



UN-IGIF
INTEGRATED GEOSPATIAL
INFORMATION FRAMEWORK



International Seminar on United Nations Global Geospatial Information Management with the theme “Effective and integrated marine geospatial information management”

Session #2 “Implementing the UN-IGIF-Hydro and advancing the conservation and sustainable use of marine resources”

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Global Geospatial Information Management

Positioning geospatial information to address global challenges

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“greater investment in data and strengthened data capabilities will be crucial. Only through data-informed decisions can we get ahead of crises and trigger earlier more effective responses that both attend to the present and build better for the future. Only with better disaggregated data can we ensure that these decisions and responses account for all sectors of society, leaving no one behind” ”



António Guterres
Secretary-General of the United Nations
Opening Statement on the Progress Report on the
SDGs, High-level Political Forum, June 2022



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 UNITED NATIONS
 COMMITTEE OF EXPERTS ON
 GLOBAL GEOSPATIAL
 INFORMATION MANAGEMENT

UN-GGIM Bureau:

Co-Chairs: Belgium, Cote d'Ivoire, Mexico

Rapporteur: Morocco

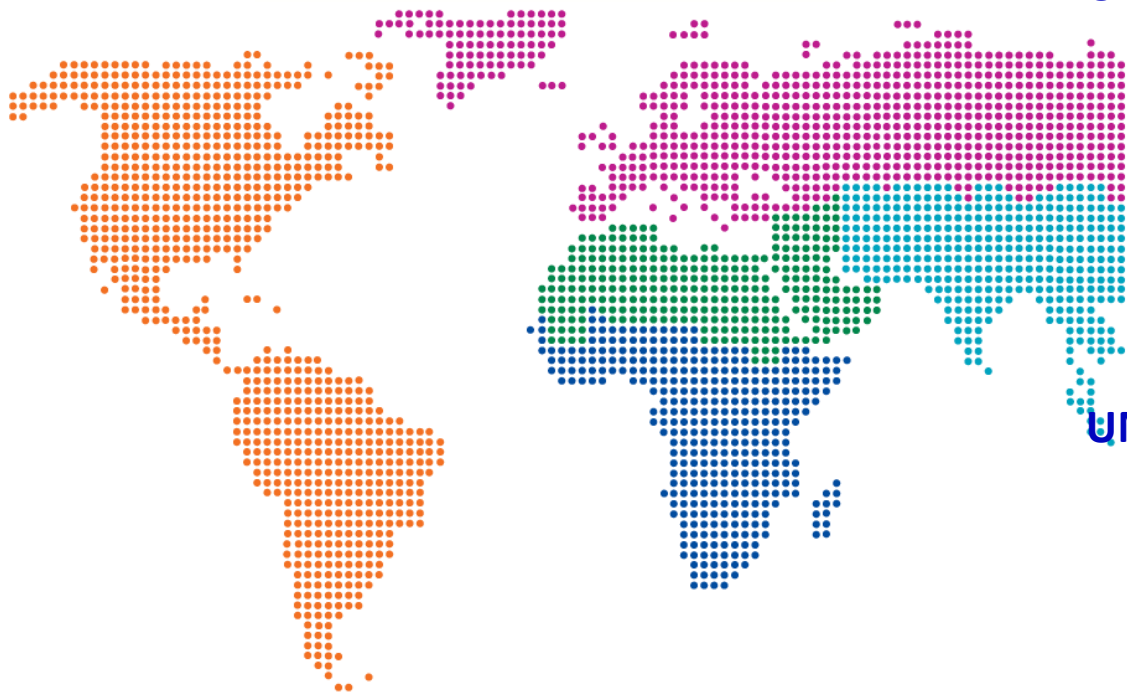
UN-GGIM Regional Committees & Chairs:

- **Africa: South Africa**
- **Americas: Chile**
- **Arab States: Saudi Arabia**
- **Asia and the Pacific: Indonesia**
- **Europe: Netherlands and United Kingdom**

UN-GGIM Thematic Networks:

- **Academic Network**
- **Geospatial Societies**
- **Private Sector Network**
- **United Nations Geospatial Network**

International Standards Development Organizations



The Committee of Experts, a subsidiary expert body of the Economic and Social Council of the United Nations, is the peak intergovernmental body to liaise and coordinate among Member States, and between Member States, international organizations and stakeholders, to foster better coordination and coherence in geospatial information management



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Global Development Frameworks

Global Geospatial Frameworks

2030 AGENDA FOR SUSTAINABLE DEVELOPMENT



INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (IGIF)

Sendai Framework for Disaster Risk Reduction 2015-2030

Paris Agreement on Climate Change

Strategic Framework on Geospatial Information and Services for Disasters

Global Statistical Geospatial Framework (GSGF)

Framework for Effective Land Administration (FELA)

Operational Framework for Integrated Marine Geospatial Information Management (UN-IGIF-Hydro)

SAMOA Pathway for SIDS
Addis Ababa Action Agenda
Habitat III New Urban Agenda
Our Ocean, Our Future: Call for Action

Global Fundamental Geospatial Data Themes
Global Geodetic Reference Frame (GGRF)
National Institutional Arrangements in Geospatial Information Management
Role of Standards in Geospatial Information Management
Compendium on Licensing of Geospatial Information
Statement of Shared Guiding Principles for Geospatial Information Management
Future Trends in Geospatial Information Management Reports
SDGs Geospatial Roadmap

Committee of Experts transmitted to ECOSOC its final report, pursuant to resolution [E/RES/2016/27](#) on strengthening institutional arrangements on geospatial information management ([E/2022/68](#)) entitled 'Enhancing global geospatial information management' in June 2022. The comprehensive report described the process of 'transition' marking the Committee's work, starting with an initial five-year period (2012 – 2016) on **establishment**; the report then detailed its second five-year period (2017-2021) on **institutionalization**; and then considers the Committee's future in the coming five-year period – **on implementation of the Committee's frameworks, anchored by the UN-IGIF.**



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United Nations Committee of Experts on Global Geospatial Information Management

E/RES/2022/24 (22 July 2022)

