



Transforming our world -  
The 2030 Agenda for  
Sustainable Development

**Eighth Plenary Meeting of UN-GGIM Asia-Pacific**  
**3-5 November 2019, National Convention Centre, Canberra, Australia**

# **The IGIF: Strengthening National Geospatial Information Arrangements**

**Greg Scott, UN-GGIM Secretariat**  
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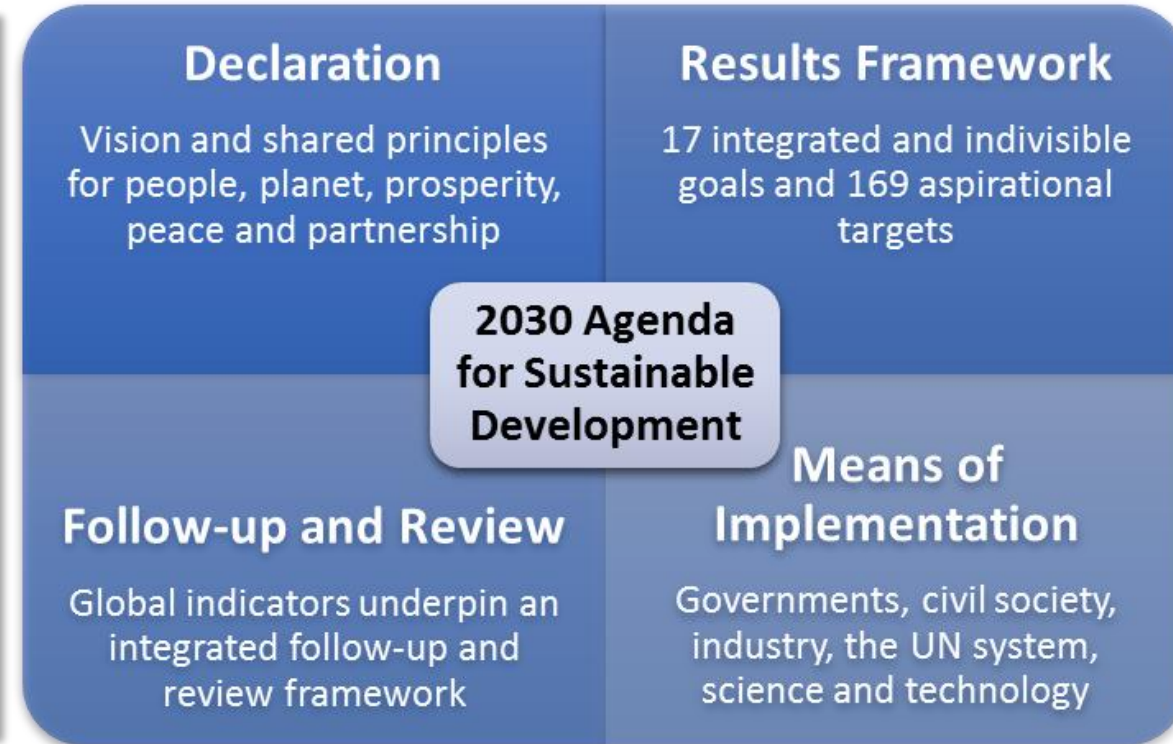
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# 2030 Agenda: Goals, targets, indicators, implementation



The 2030 Agenda is an Integrated Plan of Action structured in four main parts: (i) Vision and principles for transforming our world as set out in the Declaration; (ii) Results framework of 17 SDGs and 169 targets; (iii) Means of implementation through governments, society and global partnership; and (iv) Follow-up and review framework of global indicators.



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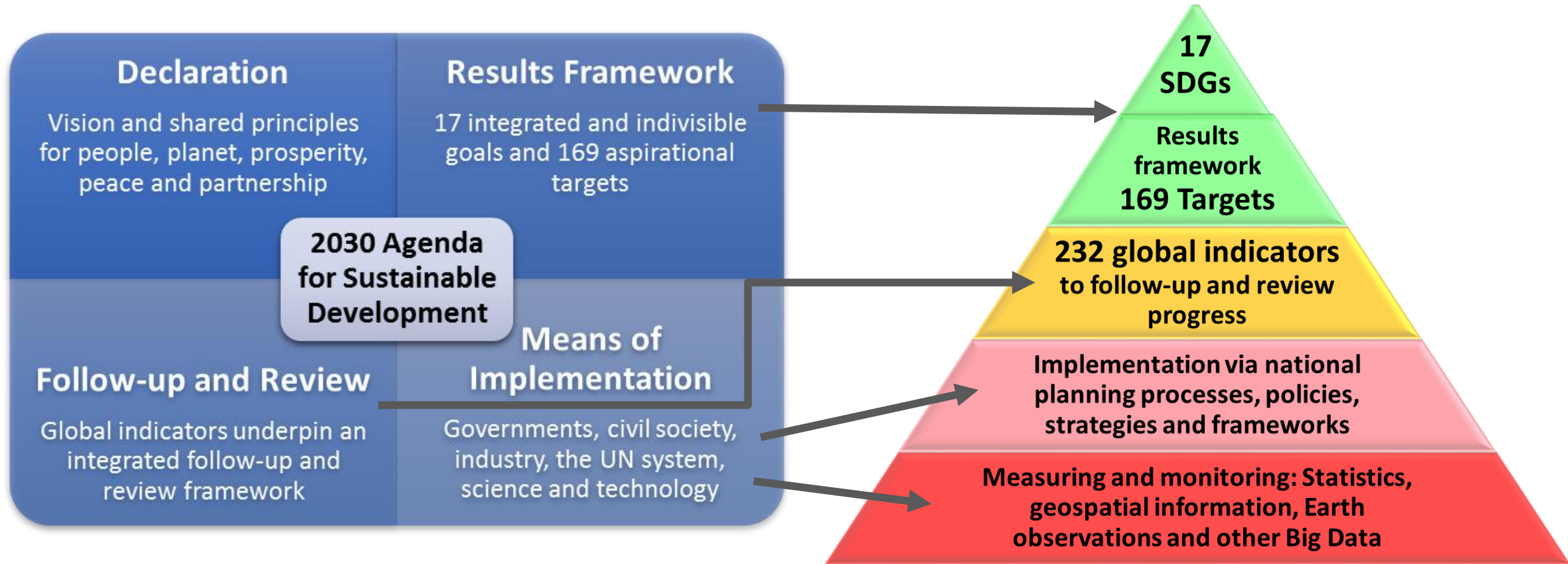
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# 2030 Agenda: Goals, targets, indicators... and data!!



Any national SDG implementations will be sub-optimal without strategies and frameworks to integrate statistics, geospatial information, Earth observations, and other new data into the measuring, monitoring and reporting processes.



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# The Sustainable Development Goals Report 2019

*“It is abundantly clear that a much deeper, faster and more ambitious response is needed to unleash the social and economic transformation needed to achieve our 2030 goals. From our advances, we know what works. This report therefore highlights areas that can drive progress across all 17 SDGs: financing; resilience; sustainable and inclusive economies; more effective institutions; local action; better use of data; and harnessing science, technology and innovation with a greater focus on digital transformation. In everything we do, we must diligently ensure that policy choices leave no one behind, and that national efforts are supported by effective international cooperation, grounded in a commitment to diplomacy and crisis prevention”*

António Guterres  
Secretary-General, United Nations



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## The Sustainable Development Goals Report

