



OPERATIONALIZING THE INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

INFORMATION SESSION AND REGIONAL CONSULTATION ON THE IMPLEMENTATION GUIDE

SIXTH PLENARY MEETING OF UN-GGIM: EUROPE
BRUSSELS, BELGIUM, 5-6 JUNE 2019



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Overview of this Information Session

1. Adoption of the IGIF Overarching Strategic Framework in August 2018 – and the main elements of the Framework.
2. Progressing the development of the Implementation Guide, initiated during a series of meetings at the World Bank in Washington, DC, from 19-25 March 2019.
3. The conduct and outcomes of a regional consultation on the Implementation Guide with African countries in Addis Ababa, Ethiopia, from 22-25 April 2019.
4. An update on the current status of the Implementation Guide with the Reference Group
5. Where we are today, and what we will be seeking from you.
6. A brief overview of how the IGIF is being integrated into the work activities of UN-GGIM.
7. A brief overview of Country-level Action Plans and related activities.





IGIF: OVERARCHING STRATEGIC FRAMEWORK EIGHTH SESSION OF UN-GGIM

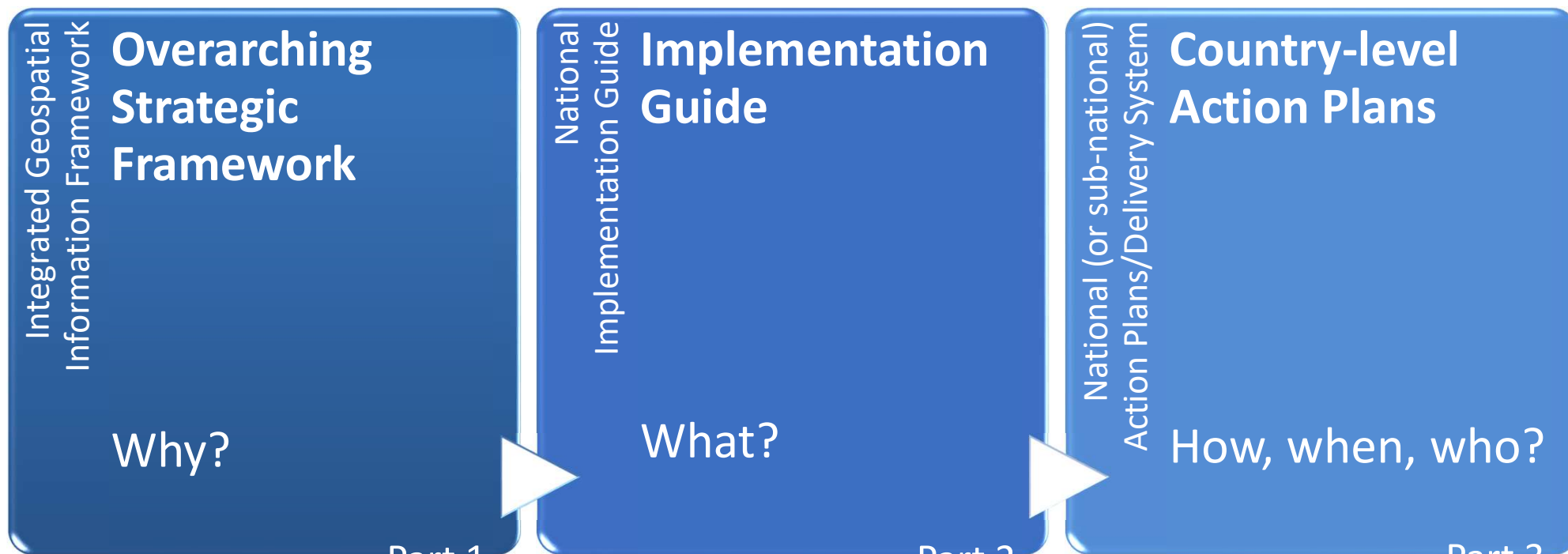


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The **Integrated Geospatial Information Framework (IGIF)** comprises 3 separate, but connected, documents. The **Overarching Strategic Framework** was completed and adopted by UN-GGIM in August 2018. The structure and main elements of the **Implementation Guide** were developed and had ‘in-principle’ approval by UN-GGIM. The **Country-level Action Plans** were work in progress and being developed through case studies.



IGIF: Overarching Strategic Framework

- A forward-looking Framework built on national needs and circumstances.
- Provides the overarching strategic messages and more expansive and integrated national framework, particularly 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 Strategic Framework is a mechanism for articulating and demonstrating national leadership, cultivating champions, and developing the capacity to take positive steps.



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Overarching Strategic Framework: Vision and Mission

The **Vision** recognizes the responsibility for countries to plan for and provide better outcomes for future generations, and our collective aspiration to ‘leave no one behind’.

The **Mission** is designed to stimulate action towards bridging the geospatial digital divide; to find sustainable solutions for social, economic and environmental development; and to influence inclusive and transformative societal change for all citizens according to national priorities and circumstances.

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.



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- **Vision** and **Mission** statements communicate the overarching aim of the Integrated Geospatial Information Framework.
- It does 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.



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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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STRATEGIC PATHWAYS

Governance and Institutions	Legal and Policy	Financial	Data	Innovation	Standards	Partnerships	Capacity and Education	Communication and Engagement
<ul style="list-style-type: none"> Governance model Institutional structures Leadership Value proposition 	<ul style="list-style-type: none"> Legislation Implementation and accountability Norms, policies and guides Data protection and licensing 	<ul style="list-style-type: none"> Business model Investment Partnerships and opportunities Benefits realization 	<ul style="list-style-type: none"> Fundamental data themes Data supply chain interlinkages Custodianship, acquisition and management Data curation and delivery 	<ul style="list-style-type: none"> Technological advances Promoting innovation and creativity Process improvement Bridging the digital divide 	<ul style="list-style-type: none"> Legal interoperability Semantic interoperability Data interoperability Technical interoperability 	<ul style="list-style-type: none"> Cross-sector and interdisciplinary cooperation Community participation Industry partnerships and joint ventures International collaboration 	<ul style="list-style-type: none"> Awareness raising Entrepreneurship Formal education Professional workplace training 	<ul style="list-style-type: none"> Stakeholder identification Planning and execution Integrated engagement strategies Monitoring and evaluation

Knowledge | Decisions | Development | Society | Economy | Environment | Users | Citizens | Access | Technology | Applications | Value

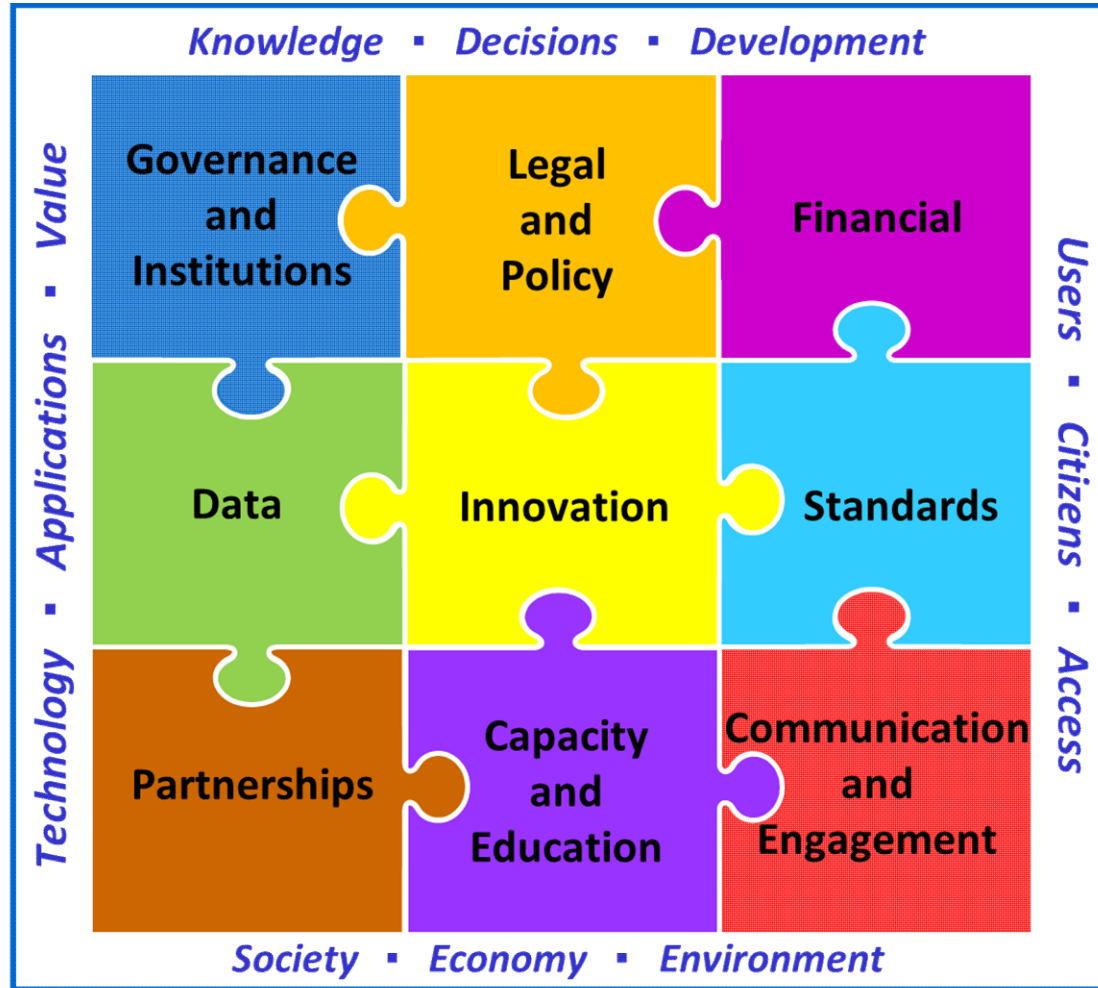


9 Strategic Pathways

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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- 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.
- It does 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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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 being developed as 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.