Enhancing global geospatial information management arrangements

4. Reiterates the importance of strengthening and enhancing the effectiveness of the Committee of Experts, particularly for the achievement of its operations focused on the Sustainable Development Goals and the Integrated Geospatial Information Framework, to strengthen and **ensure its continued effectiveness and benefits to all Member States**;

6. Decides to enhance the institutional arrangements of the Committee of Experts as a subsidiary body of the Economic and Social Council **in charge of all matters related to geospatial information, geography, land administration and related topics**, in accordance with the terms of reference annexed to the present resolution;

United Nations Integrated Geospatial Information Framework (UN-IGIF)

Strategic Framework on Geospatial Information and Services For Disasters

Global Statistical Geospatial Framework (GSGF)

Framework for Effective Land Administration (FELA)

Operational Framework for Integrated Marine Geospatial Information Management (UN-IGIF-Hydro)

Global Fundamental Geospatial Data Themes

Global Geodetic Reference Frame (GGRF)

National Institutional Arrangements in Geospatial Information Management

The Statement of Shared Guiding Principles for Geospatial Information Management

Role of Standards in Geospatial Information Management

Compendium on Licensing of Geospatial Information

Future Trends in Geospatial Information Management Reports

SDGs Geospatial Roadmap

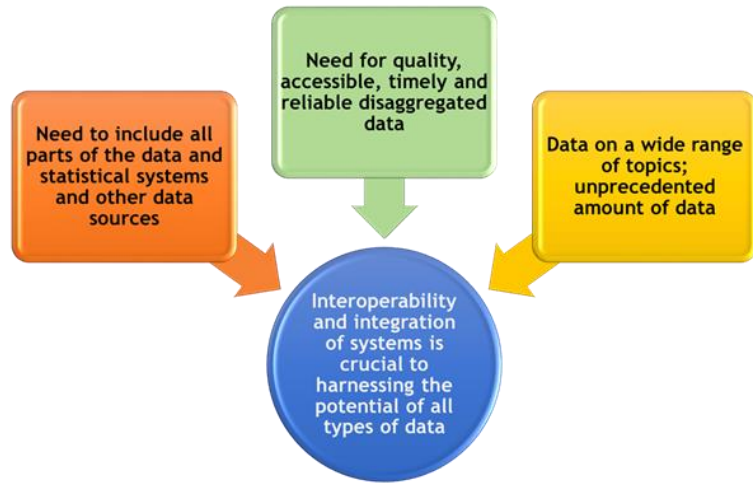


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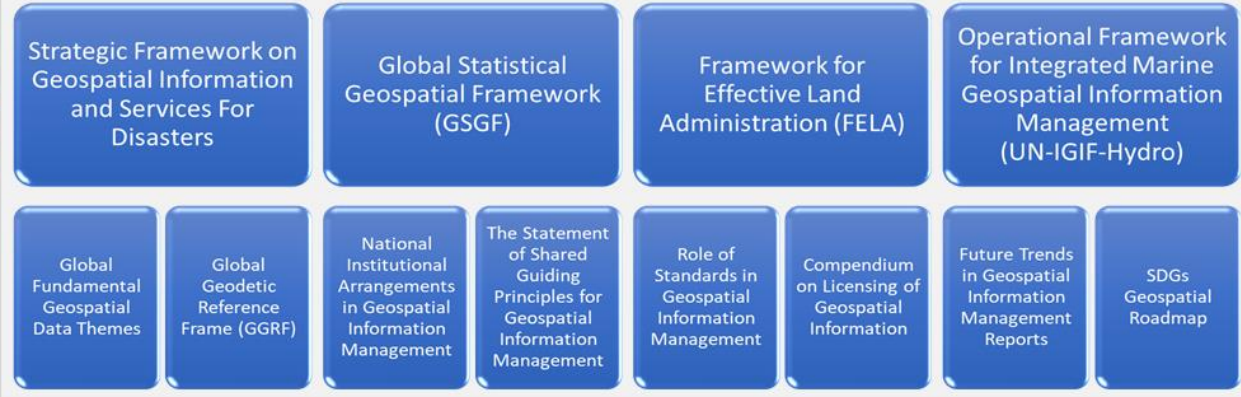
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United Nations Integrated Geospatial Information Framework (UN-IGIF)



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 on 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

Implementing national programmes and priorities and the 2030 Agenda for Sustainable Development will be sub-optimal without globally developed, consulted and adopted frameworks, strategies and mechanisms to integrate data and information for the measuring, monitoring and reporting processes.

