



# **Integrated Geospatial Information Framework (IGIF)**

## **A Global Framework for Geospatial Information Management at National and Local Levels**

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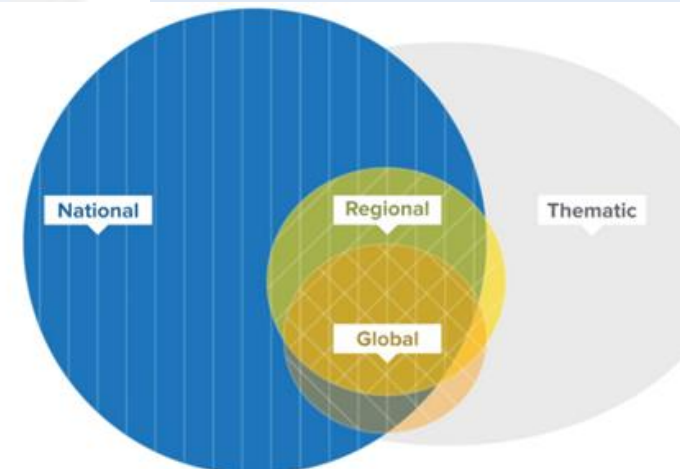


- Introduction to the Integrated Geospatial Information Framework (IGIF)
- IGIF Implementation Guide
- Operationalizing the IGIF: WB Business Line/Financing
  - Country Level
  - Sub-national level

# Sustainable Development Goals: relevance of geospatial technology



UN Office for Outer Space Affairs



# National Spatial Data Infrastructure

4



Transport



Energy



Data: National Information Infrastructure  
PSI



# Why is the IGIF needed?

- Economies are changing....
  - E-government, E-services, E-commerce
  - Smart cities, autonomous vehicles, Amazon, Uber...
- Most of these functions/applications **require location based information**
- There is **big divide between developing and developed countries**
- **Governments have enabling role** for the development of Geospatial Infrastructure at the National and Local levels



# Strategic Partnership: World Bank-UN Statistics Department Committee of Experts on Global Geospatial Information Management (UN-GGIM)

## “Bridging the Geospatial Digital Divide” Signed in August 2017



1. **Develop an overarching Geospatial Framework** for countries to reference when developing their national and sub-national spatial data infrastructures (SDIs).
2. Assist countries to prepare and implement **Country-level Action/Investment Plans** to operationalize the Geospatial Framework



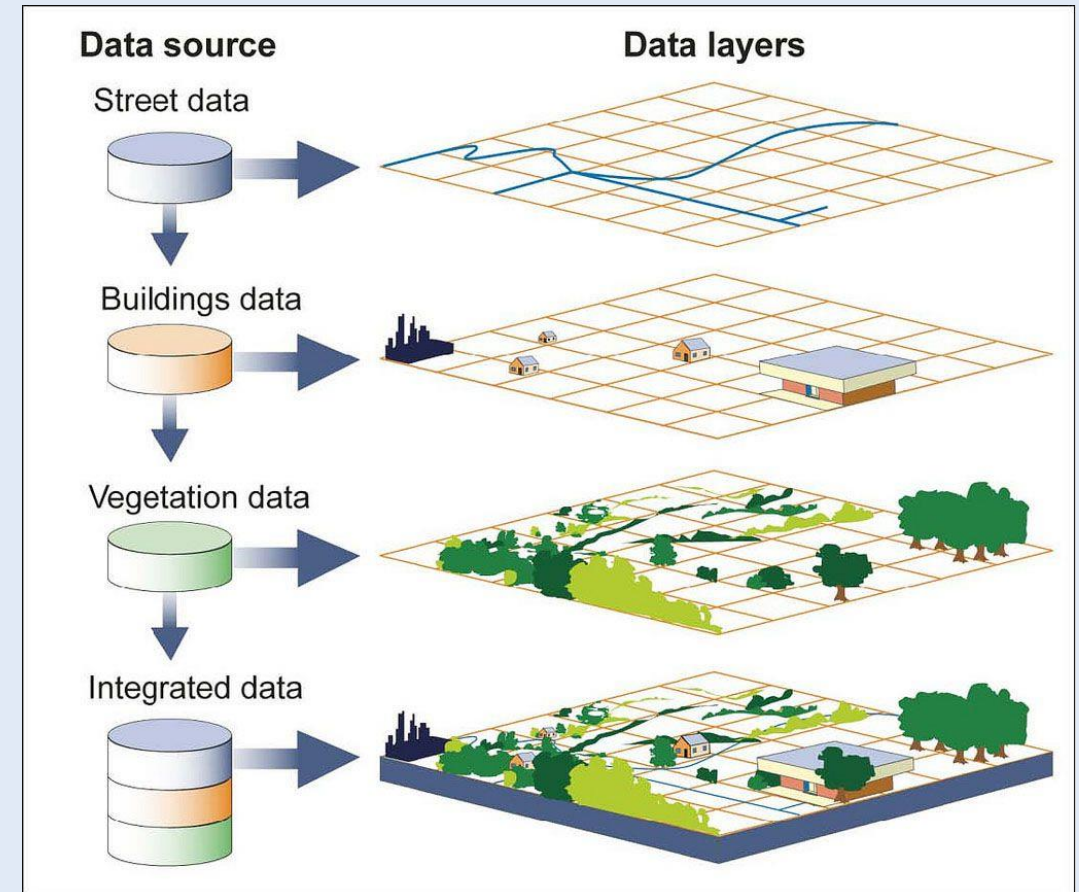
# Objectives of the IGIF



Provide guidance for the **preparation of country-level action plans**, including **investment plans and socio-economic justification**, to operationalize and ensure the sustainability of national geospatial information infrastructure and management

