

# **USING ICT IN PROPERTY DISCOVERY, VALUATION AND TAX ADMINISTRATION**

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**Property Taxation and Land Value Capture in Africa**

**May 5-7, 2021**

## **Points to be considered:**

- **Relevance of Big Data in property taxation**
- **Capturing the property tax base**
- **Collection of data**
- **Valuation and assessment issues**
- **Developments in OSR administration**
- **Some conclusions**

# The problem of property tax data

- What we can see; and
- What we cannot see



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# significance

statistics making sense

## BIG DATA

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# DATA IS POWER

HOW INFORMATION IS DRIVING THE FUTURE

# The Economist

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## The data deluge

AND HOW TO HANDLE IT: A 14-PAGE SPECIAL REPORT



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# GETTING CONTROL OF BIG DATA



How vast new streams of information are changing the art of management. PAGE 59

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# BIG DATA

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## BIG DATA

HOW IT'S MAKING AGENCIES SMARTER



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Does Government Ever Really Change? PAGE 30

Five Ways Women Get Ahead PAGE 42

# Big Data Definition

“**Big Data**” is data whose scale, diversity, and complexity require new architecture, techniques, algorithms, and analytics to manage it and extract value and hidden knowledge from it...

Big Data refers to our ability to make use of ever-increasing volumes of data

New analytics through AI, machine learning

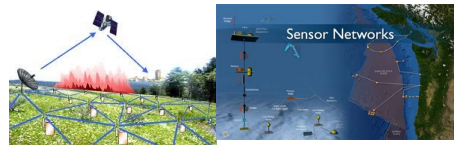
# Generating Big Data



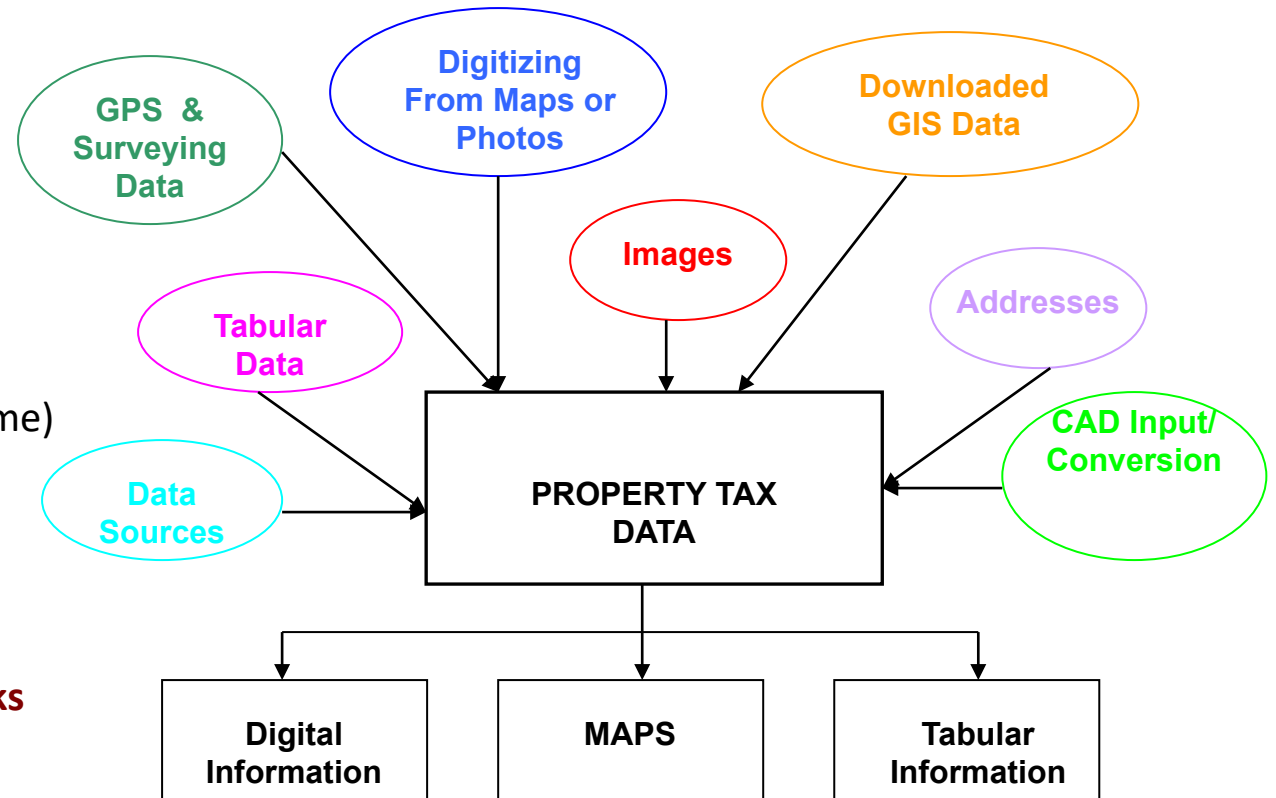
**Scientific instruments**  
(collecting all sorts of data)