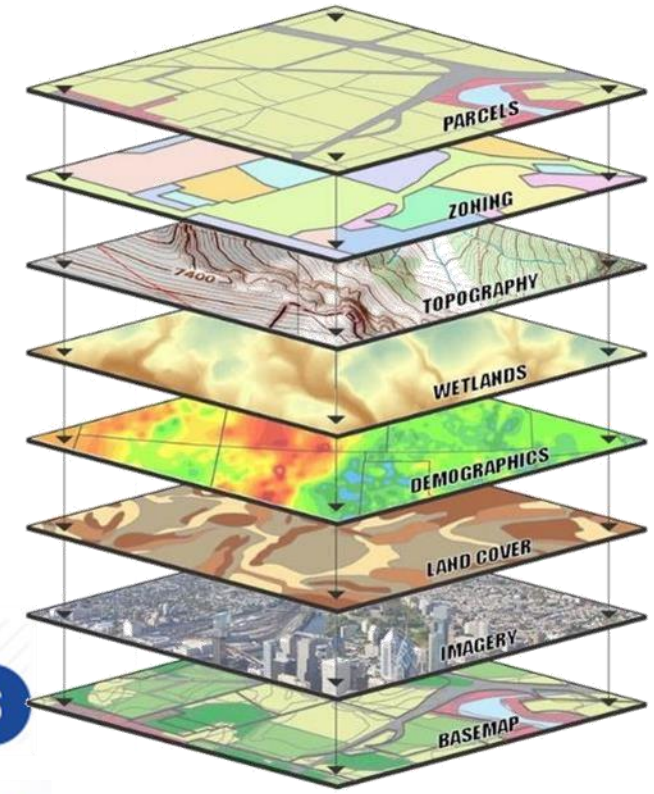
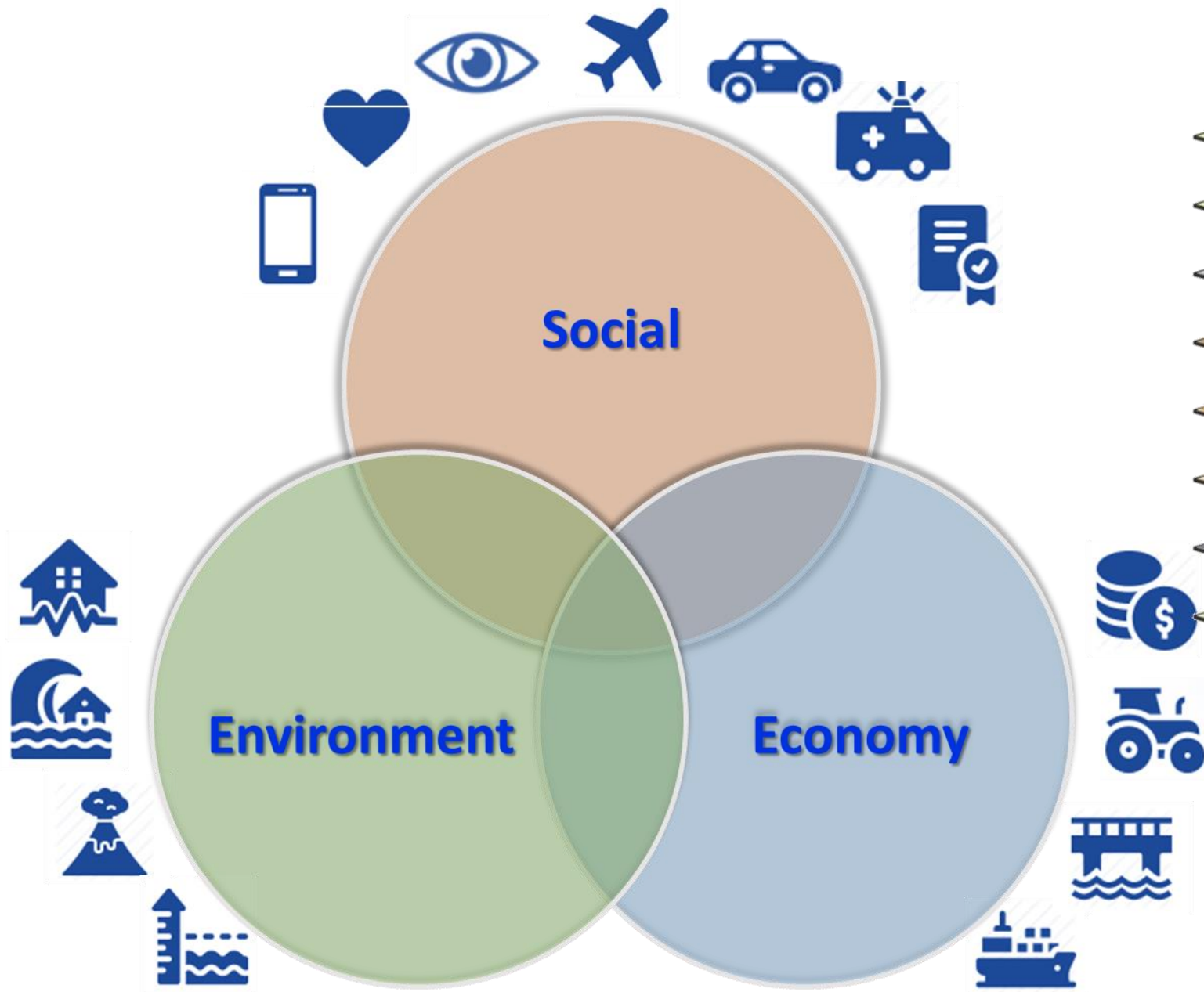
“the availability of high-quality data is also critical, helping decision makers to understand *where* investments can have the greatest impact”

*António Guterres
Secretary-General of the United Nations*



Positioning geospatial information to address the challenges of the 2030 Agenda
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There need to be more institutional collaboration, coordination, interoperability and integration across national data and information systems and platforms, and influenced by Governance, Technology and People



“the availability of high-quality data is also critical, helping decision makers to understand *where* investments can have the greatest impact”