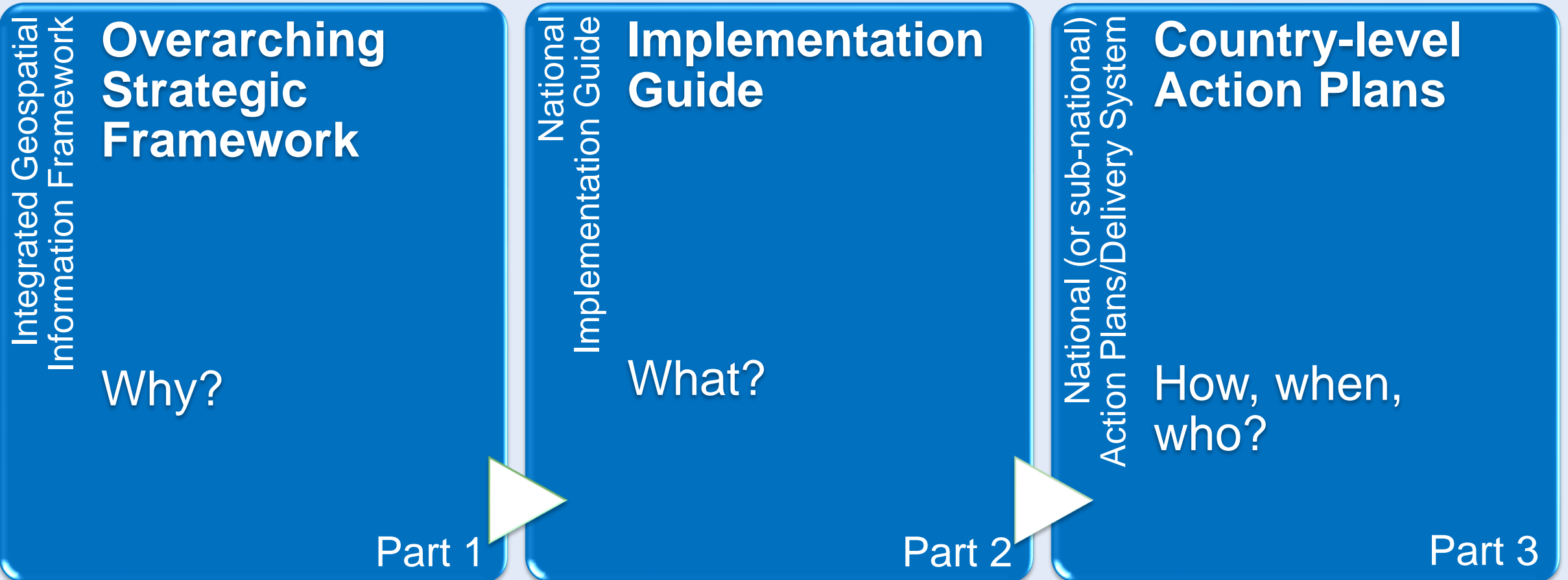
Aimed specifically at **low and medium income countries**, but with broader relevance

Can apply to **national and local levels**



Source: GAO.