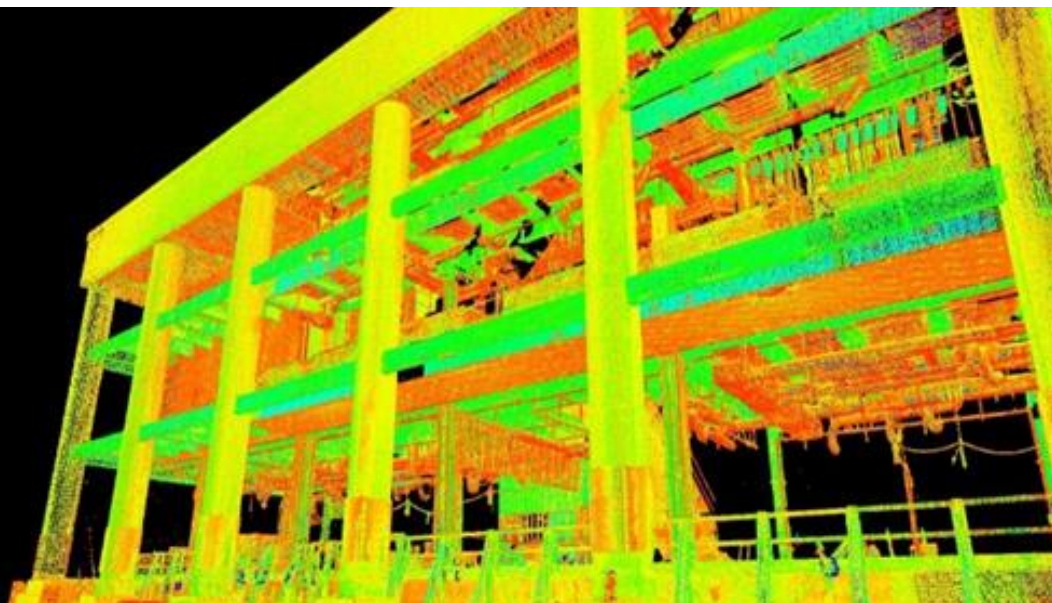
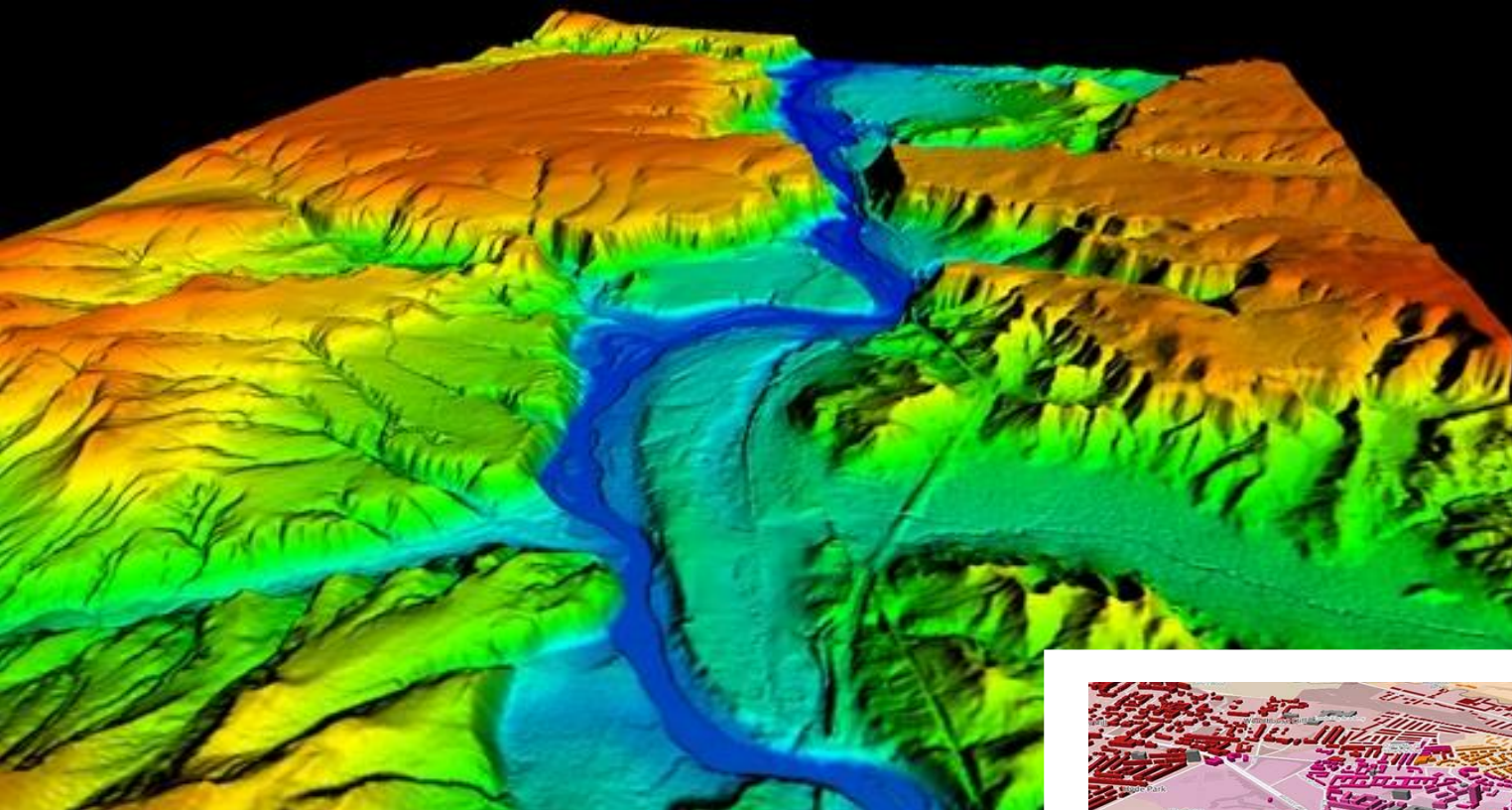
2019



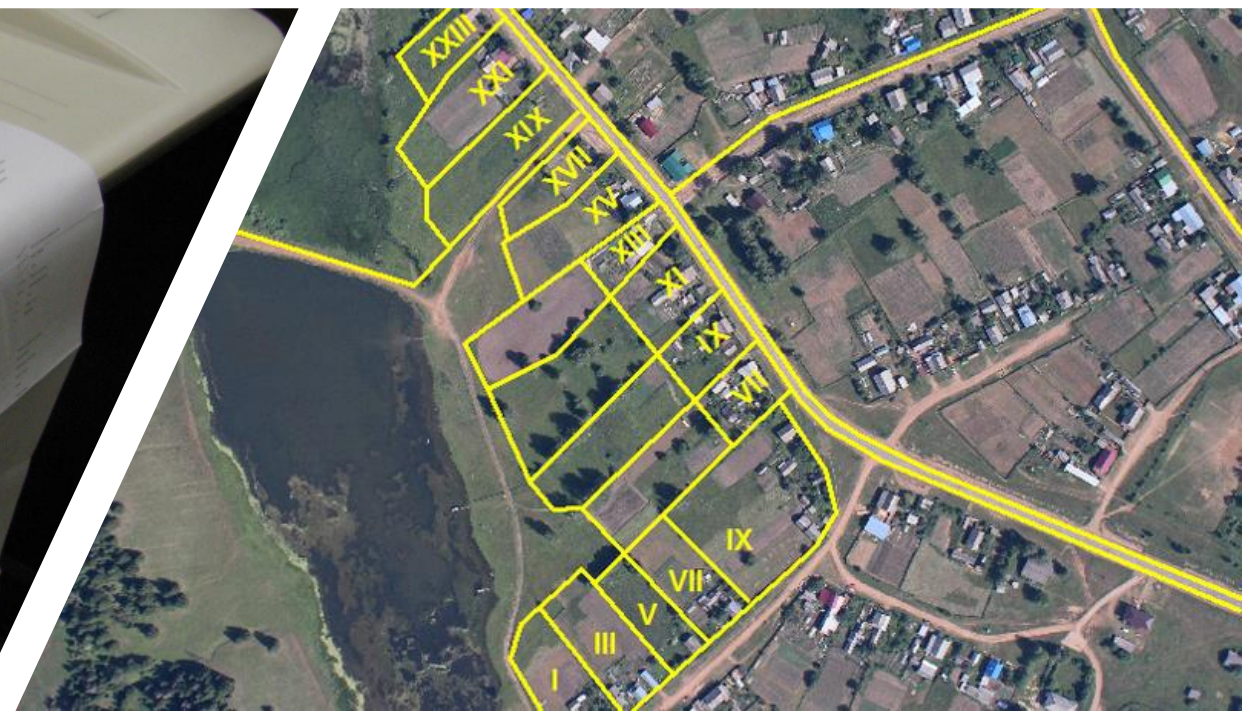
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**“Within the past generation, hundreds of millions of people have emerged from extreme poverty, and access to education has greatly increased for both boys and girls. Further, the spread of information and communications technology and global inter-connectedness has great potential to accelerate human progress, to bridge the digital divide, to develop knowledge societies, and to foster scientific and technological innovation”**

**2030 Agenda for Sustainable Development.**



## **Bridging the Geospatial Digital Divide**

**Meeting and exploiting the new data needs, information systems, analytics and associated enabling technologies and tools to support the implementation of the SDGs is going to take strategic policy leadership and transformational change - a digital transformation that is able to bridge the ‘geospatial digital divide’ which continues to inhibit development progress for developing countries.**

**Greg Scott, November 2016**







**“develop an overarching  
Geospatial Framework.....”**

**“prepare and implement  
country level Action Plans.....”**



**ROADMAP FOR COLLABORATION**

**BETWEEN**

**WORLD BANK’S GLOBAL PRACTICE ON  
SOCIAL, URBAN AND RURAL DEVELOPMENT,  
AND RESILIENCE**

**AND**

**UNITED NATIONS STATISTICS DIVISION**

**TO ASSIST COUNTRIES TO BRIDGE  
GEOSPATIAL DIGITAL DIVIDE**



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



# INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

A STRATEGIC GUIDE TO DEVELOP AND STRENGTHEN  
NATIONAL GEOSPATIAL INFORMATION MANAGEMENT

## PART 1: OVERARCHING STRATEGIC FRAMEWORK



**The Overarching Strategic Framework is a mechanism for articulating and demonstrating national leadership, cultivating champions, and developing the capacity to take positive steps.**

<http://ggim.un.org/UN-GGIM-Intergrated-geospatial-information-framework/>



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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

- Part 1: Overarching Strategic Framework - **WHY** geospatial information management needs to be strengthened.
- Part 2: Implementation Guide - **WHAT** actions can be taken to strengthen geospatial information management.
- Part 3: Country-level Action Plans - **HOW** the actions will be carried out, **WHEN** and by **WHOM**.



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# IGIF: Overarching Strategic Framework



The Overarching Strategic Framework is a mechanism for articulating and demonstrating national leadership, cultivating champions, and developing the capacity to take positive steps.

- A forward-looking Framework built on national needs and circumstances.
- Provides the overarching strategic messages and integrated national framework, focusing on policy perspectives and elements of geospatial information.
- Sets the context of ‘why’ geospatial information management is a critical element of national social and economic development.
- **Vision** and **Mission** statements communicate the overarching aim of the Integrated Geospatial Information Framework.
- The Framework achieves this via **7 Underpinning Principles, 8 Goals and 9 Strategic Pathways** that lead to a national approach that takes account of national circumstances, priorities and perspectives.
- The **Overarching Strategic Framework** is intended for a wide range of stakeholders - these primarily being high-level policy and decision makers, institutions and organizations within and across government.



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The 7 Principles are the key characteristics and values that provide the compass for implementing the Framework, and allow for methods to be tailored to individual country needs and circumstances.



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## VISION

The efficient use of geospatial information by all countries to effectively measure, monitor and achieve sustainable social, economic and environmental development – leaving no one behind

## MISSION

To promote and support innovation and provide the leadership, coordination and standards necessary to deliver integrated geospatial information that can be leveraged to find sustainable solutions for social, economic and environmental development.