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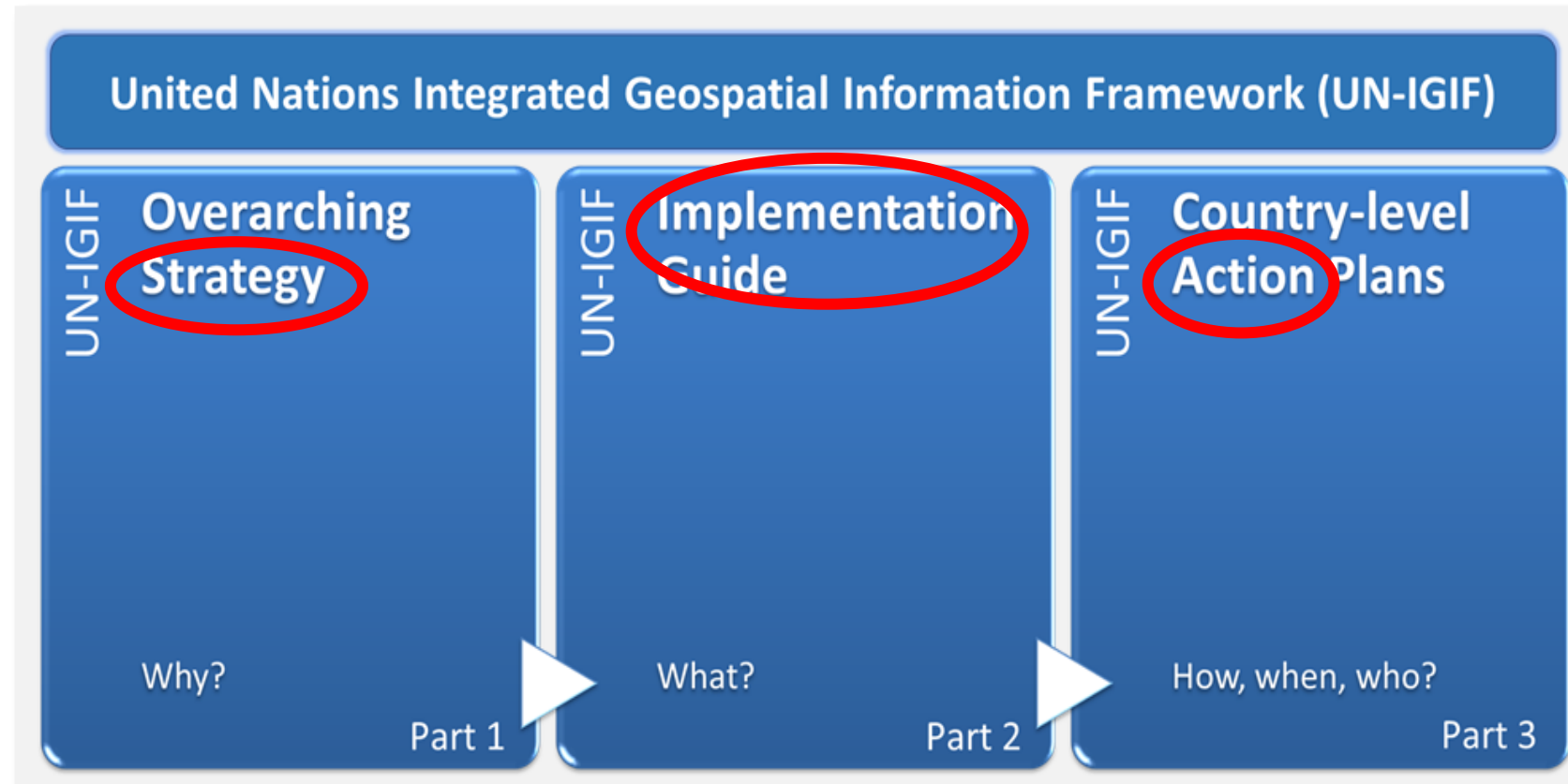
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United Nations Integrated Geospatial Information Framework (UN-IGIF)

Globally developed, consulted and adopted

It is overarching, it is strategic, presents a forward-looking and aspirational framework, importantly, built on national needs and circumstances. The UN-IGIF Overarching Strategy comprises a vision and a mission, sets out the strategic drivers for and benefits from integrated geospatial information, with seven underpinning principles, eight goals and nine strategic pathways for a feasible and desired future.

The UN-IGIF comprises an overarching **Strategy** – from local to global, **Implementation** guidance, and **Action** plans at the country level.



<http://ggim.un.org/IGIF/>



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United Nations Integrated Geospatial Information Framework (UN-IGIF)

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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INFORMATION FRAMEWORK

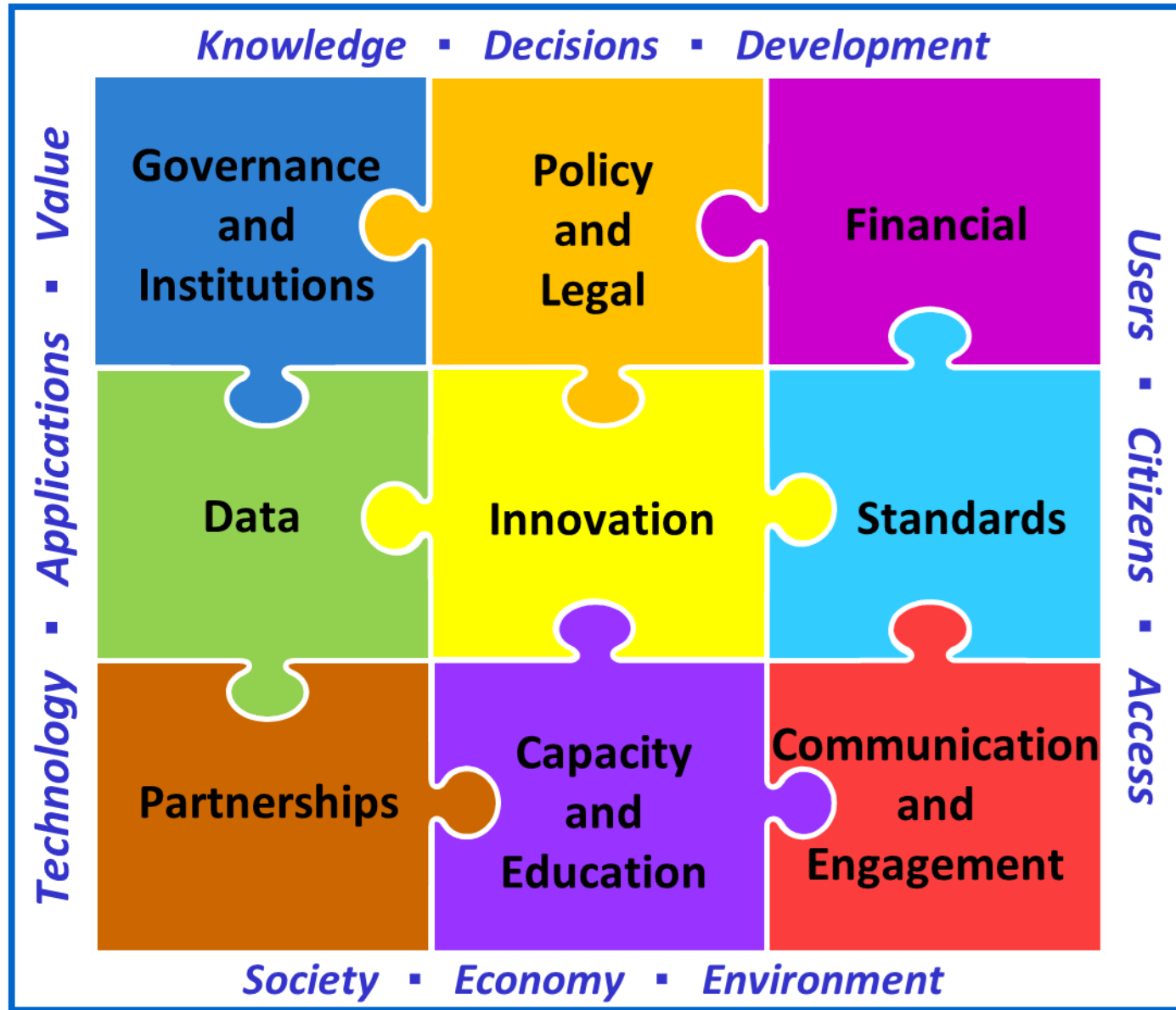
Governance →



Technology →



People →



Anchored by nine Strategic Pathways, the UN-IGIF is a mechanism for articulating and demonstrating national leadership in geospatial information, and the capacity to take positive steps. The nine strategic pathways 'implement' the UN-IGIF through actions.



