



International Federation of Surveyors
Fédération Internationale des Géomètres
International Vereinigung der Vermessungsingenieure

Digital transformation of Land Administration Systems as a key to achieve the SDGs

Hartmut Müller, Prof. Dr.-Ing., Chair of FIG Commission 3

FIG Side-Event 14.10.2022

The Importance of Land Administration for the Implementation of the SDGs

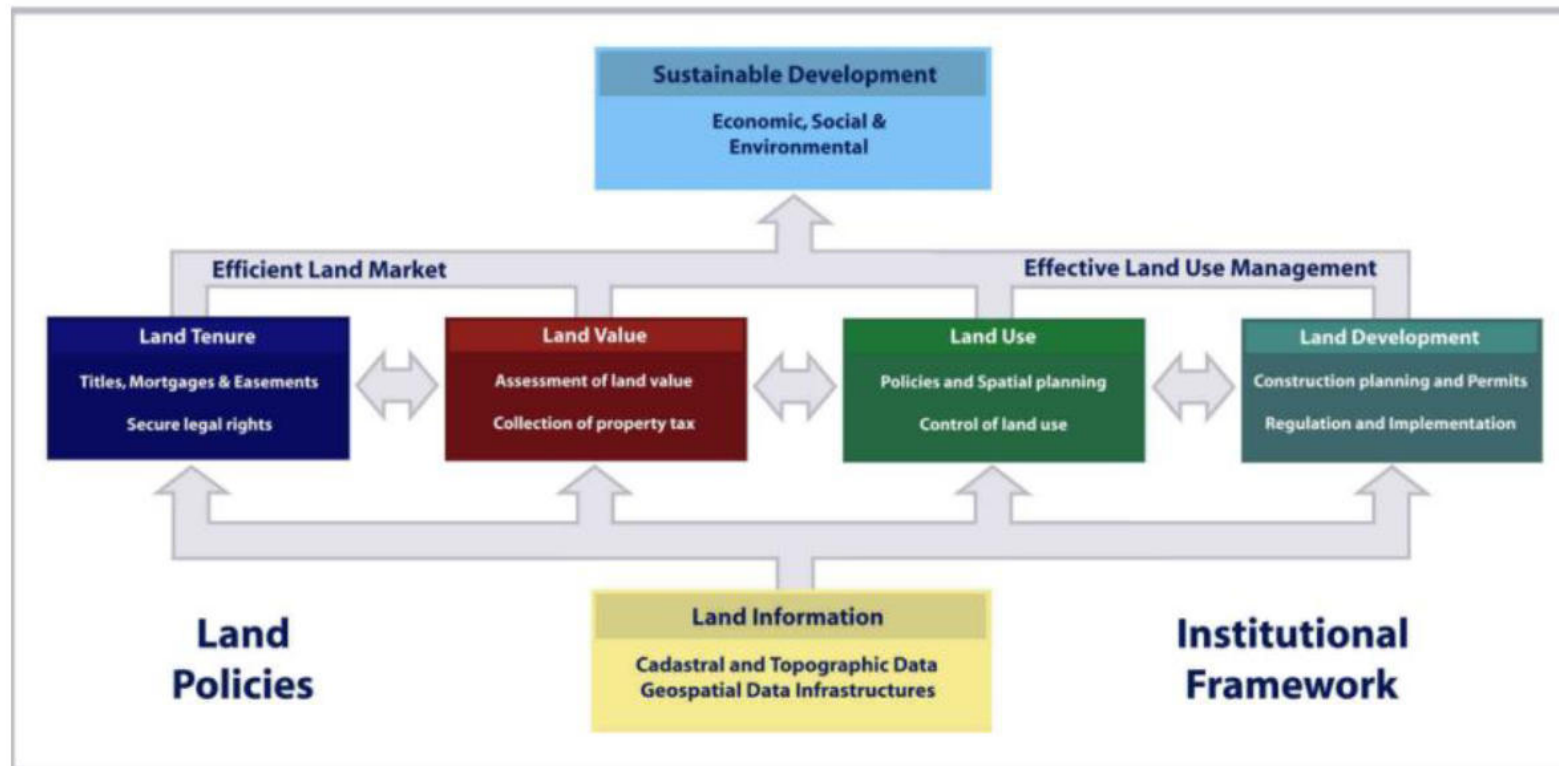
Second United Nations World Geospatial Information Congress

Theme: "Geo-Enabling the Global Village: No one should be left behind"

10 - 14 October 2022 // HICC, Hyderabad, India



A global land management perspective



LAS provide the infrastructure for implementation of land policies and land management strategies in support of sustainable development.

United Nations Committee of experts on Global Geospatial Information Management, The Application of Geospatial Information – Land Administration and Management, UN-GGIM Version 3.1, 13 July 2015

Prime Minister Narendra Modi's remarks at UN World International Congress

Official Opening Session, 11 Oct 2022

Most of you know how property rights are the bedrock for prosperity anywhere in the world.