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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** can be used to establish national geospatial information management arrangements or to improve them. It can also be used to coordinate activities to achieve alignment between existing national agency capabilities and infrastructures.



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DEVELOPING THE IMPLEMENTATION GUIDE INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (IGIF)

19-25 MARCH 2019, WORLD BANK



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Implementation Guide - Foundations

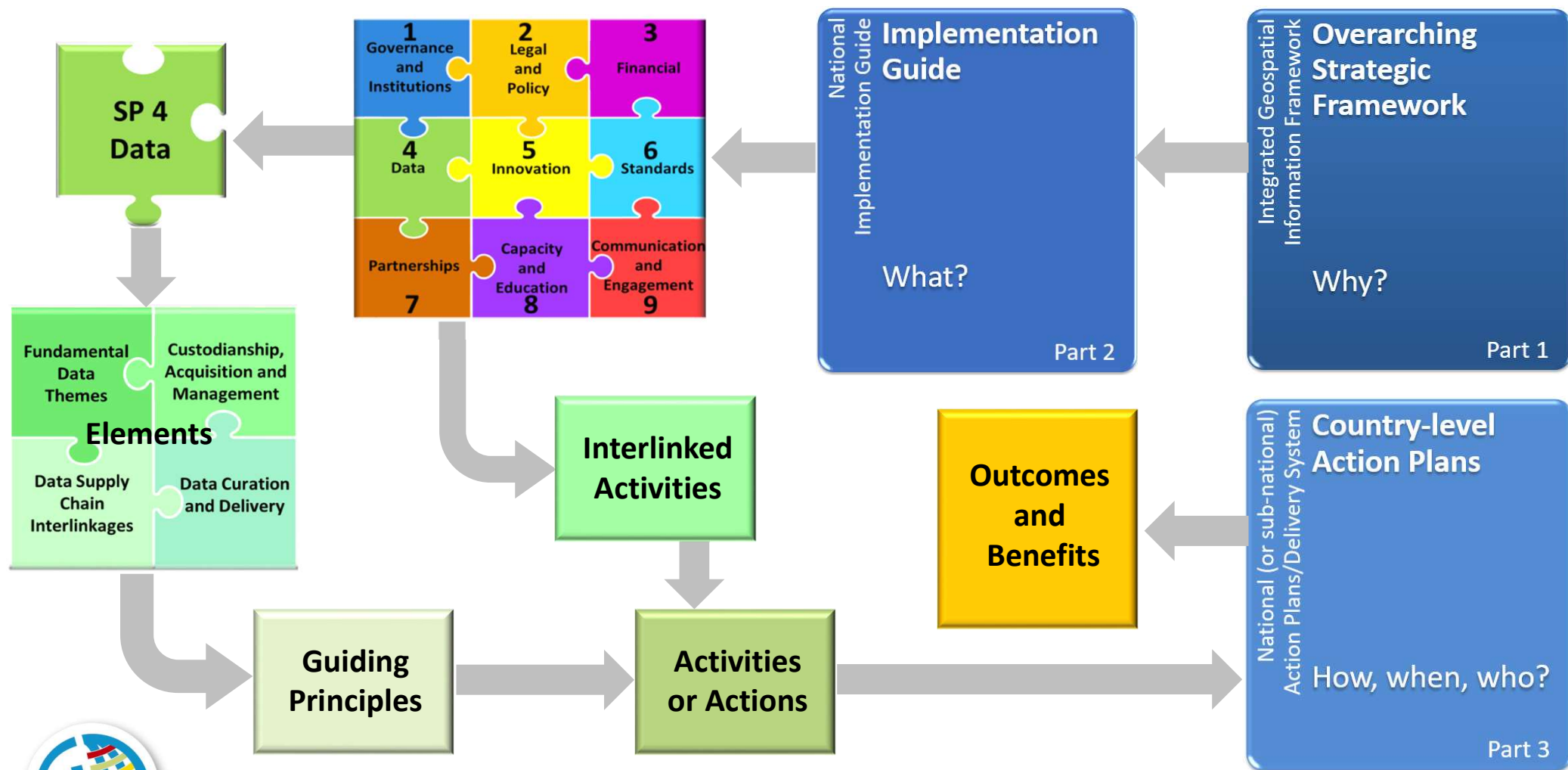
- The Implementation Guide provides the ‘what’, the specific guidance and options to be taken by countries in implementing the IGIF. It captures strategic to operational needs with guiding principles; while not being detailed and prescriptive – Country-level Action Plans do that.
- Expanding on each 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.
- **At its Eighth Session, the Committee of Experts agreed in principle with the structure and main elements of the Implementation Guide, as the detailed document that will provide the specific guidance and options to be taken in implementing the IGIF.**



Implementation Guide - Status March 2019

- UNSD initiated the writing of Strategic Pathways 1, 2, 4, 5, 7, 8 and 9.
- The Standards Organizations (OGC, ISO TC211 and IHO) initiated Strategic Pathway 6. The World Bank initiated Strategic Pathway 3.
- Recognizing the urgency of completing the Implementation Guide and Action Plans in a timely manner, the Committee of Experts supported the suggestion that the **completed documents be provided to the Committee for adoption at its Ninth Session**, in August 2019.
- In December 2018, given the time available and the requirement for a “broad consultation period”, UNSD and the World Bank decided it **not possible to have the Implementation Guide completed and ready for final adoption by the Committee at its Ninth Session**.
- However, it is intended that a final draft will be ready in August 2019 to initiate the broad global consultation with all Member States and relevant stakeholders.

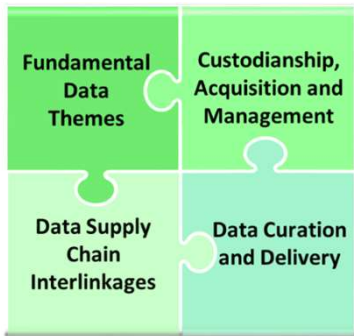




Implementation Guide - Structure

Initial Proposed Document Structure

- Abstract
- Summary
- Introduction
- Context and Rationale
- Approach
- Elements
- Principles
- Activities/Actions and Interlinked Activities
- Outcomes/Benefits
- Appendices



SP4: Data

This strategic pathway establishes a geospatial data framework and custodianship guidelines for best practice collection and management of geospatial information that is appropriate to cross sector and multidisciplinary integration and 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, curating, publishing and archiving geospatial information.



Data is the fuel of a digital nation, used in policy development, services and business. Data that has associated 'location' can be integrated to solve complex challenges. Every part of government creates and consumes data; it is an asset that must be designed, managed and used. Pathway 4 explains principles and actions that enable effective and efficient data management.

There are four key elements to this pathway.

- (1) Determining national geospatial data requirements and existing gaps, based upon globally endorsed fundamental geospatial data themes.
- (2) Understanding how it should be managed by appointed custodians across government, so that there is clarity on who is responsible for maintaining and managing the governments different data sets securely, and for making them available across government
- (3) Defining data supply chains, so that custodians are clear on the means to collect and make quality data available across government. This includes the means for data discovery and integrating data.
- (4) Building the infrastructure to capture quality data, including the nations geodetic network to allow effective and efficient data capture

Underpinning this pathway is the driving principle to create single sources of geospatial data, trusted and used by all. In so doing the door is opened to efficient integration of data from different sources across government.



National Implementation Guide

Implementation Guide

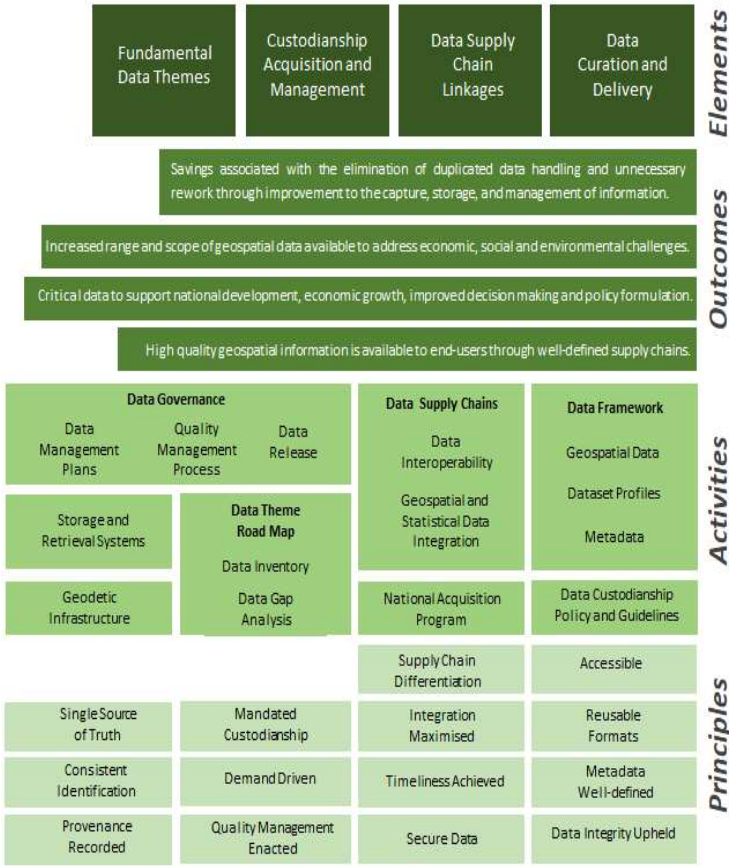
What?