## STRATEGIC DRIVERS

National Development Agenda • National Strategic Priorities • National Transformation Programme • Community Expectations • Multilateral trade agreements • Transforming our World: 2030 Agenda for Sustainable Development • New Urban Agenda • Sendai Framework for Disaster Risk Reduction 2015–2030 • Addis Ababa Action Agenda • Small Island Developing States Accelerated Modalities of Action (SAMOA Pathway) • United Nations Framework Convention on Climate Change (Paris Agreement) • United Nations Ocean Conference: Call for Action

## UNDERPINNING PRINCIPLES

Strategic Enablement	Transparent and Accountable	Reliable, Accessible and Easily Used	Collaboration and Cooperation	Integrative Solution	Sustainable and Valued	Leadership and Commitment
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## GOALS

Effective Geospatial Information Management	Increased Capacity, Capability and Knowledge Transfer	Integrated Geospatial Information Systems and Services	Economic Return on Investment
Sustainable Education and Training Programs	International Cooperation and Partnerships Leveraged	Enhanced National Engagement and Communication	Enriched Societal Value and Benefits



The 8 Goals reflect a future state where countries have the capacity and skills to organize, manage, curate and leverage geospatial information to advance government policy and decision-making capabilities.

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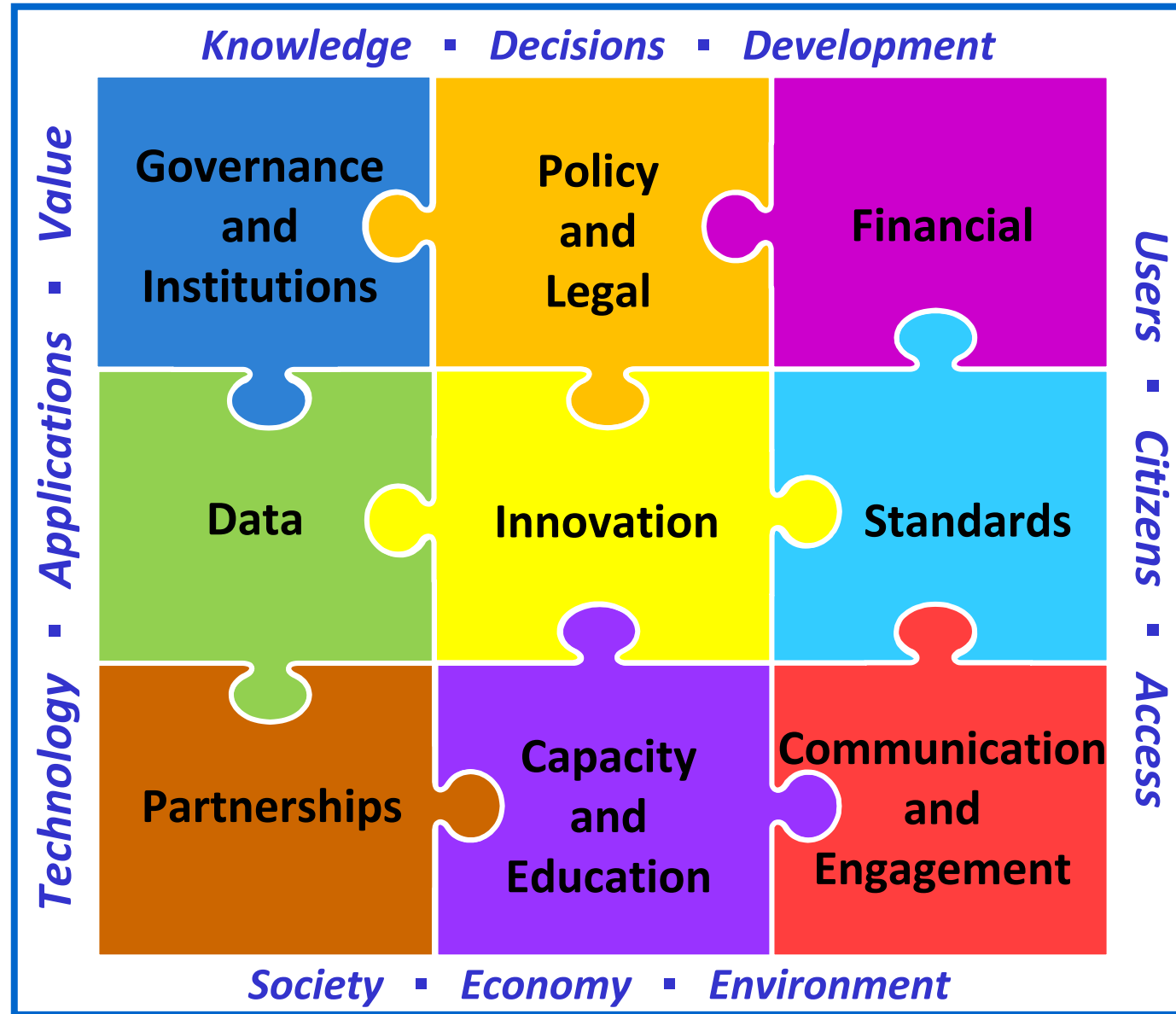


# 9 Strategic Pathways

Governance →

Technology →

People →



Anchored by 9 Strategic Pathways, the Framework is a mechanism for articulating and demonstrating national leadership in geospatial information, and the capacity to take positive steps.



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# INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

## DEVELOPING THE IMPLEMENTATION GUIDE

### JANUARY - OCTOBER 2019



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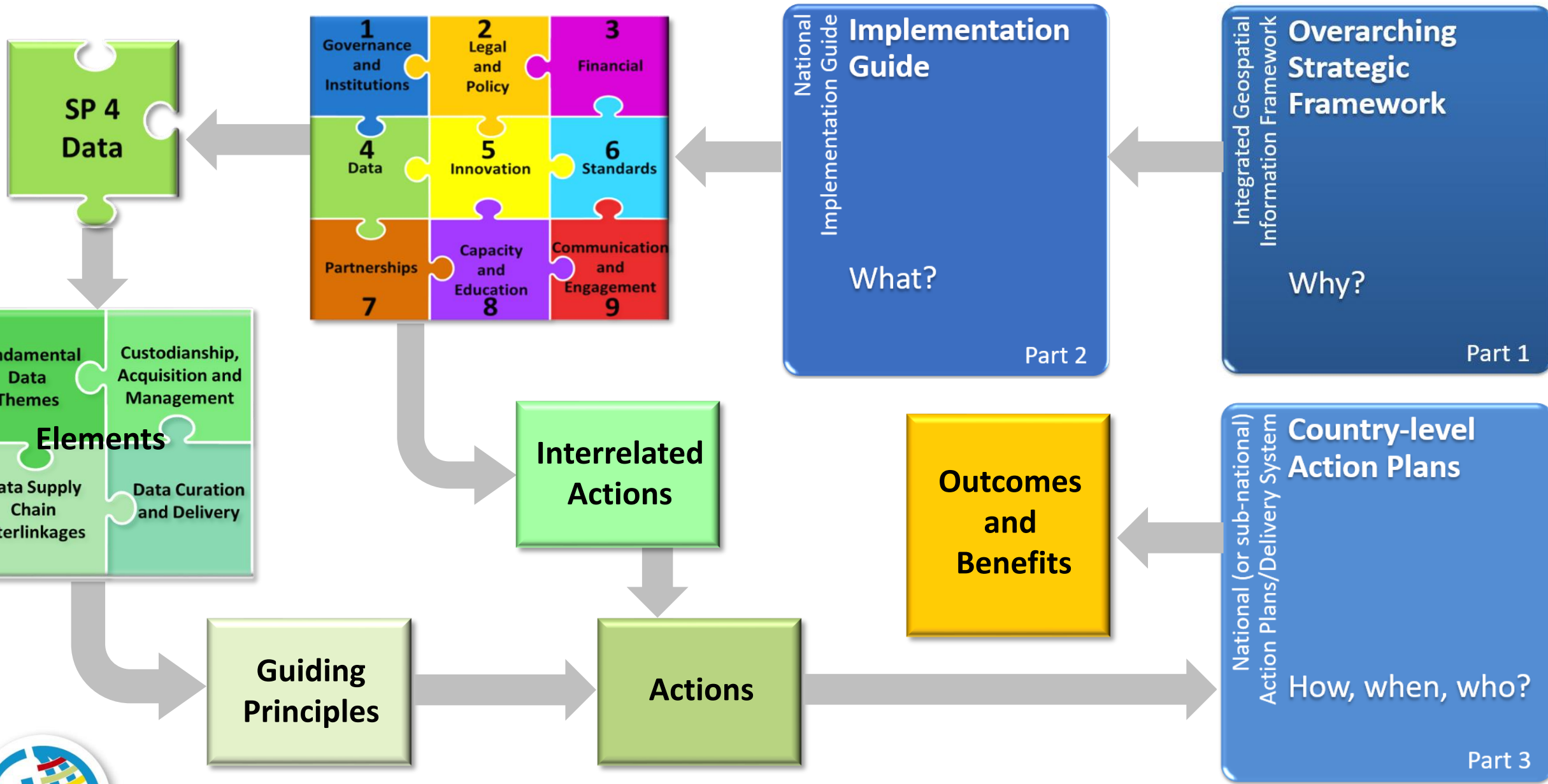


# IGIF: Implementation Guide - Foundations

- The Implementation Guide provides the ‘what’, the specific guidance and options to be taken by countries in implementing the IGIF. It captures strategic to operational needs with guiding principles; while not being detailed and prescriptive – Country-level Action Plans do that.
- Expanding on each of the 9 Strategic Pathways, the Guide comprises references, good practices and specific principles and actions for each of the Pathways, including those generated through each of the Subcommittee, Expert and Working Groups of UN-GGIM.
- The aim is to provide guidance for governments to establish ‘nationally’ integrated geospatial information frameworks in countries in such a way that transformational change is enabled, visible and sustainable. The Guide’s benefits will cascade right down to the citizen.
- While intended to benefit low to middle income countries and small island developing States, the Guide can be used to establish and/or improve national geospatial information management arrangements. The Guide can also be used to coordinate activities to achieve alignment between already existing national agency capabilities and infrastructures.