Evolving Cadastre Needs



Planning for Shifting Demographics

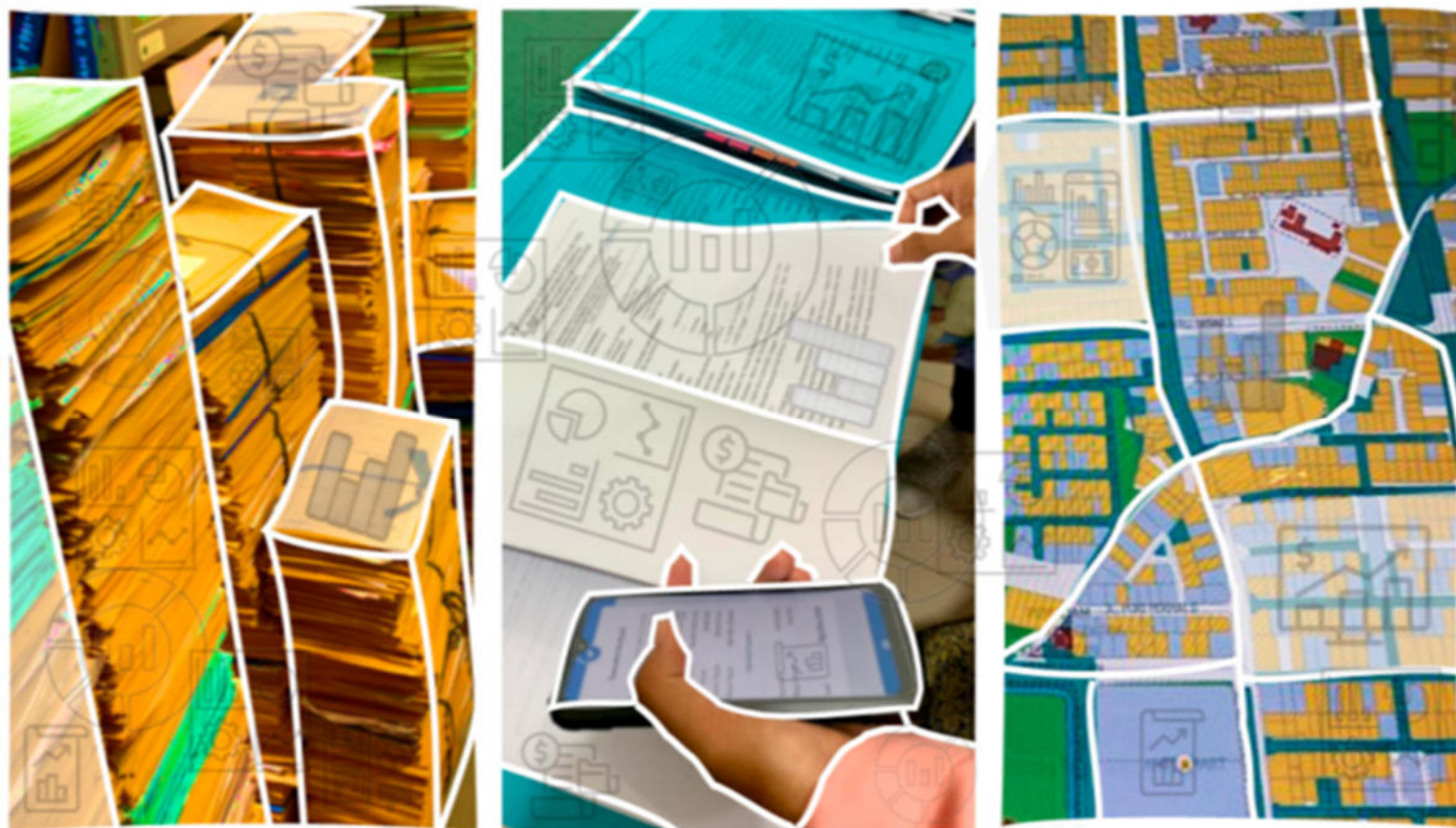


Transforming City Planning



Digital Transformation and Land Administration

*Sustainable Practices
from UNECE Region
and Beyond*



Digital Transformation and Land Administration



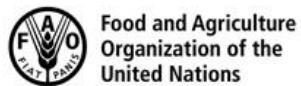
E-book



Investment brief

Digital Transformation and Land Administration
Sustainable Practices from UNECE Region and Beyond, FAO-UNECE-FIG Guide

Funding Digital Transformation in Land Administration, FAO-FIG Knowledge for Investment Brief



Why the need for two new publications?

- Covid-19 impact on Land Administration
- Digital acceleration
- New lessons
- New challenges
- Hard to obtain funding



Norway: Stakeholder dialogue and existing digital platforms enabled property market continuity during the COVID-19 pandemic

Digital disruption is the new normal for land administration organizations

Land administration systems must be equipped to deal with disruption, whether it stems from internal or external sources

What is in the two publications?



The Guide provides various practical examples, lessons learned, challenges and suggest the way forward



The K4I Brief - Shorter, sharper, focus on action plans and funding

Aims to help communicate with economists, donors, or Finance Ministries in a language they understand.

How were they developed?

- 2020-2022 FAO-UNECE/WPLA joint webinars
- FIG/FAO/EU JRC Collaboration
- Funded by FAO Investment Center
- Drafting
- Review Rounds
- Splitting off into 2 documents

Who is the Audience?