**Mobile devices**  
(tracking all objects all the time)

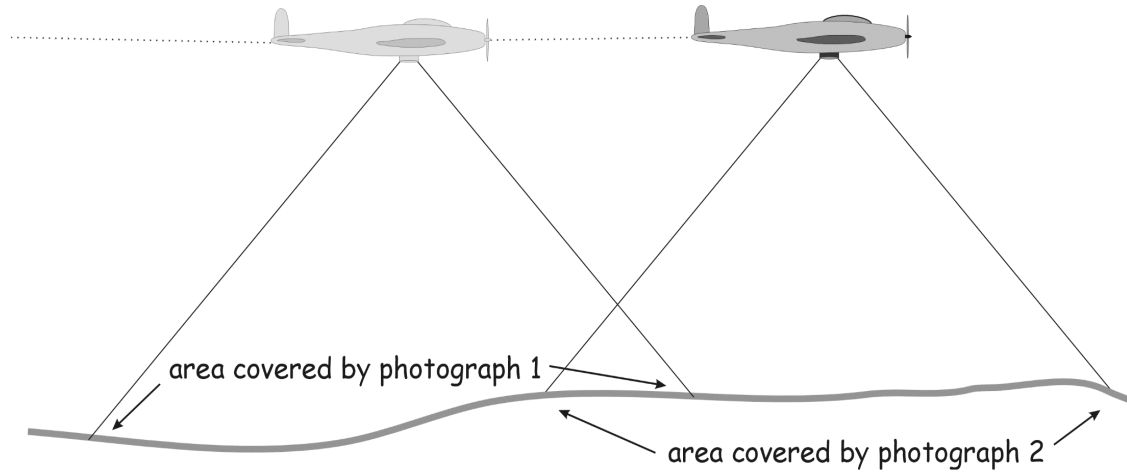


**Sensor technology and networks**  
(measuring all kinds of data)

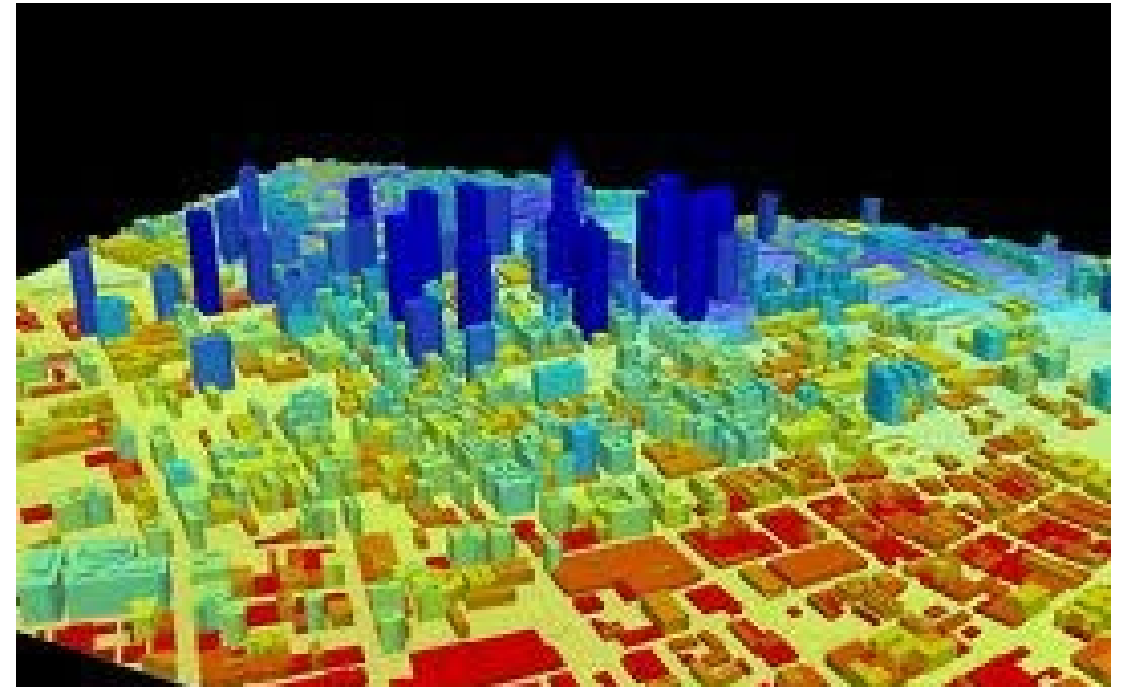


- The progress and innovation is no longer hindered by the ability to collect data
- But, by the ability to manage, analyze, summarize, visualize, and discover knowledge from the collected data in a timely manner and in a scalable fashion