Part 2

Implementation Guide - Structure

Initial Proposed Document Structure

- Abstract
- Summary
- Introduction
- Context and Rationale
- Approach
- Elements
- Principles
- Activities/Actions and Interlinked Activities
- Outcomes/Benefits
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Implementation Guide - Agreement

1. We have established an 'IGIF Reference Group' going forward.
2. The IGIF is for all (high-level concepts) and a sound foundation. The 9 Strategic Pathways are good and to be built upon.
3. The 4 Elements in each of the Strategic Pathways also work in anchoring the Guide.
4. 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.
5. The Guide will provide the 'what', the specific guidance and options to be taken in implementing the IGIF.
6. The Guide will 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.



Implementation Guide - Agreement

7. Who is the Implementation Guide for, what is the ultimate objective, and what is the level of detail? It is a Guide that is descriptive and not prescriptive. We need to ensure we are not being too prescriptive!!! It has to be guidance – there should be flexibility.
8. The pieces and relationships need to be understood: IGIF; Guide; Appendices; Country-level Action Plans. Every country will be different in their response. Every country has a vision and/or strategy. The elements of the Guide will feed into these.
9. The initial proposed Guide ‘structure’ shape is suitable, and will be expanded to 10 Chapters.
10. Chapter 1 will be the Index: describe and explain the flow and structure of the Guide; bring each of the introductory diagrams together; look at interlinkages across each of the Strategic Pathways; address NSDI perspectives; and articulate the ‘level of detail’ of the Guide.
11. The remaining chapters of the Guide will begin with a Summary (to articulate the value proposition the pathway can offer) with a parable (to tell a good story); and an Introduction that includes a schematic flow diagram.



Reference Group Strategic Pathway Task Groups

	Index	SP#1	SP#2	SP#3	SP#4	SP#5	SP#6	SP#7	SP#8	SP#9
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	* 2	Lantmateriet, Sweden						* <i>OGC (co-opted)</i>		
										Fiona Booth*
										* <i>UK Geospatial Consortium (coopted)</i>

Implementation Guide - Roadmap

- **19-23 March:** Convene Expert Review Group for the first draft of the Implementation Guide.
- **25 March:** Consultation/Information Session on the draft Implementation Guide at World Bank Land and Poverty Conference.
- **22-25 April:** Regional consultation on the draft Implementation Guide with UN-GGIM: Africa.
- **22-26 April:** FIG Working Week in Hanoi. World Bank convene a session on the IGIF and Action Plans.
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OPERATIONALIZING THE INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

REGIONAL CONSULTATION WITH AFRICAN COUNTRIES ON THE IMPLEMENTATION GUIDE

UNECA CONFERENCE CENTRE, ADDIS ABABA, ETHIOPIA
22-25 APRIL 2019



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TESTING THE IMPLEMENTATION GUIDE

TOPIC 1: GOVERNANCE

Strategic Pathways: Governance and Institutions, Legal and Policy, Finance



What is your initial reaction to the structure, form, and content for the pathways on Governance?

The Implementation Guide will provide the 'what', the specific guidance and options to be taken in implementing the IGIF. It will 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.

Topics for discussion on these 3 Strategic Pathways may include (but are not limited to) the following:

- Are there additional topics that should be considered?
 - Do we have the right elements?
- Do we have the structure correct?
- Is the proposed format of the Guide effective?
 - How do we balance guidance and options without being too detailed and prescriptive?
 - Is it too detailed or too general?
 - What do YOU need? How flexible should it be?
- What are the STRENGTHS?
- What are the WEAKNESSES?
- What are the OPPORTUNITIES?
- What are the THREATS?
- Who should the Guide be for?

ENVIRONMENTAL SCANNING

1. Purpose

Environmental scanning is an assessment of the internal and external factors having an impact on geospatial information management. Understanding the broader environment may lead to the identification of new opportunities, and strategies or actions to deal with any issues that are a threat to the success of the Country Action Plan.

Environmental Scanning is achieved using the PEST and SWOT Analysis Tools and is best undertaken with a group of stakeholders, and ideally in a workshop setting. Having a facilitator who is not a participant will help to manage the success of the workshop.



Environmental Scan - PEST and SWOT Analysis

The challenges, gaps and opportunities identified during the PEST and SWOT are to be reflected in the 'Needs Assessment and Gap Analysis Report'.

2. PEST Analysis

The PEST Analysis considers the external environment and focusses on the Political, Economic, Social and Technology issues that may have a positive or negative impact on the implementation of integrated geospatial information management.

An example of issues that may be raised during a PEST Analysis are presented below.

POLITICAL	ECONOMIC	SOCIAL	TECHNOLOGICAL
<ul style="list-style-type: none">• Safer Country• Policy and legislation• E-Government• Regional Needs• Sufficient government support and Funding• Copyright and Intellectual Property• Value & importance to the country	<ul style="list-style-type: none">• Investment Opportunities for revenue growth• Savings• Modernization and maintenance• Professional Skills• Plant, equipment and personnel availability• Public-Private Partnerships	<ul style="list-style-type: none">• Institutional Culture• Community needs• Intergenerational issues• Geographic and geospatial education capacity• Computer literacy• Community safety	<ul style="list-style-type: none">• Data quality• Legislation• Technology level• Power (utilities) availability• Broadband capacity• Standards, Metadata etc.• Innovation



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, curating, publishing and archiving geospatial information.

Preamble

Geospatial data is the foundation on which governments base many decisions. It is used for policy development and in the provision of government services. Its use is growing exponentially across all sectors for data-driven business intelligence to make timely and accurate decisions.

Having access to the right data and at the right time is crucial to good decision-making. It provides new levels of insight into our past, present and future. For this reason, governments, businesses and the community need to know they are using the most accurate data for planning, analysis, navigation and visualisation - good data makes for good decisions.

Getting geospatial data holdings organized has never been more important. Geospatial data has grown in use across almost every market and institution. Every part of government creates and consumes geospatial data. It is an asset that must be properly governed, designed, and managed to provide consistency in quality, accuracy, security and use.

An ecosystem that fosters the proper collection, acquisition and management of geospatial data, leads to cutting-edge innovation and

Brainstorming by the African Group
in April at Addis Ababa

Outcomes

- Increased range and scope of data available for decision-making and policy setting
- A critical mass of data for national development and innovation
- Cost avoidance and productivity improvement
- Ability to monitor and measure progress towards achieving SDGs

Elements

- Data Themes
- Custodianship, Acquisition and Management
- Data Curation and Delivery
- Data Supply Chain Interlinkages

Principles

- Mandated Custodianship
- Consistent Identification
- Quality Management Enacted
- Metadata Well-defined
- Integration Maximized
- Accessible Data
- Reusable Formats
- Single Sources of Truth
- Timeliness
- Integrity Upheld
- Demand Driven
- Supply Chain Visibility
- Data Security
- Rights Respected

Actions

Getting Organised

- Data Framework
- Data Inventory
- Dataset Profiles

Planning for the Future

- Data Gap Analysis
- Data Theme Road Map

Capturing and Acquiring data

- Data Capture
- Data Acquisition Program

Managing Data Sustainably

- Custodianship Policy and Guidelines
- Data Governance
- Maintained Metadata
- Storage and Retrieval Systems
- Data Release

Maintaining Accurate Positioning

- Maintained Geodetic Infrastructure

Integrating Data

- Geocoding and Aggregation
- Formalised Data Supply Chains

Tools

- Data Theme Description Template
- Data Inventory Questionnaire
- Dataset Profile Template
- Data Theme Road Map Example
- Gap Analysis Matrix
- Data Management Plan Elements
- Metadata Creation Checklist
- Global Statistical Geospatial Information Framework
- Custodianship Policy Example
- Data Release Guidelines

Interrelated Actions

- Geospatial Strategy (SP1)
- Country Action Plan (SP1)
- IGIF Governance Model (SP1)
- Geospatial Steering Committee (SP1)
- Geospatial Information (SP1) Coordination Unit
- Policy Framework (SP2)
- New Capture Methods (SP5)
- Global Geodetic Reference Frame (SP5)
- Crowdsourcing (SP5)
- Data Standards (SP6)
- Storage Solutions (SP5)
- Data Partnerships (SP7)
- Capacity Assessment (SP8)
- Identify Key Stakeholders (SP9)

Getting Organised

- Data Framework
- Data Inventory
- Dataset Profiles
- Data Theme Description Template (4.1)
- Data Inventory Questionnaire (4.2)
- Dataset Profile Template (4.3)
- Geospatial Strategy (SP1)
- Metadata Standards (SP6)

Planning for the Future

- Data Gap Analysis
- Data Theme Road Map
- Gap Analysis Matrix
- Data Theme Road Map Example
- Geospatial Strategy (SP1)
- Country Action Plan (SP1)

Integrating Data

- Geocoding and Aggregation
- Formalised Data Supply Chains
- Global Statistical Geospatial Information Framework
- Identify Key Stakeholders (SP9)
- Data Partnerships (SP7)

Maintaining Accurate Positioning

- Maintained Geodetic Infrastructure
 - Geodetic Strategy
 - Legislation, Regulation, standards and Guidelines
 - Densified CORS Network
 - Digitized Geodetic Records
 - Audited Infrastructure
 - Datum Management
 - Legal Traceability
- Metadata Creation Checklist (4.7)
- Global Geodetic Reference Frame (SP5)

Capturing and Acquiring Data

- Data Capture
- Data Acquisition Program
- Metadata Creation Checklist (4.7)
- New Capture Methods (SP5)
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Managing Data Sustainably