- Decision makers
- Leaders and practitioners



SUSTAINABLE DEVELOPMENT GOALS

<p>1 NO POVERTY</p>	<p>2 ZERO HUNGER</p>	<p>3 GOOD HEALTH AND WELL BEING</p>	<p>4 QUALITY EDUCATION</p>	<p>5 GENDER EQUALITY</p>	<p>6 CLEAN WATER AND SANITATION</p>
<p>7 AFFORDABLE AND CLEAN ENERGY</p>	<p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p>10 REDUCED INEQUALITIES</p>	<p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>
<p>13 CLIMATE ACTION</p>	<p>14 LIFE BELOW WATER</p>	<p>15 LIFE ON LAND</p>	<p>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</p>	<p>17 PARTNERSHIPS FOR THE GOALS</p>	<p>SUSTAINABLE DEVELOPMENT GOALS</p>

The Global Fundamental Geospatial Data Themes



https://ggim.un.org/documents/E-C20-2018-7-Add_1-Global-fundamental-geospatial-data-themes.pdf

Global Fundamental Geospatial Data Themes



Global Geodetic
Reference Frame



Addresses



Buildings and
Settlements



Elevation and
Depth



Functional Areas



Geographical
Names



Geology and
Soils



Land Cover
and Use



Land Parcels



Orthoimagery



Physical
Infrastructure



Population
Distribution



Transport
Networks



Water

The Guide covers 13 cross-cutting themes

The 13 cross-cutting themes, covered in the Guide, relate closely to the Sustainable Development Goals (SDGs).

			Chapters						
	Theme	SDGs	1	2	3	4	5	6	7
1	Gender Equality and Poverty Reduction	1, 5, 10	x	x	x	x	x	x	x
2	Food Security and Agriculture	2	x	x	x	x	x	x	x
3	Covid19 Disruption and Health	3	x	x	x	x	x	x	x
4	Capacity Development and Education	4	x	x	x	x	x	x	x
5	Climate Change, Environment, Energy and Disaster	6, 7, 12, 13	x	x	x	x	x	x	x
6	Economic and Financial Issues	8	x	x	x	x	x	x	x
7	Investment, Innovation and Benefits	9	x	x	x	x	x	x	x
8	Cybersecurity, Data Protection and Maintenance	9	x	x	x	x	x	x	x
9	Integrated Geospatial Information Framework (IGIF)	9	x	x	x	x	x	x	x
10	Data Quality, Openness, Standards and Analytics	9	x	x	x	x	x	x	x
11	Urban and Rural Divide	11, 15	x	x	x	x		x	x
12	Legal and Ethical Concerns	16	x	x	x	x	x	x	x
13	Partnerships and Collaboration	17	x	x	x	x	x	x	x

- Reduce the cost and time of essential services
- Remove travel, paper documents, and long waiting hours
- Facilitate the applications for social subsidies through data sharing;
- Enable monitoring of vulnerable groups
- Help to demonstrate progress toward equality...

Benefits for vulnerable groups

NORTH MACEDONIA, 2013

16.63% of records with women as owners or co-owners

- 18% Skopje Capital (highest)
- 7% Poloska Municipality (lowest)



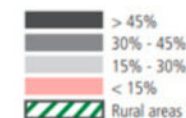
Agency for Real Estate Cadastre. 2013.
Map of North Macedonia



NORTH MACEDONIA, 2019

27.27% of records with women as owners or co-owners

- 34.01% Skopje Capital (highest)
- 13.96% Poloska Municipality (lowest)



Agency for Real Estate Cadastre. 2019.
Map of North Macedonia



Gender disaggregated property ownership information supports monitoring of SDGs target 5.a. in North Macedonia

**Women land ownerships increased with 10% nationwide in 5 years
2013-2019**

Prime Minister Narendra Modi's remarks at UN World International Congress

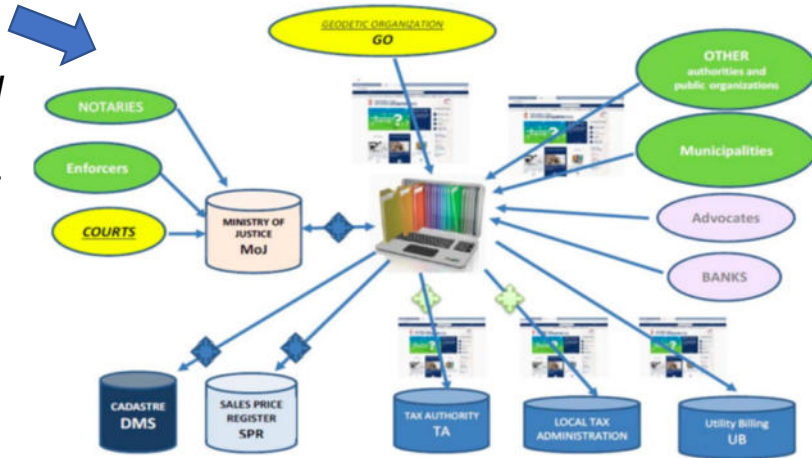
Official Opening Session, 11 Oct 2022

Most of you know how property rights are the bedrock for prosperity anywhere in the world.

This prosperity can be further accelerated when women are the prime beneficiaries of ownership. This is what we are doing in India. Our public housing scheme had provided home to nearly 24 million poor families. Women are also all joint owners of almost 70 percent of these houses. These steps have a direct impact on the UN Sustainable Development Goals on poverty and gender equality.