# EYES in the SKY or FEET on the GROUND

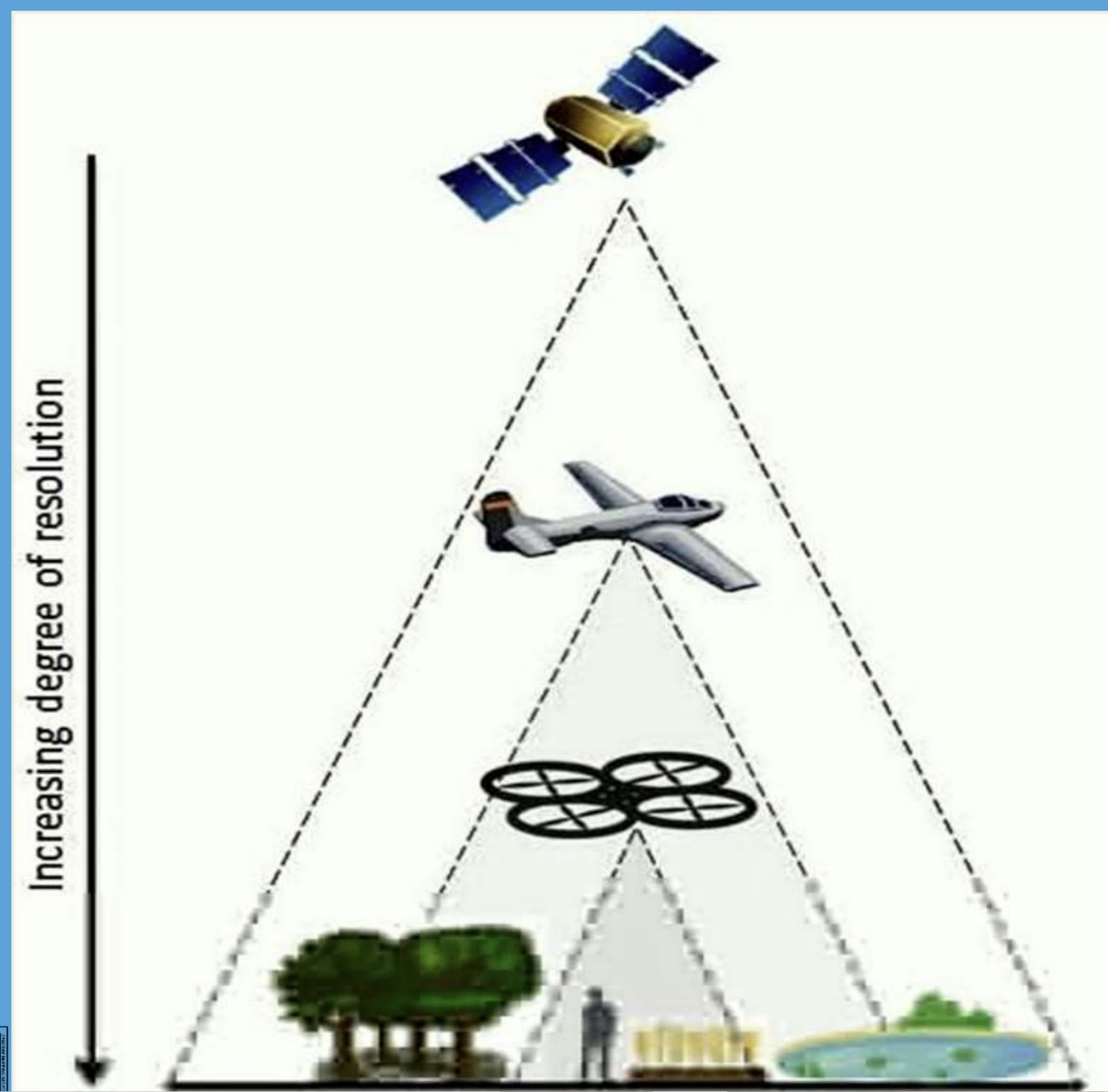


**LiDAR** is a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light.



# Generating Big Data

## Drones – Game Changer





**So where are we with property valuation?**

# The Scale of the Property Tax: Big Data

City	Number of properties on the property tax roll
Ahmedabad, INDIA	2.1m
Bengaluru, INDIA	1.6m
Cape Town, South AFRICA	900,000
Dar es Salaam, TANZANIA	est 480,000
Jakarta, INDONESIA	3.9m
Johannesburg SOUTH AFRICA	812,000
Karachi, PAKISTAN	est 2m
Kuala Lumpur, MALAYSIA	800,000
Quezon City, PHILIPPINES	550,000

# The Valuation Conundrum - Automated Valuation – Mass Appraisal?

- Valuation of large numbers of properties
- Statistical solutions
- Machine learning and AI?
- Visualization?

