



XXVII FIG CONGRESS

11-15 SEPTEMBER 2022
Warsaw, Poland

Volunteering
for the future –
Geospatial excellence
for a better living

Operationalizing Modern Cadastre with GIS (11344)

Brent Jones, PE PLS

Esri

bjones@esri.com



ORGANISED BY



PLATINUM SPONSORS



Global Standards, Frameworks, Initiatives, Models, Data.....

Global vision for improving our lives,,,,,



SUSTAINABLE DEVELOPMENT GOALS

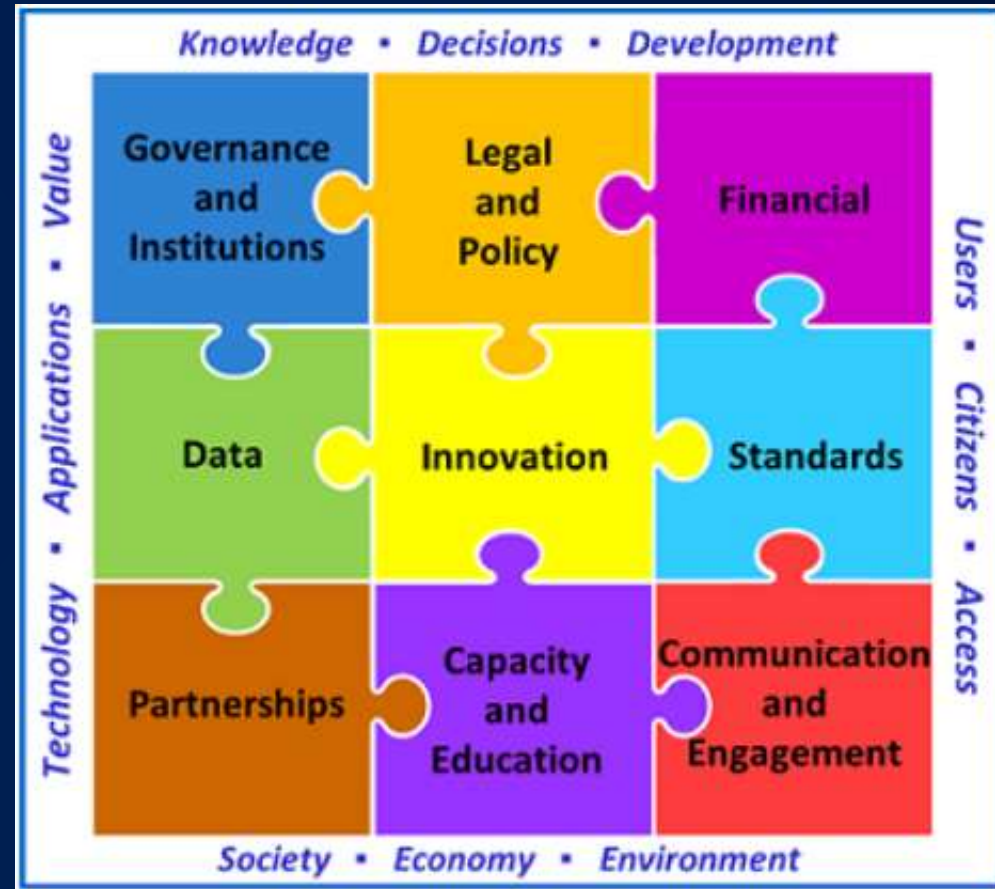
17 GOALS TO TRANSFORM OUR WORLD



UNGGIM – Integrated Geospatial Information Framework (IGIF)

A Framework for Implementing Modern SDI

The Integrated Geospatial Information Framework provides a basis and guide for developing, integrating, and strengthening geospatial information management.



9 Strategic Pathways

Framework for Effective Land Administration (FELA)

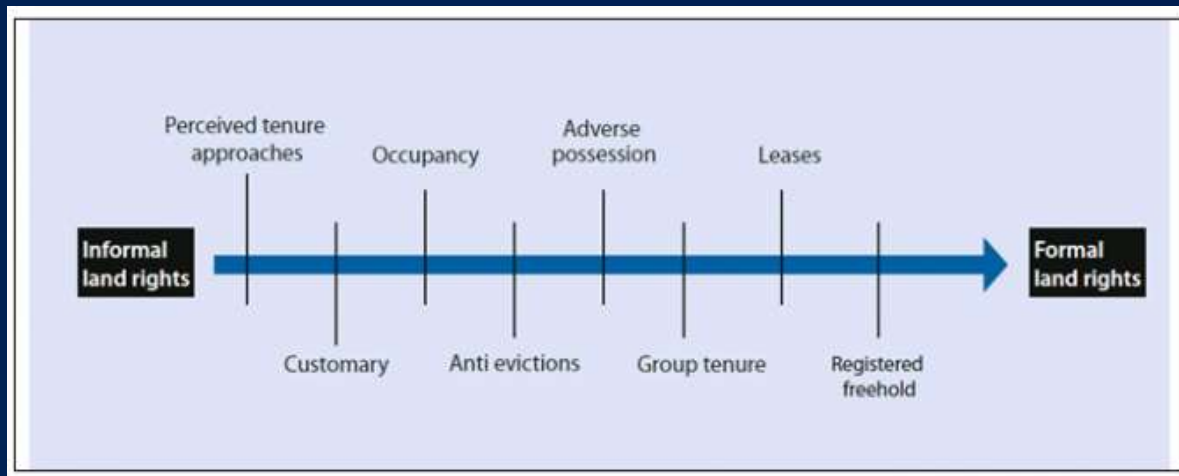
Applying IGIF to Land Administration,,,,,