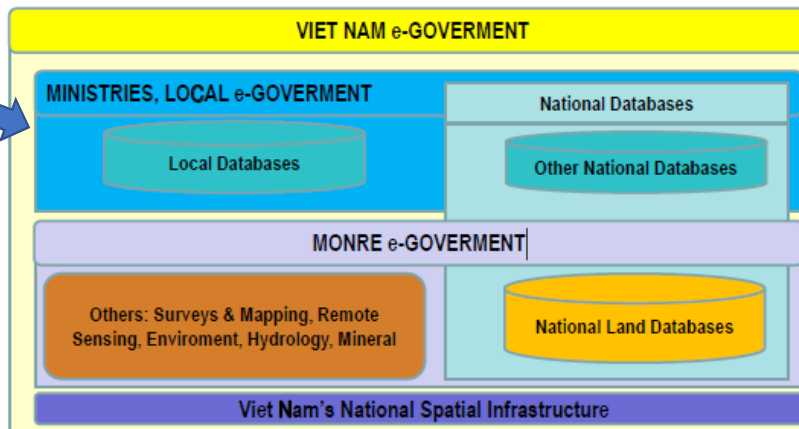
Are the lessons globally transferable?

Serbia's land information ecosystem of allies

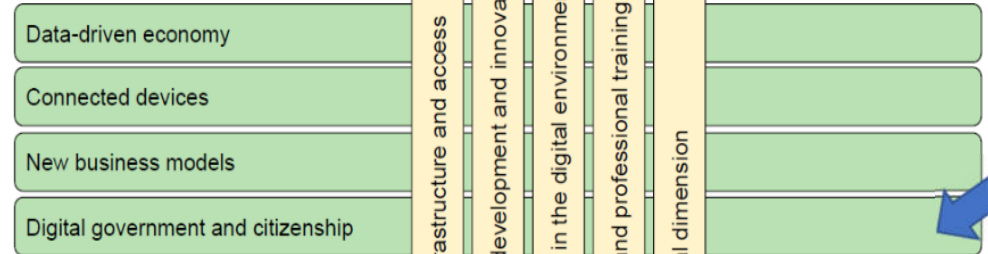


Rwanda's paperless land registration application

Viet Nam National Land Information System in e-Government Architecture

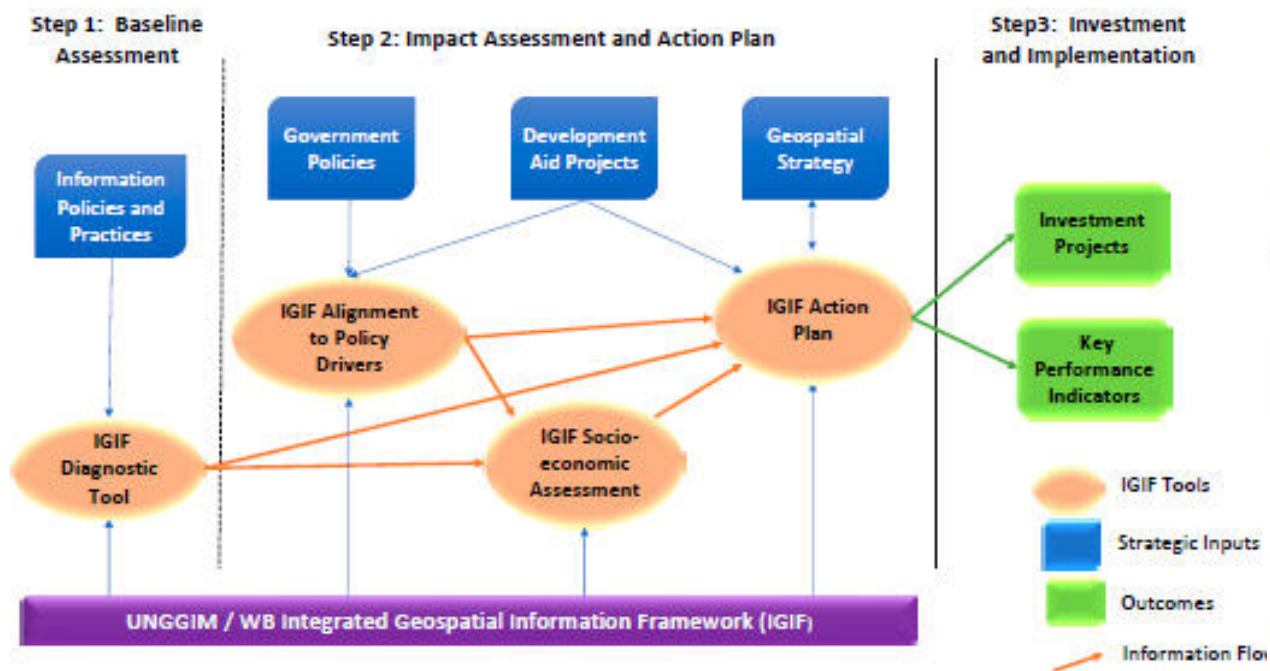


Digital transformation axes



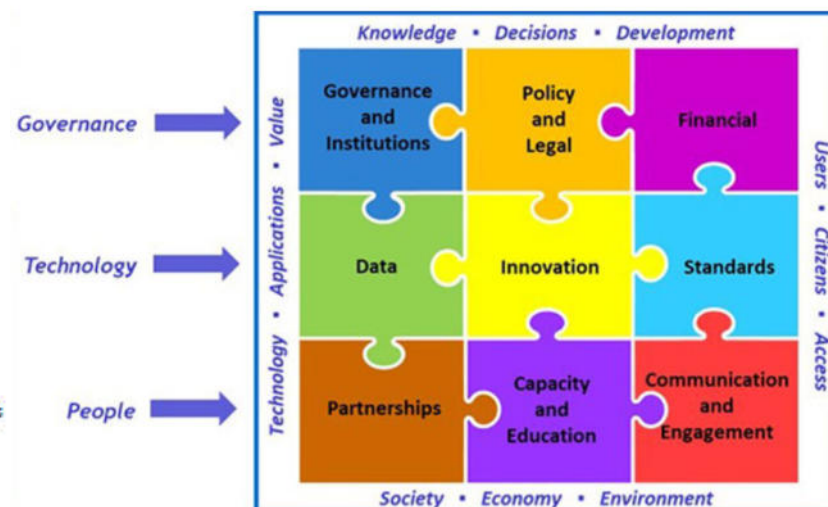
Brazil's Digital Transformation Strategy

How do we move towards implementation?



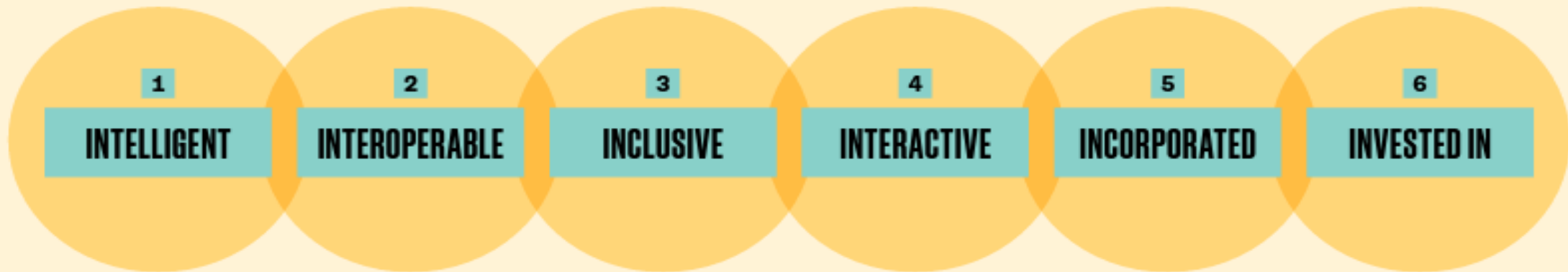
IGIF Methodology for Country level Action Plans
World Bank developed

World Bank-UN-GGIM IGIF



IGIF's 9 interlinked strategic pathways

What do digitally transformed LAS look like?



The 6 I's - Future LAS characteristics

Taking Action Now: The Pathway Forward

NOW (YEARS 1 AND 2)

- High-level cross-sector committee formation
- Adopt the digital disruption paradigm
- Understand the 6 I's
- Baseline assessment, socio-economic impact analysis, policy alignment check
- Develop action plan with KPIs and risk mitigation measures, investment plan, and business model
- Engage regionally and globally

NEXT YEAR (YEARS 3 AND 4)

- Adopt action plans
- Seek and acquire investment
- Commence implementation; use the IGIF strategic pathways
- Embed dynamic capabilities
- Operate hybrid digital/paper systems during transition
- Measure performance, risks, and benefits

LOOKING AHEAD (YEARS 5 TO 10)

- Achieve fully digital transformation
- Continue performance monitoring
- Adapt and renew plans based on newly emerging disruptions