- Custodianship Policy and Guidelines
- Data Governance
- Maintained Metadata
- Storage and Retrieval Systems
- Data Release
- Data Management Plan Elements (4.6)
- Custodianship Policy Example (4.10)
- Data Release Guidelines (4.11)
- IGIF Governance Model (SP1)
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- Storage Solutions (SP5)

Brainstorming by the African Group
in April at Addis Ababa

General Comments

- The IGIF is a valuable resource. The needs for stronger mandates are important in Africa. What are our challenges? We need to articulate them. What do we do about the lack of policy development? How do we message the strategies and policies? How do we guide implementation?
- The IGIF provides a coordinated and coherent approach to providing geospatial information to countries and users. Difficulty in bringing all stakeholders and institutions together. Lack of coordination among the related agencies. Lack of awareness of geospatial information by partners, stakeholders and users.
- The IGIF provides the opportunity to ensure availability of data among all stakeholders. Recognizes the need for data sharing as a strength. It describes potential benefits and value for money for the investment.
- A strength of SP1: Governance is that it provides a means for countries to impose/order arrangements or collaborations between institutions. Changes in government influence institutional stability and could impact/influence continuity of national geospatial development. Recognized possible capability of the state to enforce laws?
- Benefit – IGIF contributes to reducing the cost of governance and minimizes duplication of effort and management of data.
- Data Protection and Licensing should be less ambiguous. Needs more clarification with regard to data sharing. Policies and laws will assist in the implementation of the IGIF.
- We need to take into account the regional aspects and dimensions of the IGIF. Catering for the region.
- Can we try to have the IGIF emphasized and presented to the General Assembly for endorsement?





OPERATIONALIZING THE INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK UPDATE ON THE IMPLEMENTATION GUIDE



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IGIF: Implementation Guide Consultations

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Positioning geospatial information to address global challenges

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Contextual Information - IGIF Reference Group

1. These next slides build upon discussions by the IGIF Reference Group in Washington in March 2019 regarding the agreed 'shape, form and structure' of the Implementation Guide.
2. Following numerous discussions, the 'SP1: Governance and Institutions' Chapter provided the final structure that we are now wanting to incorporate into all of the remaining Chapters.
3. We have applied this structure to SP7: Partnerships; SP9: Communication and Engagement; and SP4: Data; and will roll these out progressively (SP8 and SP3 next) across the remainder of the Chapters in the coming weeks in preparation for the meetings in Kuala Lumpur.
4. We are conscious that we may NOT get all of these entirely completed for Kuala Lumpur, but hope to have at least 6 of them done, and the remainder making very good progress.
5. We intend to 'workshop' the Index Chapter while in Kuala Lumpur. The Index will describe and explain the flow and structure of the Guide; bring each of the introductory diagrams together; look at interlinkages across each of the Strategic Pathways; articulate the 'level of detail' of the Guide.

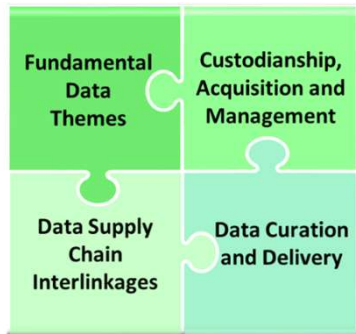


IGIF: Implementation Guide

Initial Proposed Document Structure

- Abstract
- Summary
- Introduction
- Context and Rationale
- Approach
- Elements
- Principles
- Activities/Actions and Interlinked Activities
- Outcomes/Benefits
- Appendices

Guide Structure agreed by the Reference Group in March at the World Bank



SP4: Data

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

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

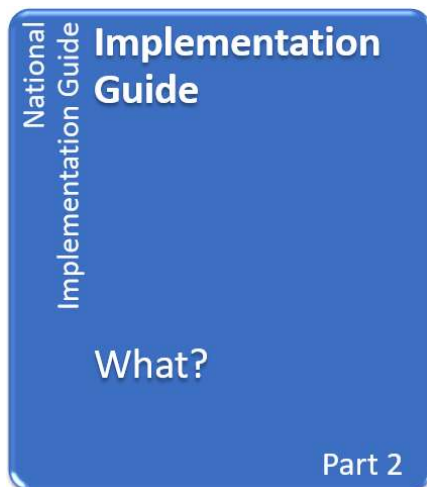
Data is the fuel of a digital nation, used in policy development, services and business. Data that has associated 'location' can be integrated to solve complex challenges. Every part of government creates and consumes data; it is an asset that must be designed, managed and used. Pathway 4 explains principles and actions that enable effective and efficient data management.

There are four key elements to this pathway.

- (1) Determining national geospatial data requirements and existing gaps, based upon globally endorsed fundamental geospatial data themes.
- (2) Understanding how it should be managed by appointed custodians across government, so that there is clarity on who is responsible for maintaining and managing the governments different data sets securely, and for making them available across government.
- (3) Defining data supply chains, so that custodians are clear on the means to collect and make quality data available across government. This includes the means for data discovery and integrating data.
- (4) Building the infrastructure to capture quality data, including the nations geodetic network to allow effective and efficient data capture

Underpinning this pathway is the driving principle to create single sources of geospatial data, trusted and used by all. In so doing the door is opened to efficient integration of data from different sources across government.





The 'final' Guide Structure as aligned to what we agreed in March

Proposed Document Structure

- **Abstract**
- **Summary**
- **1.1 Introduction**
- **1.2 Context and Rationale**
- **1.3 Approach**
- **1.4 Elements**
- **1.5 Principles**
- **1.6 Actions**
- **1.7 Deliverables**
- **1.8 Outcomes**
- **1.9 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 a computer, tablet and smartphone.

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.

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.



The first 3 pages of the Chapter define the high-level “Summary”, and can be used as a stand-alone flyer if required.

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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.



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 IGIF, and create a governance process for assuring effective management responsibilities for the enterprise.
- **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.
- **Value Proposition** - that measures, monitors, and communicates the economic benefit of integrated geospatial information to national priorities including citizen and societal benefits.

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 an Integrated Geospatial Information Framework. 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 below.

When implemented the actions (and their interrelated actions¹) 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 institutional mandates and political buy-in;
- A cooperative data sharing environment; and
- A shared understanding of the value of integrated geospatial information management.

¹ The interrelated actions across all Strategic Pathways are described in detail in Chapter X, the Index Chapter.

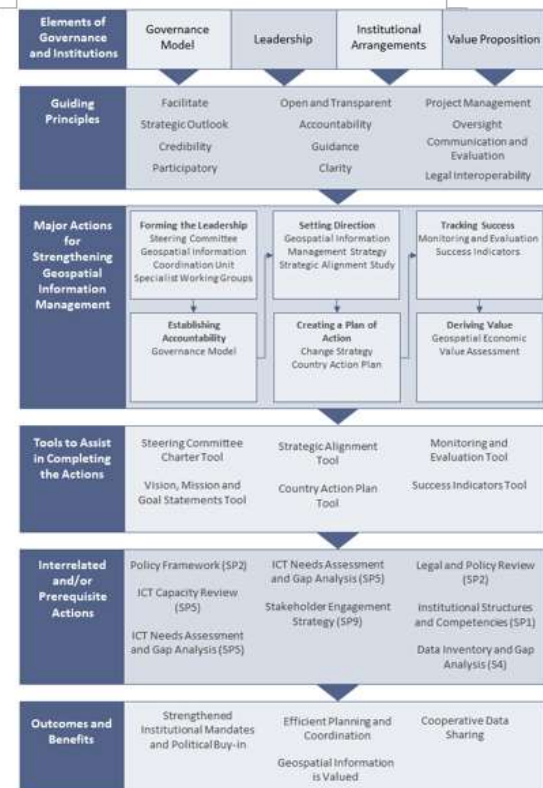
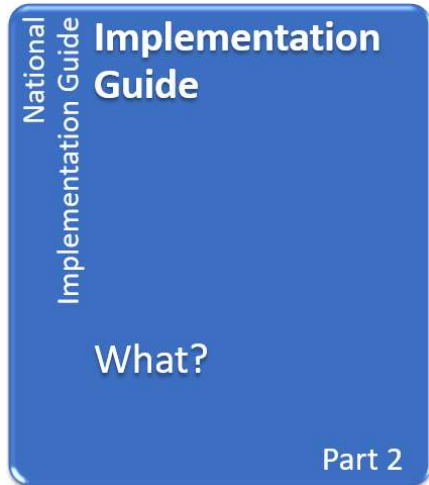


Figure 1.1 The overall structure for governance and institutional arrangements - showing the four key elements, guiding principles, actions and interrelated actions, and the tools provided in the appendices to support the achievement of outcomes.



