
| Utilities to develop API's to integrate with MBMC land base. | Utilities |
| Utilities to standardize GIS based on land base provided by MCGM. | Utilities |
| Web portal to pull the data from utilities and publish in GIS system securely managed by MCGM. | MCGM/Utilities |

THANK YOU

*For discussions/suggestions/queries email: **isuw@isuw.in***

[visit: www.isuw.in](http://www.isuw.in)

Links/References (If any)