# IGIF: Implementation Guide

## Governance and Institutions

1. **Abstract**
2. **Summary**
3. Introduction
4. Context and Rationale
5. Approach
6. Elements
7. Guiding Principles
8. Actions
9. Deliverables
10. Outcomes
11. Resources



## Strategic Pathway 1

### Governance and Institutions

*This strategic pathway establishes the leadership, governance model, institutional arrangements and a clear value proposition to strengthen multi-disciplinary and multi-sectoral participation in, 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 vision and understanding of the value of an Integrated Geospatial Information Framework, and the roles and responsibilities to achieve the vision.*

#### Summary

Geospatial information is increasingly being harnessed to interconnect and integrate government functions and commercial services - making cities more livable, citizens more engaged and informed, and agricultural areas more productive. Traffic congestion, weather reports, air pollution, bus locations, pest monitoring, flood sensors, and electricity outage applications are all underpinned by geospatial information that can be synthesized into a seamless knowledge environment so that information can be accessed quickly by users to make informed decisions. For government this means streamlining operations, reducing costs and improving overall economic and social sustainability.

This level of geospatial capability can only be achieved through cooperative governance frameworks and with strong leadership that penetrates across sectors and through all levels of government. Institutions need to work together to share information and work towards common strategic priorities and goals.

By interconnecting government functions through well-functioning governance frameworks, it is possible to bring together geospatial information from multiple sources so that it can be used seamlessly on any digital device.

Good governance and cooperative institutional arrangements are the first priority in the geospatial information reform agenda. They enable geospatial information challenges to be met head on, provide flexibility to accommodate the rapidly changing environment, and the ability to embrace community and business participation within a culture of digital reform and transformation.

Common to all governance and institutional arrangements are four key elements that are required to build a cooperative data sharing environment and an appreciation of the value of geospatial information for decision-making.





## Strategic Pathway 1

### Governance and Institutions

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The four elements are:

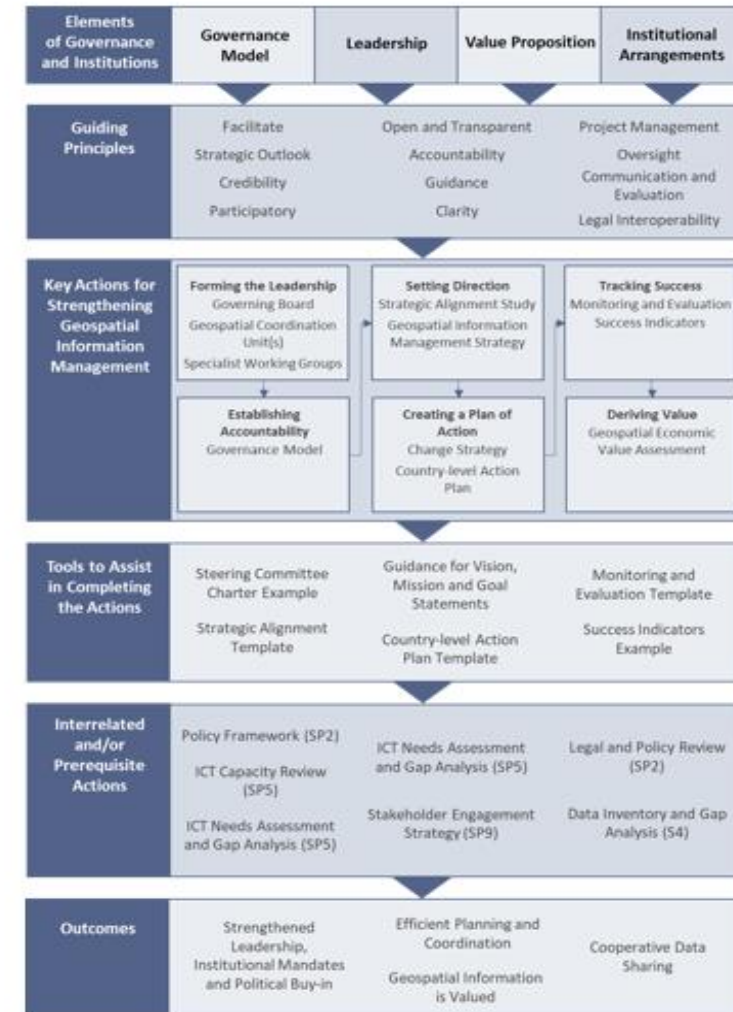
- **Governance Model** - based on a geospatial strategy for the nation and facilitated by governing bodies responsible for aligning and supporting policies and laws affecting the acquisition, creation, management, use, and dissemination of geospatial information.
- **Leadership** - to formulate and sustain a national geospatial information management strategy, develop a Country-level Action Plan for implementing the Integrated Geospatial Information Framework (IGIF), and create a governance process for assuring effective management responsibilities for the enterprise.
- **Value Proposition** - that measures, monitors, and communicates the economic benefit of integrated geospatial information to national priorities including citizen and societal benefits.
- **Institutional Arrangements** - that define roles and responsibilities across government for tasks associated with all aspects of geospatial information management, including appropriate coordination, management and oversight for meeting national priorities.

These elements are underpinned by principles that promote successful governance and institutional arrangements that can be adopted by each country. The principles are put into practice through several strategic actions that deliver and strengthen participation and commitment to achieving the IGIF. Tools, such as matrices, examples and checklists, are provided in the appendices to assist countries to work through concepts and processes to successfully complete each action. The overall structure for governance and institutional arrangements is illustrated in and anchored by Figure 1.1.

When implemented the actions (and their interrelated actions<sup>1</sup>) will enable the achievement of the four elements, which in turn will deliver significant and sustainable national outcomes and benefits for a country. These outcomes include attaining:

- Efficient planning and coordination of the government's geospatial information resources;
- Strengthened leadership, institutional mandates and political buy-in;
- A cooperative data sharing environment; and
- A shared understanding of the value of integrated geospatial information management.

<sup>1</sup> The interrelated actions across all Strategic Pathways are described in detail in the introductory Chapter; Solving the Puzzle: Understanding the Implementation Guide.



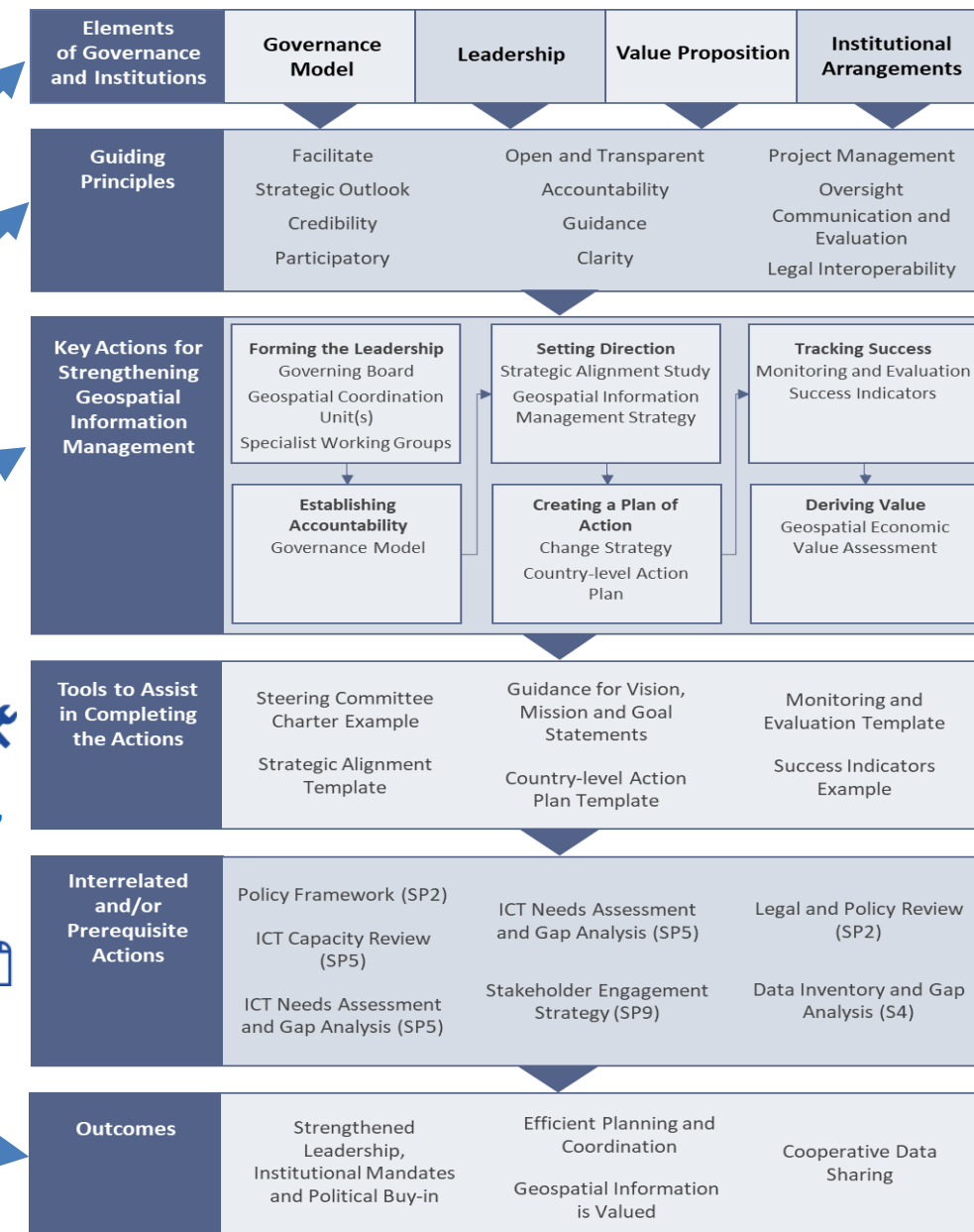
**Figure 1.1:** Overall structure for the Governance and Institutions Strategic Pathway - showing the four key elements, guiding principles, actions and interrelated actions, and the tools provided in the Appendices to support and achieve the outcomes.