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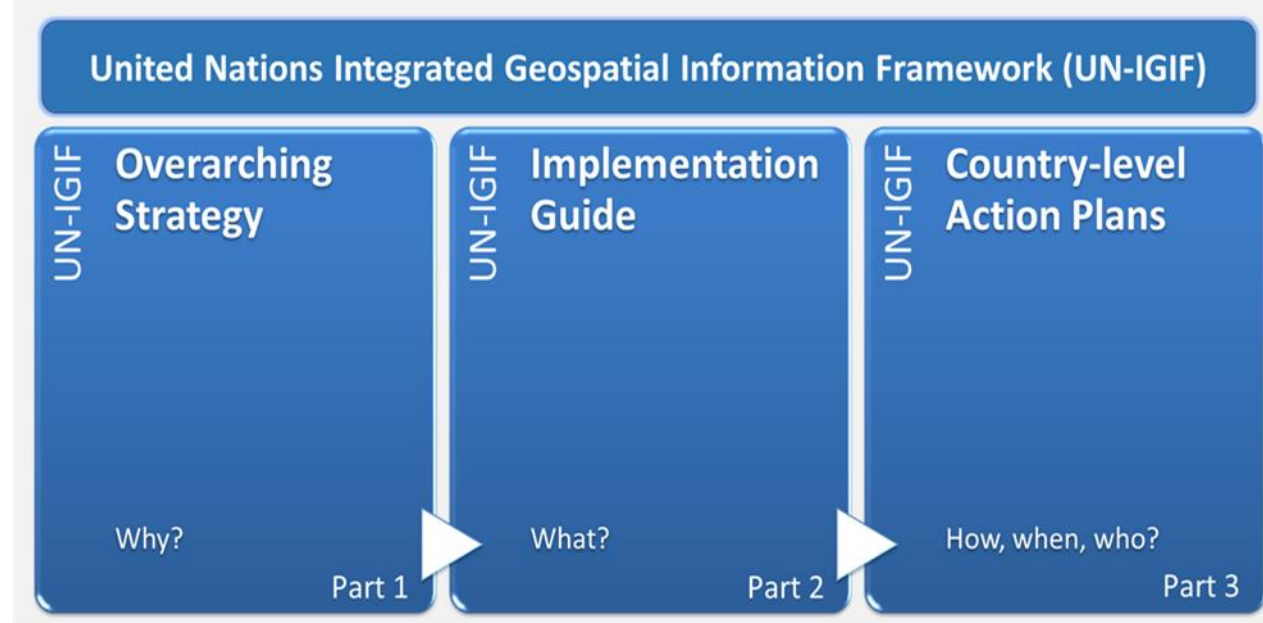
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National Priorities, Climate and Resilience and the 2030 Agenda for Sustainable Development



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



The United Nations Integrated Geospatial Information Framework (UN-IGIF) is a multi-dimensional Framework aimed at enhancing national geospatial information management, particularly in developing countries. UN-IGIF focuses on the geospatial information that is integrated with any other meaningful data to solve societal and environmental problems, acts as a catalyst for economic growth and opportunity, and to understand and take benefits from a country's development priorities and the Sustainable Development Goals

“the availability of high-quality data is also critical, helping decision makers to understand **where** investments can have the greatest impact”

*António Guterres
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Three interconnected parts

UN-IGIF **Overarching Strategy**

Why?

Part 1

UN-IGIF **Implementation Guide**

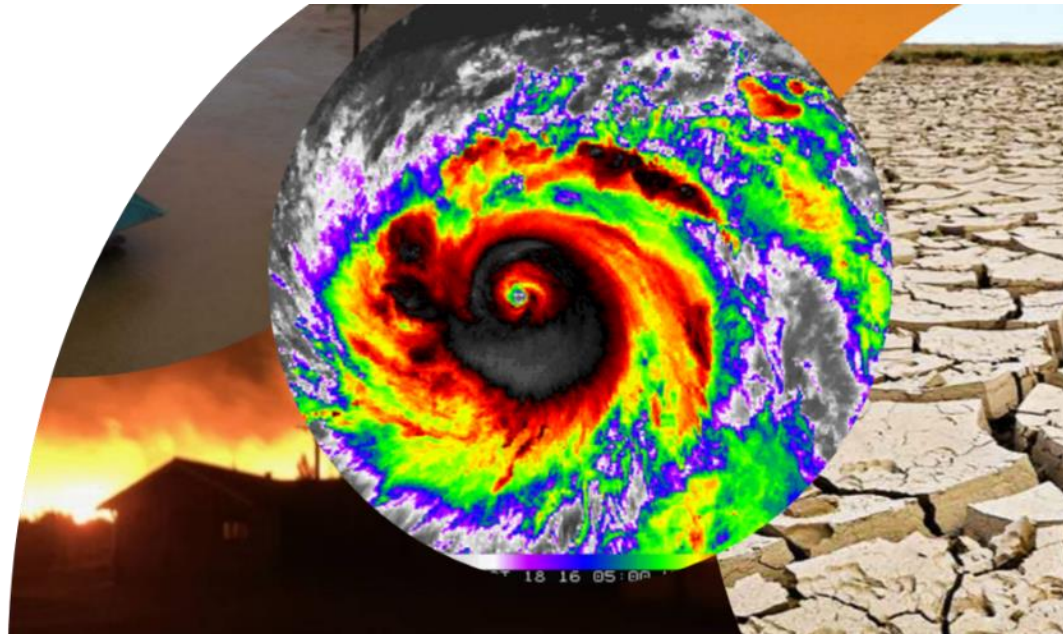
What?