# Structure of the IGIF



**Adopted by UNGGIM August 2018**

**Outline endorsed by UNGGIM  
August 2018**

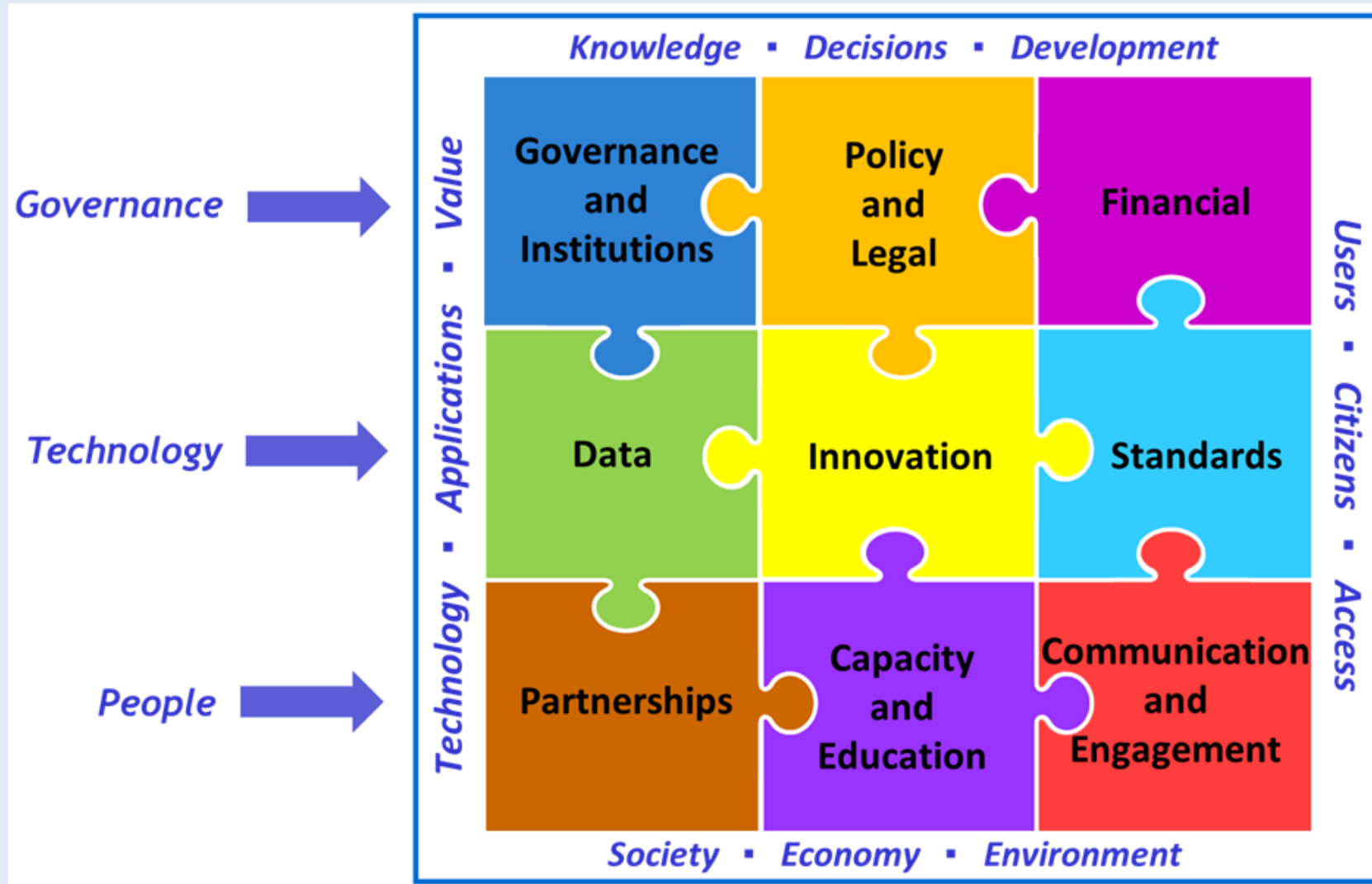
**WB developing toolkit and  
conducting pilots**



# IGIF Strategic Pathways



Integrated Geospatial Information Framework



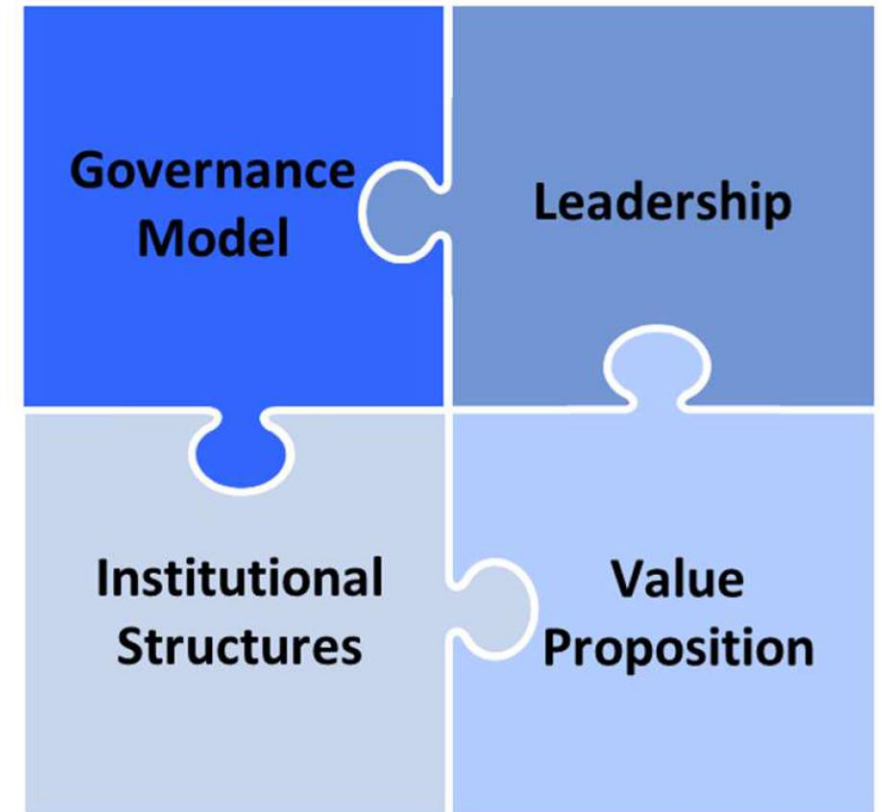
# Strategic Pathways: Governance



## Governance and Institutions

This strategic pathway establishes the leadership, governance model, institutional arrangements and a clear value proposition as a means to strengthen multi-disciplinary and multi-sectoral participation and a commitment to achieving an Integrated Geospatial Information Framework.

The objective is to attain political endorsement, strengthen institutional mandates and build a cooperative data sharing environment through a shared understanding of the value of an Integrated Geospatial Information Framework, and the roles and responsibilities to achieve the vision.



# Strategic Pathways: Governance

## STRATEGIC PATHWAY 2

### Legal and Policy

This strategic pathway establishes a robust legal and policy framework that is essential to institute appropriate national geospatial information legislation and policy that enables the availability, accessibility, exchange, application and management of geospatial information.

The objective is to address current legal and policy issues by improving the laws and policies associated with, and having an impact on, geospatial information management; and by proactively monitoring the legal and policy environment, particularly with regard to designating the official responsibility for the production of data, and with respect to the issues raised by emerging technologies and the evolving innovative and creative use of geospatial information.