# IGIF: Implementation Guide



1. Abstract
2. Summary
3. Introduction
4. Context and Rationale
5. Approach
6. **Elements**
7. **Guiding Principles**
8. **Actions**
9. Deliverables
10. **Outcomes**
11. Resources

“Tools” and  
“Interrelated Actions”  
are identified  
throughout  
the Chapter



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## Outcomes

- Efficient planning and coordination of the governments geospatial information resources
- Strengthened leadership, institutional mandates and political buy-in
- A cooperative data sharing environment
- A shared understanding of the value of integrated geospatial information management

## Elements

- Governance Model
- Leadership
- Value Proposition
- Institutional Arrangements

## Principles

- Facilitate
- Strategic Outlook
- Credibility
- Participatory
- Open and Transparent
- Accountability
- Guidance
- Clarity
- Project Management
- Oversight
- Communication and Evaluation
- Legal Interoperability

## Actions

- Forming the Leadership**
  - Governing Board
  - Geospatial Coordination Unit(s)
  - Specialist Working Groups
- Establishing Accountability**
  - Governance Model
- Setting Direction**
  - Strategic Alignment Study
  - Geospatial Information Management Strategy
- Creating a Plan of Action**
  - Change Strategy
  - Country-level Action Plan
- Tracking Success**
  - Monitoring and Evaluation
  - Success Indicators
- Deriving Value**
  - Geospatial Economic Value Assessment

## Tools

- Steering Committee Charter Example
- Strategic Alignment Template
- Guidance for Vision, Mission and Goal Statements
- Country-level Action Plan Template
- Monitoring and Evaluation Template
- Success Indicators Example

## Interrelated Actions

- Policy and Legal Review (SP2)
- Data Inventory (SP4)
- Data Gap Analysis (S4)
- Policy Framework (SP2)
- ICT Capacity Review (SP5)
- ICT Needs Assessment and Gap Analysis (SP5)
- Stakeholder Engagement Strategy (SP9)
- Capacity Assessment and Gap Analysis (SP8)
- Business Model (SP2)
- Data Acquisition Program (SP4)
- Formalised Data Supply Chains (SP4)

## Forming the Leadership

1

Governing Board  
Steering Committee  
Charter Example

## Establishing Accountability

2

Geospatial Information Management Strategy

Strategic Alignment Study

Governance Model

3

## Setting Direction

Guidance for Vision, Mission and Goals Statements

Strategic Alignment Template

- Interrelated Actions
- Stakeholder Engagement Strategy (SP9)
  - Business Model (SP2)
  - Formalised Data Supply Chains (SP4)

## Creating a Plan of Action

4

- Interrelated Actions
- Capacity Assessment and Gap Analysis (SP8)
  - Policy and Legal Review (SP2)
  - Data Inventory and Data Gap Analysis (S4)
  - ICT Needs Assessment and Gap Analysis (SP5)

Change Strategy

Country-level Action Plan

Country-level Action Plan Template

## Tracking Success

5

Monitoring and Evaluation

Monitoring and Evaluation Template

Success Indicators

Success Indicators Example

Geospatial Economic Value Assessment

Outcomes Achieved

6

Deriving Value



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# INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

## DEVELOPING THE COUNTRY-LEVEL ACTION PLANS

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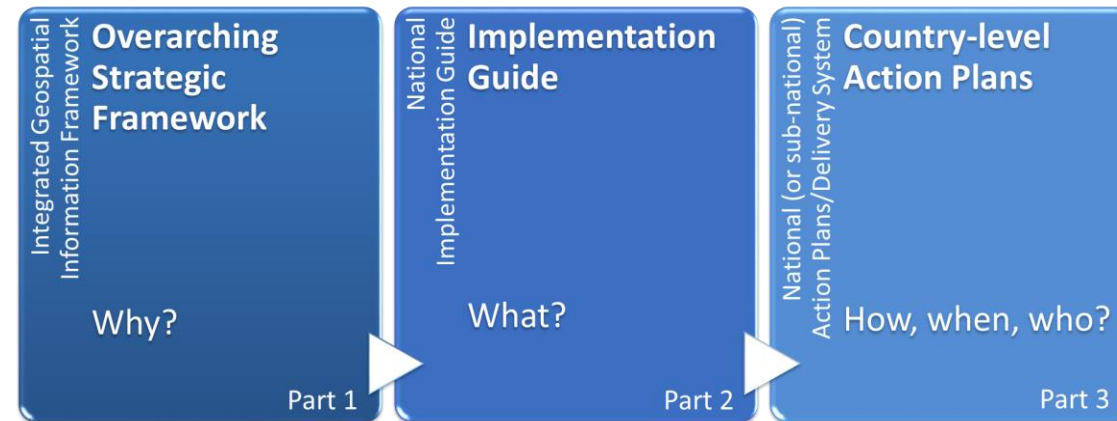
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# IGIF: Country-level Action Plans (CAPs)

- Part 3: Country-level Action Plans (CAPs) reference the specific guidance, options and actions provided in the Implementation Guide and addresses each of the 9 Strategic Pathways to capture strategic-to-operational needs of a country when implementing the Framework.
- CAPs are now being developed in parallel, and in coordination with, the Implementation Guide. They are being implemented in several ways.



Part 1: Overarching Strategic Framework – **WHY** geospatial information management needs to be strengthened.

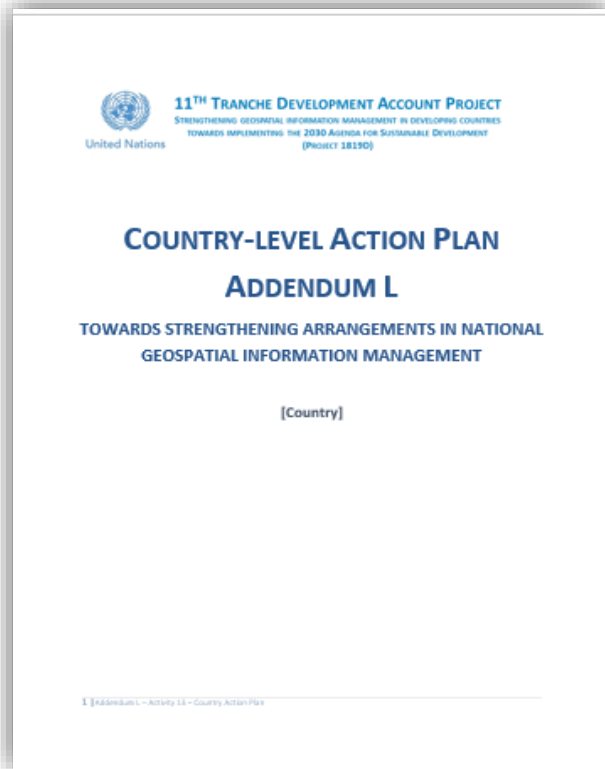
Part 2: Implementation Guide – **WHAT** types of actions can be undertaken to strengthen geospatial information management.

Part 3: Country-level Action Plans – **HOW** the actions will be carried out, **WHEN** and by **WHOM**.

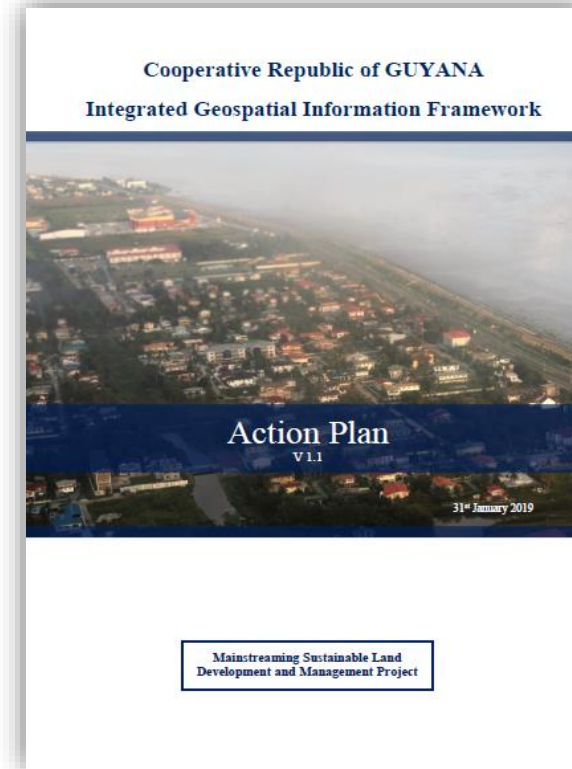


# IGIF: Country-level Action Plans - Approaches

United Nations and the World Bank are actively engaged in assisting countries to develop  
Country-level Action Plans



Development Account Project  
UNSD  
(self-paced learning and execution)



Technical Assistance Programs  
World Bank and FAO  
(assisted execution)



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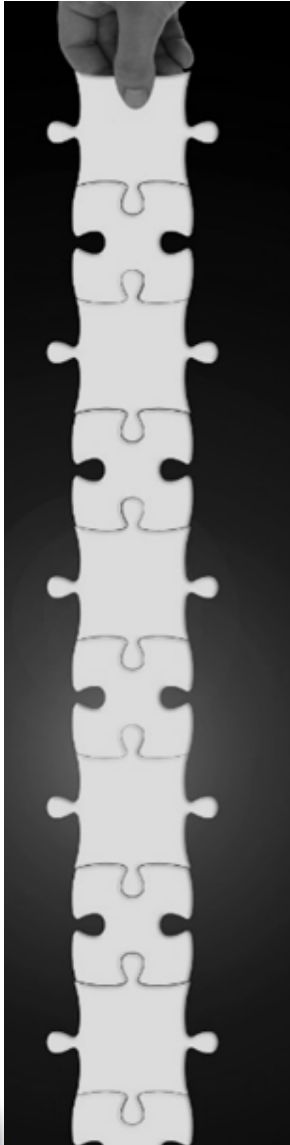


# IGIF: Country-level Action Plans (CAPs)

- Country-level Action Plans (CAPs) provide the process to build an IGIF for a nation, beginning with specific plans that align with a nation's priorities and circumstances.
- A CAP references the specific guidance, options and actions provided in the Implementation Guide and addresses each of the Strategic Pathways, while taking into account the strategic and operational needs of a country when implementing the Framework.
- The CAP is a plan, not a programme that is implemented. The CAPs contain the processes, templates and tools that are available and necessary to first develop a national action plan, and then operationalize the IGIF through its subsequent implementation, and aligned with national priorities.
- The CAPs will include elements such as the economic impact and value of geospatial information systems, identification of investment needs and priorities, and sequenced implementation options.