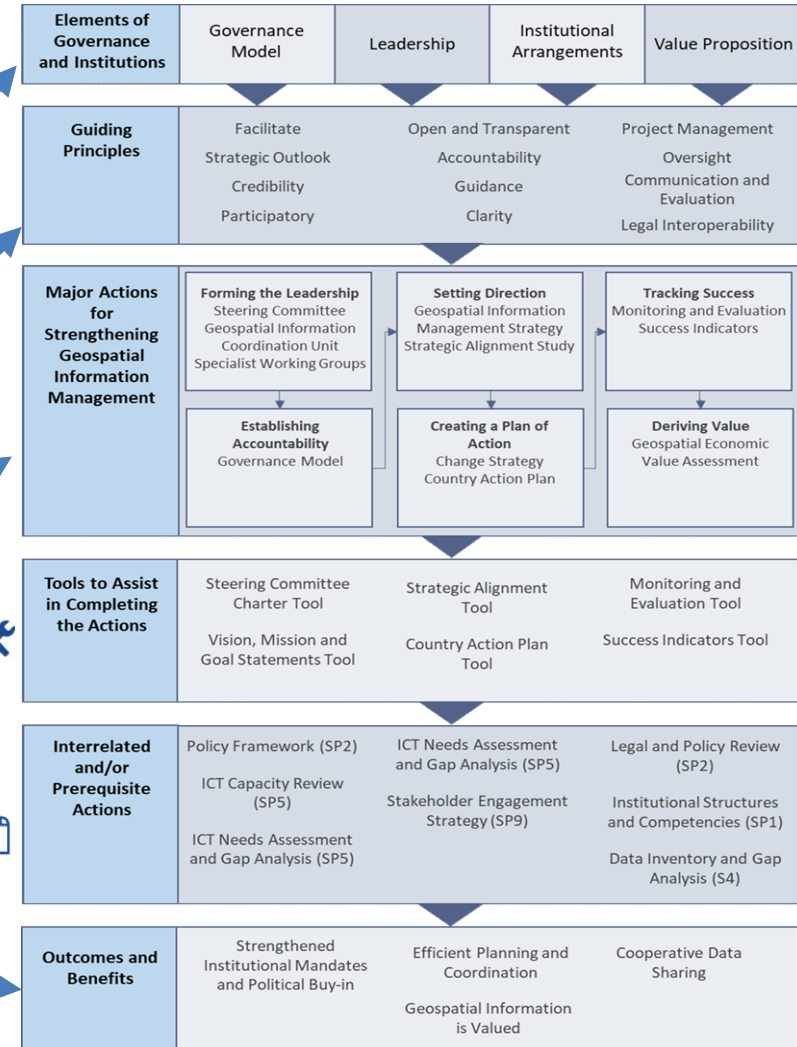


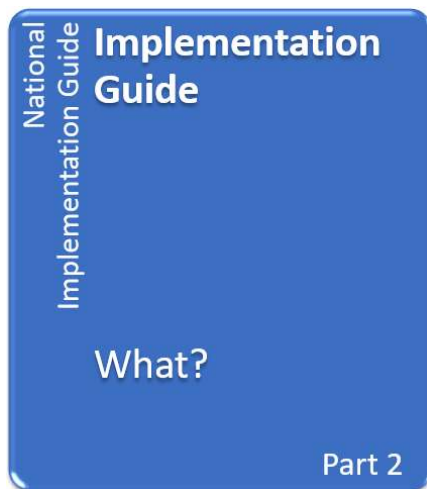
The overall structure diagram for the Chapter as part of the 3-page Summary. Shows what is in the Chapter and relevance between sections

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

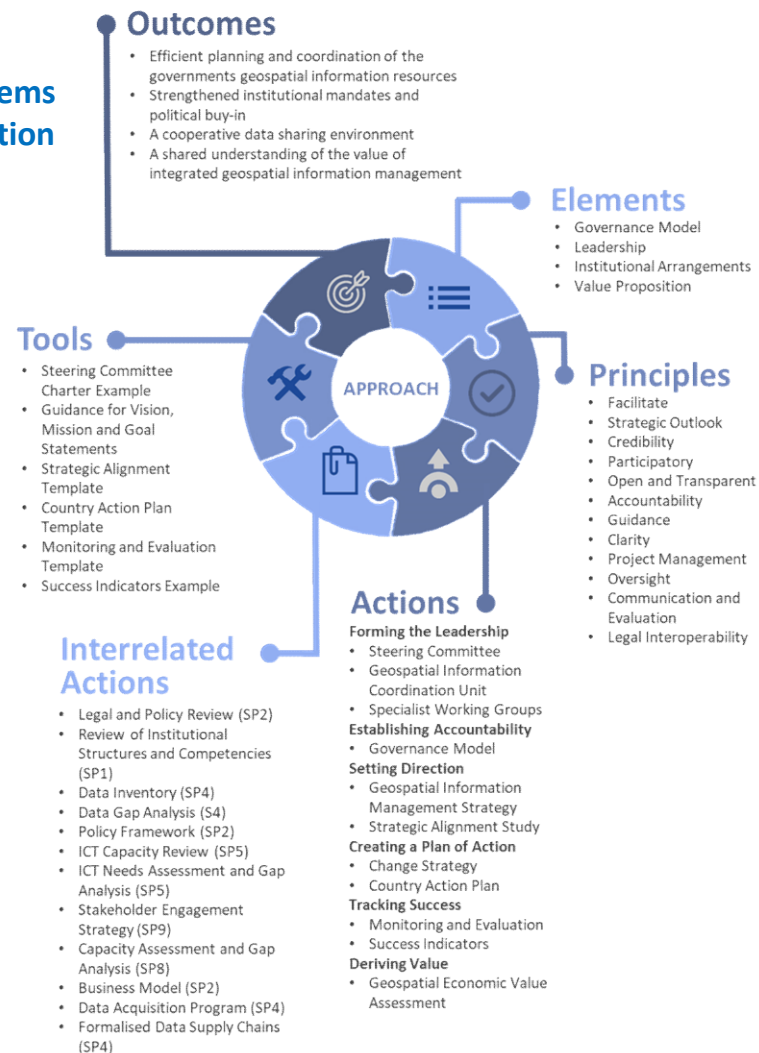




The Approach to the Chapter. Repeats what is in the Summary diagram, but goes into more detail. Items here will be hyperlinked for ease of search and navigation

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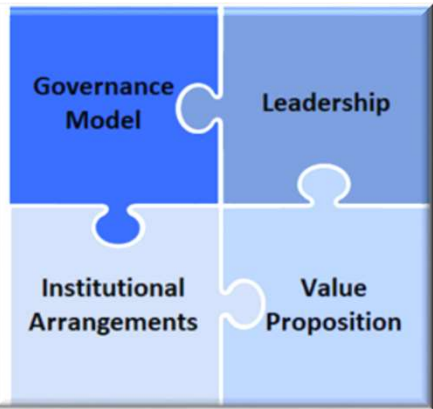


National Implementation Guide

Implementation Guide

What?

Part 2

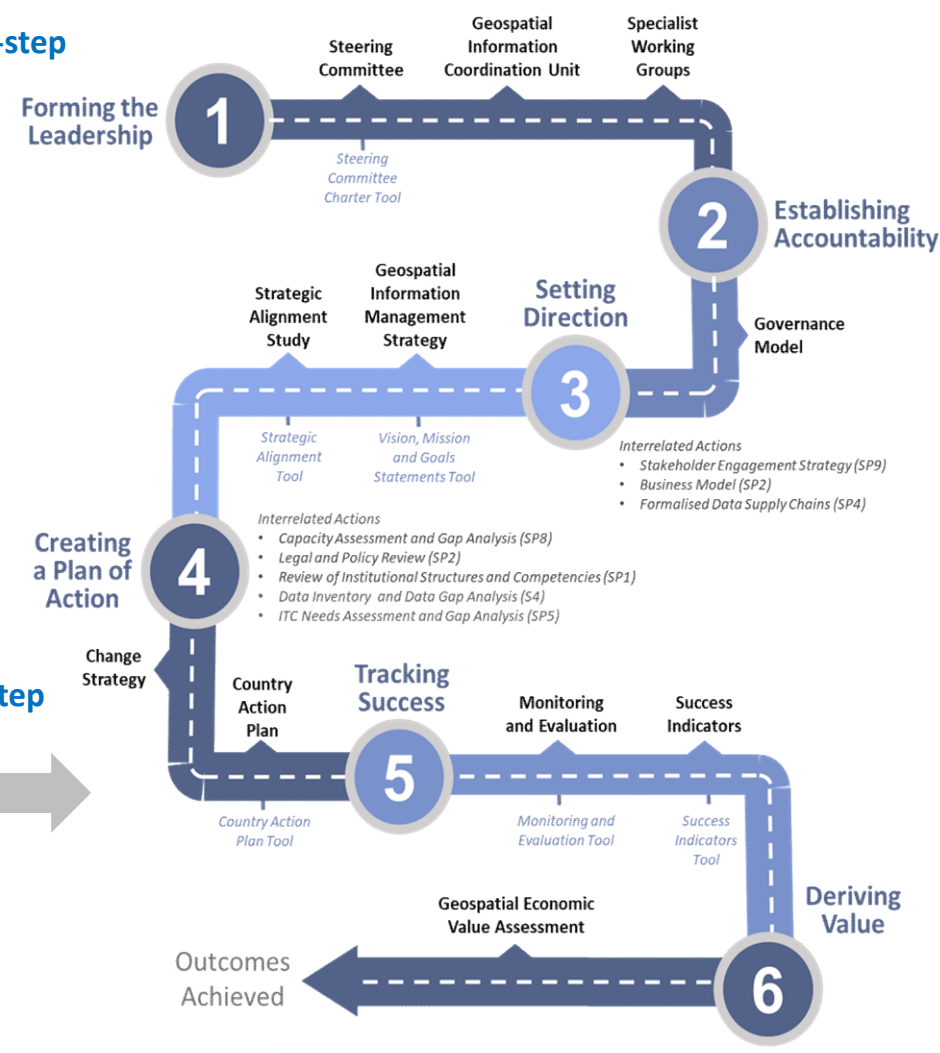


The Actions as a sequential 'step-by-step' road map that links the actions and recommended steps

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The "Actions" as a sequential step-by-step road map

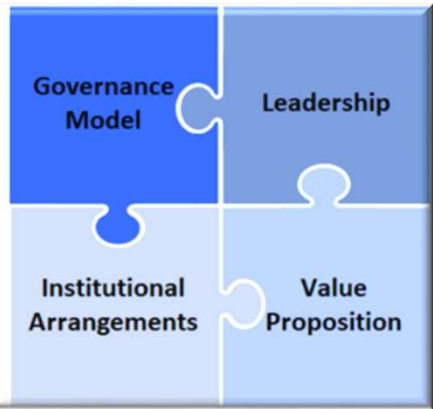


National Implementation Guide

Implementation Guide

What?