# Strategic Pathways: Governance

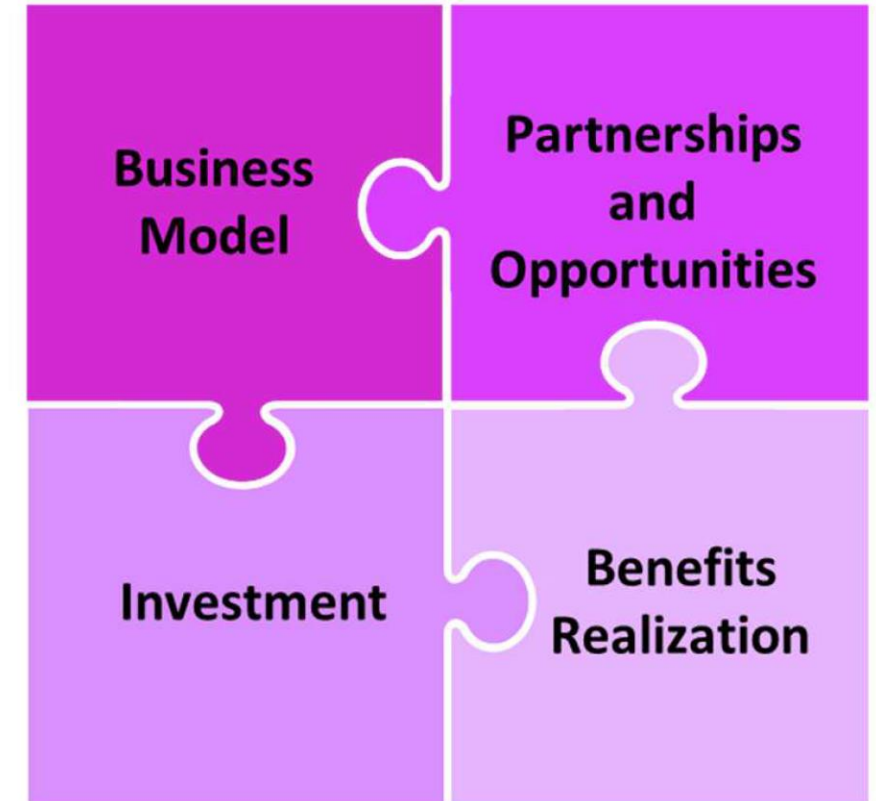


## STRATEGIC PATHWAY 3

### Financial

This strategic pathway establishes the business model, develops financial partnerships, and identifies the investment needs and funding sources for delivering integrated geospatial information management, as well as recognizing the benefits realization milestones that will achieve and maintain momentum.

The objective is to achieve an understanding of the implementation costs and ongoing financial commitment necessary to deliver integrated geospatial information management that can be sustained and maintained in the longer term.





# Strategic Pathways: Technology

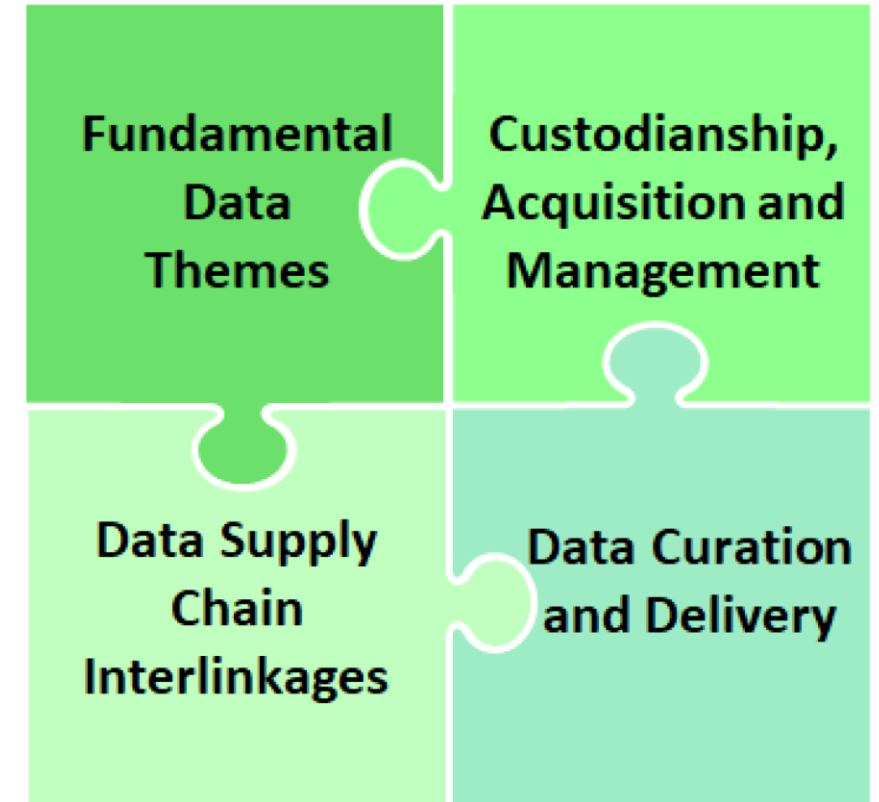


## STRATEGIC PATHWAY 4

### Data

This strategic pathway establishes a geospatial data framework and custodianship guidelines for best practice collection and management of integrated geospatial information that is appropriate to cross sector and multidisciplinary collaboration.