# Implementation Guide - Solving the Puzzle



## Solving the Puzzle

### Understanding the Implementation Guide

*This introductory chapter, **Solving the Puzzle**, describes how to understand and use the Implementation Guide. Expanding on each of the nine strategic pathways of the Integrated Geospatial Information Framework (IGIF), the Implementation Guide provides the ‘what’, the specific guidance and options to be taken by countries in implementing the IGIF. It captures strategic to operational needs with guiding principles, actions deliverables, outcomes and resources. The aim is to provide guidance for governments to establish ‘nationally’ integrated geospatial information frameworks in countries in such a way that transformational change is enabled, visible and sustainable.*

#### Executive Summary

Geospatial information is a critical component of the national infrastructure and knowledge economy; a blueprint of what happens where, and the means to integrate and leverage a wide variety of government services. It provides the integrative platform and ‘glue’ for all digital data that has a location dimension to it. All countries and all sectors need geospatial information and enabling technologies for making decisions on national policy, priorities and sustainable development.

However, many countries continue to face a series of impediments that exacerbate their ability and ‘opportunity’ to participate fully in transformational change with geospatial information, support national development, economic prosperity, and through that, a global and thriving information economy; as they still need to bridge the geospatial digital divide. Bridging this divide – enabling people, governance, processes, data and technology to implement and sustain national geospatial information capabilities – requires the realization and implementation of an

**The Implementation Guide illustrates how the IGIF builds on the previous and considerable efforts in planning and implementing national and regional Spatial Data Infrastructures (SDIs).**

*What are the differences between the traditional regional and national spatial data infrastructures (SDIs) and the IGIF?*

The Implementation Guide illustrates how the IGIF builds on the previous and considerable efforts in planning and implementing national and regional Spatial Data Infrastructures (SDIs), which have historically focused on the technical aspects of collecting, maintaining and then sharing the various themes or layers of geospatial information, throughout all levels of government and society.

National circumstances are a primary force guiding the need for and management of geospatial information capabilities. However, global and regional needs also justify investment in the creation and maintenance of a geospatial framework. At the global level, the SDGs will operate as a reminder of the critical importance of geospatial information as countries consume and evaluate the information from the Guide, working toward developing and ultimately implementing their CAP.

At this time, human activity is the dominant catalyst of change on the environment and various natural ecosystems. This means that each individual’s actions have an impact on our planet’s future, no matter how small or inconsequential they may seem. Local geospatial information capacities and capabilities contribute valuable information for local decision-making and management, but also now serve as critical indicators of regional and global impacts. The benefits of a collective regional approach toward coordinating national efforts on geospatial information management are realized through formal and informal harmonization methods. In Europe, one example of a coordinated formal regional approach is the Infrastructure for Spatial Information in the European Community (INSPIRE) Directive.

INSPIRE is a legislative framework which aims to create a European Union SDI for the purposes of ensuring that geospatial information is able to be more accessible and interoperable to support primary environmental policies and policy-making, including sustainable development, across Europe. Entered into force in May 2007 by the European Union, INSPIRE provides an SDI framework based on the infrastructures for spatial information established and operated by the Member States of the European Union for 34 spatial data themes, and are compatible and shared according to common implementing rules that are supplemented with measures at the community level (European Union, 2007).



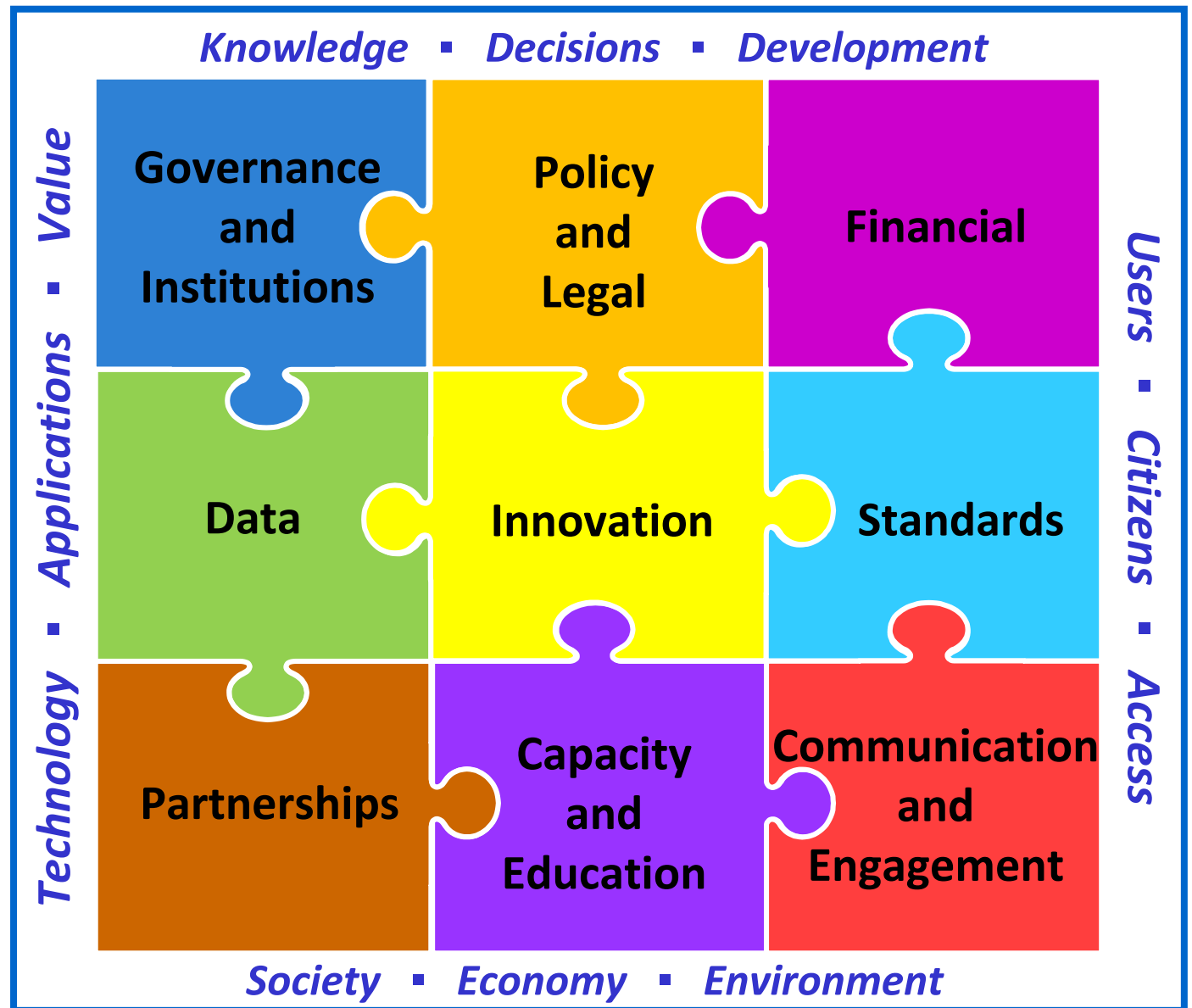
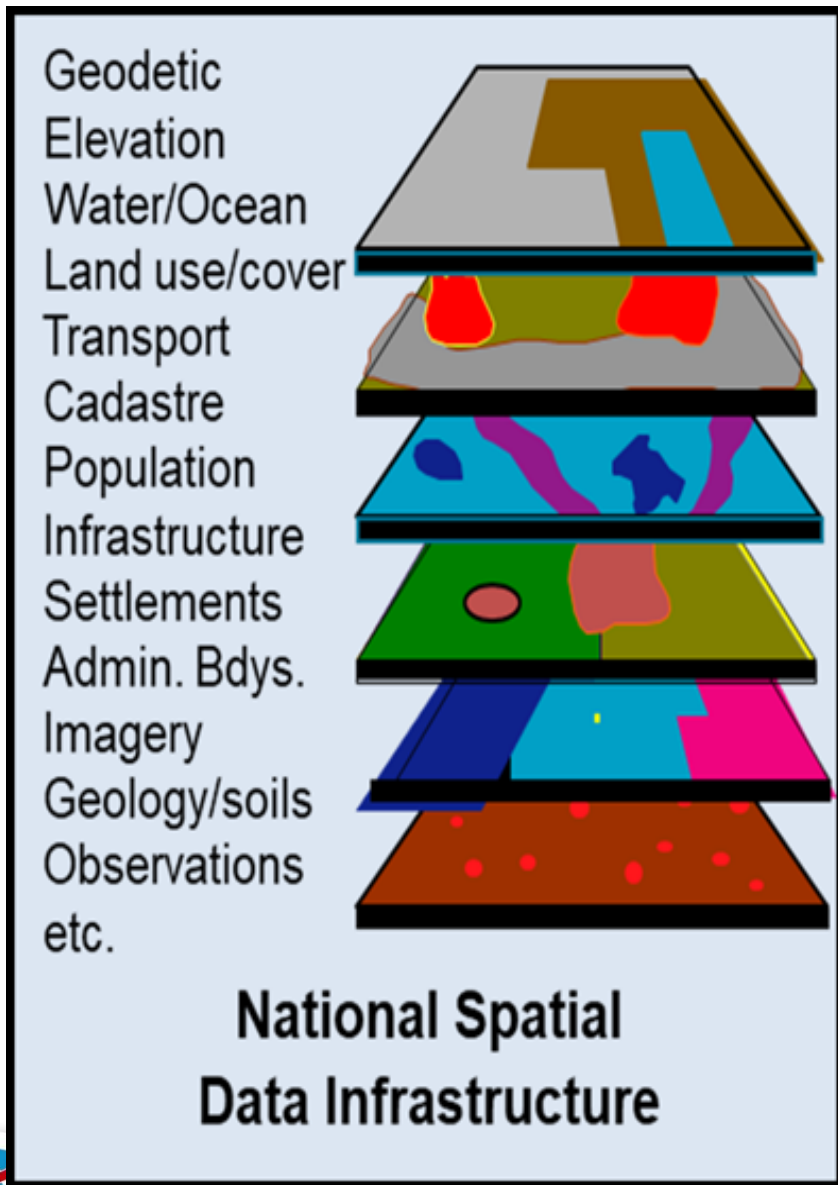
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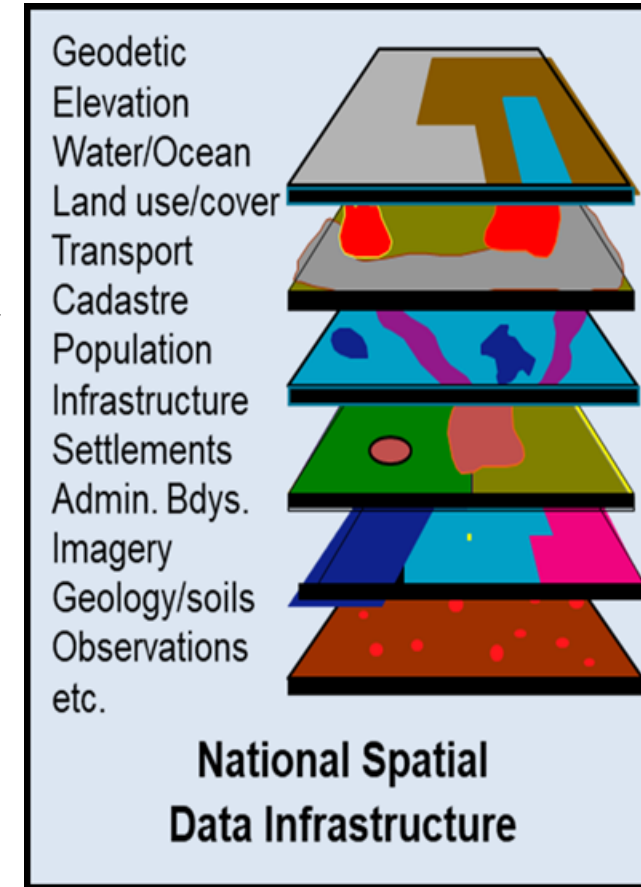
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# IGIF: Linkages to the NSDI