Part 2

UN-IGIF **Country-level Action Plans**

How, when, who?

Part 3



Operational Framework for Integrated Marine Geospatial Information Management (UN-IGIF-Hydro)

Presented in two parts

Scope – Oceans, Seas, coastal zones, tributaries, rivers, inland waterways and waterbodies, wetlands, glaciers ..

Part One

Strategic Overview

high-level introduction that describes the “**why**” and provides supporting background, context, and an initial presentation of the value propositions for implementing UN-IGIF at the country-level in a way which embraces all the watered surfaces of the Earth.

Part Two

Strategic Pathways

the UN-IGIF nine strategic pathways are presented and elaborated, presents the “**how**” and includes examples and guidance for including the marine or hydro domain when implementing the UN-IGIF at the country-level

- Governance and Institutions
- Policy and Legal
- Financial
- Data
- Innovation
- Standards
- Partnerships
- Capacity and Education
- Communication and Engagement

https://ggim.un.org/meetings/GGIM-committee/13th-Session/documents/UN-IGIF-Hydro%20Part%20One%20-%20The%20Strategic%20Overview_20230725.pdf
<https://ggim.un.org/meetings/GGIM-committee/13th-Session/documents/UN-IGIF-Hydro%20Part%20Two%20-%20The%20Strategic%20Pathways.pdf>



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Part 1: Overarching Strategy

<https://ggim.un.org/IGIF/part1.cshtml>



Part 2: Implementation Guide

<https://ggim.un.org/IGIF/part2.cshtml>

https://ggim.un.org/IGIF/documents/Solving_the_Puzzle_FINAL_17Mar2023.pdf



Part 3: Country-level Action Plan

<https://ggim.un.org/IGIF/part3.cshtml>

https://ggim.un.org/IGIF/documents/UN%20approach_Self%20pace%20discover%20learn.pdf

<http://ggim.un.org/IGIF/>

ELEMENTS OF A COUNTRY-LEVEL ACTION PLAN

UN-IGIF Overarching Strategy

Why?

Part 1

UN-IGIF Implementation Guide

What?

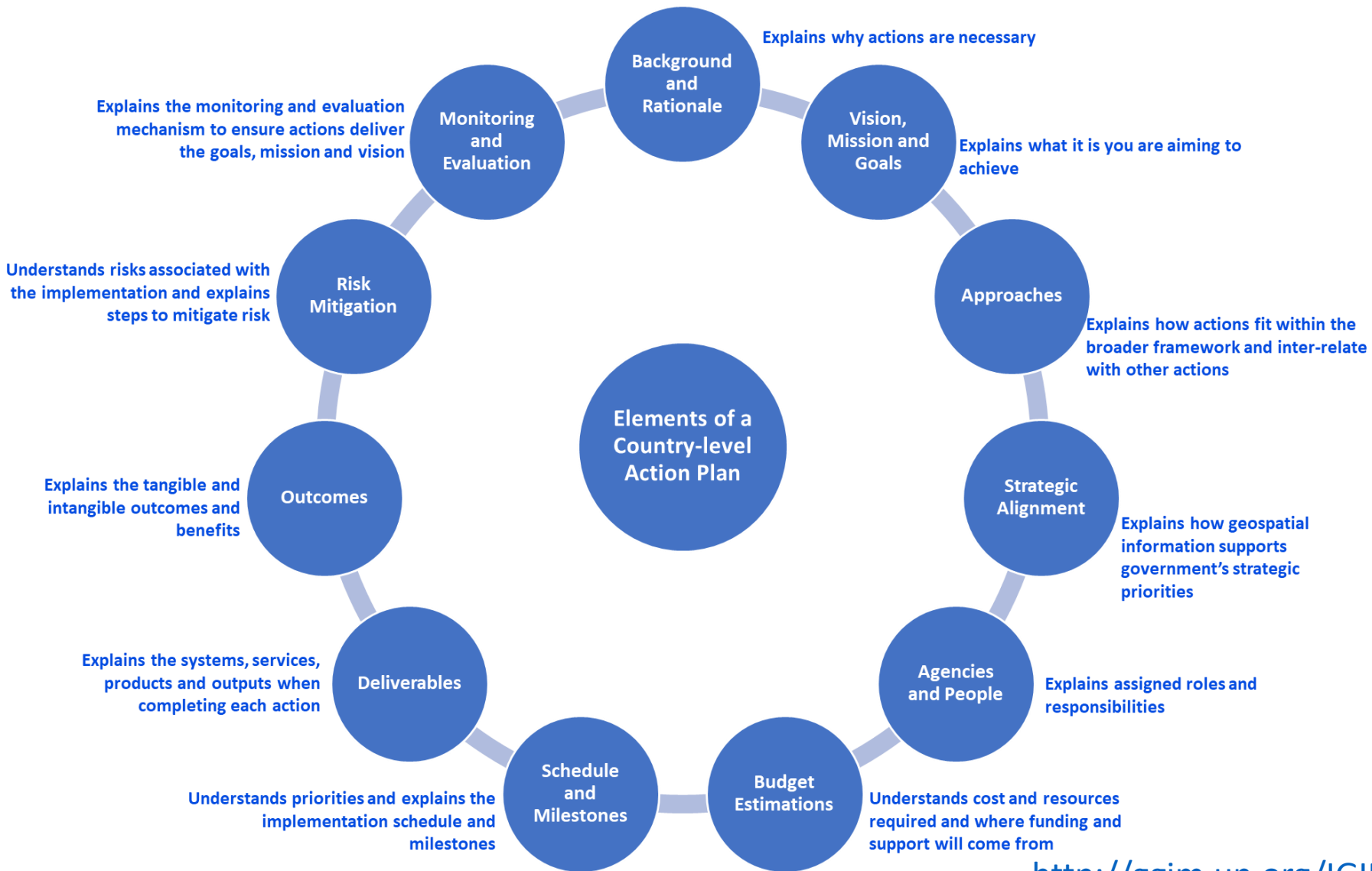
Part 2

UN-IGIF Country-level Action Plans

How, when, who?