The objective is to enable data custodians to meet their data management, sharing and reuse obligations to government and the user community through the execution of well-defined data supply chains for organizing, planning, acquiring, integrating, managing, maintaining, curating, publishing and archiving geospatial information.



# Strategic Pathway 4: Data



## Fundamental Data Themes



Global Geodetic  
Reference Frame



Geographical  
Names



Addresses



Functional Areas



Buildings and  
Settlements



Land Parcels



Transport  
Networks



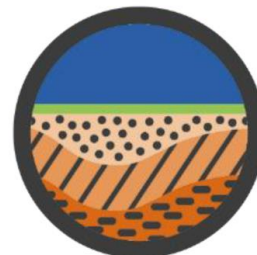
Elevation and  
Depth



Population  
Distribution



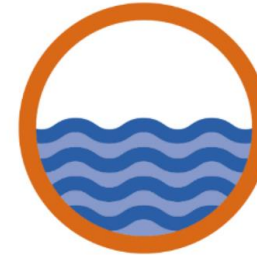
Land Cover  
and Land Use



Geology and  
Soils



Physical  
Infrastructure



Water



Orthoimagery

# Strategic Pathways: Technology



## STRATEGIC PATHWAY 5

### Innovation

This strategic pathway recognizes that technology and processes are continuously evolving; creating enhanced opportunities for innovation and creativity that enable governments to quickly bridge the digital divide.

The objective is to stimulate the use of the latest cost-effective technologies, process improvements and innovations so that governments, no matter what their current situation is, may leapfrog to state-of-the-art geospatial information management systems and practices.



# Strategic Pathways: Technology

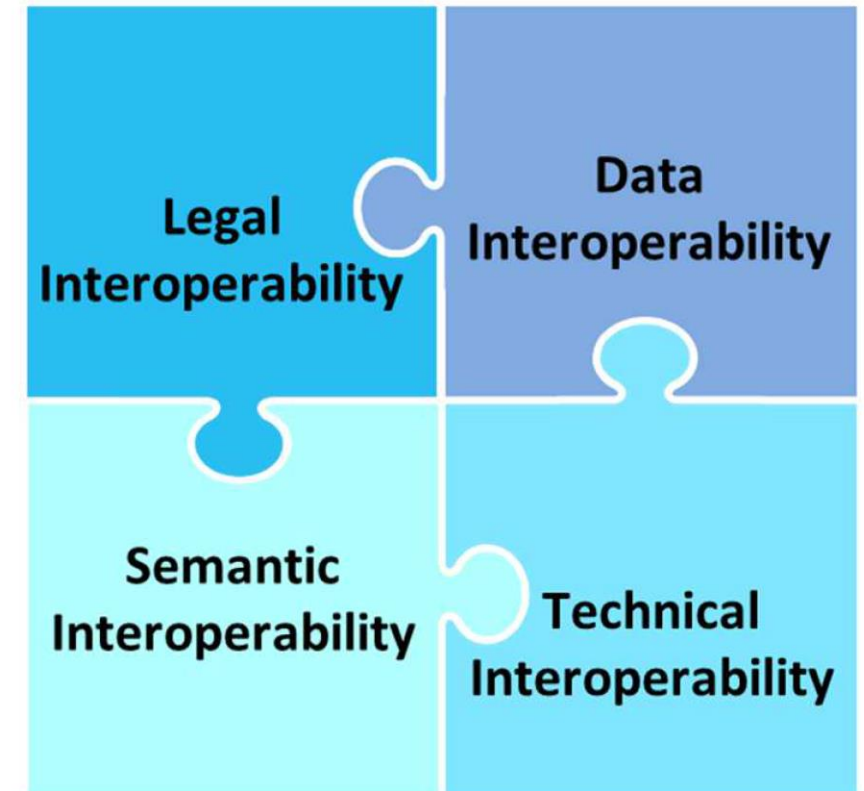


## STRATEGIC PATHWAY 6

### Standards

This strategic pathway establishes, and ensures the adoption of, best practice standards and compliance mechanisms that enable legal, data, semantic and technical interoperability, which are fundamental to delivering integrated geospatial information and knowledge creation.

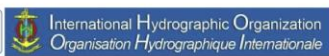
The objective is to enable different information systems to communicate and exchange data, enable knowledge discovery and inferencing between systems using unambiguous meaning, and provide users with lawful access to and reuse of geospatial information.





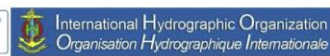
# Strategic Pathway 6: Standards

## A Guide to the Role of Standards in Geospatial Information Management



## A Guide to the Role of Standards in Geospatial Information Management

*Companion document on Standards Recommendations by Tier*



# Strategic Pathways: People



## STRATEGIC PATHWAY 7

### Partnerships

This strategic pathway establishes effective cross-sector and interdisciplinary cooperation, industry and private sector partnerships, and international cooperation as an important premise to developing a sustainable Integrated Geospatial Information Framework.

The objective is to create and sustain the value of geospatial information through a culture based on trusted partnerships and strategic alliances that recognize common needs and aspirations, and national priorities.



# Strategic Pathways: People



## STRATEGIC PATHWAY 8

### Capacity and Education

This strategic pathway establishes enduring capacity building programs and education systems so that geospatial information management and entrepreneurship can be sustained in the longer term.

The objective is to increase the awareness and level of understanding of geospatial information science. This includes developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities require to utilize geospatial information for decision-making.