# Valuation methods – data issues

NON-VALUE BASED

VALUE BASED



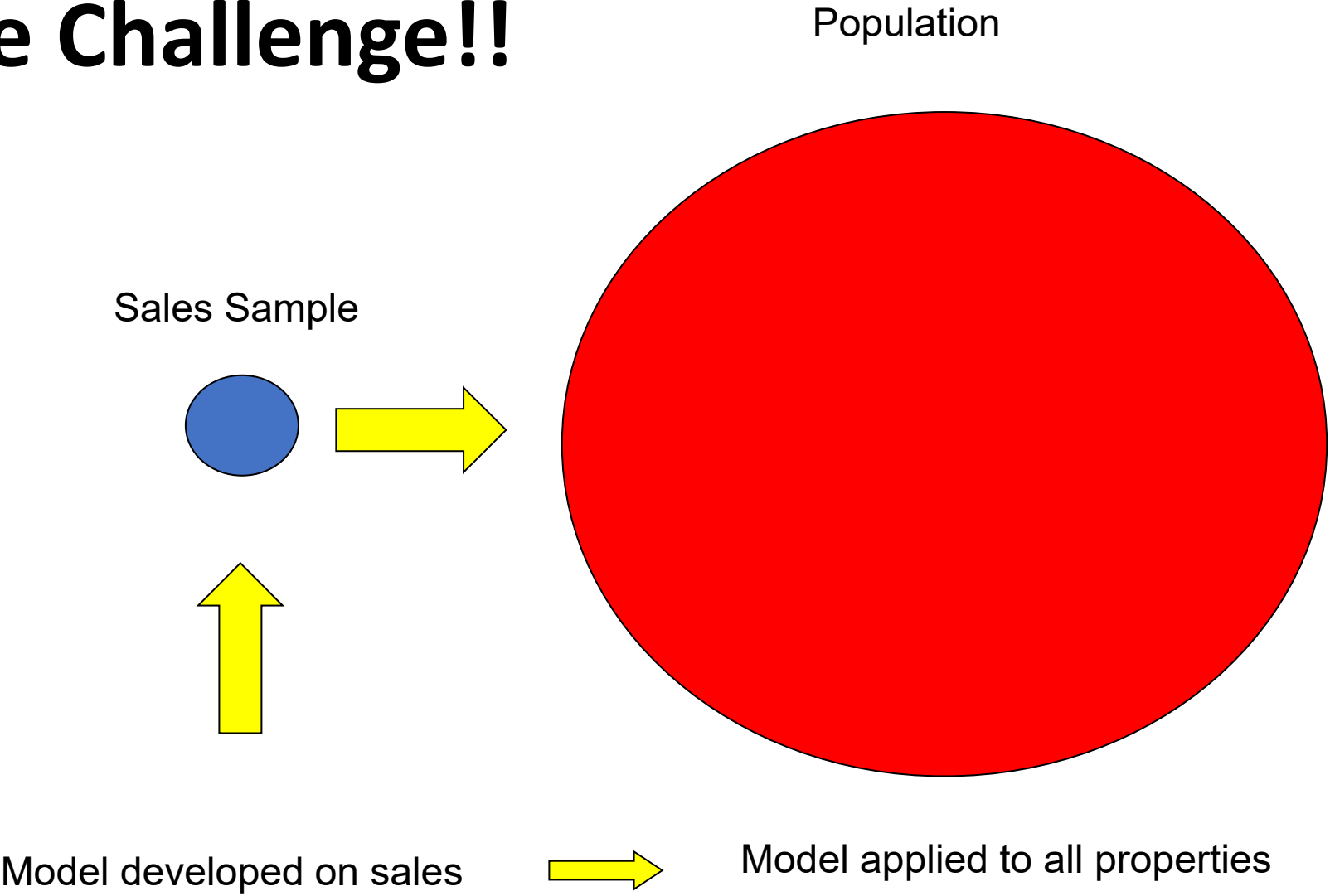
Degree of complexity



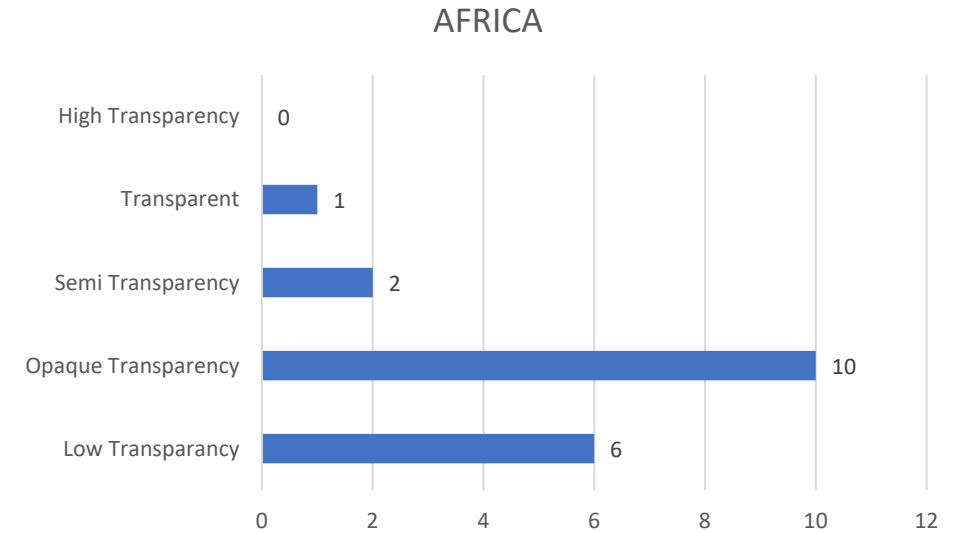
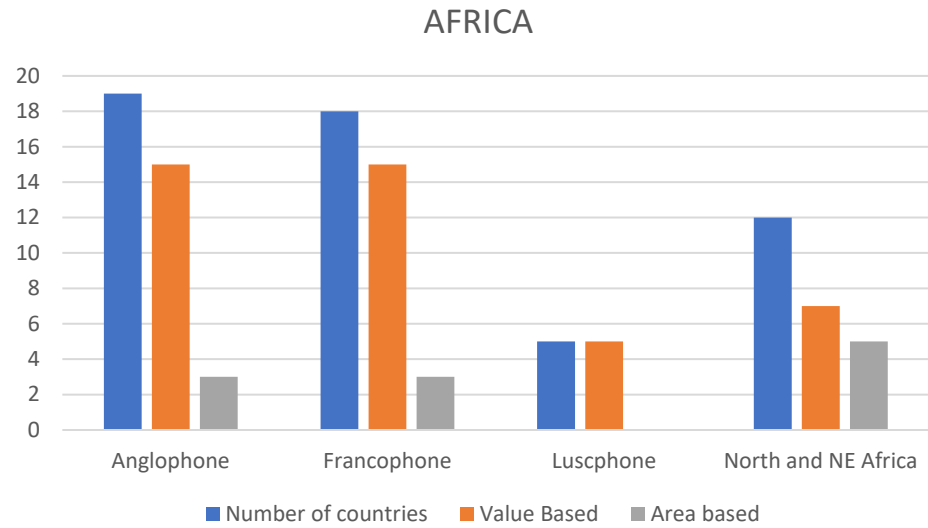
Data requirements



# The Challenge!!



# Basis of Valuation: the Options



Source: Franzsen and McCluskey 2017. Property Tax in Africa

Source: JLL

Methodology	Countries
Points Based Assessment	Slovenia, Sierra Leone, Malawi
Unit Area Method	Ahmedabad, Bangalore, Bengaluru, INDIA
Adjusted Area	Czech Republic, Slovakia, Hungary, Poland, Kazahstan, Uzbekistan etc etc
Prescribed Tables	Laos, India, Pakistan, Tanzania

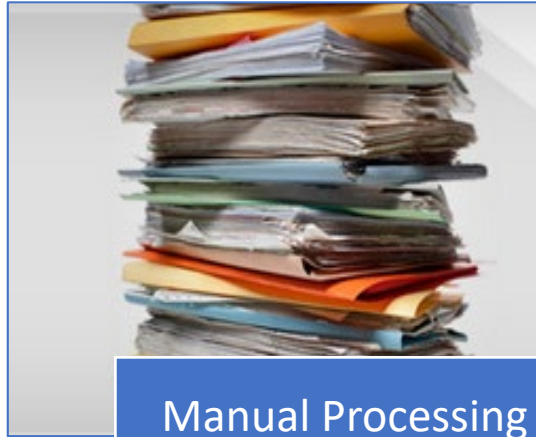
# So, can Mass Valuation work in the African context?