Land administration scenarios

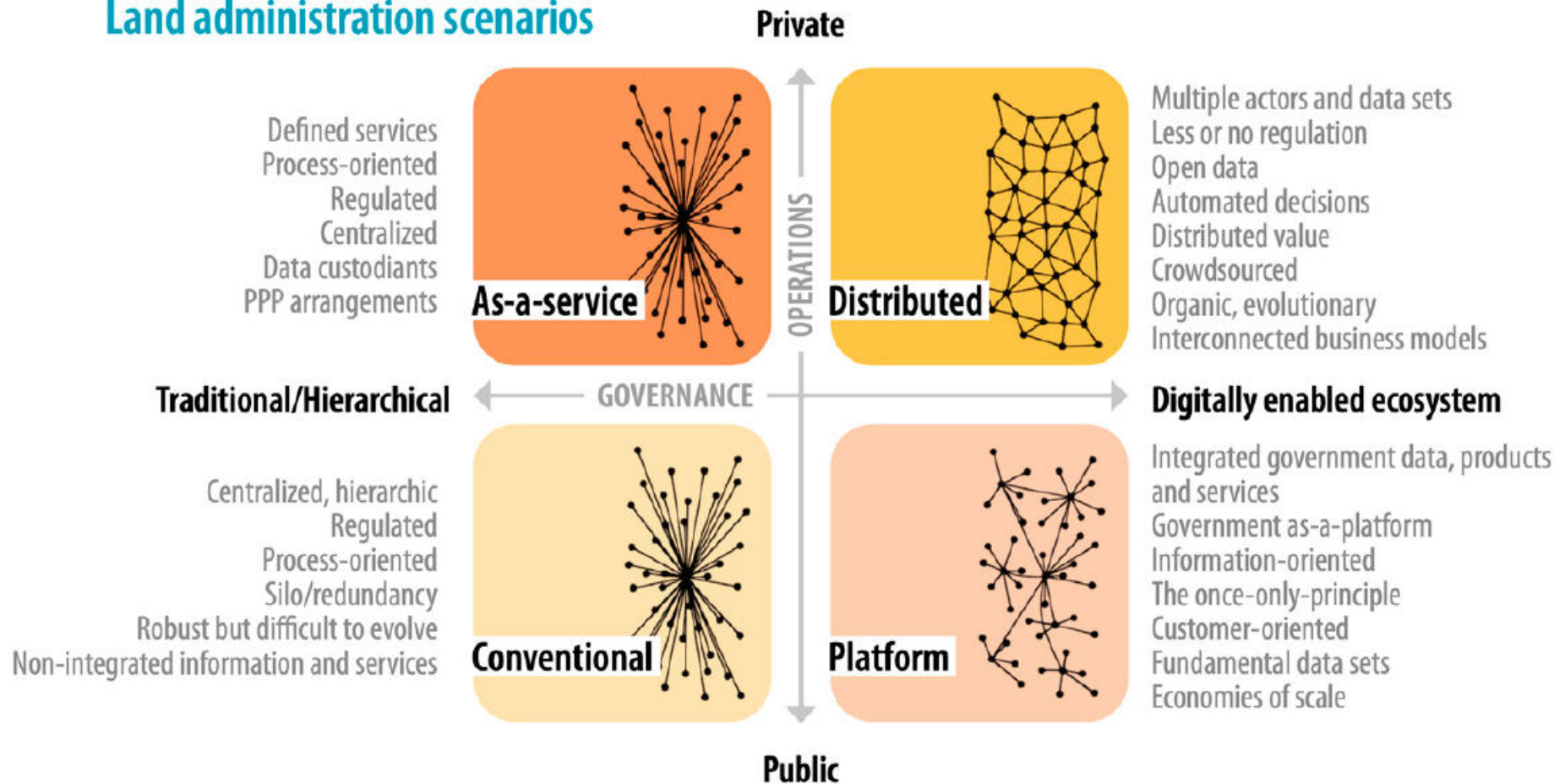


Figure 4.4: Land administration scenarios as defined by UNECE WPLA.

(Source: UNECE. 2021. *Scenario Study on Future Land Administration in the UNECE Region*. <https://unece.org/info/Housing-and-Land-Management/pub/363124>.)

What can be achieved: The case of Serbia

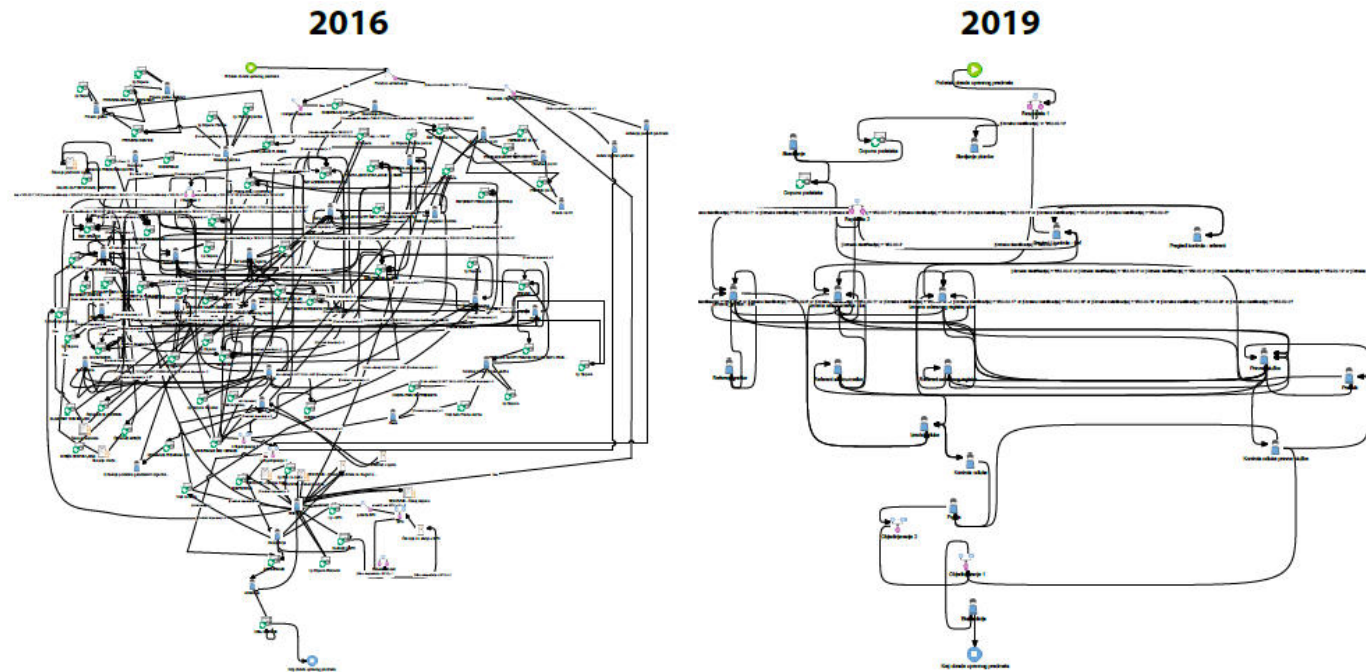


Figure 2.6: *Serbia radically simplified its legislative framework and business processes relating to property transactions prior to the pandemic.*
Note: Each line represents an interaction and each node represents an actor.