Part 3

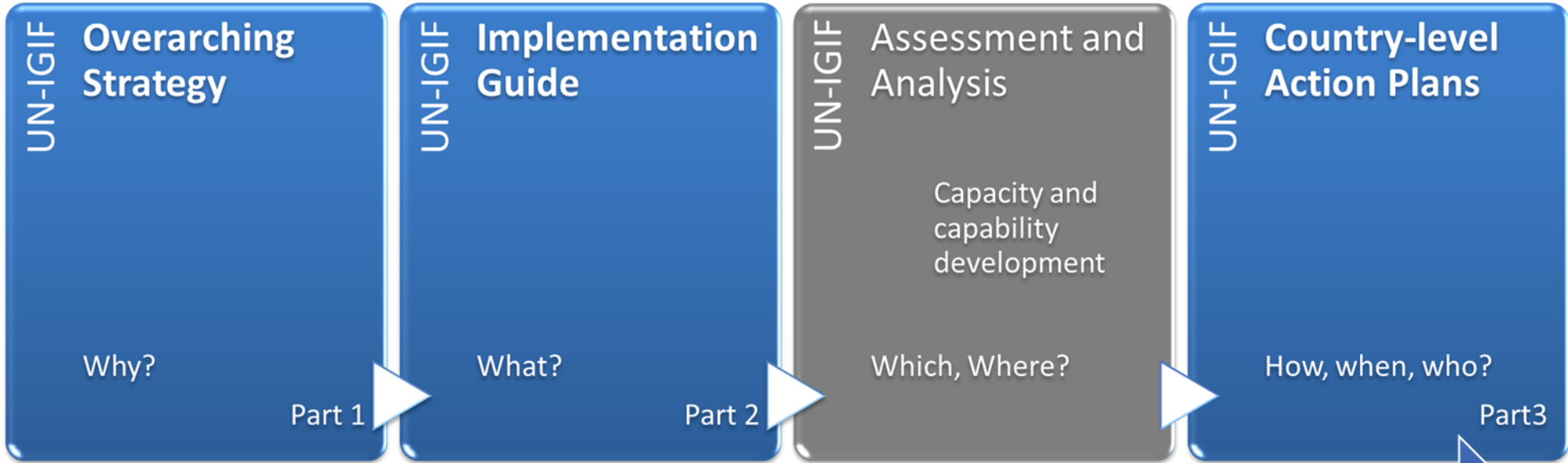
Three interconnected parts



<http://ggim.un.org/IGIF/>



A country-led approach presently has three components with a set of activities and tasks complemented by a suite of resource materials for countries to reference. These are meant to support countries when assessing and analyzing their national situations before designing and developing their Country-level Action Plans.



<http://ggim.un.org/IGIF/>



THE SUGGESTED THREE COMPONENTS OF A COUNTRY-LED APPROACH

The three components comprise a number of suggested activities and tasks. These are all supported with a comprehensive suite of resource materials for countries to reference and include some templates and forms for ease of use.

1. Planning and preparing

A shared understanding of the IGIF and collective commitment to identify and engage stakeholders, plan and prepare for tasks ahead - gather information, assess and analyze, consult and review, design and develop country-level Action Plan

2. Assessing and analyzing

Collective efforts towards shared understanding of current situation (including limitations, issues, challenges and opportunities) and a collective understanding of what the desired and future nationally integrated geospatial information management arrangement should be

3. Designing and developing

Identifying and agreeing what needs to be done (or happen) where, when, by whom and how including sound estimation of resources required to strengthen nationally integrated geospatial information management towards evidence-based implementation of national development priorities and the 2030 Agenda for Sustainable Development

Plan of Action

National Needs Assessment
and Gap Analysis Report

Country-level Action Plan



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RECOMMENDED TASK 2

STAKEHOLDER IDENTIFICATION AND ANALYSIS

1. Purpose

Stakeholder identification and analysis is a key part of geospatial information management. People are the users of geospatial information, and using it for decision-making.

All decisions require data, and as data becomes more available, sharing, security, accuracy and access; format and data.

Stakeholders are integral to the development of geospatial information management therefore buy-in and commitment from all stakeholders is essential to success. Potential stakeholders will only be identified through organisation and customers, and if they do not, the project will fail.

It is worth noting that stakeholder engagement has been known to make products and services more successful.

2. Method

The identification of stakeholders is driven by the project objectives. It is best to begin by being inclusive.

Care must be taken to include groups who may seem like a straightforward process, but who are often overlooked, online and therefore geospatial organization categories of users.

RECOMMENDED TASK 4

CURRENT AND DESIRED (OR FUTURE) SITUATION

1. Purpose

The Current and Desired (or Future) Situation Survey is a tool for gathering information regarding both the current and desired (or future) situation regarding the strategy, direction, and relative importance of geospatial information management.

The Current and Desired (or Future) Situation Survey is designed to get the project team to agree on the current and desired (or future) situation regarding geospatial information management in order to build a shared vision for the future.

- Current situation in terms of the project team's understanding of the current situation
- Desired situation in relation to country's geospatial information management

The survey is designed to get the project team to agree on the current and desired (or future) situation regarding geospatial information management in order to build a shared vision for the future.

The statements to be considered are based on the Geospatial Information Framework – Part 1: Overarching Principles. The statements are broader primary outcomes for strengthened geospatial information management in the country will have different priorities for each stakeholder group, current or future state.

2. Method

The survey is best performed in a group setting. The suggested method is as follows:

- Set up a meeting to discuss the survey with stakeholders that represent the user community.
- Tailor the statements as appropriate to the country before working through each of the statements.
- Work through each survey question and discuss the responses.
- Appoint a scribe to take notes during the meeting.
- At the end of the meeting, summarize the responses in a comments section under each question. The project team may revisit the record of these discussions.

Note: The dual-response survey can also be used to gather information from people. The project team may wish to send out a survey on the current situation and future priorities.

Recommended Task 5

Baseline assessment

1. Purpose

The objective of the Baseline Survey is to gather information on the current information management ecosystem in a country. The Baseline Survey is an Assessment and Gap Analysis as it helps to identify the current situation and the desired situation.

The questions are categorized according to the Geospatial Information Framework Part 1: Overarching Principles.

Because the baseline survey captures a particular point in time, it is recommended to conduct the survey again at a later date.