Part 2



Actions repeated here as a different schematic, but with more detail regarding the 'Tools' and 'Interrelated Actions'. Will be hyperlinked for ease of search and navigation

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Explaining the Diagrams - IGF Reference Group

As discussed in March at the World Bank, we have at the back of our minds that key components of the Strategic Pathways will be put into slide decks and/or flyers.

Having some consistent and authoritative diagrams within the Chapters will enable countries to pick and choose which ones they use, and how they use them, for communication – both upwards to leaders, and downwards to staff.

With reference to the ‘SP1: Governance and Institutions’ document provided:

1. Figure 1.1: We are adhering to an overall Structure Diagram right at the start as agreed in Washington, DC. This is still very important and also forms part of the Summary.
2. Figure 1.2: The Approach breaks down the pieces that are summarized in Figure 1.1, but goes into more detail.
3. Figure 1.3: Explains the structured step-by-step road map process that some countries may prefer. Also colour coded to the jigsaw circles in Figure 1.4.
4. Figure 1.4: Provides another way of looking at Figure 1.3, but in a less structured way and with more detail regarding the ‘Tools’ and ‘Interrelated Actions’.



Explaining the Diagrams - IGF Reference Group

It is intended that Figures 1.2 and 1.4 will have all of the text elements ‘hyperlinked’ to the correct reference points in the document and/or the interrelated actions, etc. This will save searching through pages unnecessarily if readers just wish to focus on a certain aspect or topic, such as a particular action. They will only want to search items of immediate interest and need. This will help considerably in the efficient use and navigation of the documents.

You will note that with the diagrams, there is overlap in content. That is intended. By having more in there, it then enables our community to choose and decide what the right balance is when we have the global consultations. By only having one particular diagram style over another, we may be limiting the options that countries may wish to consider.

We are seeing that a challenge for the Chapters is that some want a sequential/prescriptive structure that guides you what to do step-by-step. While other countries may start at different steps and may not want it so structured – where you start at 1 and finish at 6 for example.









































Countries may want to start at step 2, then 3, then go to step 1, etc. So now we have incorporated the step-by-step and the connections with the jigsaw circles as options.



What to do Now - IGF Reference Group

- We have provided a PDF version of SP1: Governance and Institutions and SP7: Partnerships for information and pre-reading for today, and also for Kuala Lumpur.
- We now are seeking feedback from the Task Groups for the remaining Strategic Pathway Chapters!! **Please just concentrate on the content, not the format and/or look and feel.**
- **We will format all of the Strategic Pathway Chapters and design all of the diagrams.**
- **We now require a “status update” from each of the Task Group leads so that we have an understanding of each Chapter’s development. Can we please get that ASAP!!**
- We are hoping to have all 9 Strategic Pathway Chapters ready (in some shape) for review in Kuala Lumpur – where we will be then concentrating on content.
- At that time (in Kuala Lumpur), we will consider the following:
 - What has been accomplished?
 - What information is missing?
 - What needs amending?
 - What needs enhancing?
 - What work remains going forward, and who does what?



Strategic Pathways	Content created and provided	Review – Content and editorial	Review – Consistency and proofing	First Draft ready
#0 – Index Chapter				
#1 – Governance and Institutions				
#2 – Policy and Legal				
#3 – Financial				
#4 – Data				
#5 – Innovation				
#6 – Standards				
#7 – Partnerships				
#8 – Capacity and Education				
#9 – Communication and Engagement				

Some Key Points!

- This is a journey!! It is a maturing process. We are **ALL** learning and adjusting as we go along.
- We do NOT have to make the Implementation Guide perfect....yet. 80% is OK.
- The broad global consultation will bring modifications and adjustments, and determine the final look and feel. We will also need to modify Part 1: Overarching Strategic Framework.
- The strength of this group (UN-GGIM: Europe) is to consider how you can (and are) help and guide the developing world to strengthen and modernize their national geospatial information arrangements.



Every journey begins with the first step.



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OPERATIONALIZING THE INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK IMPLEMENTATION GUIDE – TODAY!!



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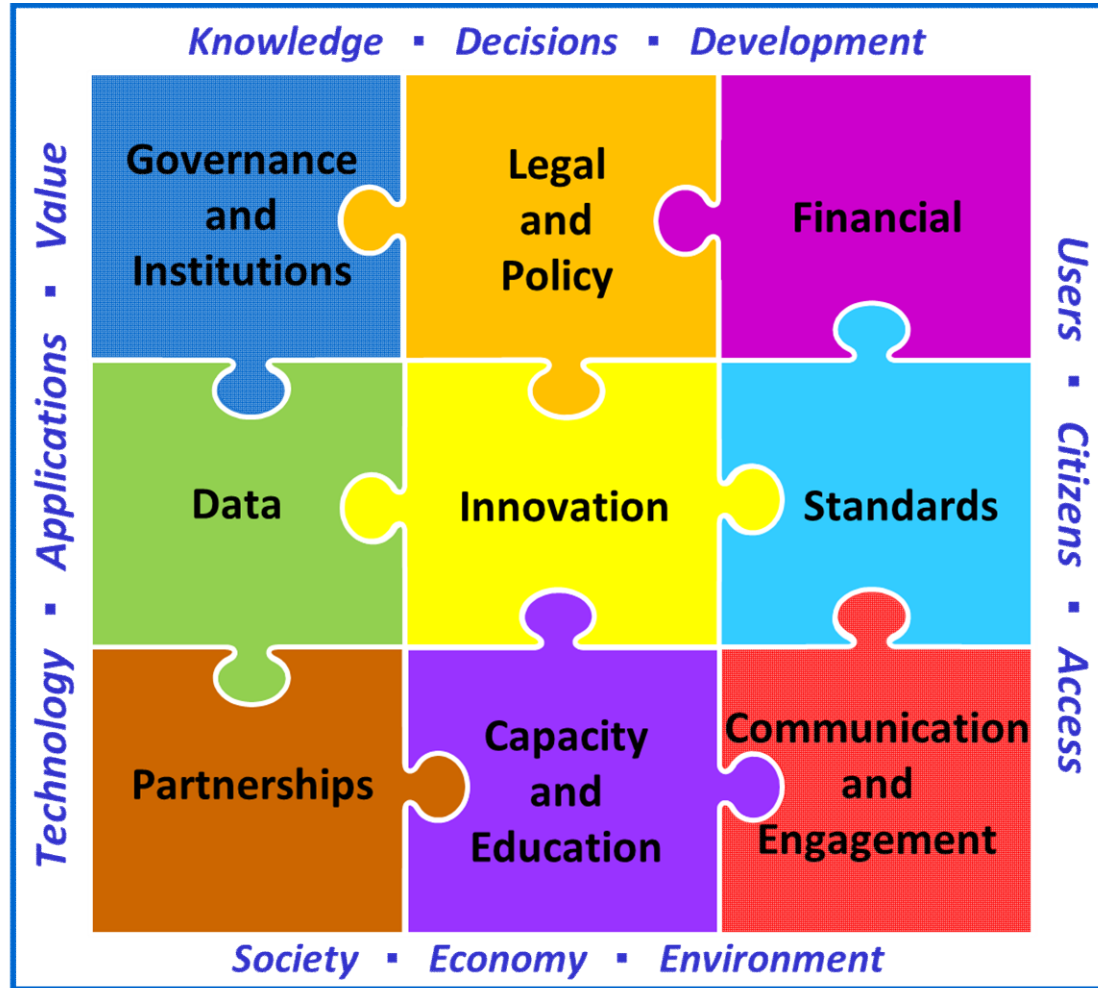
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9 Strategic Pathways

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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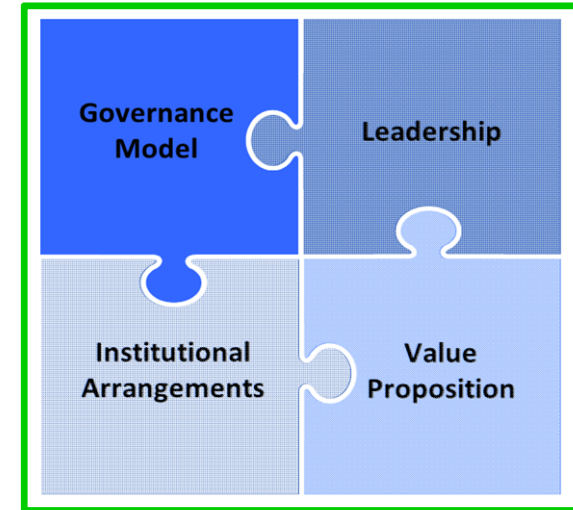
Governance and Institutions

Strategic Pathway 1

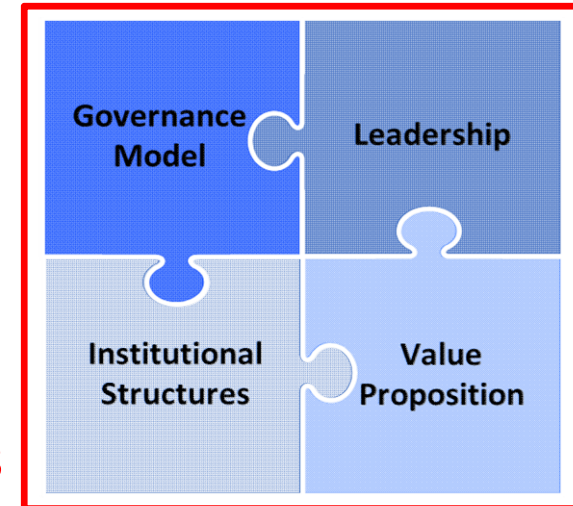
Establishes the leadership, governance model, institutional arrangements and a clear value proposition as a means to strengthen multi-disciplinary and multi-sectoral participation and a commitment to achieving an Integrated Geospatial Information Framework.