(Source: Draskovic, B., Vucetic, D. and Tonchovska, R. 2021. *Geospatial Information in Response to Covid-19 Pandemic Serbian Experience*. In: *FIG e-Working Week: Smart Surveyors for Land and Water Management – Challenges in a New Reality*. FIG, June 2021; Vucetic. 2021. *Geospatial Information in response to COVID-19 pandemic – Serbian Experience*. In: *NSDI, geospatial data and technology: The role of geospatial and cadastre agencies in the COVID-19 pandemic response*. UNECE Webinar. UNECE, 11 May 2021.

<https://unece.org/housing/events/nsdi-geospatial-data-andtechnology>.)

Take away and recommendations



Land Administration Systems must move from focusing on conventional key performance indicators (KPIs) (e.g. numbers of transactions), to a broader perspective on outcomes and social impact.

LAS have to demonstrate contributions to the country priorities (for example, agriculture development, climate change, disaster risks management. Health crises, economic development, etc.) and to the land-related SDGs:

- **No poverty** (Target 1.4);
- **Zero hunger** (Target 2.3 and 2.4);
- **Gender equality** (Target 5.a);
- **Sustainable cities and communities** (Target 11.1, 11.3, 11.7);
- **Life on land** (Target 15.1, 15.2, and 15.3)

Drafting Team:



Rohan Bennett



Claudia Stöcker



Kwabena Asiana

Who do we need to acknowledge and thank?

Lead coordination: Rумыana Tonchovska, FAO; Louise Friis-Hansen, FIG; Amie Figureiredo and Hana Doudi, UNECE

Peer Review: Kirsikka Riekkinen, Claire Buxton and Hartmut Mueller

Acknowledgement and thanks are also extended to all those who reviewed the publication contents:

Fabrice Edouard, John Preissing, Adriano Campolina, Marianna Bicchieri, Naomi Kenney, Brad Patterson, Morten Hartvigsen, Margret Vidar, Beth Crawford, Pilar Verdejo Garcia, Victoria Abbot, Darko Vucetic, Frederick Zetterquist, Robin McLaren, Kathrine Kelm, Gavin Adlington, Jan Van Bennekom, Simon Hull, Mila Koeva, Daniel Steudler, Eftychia Kalogianni, Lovro Tomasic, Simon Hull.

FIG Congress 11-15/09/2022:

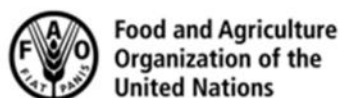
- Keynote session 1
- FIG - FAO-FIG-UNECE joint session
- FIG General Assembly – attended by delegates from 100 countries

UNECE Committee on Urban Development, Housing and Land Management 83rd session 3-7 October 2022:

- XVI. Land administration and management

Next:

- 2nd UN World Geospatial Congress in India – 10-14 October 2022
- FIG Commission 7 – Action plan for 2023-2026



How can FIG contribute to achieving the SDGs?



Commission 1 – Professional Standards and Practice



Commission 6 – Engineering Surveys



Commission 2 – Professional Education



Commission 7 – Cadastre and Land Management



Commission 3 – Spatial Information Management



Commission 8 – Spatial Planning and Development



Commission 4 – Hydrography



Commission 9 – Valuation and the Management of Real Estate



Commission 5 – Positioning and Measurement



Commission 10 - Construction Economics and Management



SDG & FIG Commission overview

The table below highlights how and which SDG's the individual Commission is involved with. To know more about their work, click on the icons.

- In cases where the FIG Commission can play a role in creating awareness and contribute to achieving the SDG's, this icon is present.
- In cases where the FIG Commission can play a role in measuring the Indicator, this icon is present.

	Com. 1	Com. 2	Com. 3	Com. 4	Com. 5	Com. 6	Com. 7	Com. 8	Com. 9	Com. 10	YSN	ARP	APRN	Standards
1 NO POVERTY														
2 ZERO HUNGER														
3 GOOD HEALTH AND WELL-BEING														
4 QUALITY EDUCATION														
5 GENDER EQUALITY														
6 CLEAN WATER AND SANITATION														
7 AFFORDABLE AND CLEAN ENERGY														
8 DECENT WORK AND ECONOMIC GROWTH														
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE														
10 REDUCED INEQUALITIES														
11 SUSTAINABLE CITIES AND COMMUNITIES														
12 RESPONSIBLE CONSUMPTION AND PRODUCTION														
13 CLIMATE ACTION														
14 LIFE BELOW WATER														
15 LIFE ON LAND														
16 PEACE, JUSTICE AND STRONG INSTITUTIONS														
17 PARTNERSHIPS FOR THE GOALS														

FIG Commissions and the Sustainable Development Goals

How can FIG contribute to achieving the SDGs?