# Strategic Pathways: People



## STRATEGIC PATHWAY 9

### Communication and Engagement

This strategic pathway recognizes that stakeholders (including the general community) are integral to the implementation of integrated geospatial information management systems and that their buy-in and commitment is critical to success.

The objective is to deliver effective and efficient communication and engagement processes to encourage greater input from stakeholders to achieve transparent decision-making processes when implementing the Integrated Geospatial Information Framework.





# IGIF Implementation Guide



Integrated Geospatial  
Information Framework

## Overarching Strategic Framework

Why?

Part 1

National  
Implementation Guide

## Implementation Guide

What?

Part 2

National (or sub-national)  
Action Plans/Delivery System

## Country-level Action Plans

How, when,  
who?

Part 3

**Outline endorsed by UNGGIM  
August 2018  
Preparation in 2019**

**WB developing toolkit for  
task teams/clients and  
conducting pilots**

# Implementation Guide Timeline:

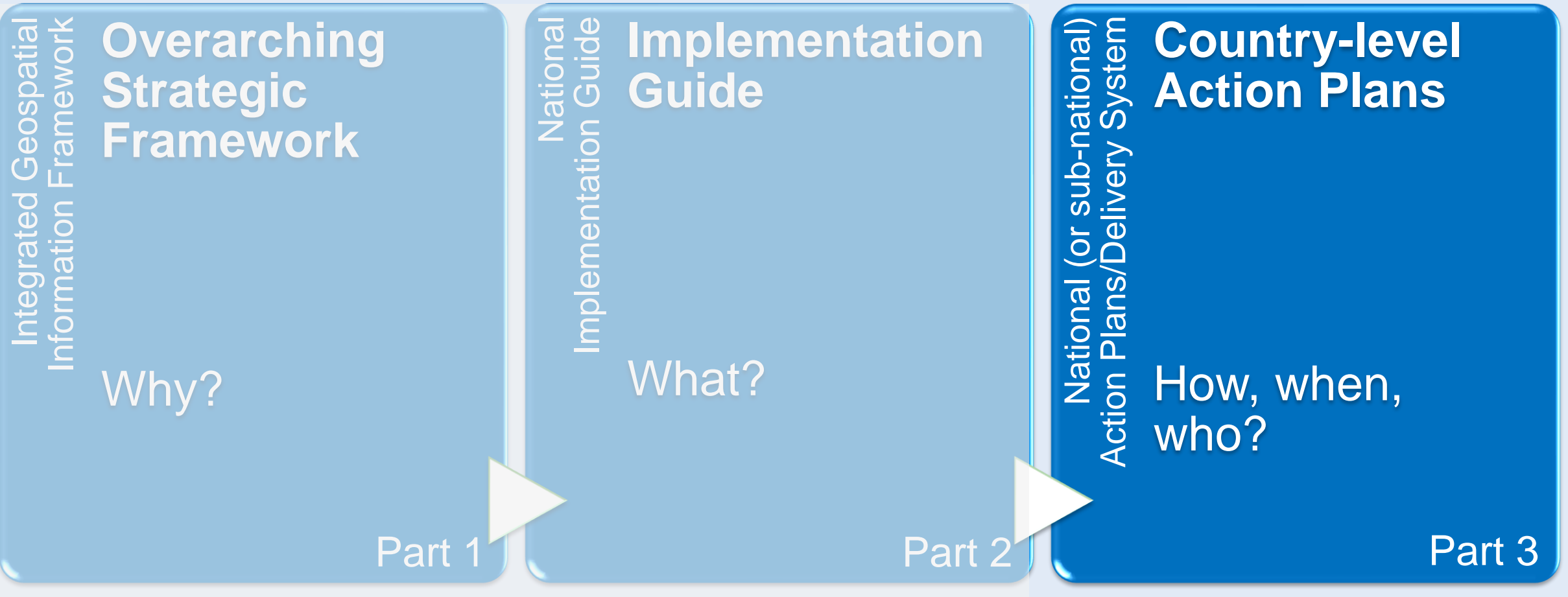


- March-April:** Expert Group Consultation at World Bank Land Conference in Washington DC  
Regional consultation with UN-GGIM: Africa  
FIG Working Week in Hanoi- information session
- June: 5-6:** **Regional consultation with UN-GGIM: Europe**  
**18-21:** Expert Review Group for the consolidated draft, Malaysia
- August: 6-9** Information Forum at Ninth session of UN-GGIM and initiation of global consultation
- October:** Regional consultations with UN-GGIM Regional Committees.
- November:** Global consultation concludes
- January 2020:** Final Guide completed.
- April 2020** Launched at the UN-GGIM High Level Forum in UK
- August 2020** Formally adopted by UN-GGIM at tenth session

# **Operationalizing the IGIF: Country and Sub-National Engagement:**



# Operationalizing the IGIF



**WB developing toolkit for task teams/clients and conducting pilots**



# Developing a Geospatial Business Line

**WB-UNSD Objective:** To operationalize the Geospatial Framework taking into consideration national circumstances and priorities. The country level Action Plans include *identification of investment needs, priorities, analysis of socio-economic benefits and potential funding sources.*

## How?

1. Analytical Tools
  2. Technical Assistance
- 
3. Financing Options



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# IGIF country level implementation methodology