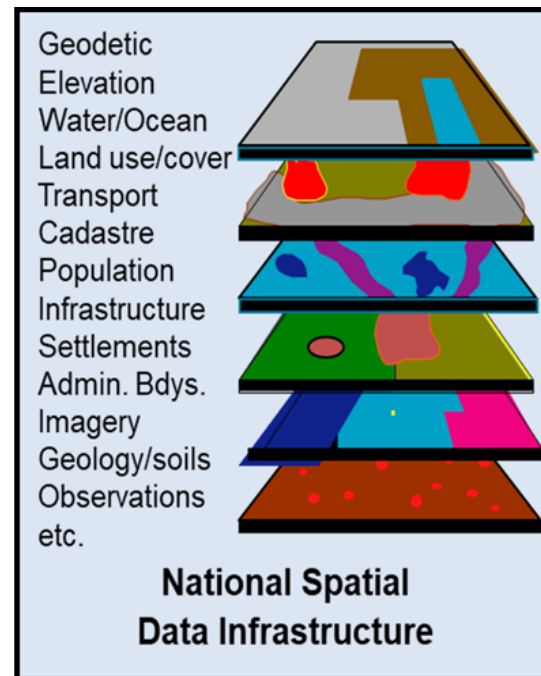
- Virtues of NSDIs are their ability to promote geospatial data sharing throughout all levels of government and society, enabling effective use of geospatial data for sustainable national development and other every day requirements.
- Two factors challenge the limitations of a traditional NSDI:
  1. The growing availability of more data and more data types. Big data, structured and unstructured data, and the potential value of other 'external' data pressure existing NSDI structures. Further, some data are geospatially referenced, others are not.
  2. The need for data integration and analysis. Traditional NSDIs are very structured (silo) repositories of valuable geospatial information, with defined and managed (separate) data sets and themes. Today, these data assets must meet diverse and specific local and national requirements, and need to be 'integrated' with other data and sectors.





# IGIF: Linkages to the NSDI

- The principal focus of NSDIs is geospatial data. What is needed to establish or maintain an integrated national geospatial program is not sufficiently addressed by the NSDI.
- While an NSDI is a core and valuable component, a national geospatial program is much more than the data. The IGIF defines each of the interconnected 9 Strategic Pathways required for an integrated national geospatial program.
- Building on the existing benefits and practices of NSDIs, the IGIF is more comprehensive than the traditional efforts of NSDIs.
- What is the driver for why we have the IGIF rather than the NSDI? More diverse data types and needs that are now more relevant and dependent on geospatial data than were originally considered. This is a reflection of both technology evolution and the new and emerging data ecosystem that is more dependent on a systems approach to 'location' and 'integration'.



**The Framework will augment and build upon existing NSDI arrangements, providing a holistic, integrated national information system-of-systems approach to the data life cycle**



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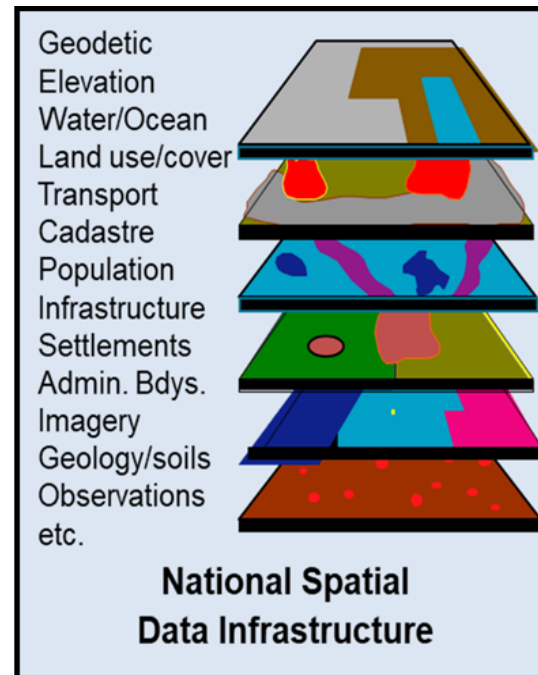
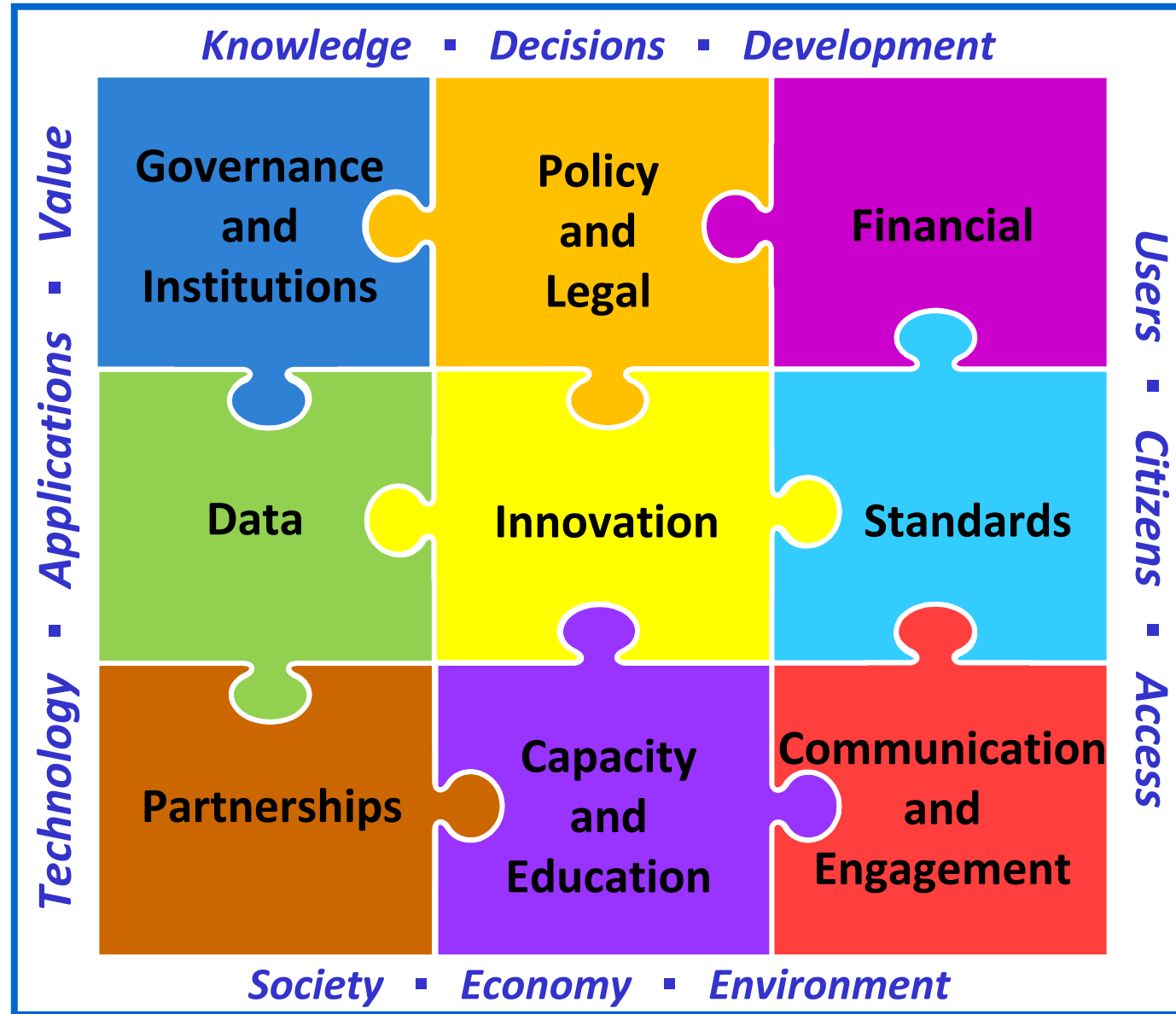
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# 9 Strategic Pathways