Commission 1 – Professional Standards and Practice



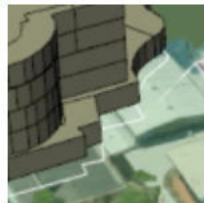
Commission 6 – Engineering Surveys



Commission 2 – Professional Education



Commission 7 – Cadastre and Land Management



Commission 3 – Spatial Information Management



Commission 8 – Spatial Planning and Development



Commission 4 – Hydrography



Commission 9 – Valuation and the Management of Real Estate

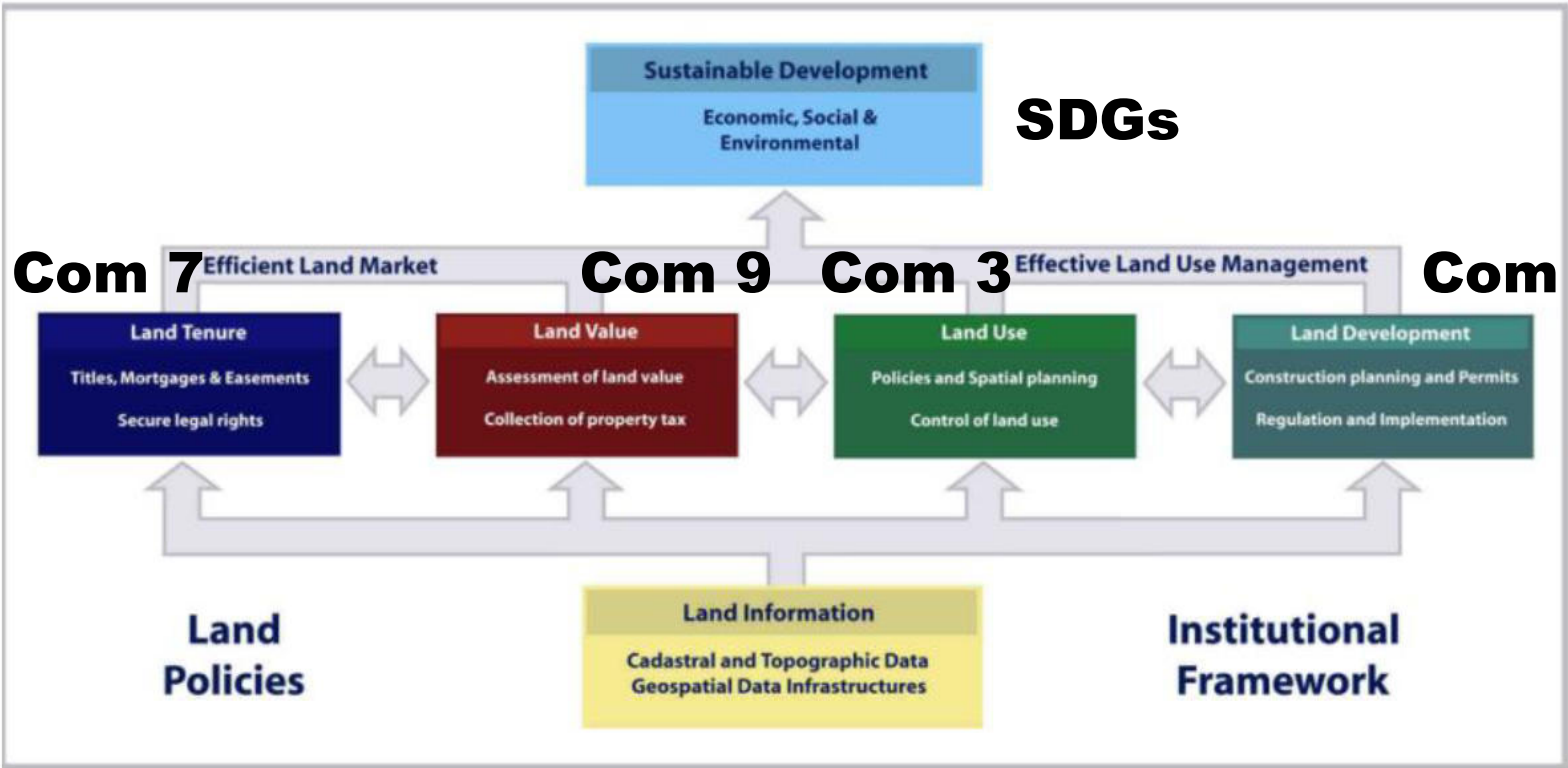


Commission 5 – Positioning and Measurement



Commission 10 - Construction Economics and Management

A global land management perspective



LAS provide the infrastructure for implementation of land policies and land management strategies in support of sustainable development.

United Nations Committee of experts on Global Geospatial Information Management, The Application of Geospatial Information – Land Administration and Management, UN-GGIM Version 3.1, 13 July 2015



XXVII FIG CONGRESS
 11-15 SEPTEMBER 2022
 Warsaw, Poland

Volunteering
 for the future -
 Geospatial excellence
 for a better living



*GLTN and FIG Young Surveyors VCSP -
 Continuing on a Path of Collaboration*





International Federation of Surveyors
Fédération Internationale des Géomètres
International Vereinigung der Vermessungsingenieure



Thank you

Hartmut Müller
Chair of FIG Commission 3

Second United Nations World Geospatial Information Congress

Theme: "Geo-Enabling the Global Village: No one should be left behind"

10 - 14 October 2022 // HICC, Hyderabad, India