A reference for developing, reforming, renewing, strengthening, modernizing, and monitoring land administration

Continuum of Rights

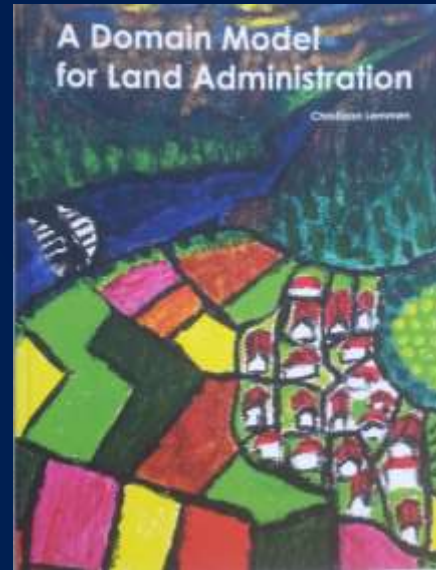
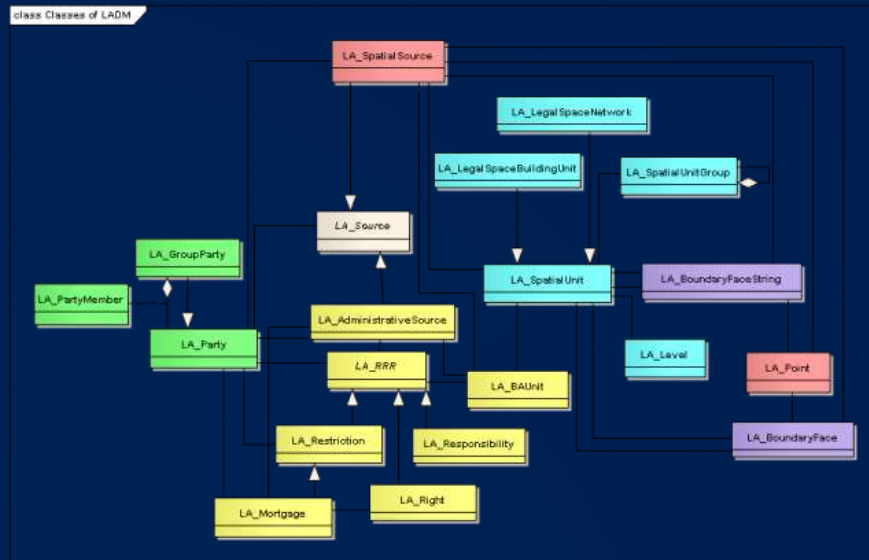
Helps understand and communicate tenure systems....



The continuum of land rights is a concept or metaphor for understanding and administering the complexity of land rights.

Land Administration Domain Model (LADM)

Standardizing technology communication in land administration,,,,,

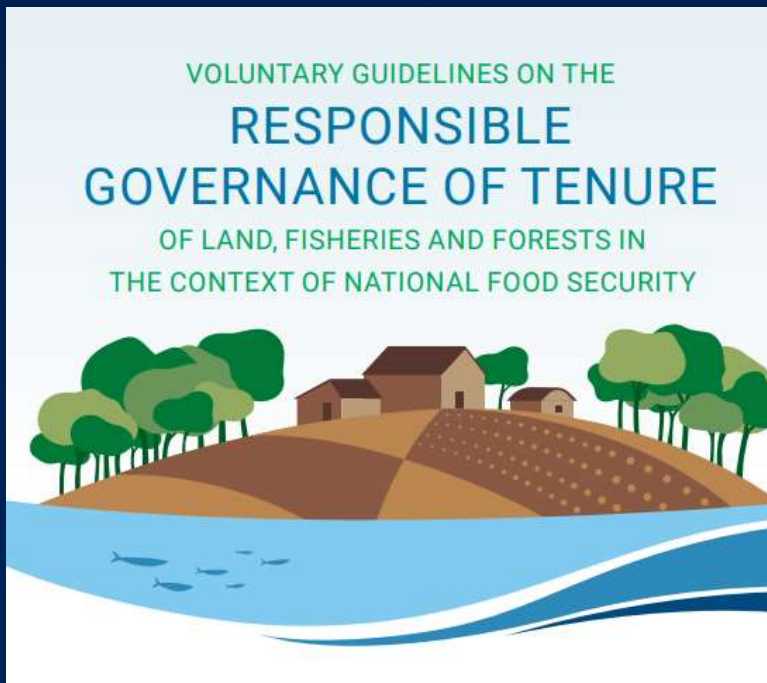


ISO 19152:2012

LADM attempts to align both: the data model provides a standardised global vocabulary for land administration.