Governance →

Technology →

People →



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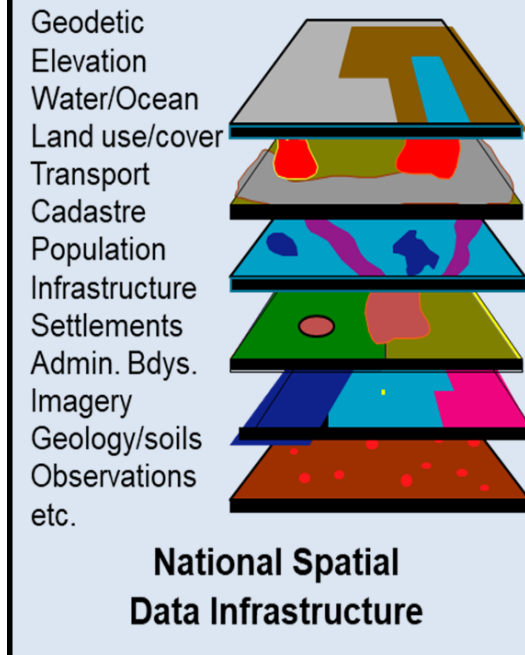
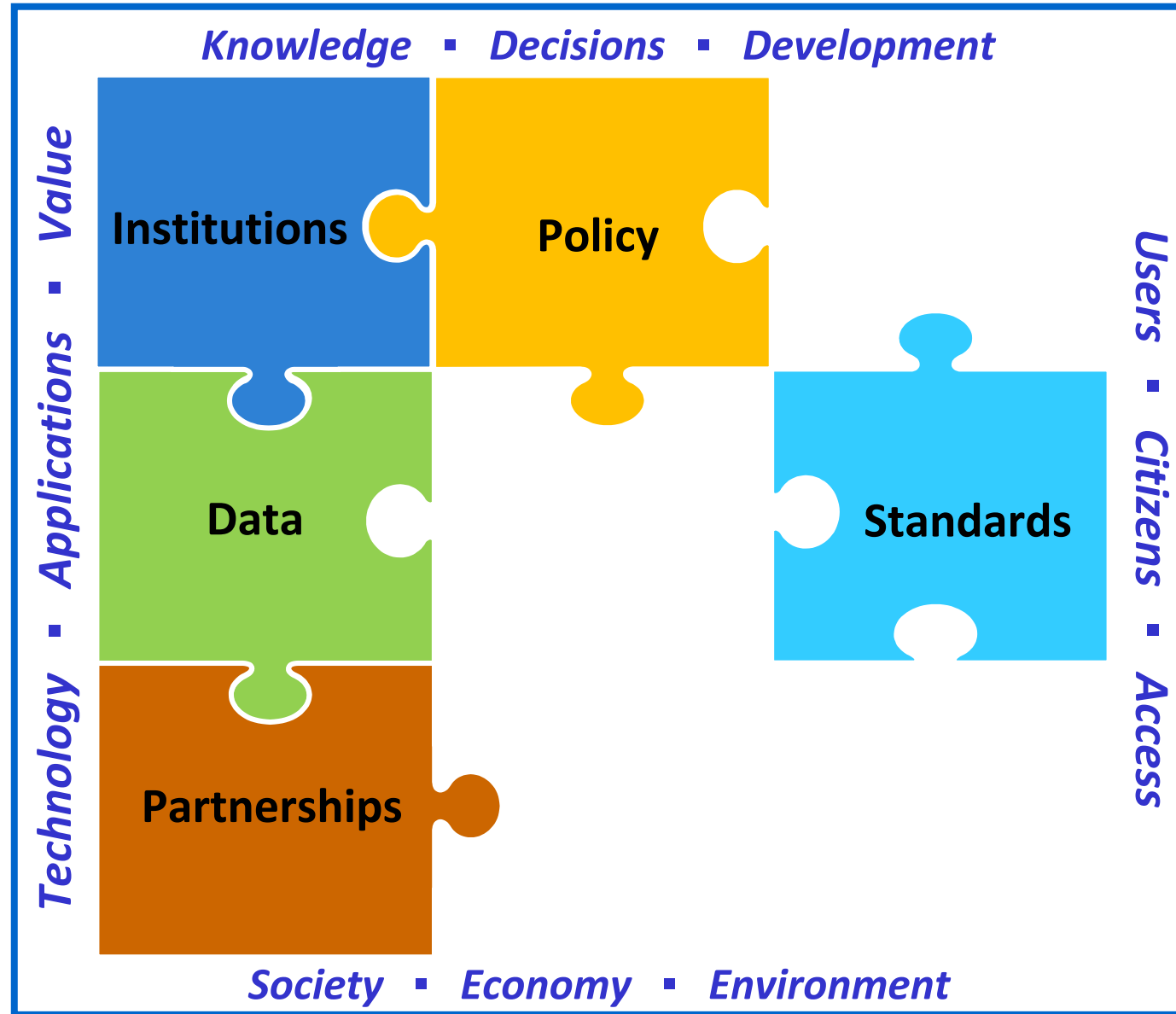


# 9 Strategic Pathways

Governance →

Technology →

People →



“The technology, policies, standards, human resources and related activities to acquire, process, distribute, use, maintain and preserve spatial data” (OMB 2002).



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# IGIF: Linkages to the GSGF



## INPUT

### Geospatial

- Fundamental data
- Supplementary data
- New data sources

### Statistical

- Censuses
- Surveys
- Administrative data records
- Big data and other sources

## PRINCIPLES

- Accessible & usable
- Statistical and geospatial interoperability
- Common geographies for dissemination of statistics
- Geocoded unit record data in a data management environment
- Use of fundamental geospatial infrastructure and geocoding

## KEY ELEMENTS

Standards and Good Practices

National Laws and Policy

Technical Infrastructure

Institutional Collaboration

Integration

Harmonised and standardised information

Interoperability Comparability

Analysis

Diffusion

Decision making

## OUTPUT



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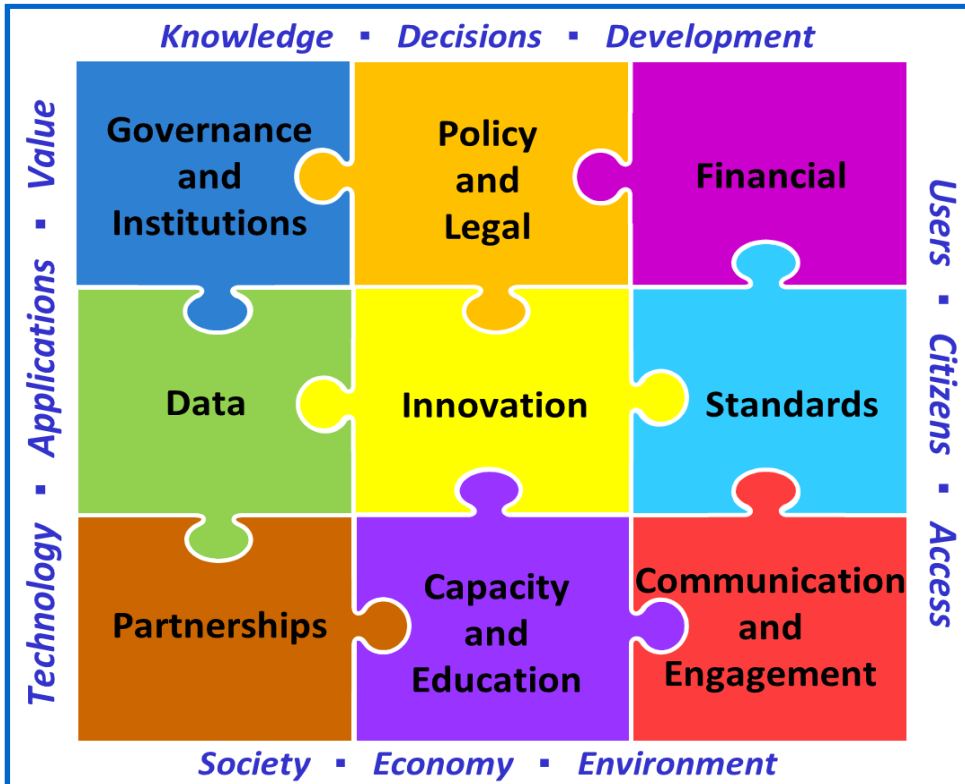
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# Summary



Strengthening geospatial information management will assist countries in bridging the geospatial digital divide, secure socio-economic prosperity, and leave no one behind.

The **Integrated Geospatial Information Framework** is a reference guide for developing and strengthening arrangements in national geospatial information management. It has been designed specifically for low to middle income countries and small island developing States. But, it is also being used to improve and coordinate activities to achieve alignment between and across existing national agency capabilities and NSDIs in developed countries.



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# Implementation Guide - Roadmap Update

- **7-9 August:** Ninth session of UN-GGIM and Information Forum on 6 August.
- **9-11 September:** Sub-Regional Awareness Raising Workshop on the draft Implementation Guide at ECLAC in Santiago, Chile.
- **11 October:** Regional consultation on the Draft Implementation Guide with UN-GGIM Americas at its Sixth Plenary Meeting in Mexico City, Mexico.
- **November 2019:** Initiation of global consultation for the Final Draft Implementation Guide.
- **4-5 November:** Regional consultation on the Draft Implementation Guide with UN-GGIM Asia-Pacific at its Eighth Plenary Meeting in Canberra, Australia.
- **18-22 November:** Regional consultation on the Draft Implementation Guide with UN-GGIM Africa at its Sixth Plenary Meeting in Kigali, Rwanda.
- **February 2020:** Global consultation for the Final Draft Implementation Guide concludes.
- **15-16 February 2020:** Regional Awareness Raising Workshop on the Implementation Guide with UN-GGIM Arab States, preceding its Seventh Plenary Meeting (17-19 February) in Algiers, Algeria.
- **31 March 2020:** Final Implementation Guide completed. To be launched at the UN-GGIM HLF in UK in April 2020. Formally adopted by UN-GGIM at tenth session in August 2020.



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