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.

2019



2018

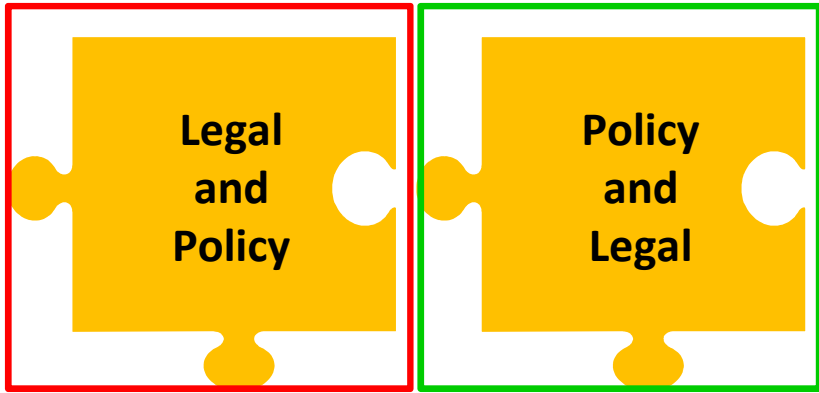


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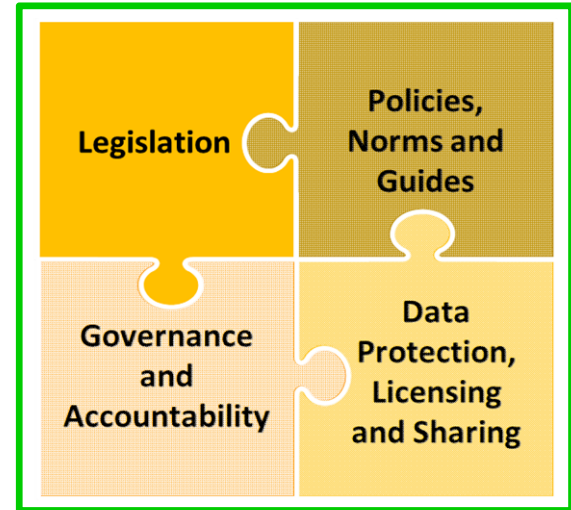
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Strategic Pathway 2

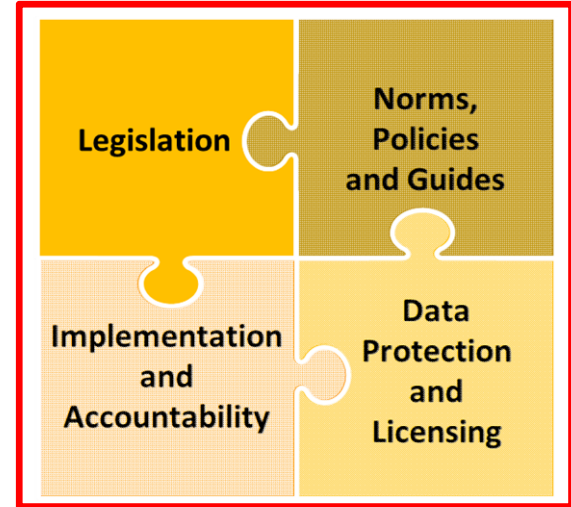
2019



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.

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

2018



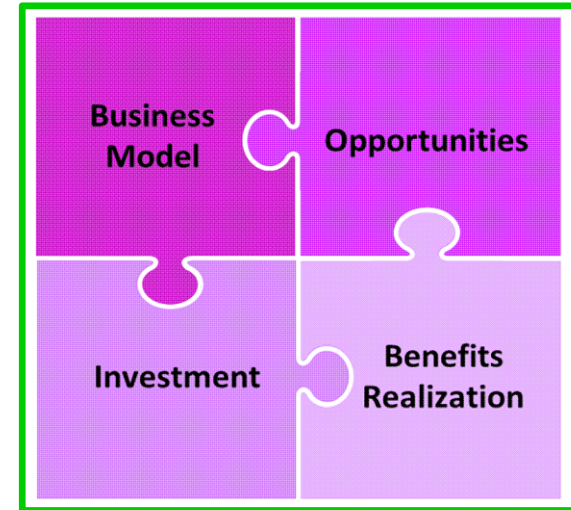


Strategic Pathway 3

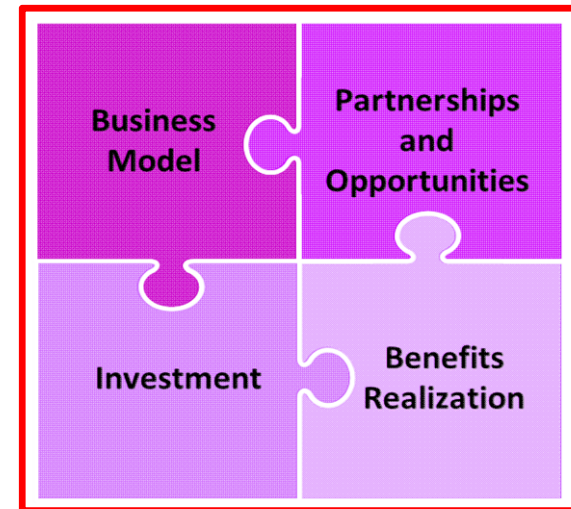
Establishes the business model, develops financial partnerships, and identifies the investment needs and funding sources for delivering integrated geospatial information management, as well as recognizing the benefits realization milestones that will achieve and maintain momentum.

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.

2019



2018

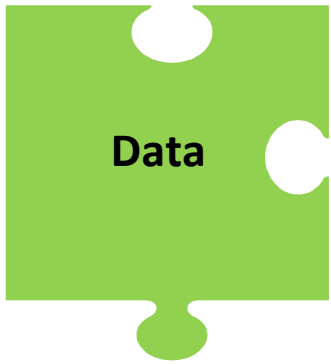


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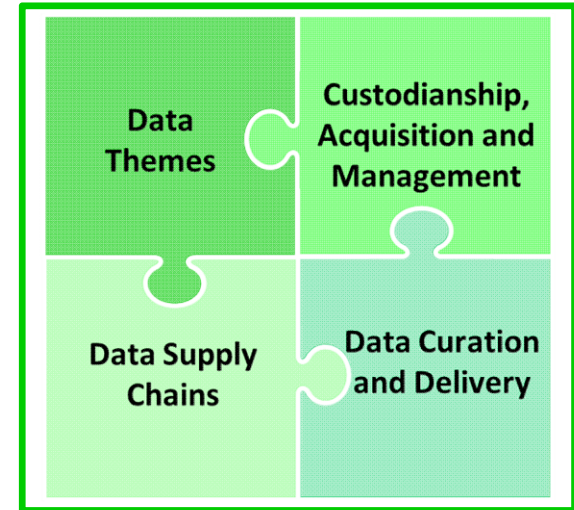
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Strategic Pathway 4

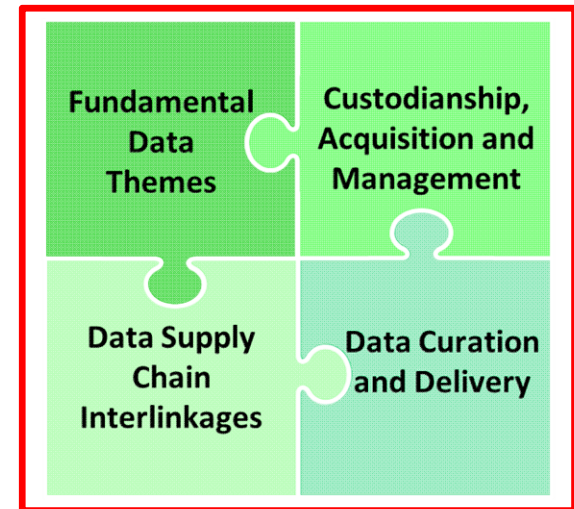
2019



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.

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.

2018

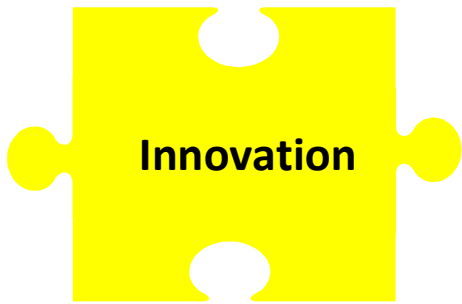


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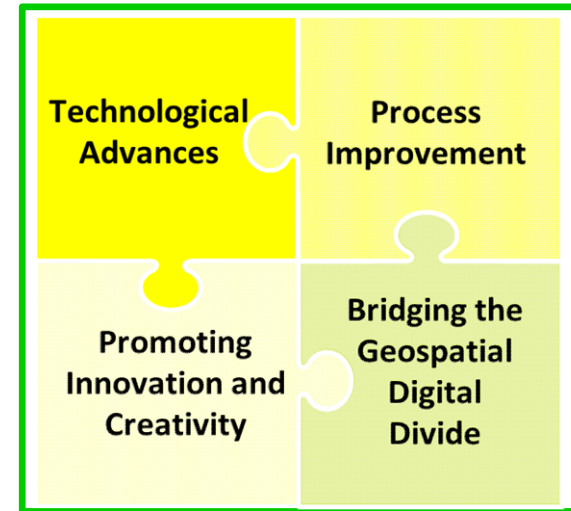


Strategic Pathway 5

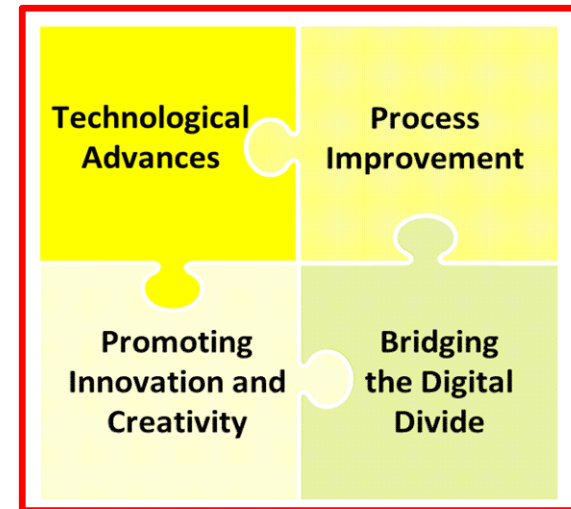
Recognizes that technology and processes are continuously evolving; creating enhanced opportunities for innovation and creativity that enable governments to quickly bridge the digital divide.