Voluntary Guidelines on the Responsible Governance of Tenure

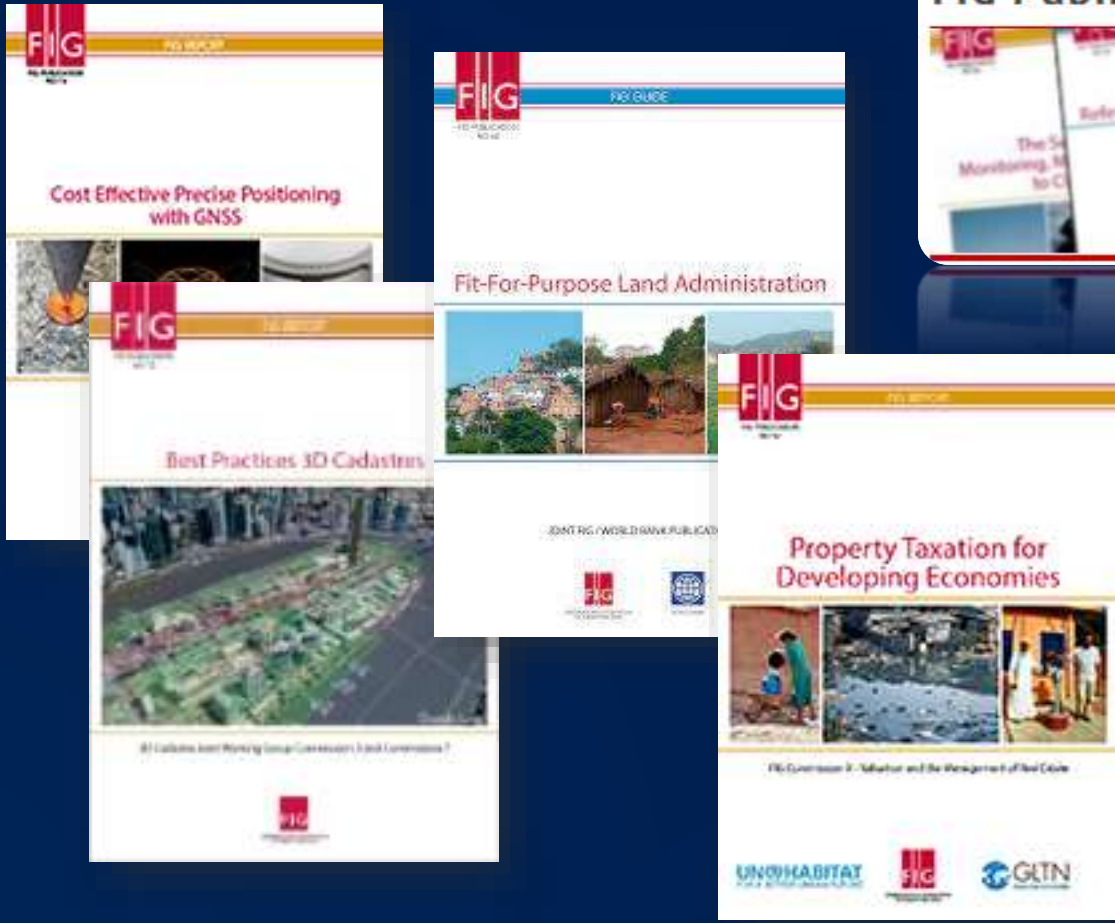
Internationally negotiated framework to improve land governance,,,,,



Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) are a global norm of reference in the governance of land tenure. The guidelines outline principles and practices that governments can refer to when making laws and administering land, fisheries, and forests rights.

FIG Publications and Research

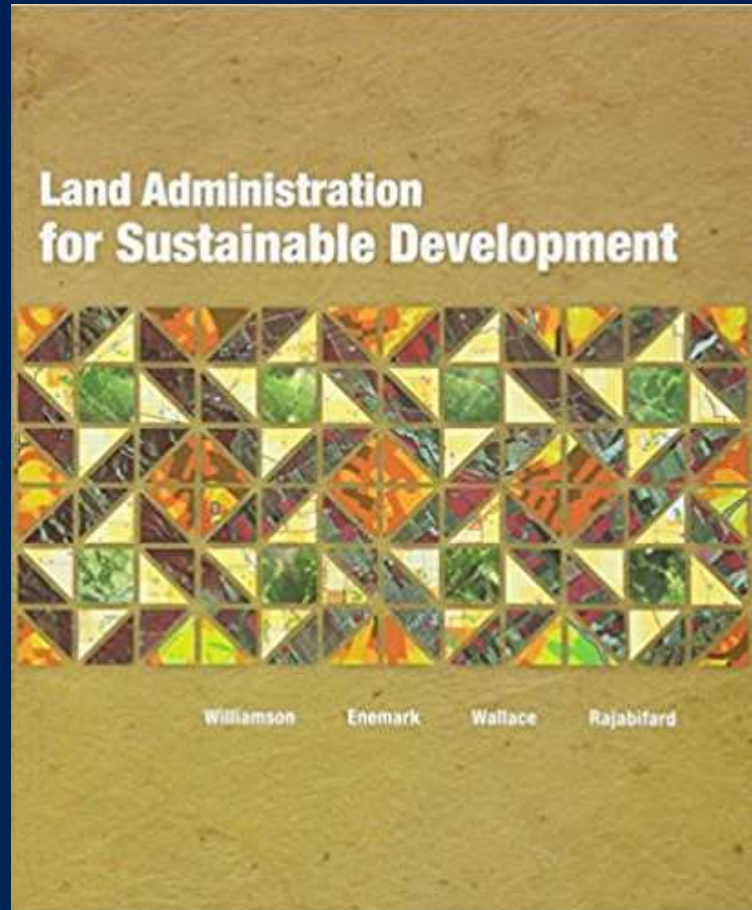
Meaningful research and practical guidelines,,,,,