- The experiences of using conventional mass valuation in real life settings in Africa are few:
  - Some of the metros in South Africa, Cape Town.
- Some academic work has been done in Kenya (University of Nairobi), Tanzania (Ardhi Institute)
- More success in automating simplified assessment methodologies rather than strictly value based approaches
  - Freetown, Sierra Leone; Malawi (ICTD), Nigeria (Land Use Charge), Dakar, Senegal

**What about administration?**



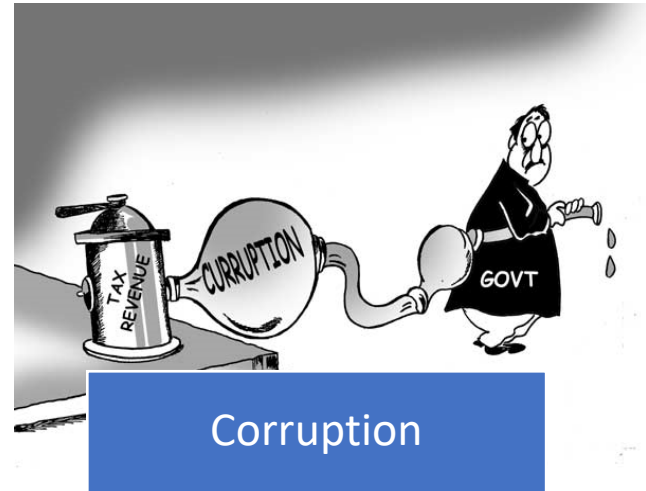
# The current problems in revenue administration