## Step 1: Diagnostic

- Initial assessment
- Country report

## Step 2: Action Plan

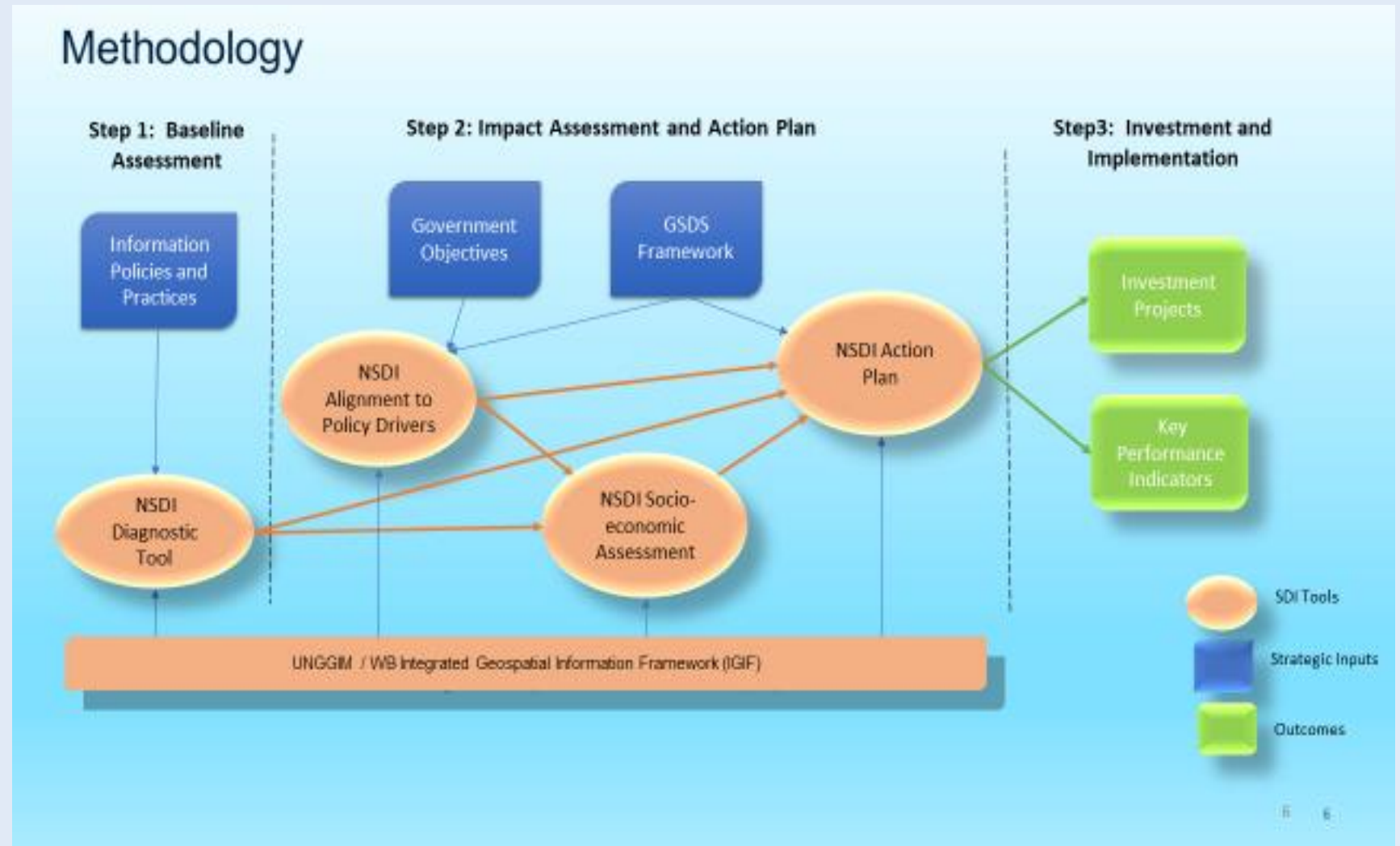
### 2.1. Business case

- Geospatial Alignment to Business Drivers
- Socio-Econ analysis

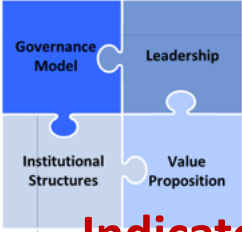
### 2.2. Action Plan

## Step 3. Implementation

- Investment projects
- KPI
- Risks



# Analytics: Diagnostic and Country Report Templates- aligned to the IGIF

STRATEGIC PATHWAY 1					
		<b>Governance and Institutions</b> <i>This strategic pathway establishes the leadership, governance model, institutional arrangements and a clear value proposition as a means to strengthen multi-disciplinary and multi-sectoral participation and a commitment to achieving an Integrated Geospatial Information Framework. The objective is to attain political endorsement, strengthen institutional mandates and build a cooperative data sharing environment through a shared understanding of the value of an Integrated Geospatial Information Framework, and the roles and responsibilities to achieve the vision.</i>	<b>Excel worksheet automatically generates diagrams for the Country Report</b>		
Indicator	Scoring Guide	Notes from Interview	Score	Guidance	
1.1	Is there a NSDI "champion" in Government?	None=0; role defined=25; defined and person exists=50; Active=75; Tangible outcomes from role=100	0	Is there a clearly identifiable individual(s) actively promoting SDI, resulting in tangible outcomes towards the development and	
1.2	Is there a NSDI Coordinating body?	None=0; body defined=25; defined and ToR=50; ToR and persons nominated=75; In existence and	0	This should be cross sector, and across levels of Government. Could be officially designated or de facto.	
1.3	Is the NSDI Coordinating body represented at senior / top level in government?	None=0; role defined=50; defined and ToR exist=50; Defined, ToR, people in place=75; Staffed and	0	Is there someone from the co-ordinating body representing it at the top level of Government e.g. a cabinet level minister?	
1.4	Is the coordinating body supported by an active secretariat?	None=0; role defined=25; defined and ToR exist=50; defined, ToR and staffing identified=75; Staffed and Active=100	0	Has a NSDI secretariat been defined, mandated, and is actively supporting the NSDI governance structure?	
1.5	Are there clear Terms of Reference (ToR) for the Coordinating Body?	None=0; Need for ToR recognised=25; being drafted=50 Exists=75; Exists and being used=100	0	Has the Coordinating Body been given clear ToR? ...and are they being followed. Report to describe this.	
1.6	Does the coordinating body actively reach out to all levels of government (including local government) and other stakeholders (private sector, NGOs, volunteering sector)?	None=0; Responsibility acknowledged=25; Strategy (ToR) in place for this=50; Liaison with some levels=75; All levels=100	0	This indicates how inclusive the SDI is - how far it integrates across and with the various levels of government, and other sectors.	
1.7	Are there Working Groups supporting SDI development? e.g. technical, standards, legal, service development)?	None=0; roles defined=25; Some exist=50; All set up=75; All active=100	0	Work Groups are important, to provide technical input to support policy and implementation.	
1.8	Is there a user group / forum available for consultation and providing user feedback / requests?	None=0; informal channels=25; formal role defined=50 Exists=75; Exists and active=100	0	A user group / forum is a channel for feeding user feedback and requirements to the SDI governance agencies.	
1.9	Does the national "champion" actively interact with the global and regional geospatial community?	None=0; role defined=25; Person in role=50; Active Regionally=75; Active Globally=100	0	The degree to which the "champion" interacts with the wider community to exchange information.	