Fit-for-Purpose Land Administration
Property Taxation for Developing Economies
Best Practices for 3D Cadastres
Cost Effective Precise Positioning with GNSS
.....

Land Administration for Sustainable Development

Global Land Administration Systems and Principles,,,,,



The book shows how to help ensure social equality, economic growth, and environmental protection through holistic land management.



A Lot of Great Books.....

We all have great libraries,,,,,



Operational(ize)

op·er·a·tion·al

äpə' rāSH(ə)n(ə)l/

adjective

in or ready to use

relating to the routine functioning and activities of a business or organization

-ize

Suffix

make or become

Modern(ize)

mod·ern

'mädərn/
adjective

Relating to the present or recent times as opposed to the remote past

-ize

Suffix
make or become

Necessary Conditions for Successful Operationalization

GIS is Geospatial Infrastructure,,,,,

Open/Transparent

Current and Accurate Data

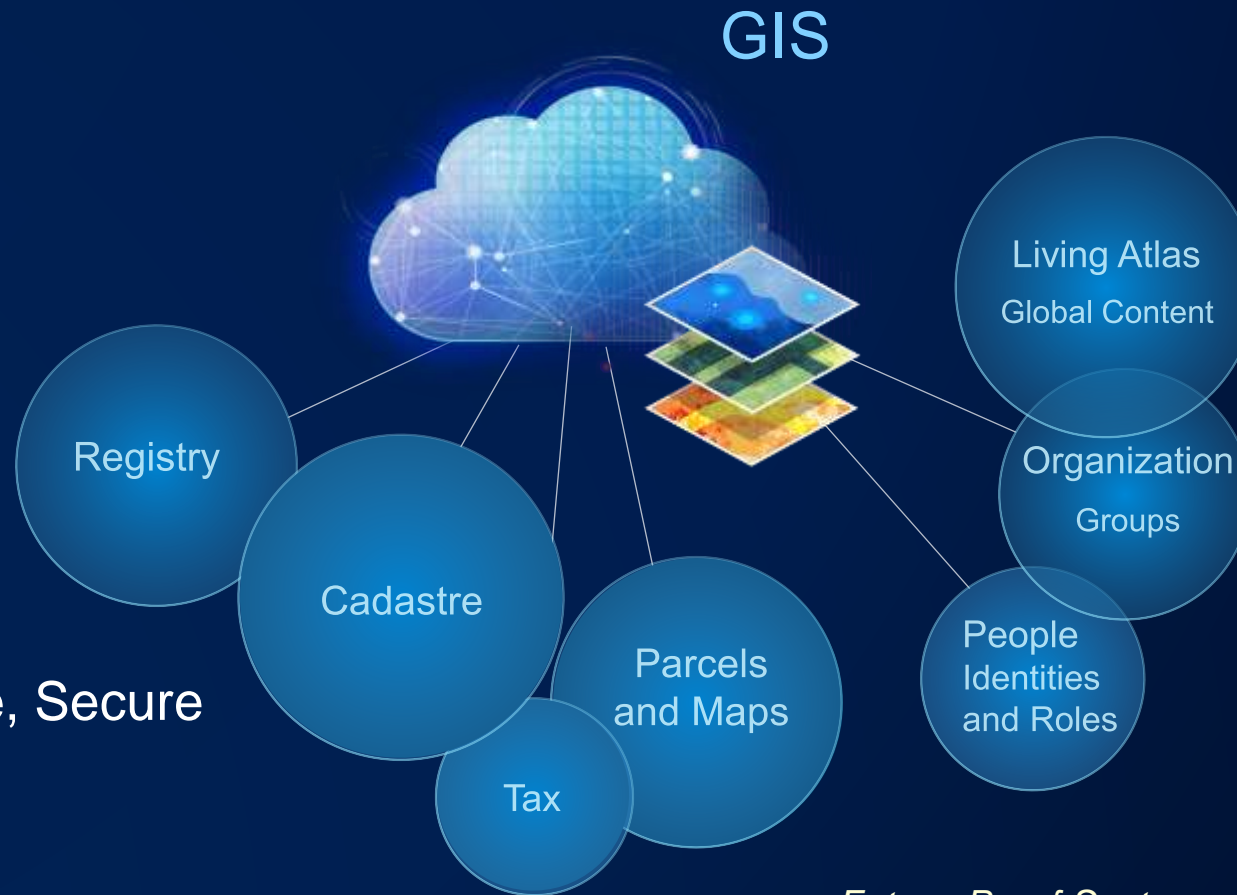
Multiple Data Sources

Configurable

Standards-based

Sustainable, Scalable, Stable, Secure

Interoperable



Data

Data Models

Apps and Tools

Infrastructure

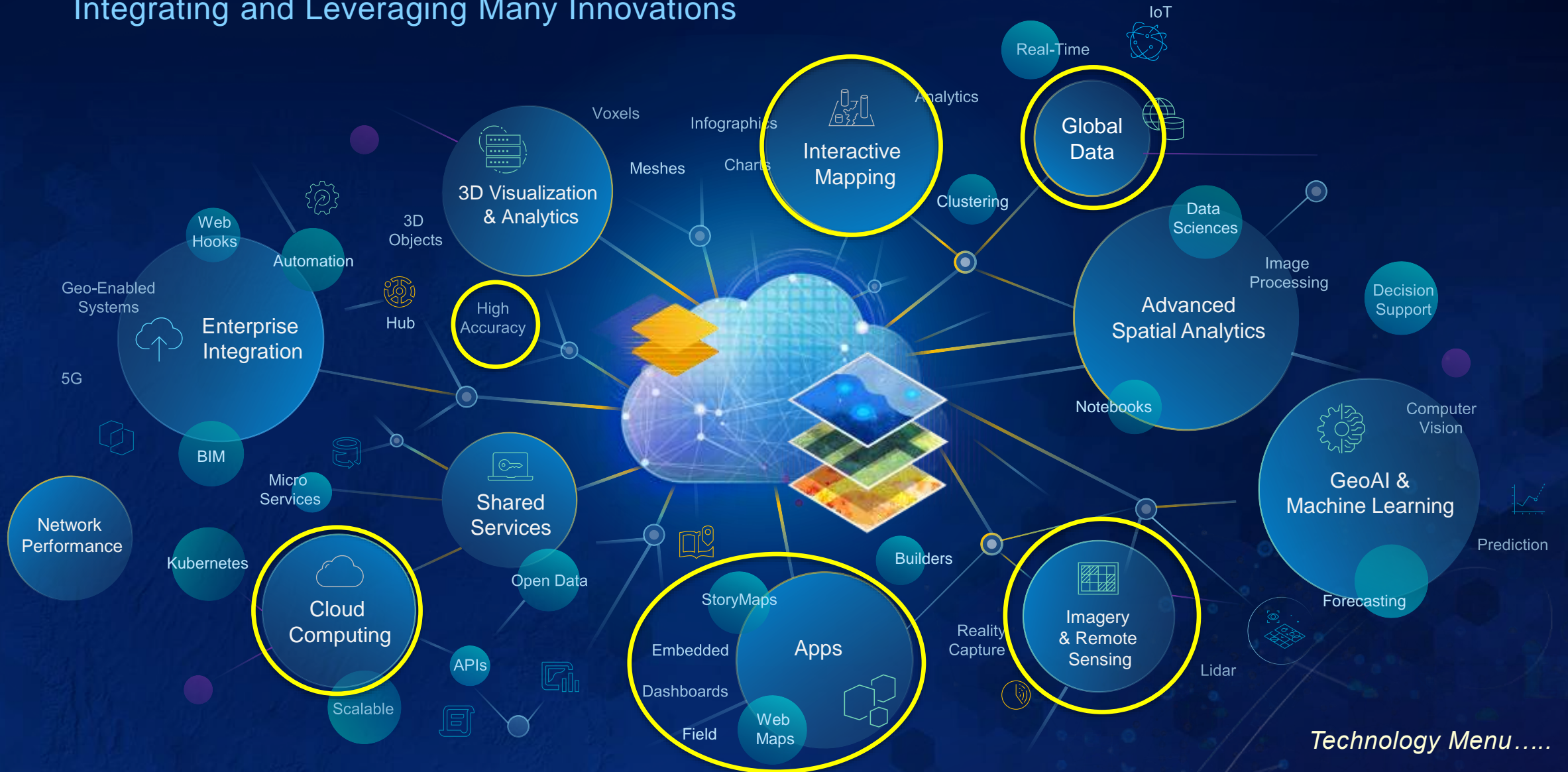
Future-Proof Systems with Modern Technology

GIS Comprehensive Geospatial Infrastructure



GIS Technology Is Interconnected Innovation Infrastructure

Integrating and Leveraging Many Innovations



Technology Menu.....