Manual Processing



Revenue Collection leakages



Corruption

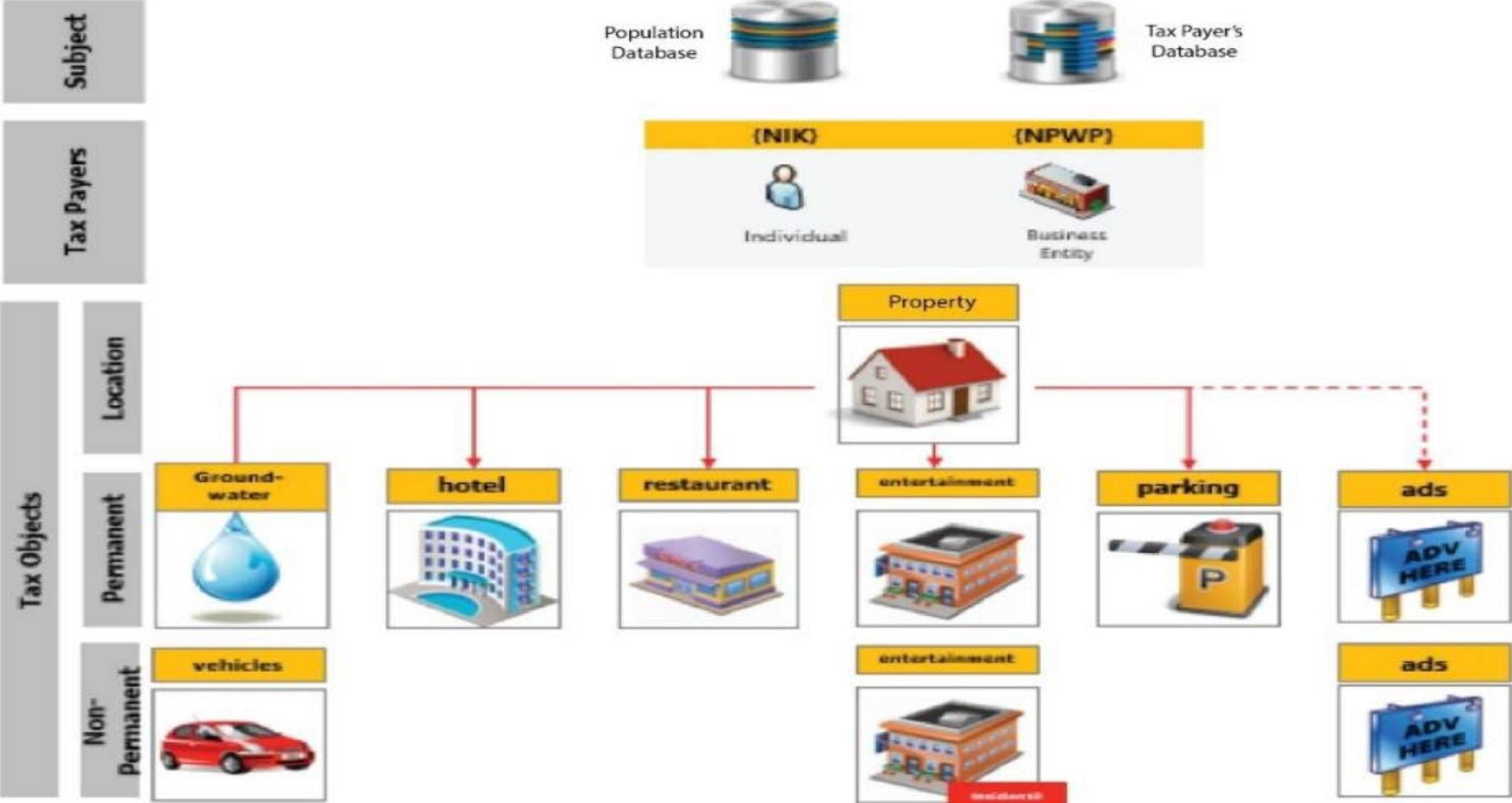


Outdated Information

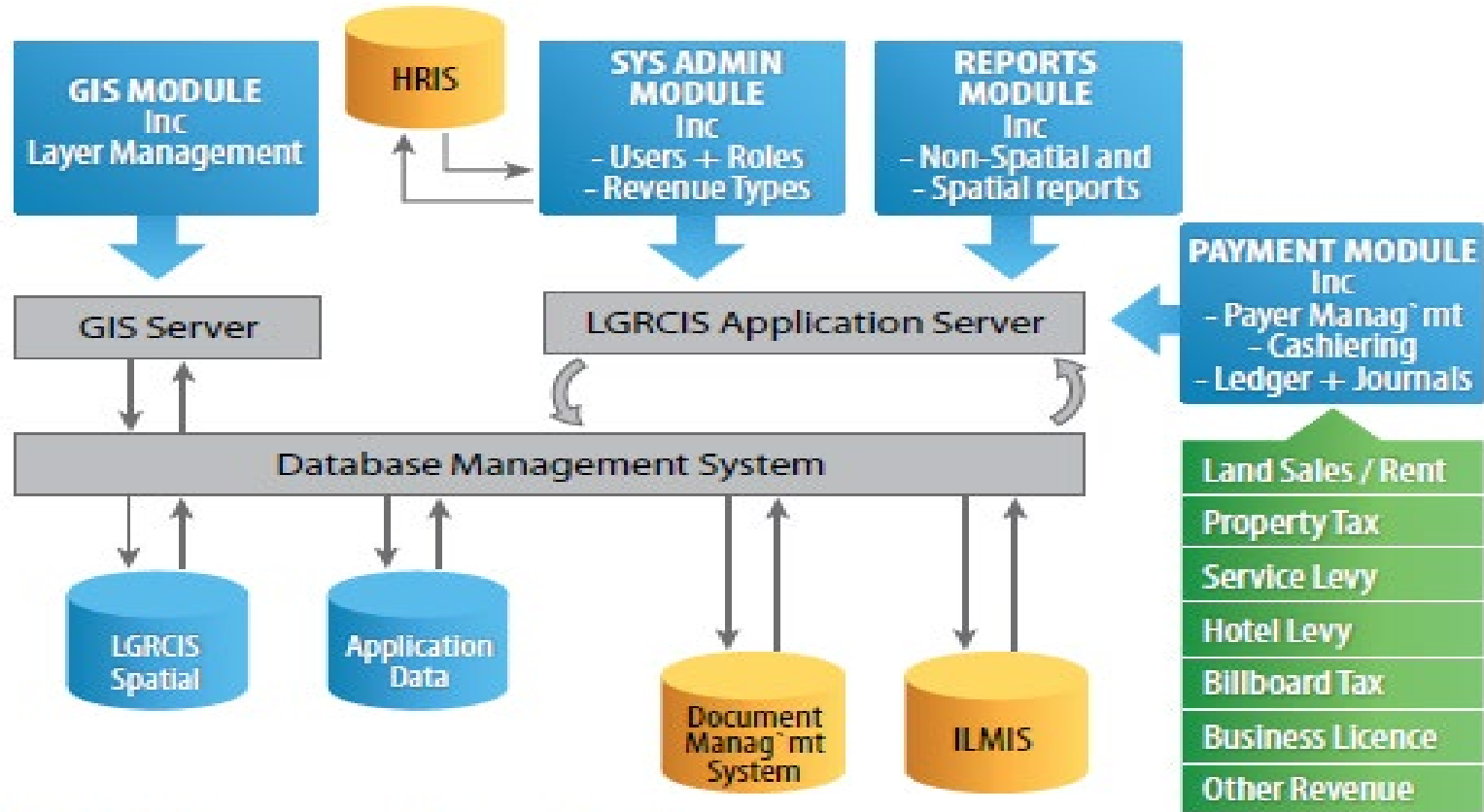


Poor Planning Frameworks

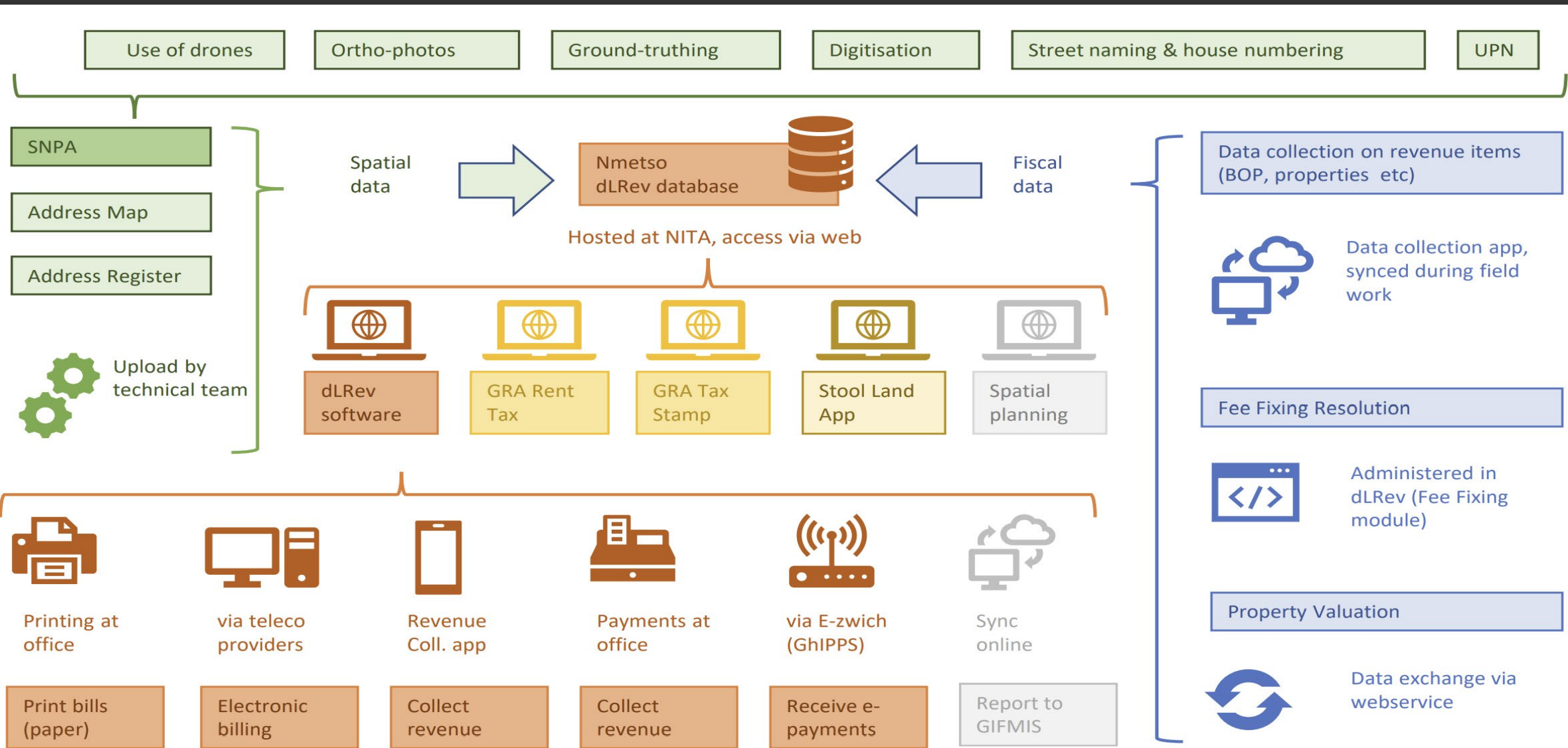
# INDONESIA – Integrated OSR collection at the municipal level



# LGRCIS in: TANZANIA



# GHANA – OSR collection at the municipal level



# Conclusions: A Question of Reality

- Many countries lack the capacity to collect and maintain property data
- Systems can be developed; GIS can be used but are these sustainable?
- In-house solutions at local government level; role of national government?
- Accuracy of data; how accurate should it be?
- Simplification of assessment and systems