1.10	Are there linkages between the coordinating body and those developing the e-Government agenda?	None=0; need identified=25; being drafted=50; In place=75; Being used=100	0	This is important for assessing how joined up the institutions are in terms of co-ordinating policy development	
			0		

Initial version conducted in 15 countries 2017-2018



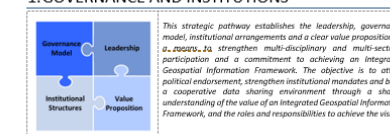
INTEGRATED GEOSPATIAL  
INFORMATION FRAMEWORK

SPATIAL DATA INFRASTRUCTURE (SDI)  
DIAGNOSTIC TOOL

NATIONAL REPORT - COUNTRY

(DRAFT)

## 1. GOVERNANCE AND INSTITUTIONS



Overview of current situation

### 1.1. Governance Model

Overview of current situation  
Is development taking place in a transparent way? (IGIF Principle)  
Is a governance model in place (1.1) and accepted by the relevant institutions (1.7)? Is it serving the needs of government? Is there a Coordinating Body (1.3)? With ToR? Represented in government (1.4)? Reaching all levels of government (1.7) and supported by a secretariat (1.5)?

### 1.2. Institutional Structures

List and describe the key institutions involved. Do each of the stakeholders have clear roles and responsibilities? Do specialist Work Groups exist (1.8)?  
Are reporting and monitoring measure in place? (IGIF Principle)

### 1.3. Leadership

Does a policy / strategy exist at national level (2.1)? Does this link to government priorities (2.5)? Is there a champion at sufficiently high level (1.2)? Does the champion have links in the region and internationally (1.10)? Does the committee report on progress to the other stakeholders? (IGIF Principle) (9.2)

### 1.4. Value Proposition

Why is geospatial information important to this country / government? (2.4) What key government priorities can it help to support? Has there been any economic assessment? (3.2)  
General comment on main strengths and weaknesses in this strategic pathway



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# Investments in Geospatial Information and Infrastructure Action Plan Provides Coordinated Investments and Co-Financing Opportunities

## Albania 2017: Integrated Land Management and Geospatial Infrastructure Action Plan

**Investment Needed:** Euro 124 million

**Priorities/Drivers:** Tourism, Agriculture and FDI using land

**RoI 2.5 :1**

**Government Agency** revenue: approx. 5 million/year

**EU:** +/- Euro 20 million (IPA funding)

**World Bank:** +/- 30 million (infra, HW/SW, data, systems integration and services)

Title	GGIM Strategy Pathway Type	Intervention	Total Investment (€k)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Section 2: ILMP Related Interventions									
Key Registers									
	Governance and Institutions	Agree business processes with custodians and associated stakeholders, e.g. Municipalities, for maintenance of Key Registers	20						
	Technical	Upgrade ICT solutions custodians and associated stakeholders to support key registers and their interoperability.	1,667						
	Data	Implement data quality assessment and improvement programs for all Key Registers. This will be incrementally implemented by geographical priorities.	533						



# Summary and Next Steps



- Completion of the **IGIF Implementation Guide**

Global/Regional consultations throughout 2019

- Roll out **Country Action Plans** at least 5 countries in 2019

## Completed Pilots:

- **Albania**
- **Palestine**
- **Guyana** (funded by FAO)
- **Sub-national level: Tirana, Albania**

## Within 2019:

- **Seychelles** (WB- Disaster Risk Management funding)
- **Vietnam, Colombia, Malawi, Mongolia, Cote D'Ivoire**, (WB-Korean Funding)
- **Georgia and Moldova** (Norwegian/Kartwerk Funding)

WB preparing **IGIF eLearning course via OLC Online Learning Campus**