Global Basemaps and Data in GIS

Basemaps Soils

Agriculture

Topo Maps

Addressing

Ecology

Sentinel

Earthquakes

Traffic

Rainfall

Geology

Vegetation

Roads

Imagery

Scientific

Demographics

Stream

Gauges

Landsat

Species

NAIP

Planes

Water

MODIS

Biology

Elevation

Lifestyle

POIs

Land Cover

Protected Areas

Hazards

Climate

DigitalGlobe

Floodplains

Weather

Historical

Landscape

Oceans

Stream Forecasts

Population

Boundaries

OSM

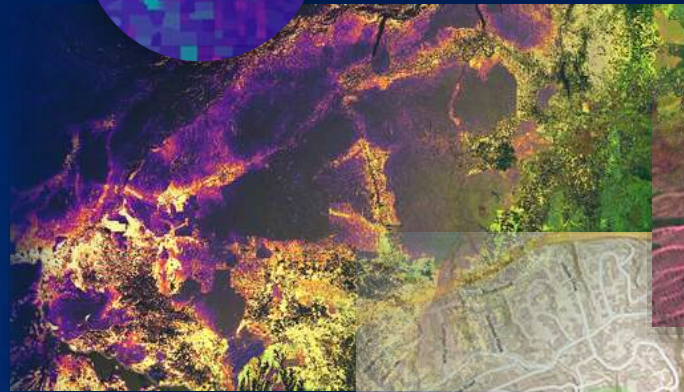
Sea Temperature

Wildfires

Railroads

Millions of Maps and Layers

Shared by GIS Users

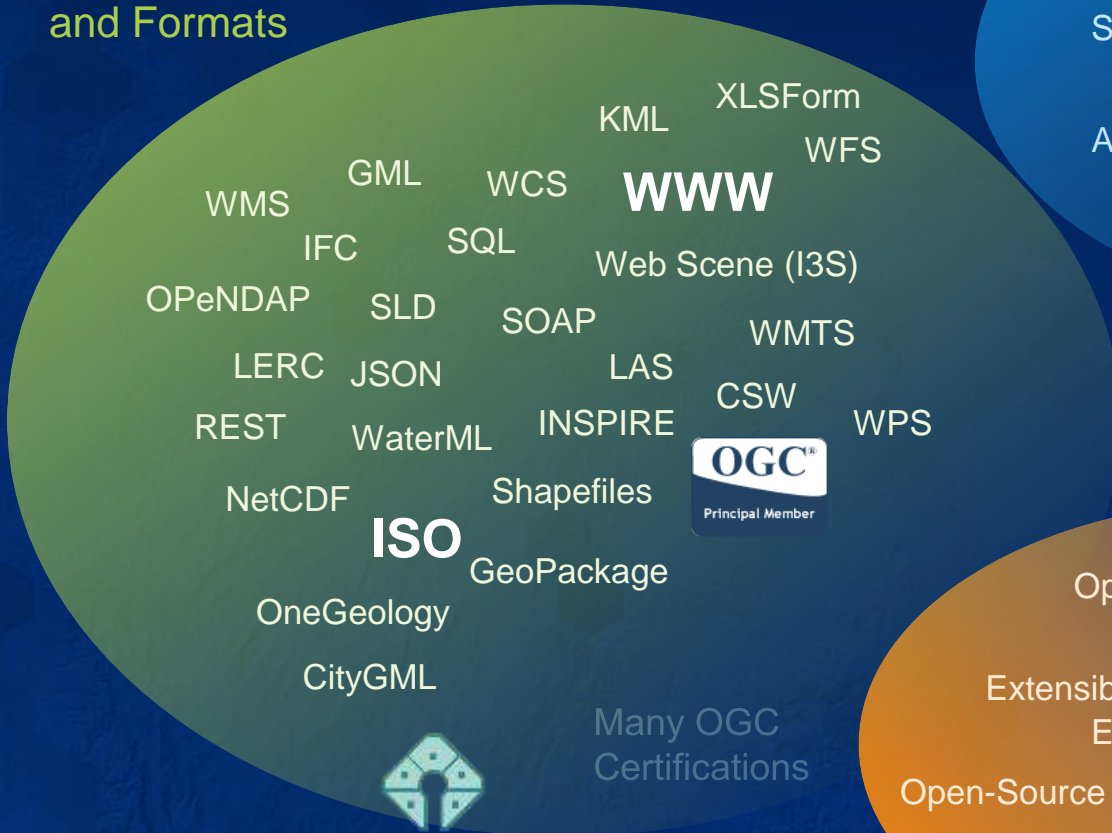


Open / Accessible

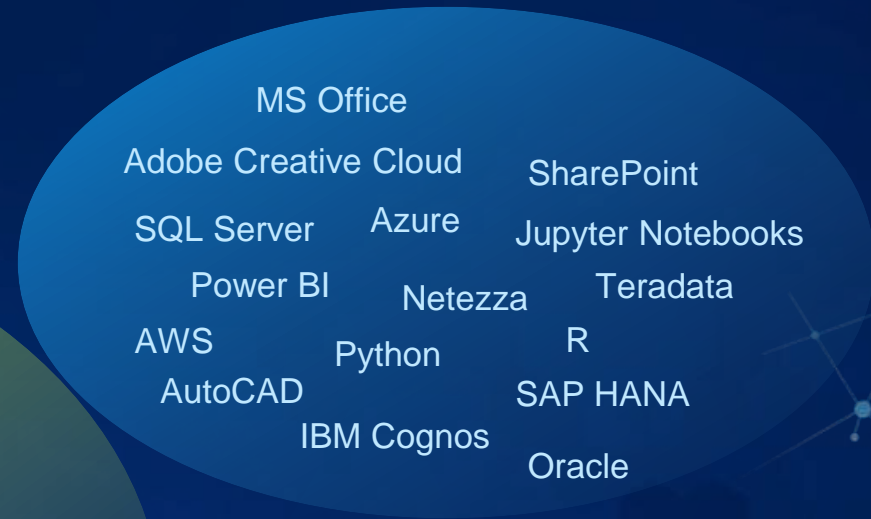
Standards-based GIS

Open Standards and Formats

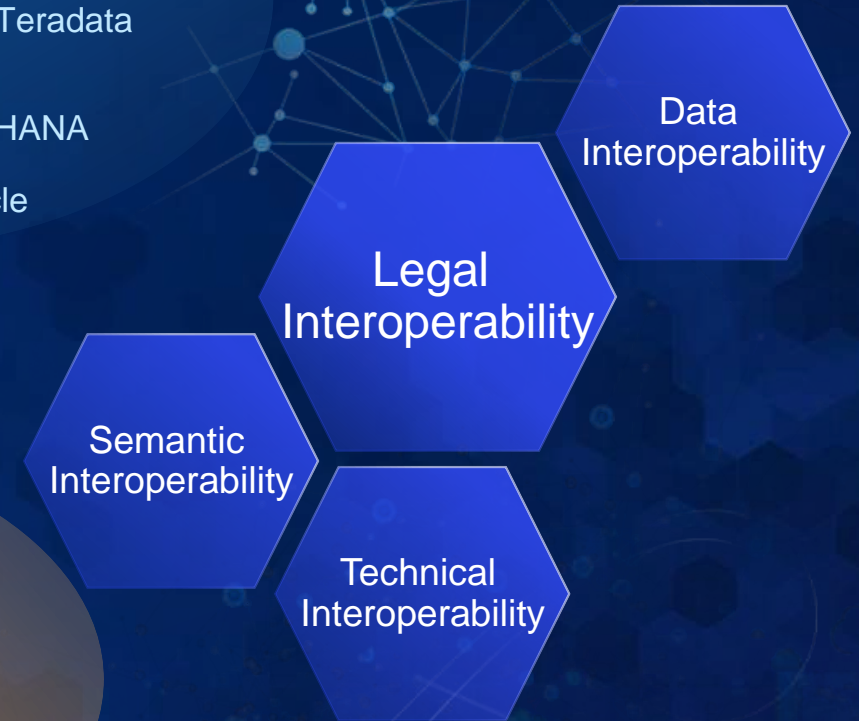
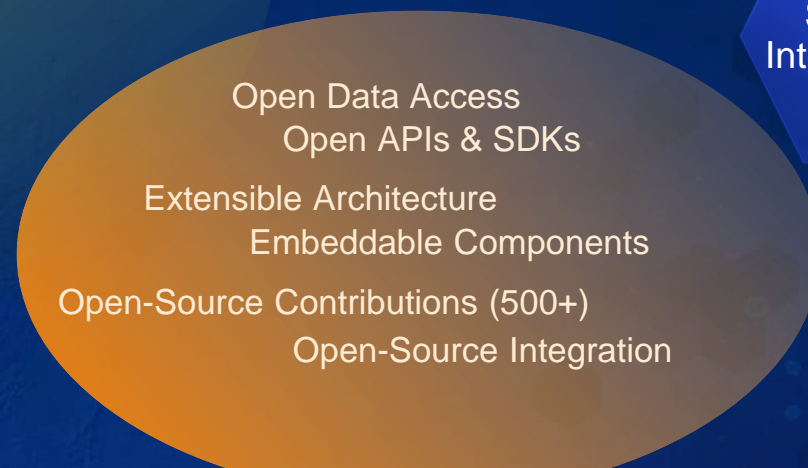
LADM



Systems Integration



Open Software



Future-Proof Systems with Standards

GIS Supports Multiple Use Patterns

From Fit-for-Purpose to Enterprise Cadastre.....



Open. Scalable
... and Interoperable

Province of British Columbia, Canada - LTSA



- ParcelMap BC Project:
 - 944,735 Km²
 - 2.6 M parcels
 - 35,000 control points
- Incremental migration from multiple sources
- Create single authoritative parcel fabric from 188 data sources
- “Create, Validate and Submit” electronic submission process of survey plan dataset
- Customer oriented: Online services



“ Land surveyors are doing their research quicker ... doing it easier, and ... actually getting more information. ”

LADM on GIS Infrastructure

Leveraging COTS Apps and Global Data,,,,,



Cadasta



Cadasta Global Impact Dashboard - General Statistics

Month:
October

Year:
2021

Welcome to the Cadasta Impact Dashboard!