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.

2019



2018

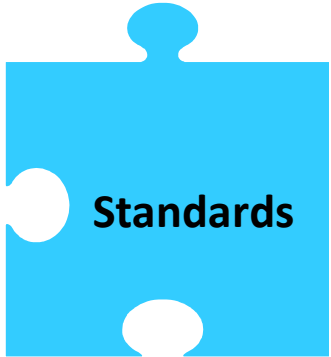


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Strategic Pathway 6

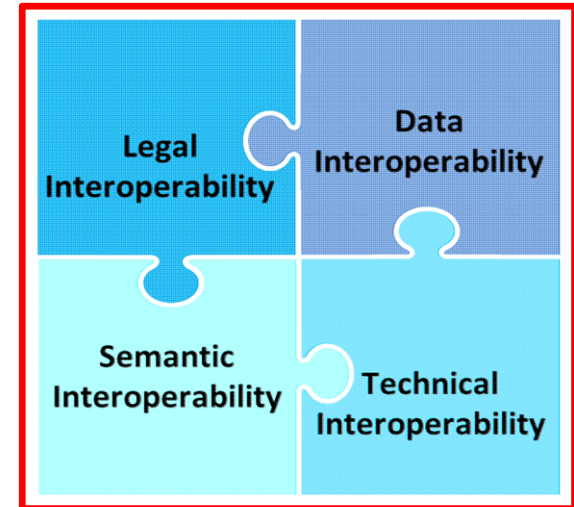
2019



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.

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.

2018



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Strategic Pathway 7

2019



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.

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.

2018

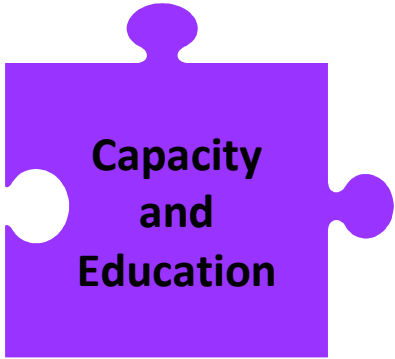


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Strategic Pathway 8

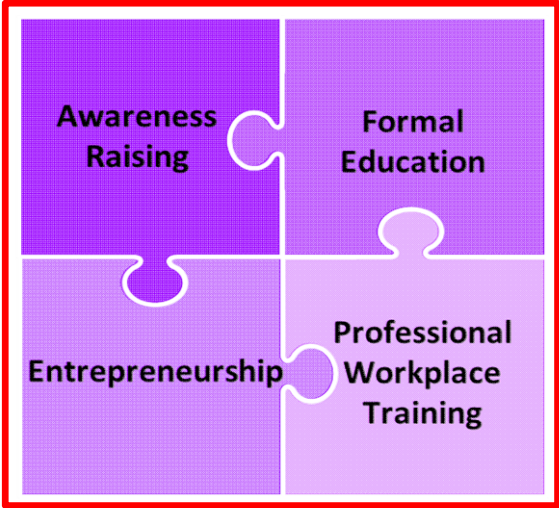
2019



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

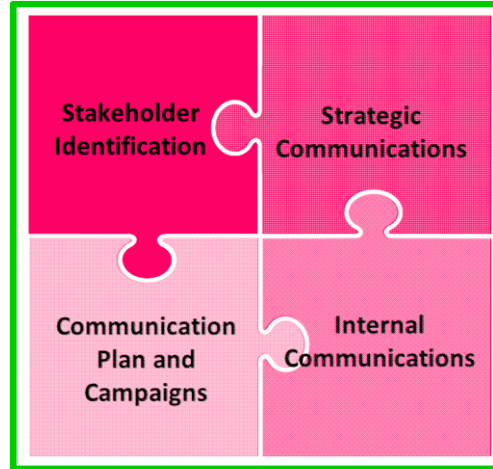
Objective is to increase the awareness and level of understanding of geospatial information science. This includes developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities require to utilize geospatial information for decision-making.

2018

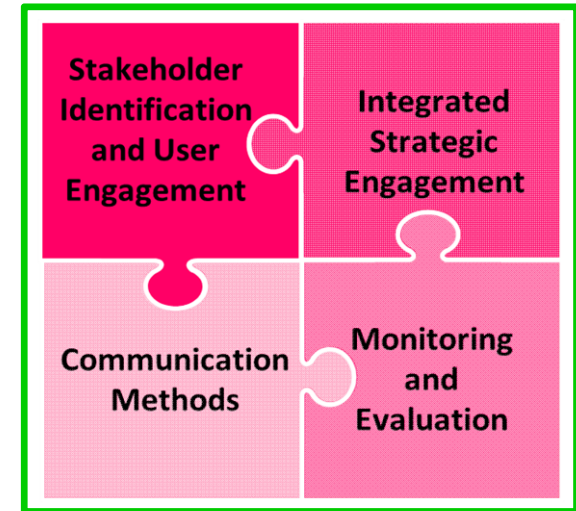




Strategic Pathway 9

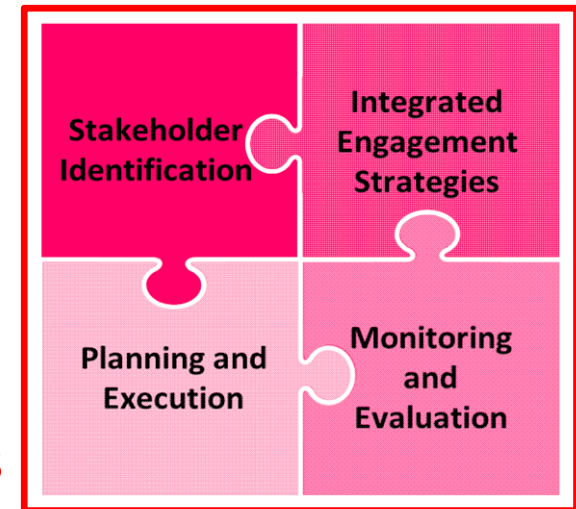


2019



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.

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 Geospatial Information Management Framework.



2018



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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 a computer, tablet and smartphone.

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.

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.



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 IGIF, and create a governance process for assuring effective management responsibilities for the enterprise.
- **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.
- **Value Proposition** - that measures, monitors, and communicates the economic benefit of integrated geospatial information to national priorities including citizen and societal benefits.

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 an Integrated Geospatial Information Framework. 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 below.

When implemented the actions (and their interrelated actions¹) 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 institutional mandates and political buy-in;
- A cooperative data sharing environment; and
- A shared understanding of the value of integrated geospatial information management.

¹ The interrelated actions across all Strategic Pathways are described in detail in Chapter X, the Index Chapter.

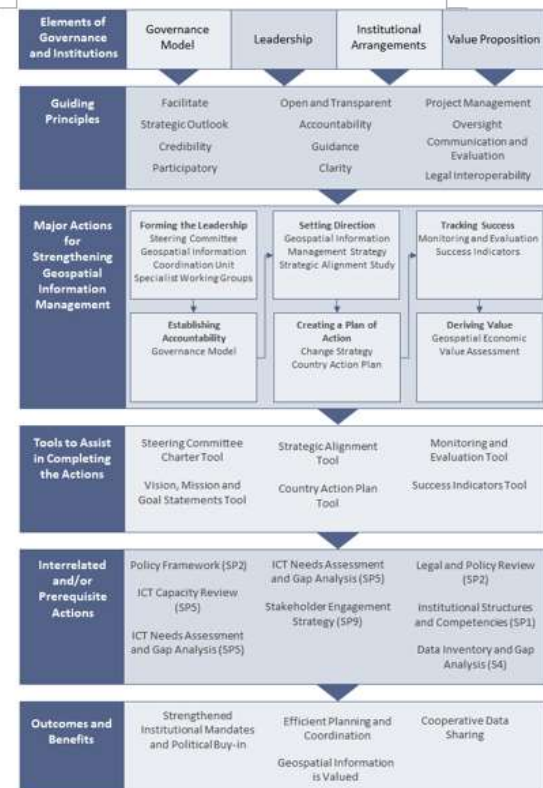


Figure 1.1 The overall structure for governance and institutional arrangements - showing the four key elements, guiding principles, actions and interrelated actions, and the tools provided in the appendices to support the achievement of outcomes.



What we are seeking from you

1. Are we on the right track?
2. Are you comfortable with the direction?
3. What information is missing?
4. What needs amending?
5. What needs enhancing?
6. What work remains going forward?
7. What else do we need to do?



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