Esri, FAO, NOAA

Powered by Esri

HOUSEHOLDS



PEOPLE

5,394,094

* estimated based on number of households and an average of 6 people per household. See Notes tab for more

PARTNERS

89

PROJECTS

113

LAND DOCUMENTS
ISSUED

269,106

COUNTRIES



42

PARCELS

362,183

NUMBER OF GOVERNMENTS



24

HECTARES

19,687,044

GENDER OF



COMMUNITIES

3,280

Odisha India



Kadaster International

Post conflict areas need sustainable empowerment



Land in Peace project in Colombia



Providing security during reconstruction in Nepal



Colombia



<https://www.esri.com/about/newsroom/blog/how-one-million-people-in-indias-odisha-slums-gain-land-rights/>

Kenya

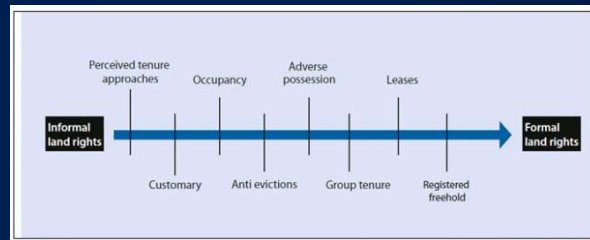
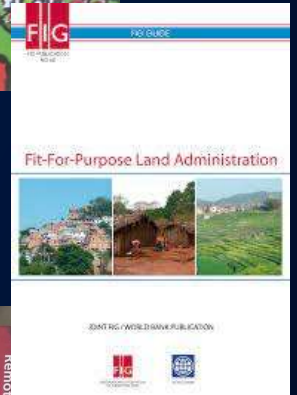
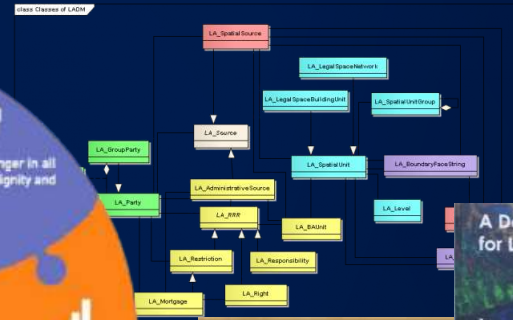
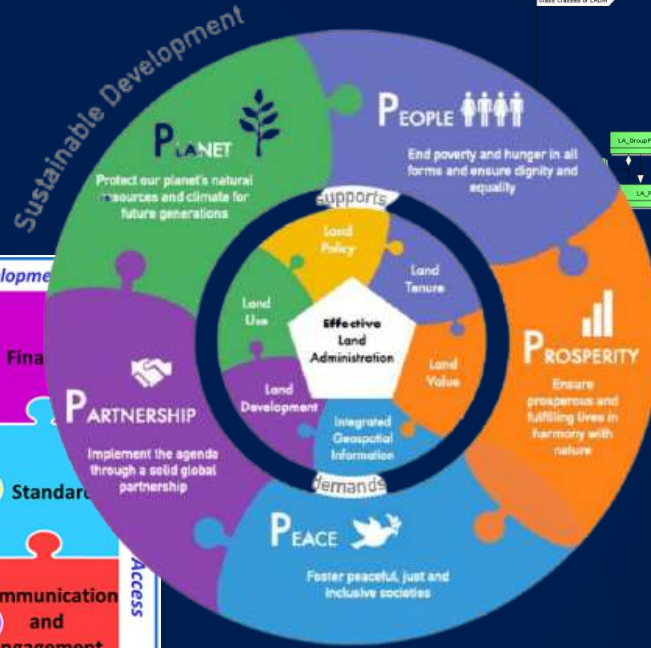
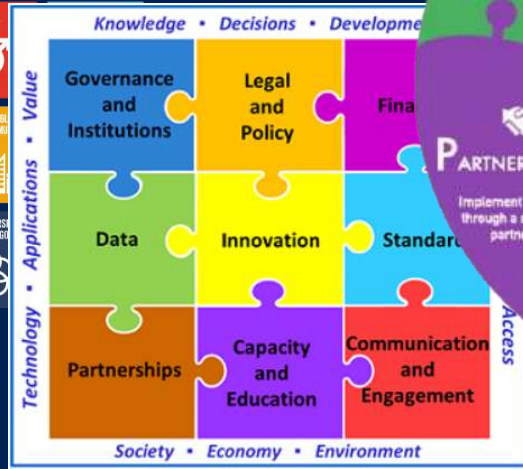


<https://www.esri.com/about/newsroom/blog/how-one-million-people-in-indias-odisha-slums-gain-land-rights/>

- Technology Innovations and Inventions Will Continue (and at an increased rate)
 - Faster, Cheaper, Smarter, Better.....
- GIS Operationalizes Good Research and Pilot Projects
 - Global Data
 - Apps, Tools and Geospatial Infrastructure
- Standards Enable Faster and Repeatable Deployments
 - Leveraging past research and experiences
- New Opportunities and Technology Capabilities Will Continue

GIS Operationalizes and Modernizes Land Administration.....

Geospatial Infrastructure enabling secure, scalable, sustainable land systems....





esri[®]

THE
SCIENCE
OF
WHERE[®]