2. Method

The survey is best performed by a delegate of the project team or subject matter experts. The questions, particularly for the questions regarding the current situation, are designed to be open-ended.

The suggested method is as follows:

- Set up a meeting with subject matter experts to discuss the survey questions.
- Work through each survey question and discuss the responses.

ASSESSING AND ANALYZING

RECOMMENDED TASK 6

ENVIRONMENTAL SCANNING AND ANALYSIS

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 by undertaking a PEST and SWOT Analysis 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.

2. PEST Analysis

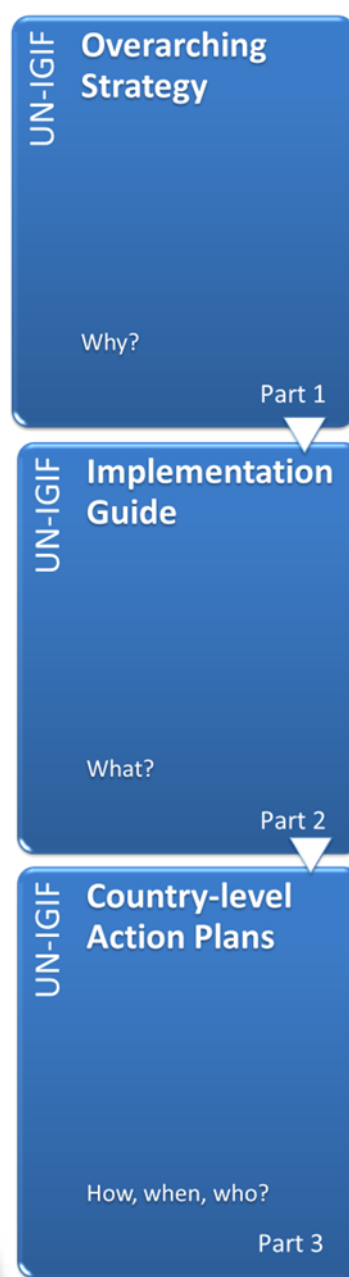
The PEST Analysis considers the external environment and focusses on the Political, Economic, Social and Technology issues that may have a positive or negative impact on the implementation of integrated geospatial information management.

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



Three interconnected parts



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Geospatially related artificial intelligence system:

- An emerging scientific discipline that combines innovations in geospatial science and technologies, artificial intelligence algorithms and methods in machine learning (e.g., deep learning), data mining, and high-performance computing to extract insights from geospatial information for sustainable real-world solutions.
 - Provides useful advantages for modelling, e.g., the environment, with its ability to incorporate large volume of geospatial and temporal information in a multitude of formats, computational efficiency, flexibility in algorithms and workflows towards more sustainable real-world solutions.



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Artificial Intelligence In Geospatial Information Management

- A wide range of applications for Artificial Intelligence, including:
 - Data analytics and interpretation
 - Predictive analytics
 - Extracting geospatial information from unstructured data
 - Routing and navigation
 - Quality control
 - Etc.

- Can be used in a number of applications, including:
 - Urban planning
 - Marine spatial planning and protected areas
 - Disaster response
 - Precision agriculture
 - Land use and zoning
 - Etc.



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Overarching Strategy

Why?

Part 1

UN-IGIF

Implementation Guide

What?

Part 2

UN-IGIF

Country-level Action Plans

How, when, who?

Part 3

Impact of Artificial Intelligence Laws and Regulations on the Geospatial Community

- More laws and regulations are guaranteed
 - How Artificial Intelligence is defined will be critical
- Demand for greater transparency
- Will require policies and procedures for the entire Artificial Intelligence system, e.g., training data, models, outputs, etc.
- Will require input from a variety of stakeholders (i.e., technical, operational, legal, human resources, etc.)

Observation:

Will have a significant impact on future geospatial information management

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Three interconnected parts



Impacts on Future Geospatial Information Management

Some observations:

- Growing demand for clear regulatory frameworks to address privacy, safeguards and security, and responsible use related to artificial intelligence enabled geospatial technologies, products and services.
- Incorporating responsible governance and mechanisms into the design, development and deployment of related geospatial technologies, processes and services, and their usefulness for ALL.
- Public-private partnerships including embracing volunteered data may play a critical role in driving innovation, leveraging combined resources, fostering cooperation to address common challenges with integrated geospatial information.

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Recommendations

- Geospatial community should be tracking legal and regulatory developments in Artificial Intelligence within their country.
- Members of the geospatial community should be actively participating in the development of these laws and regulations.
- Organizations that create or procure geospatial technologies, products and services that use Artificial Intelligence should be mindful of potential impact of laws and regulations.

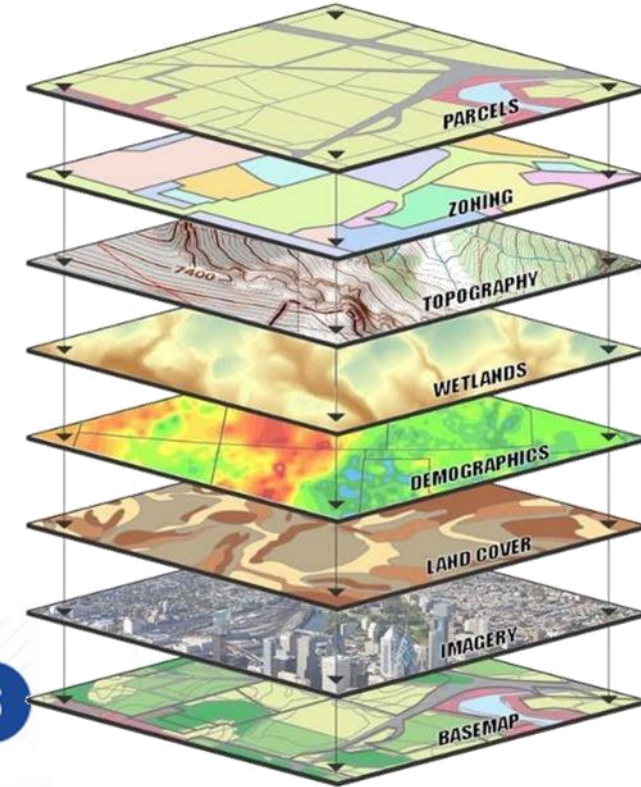
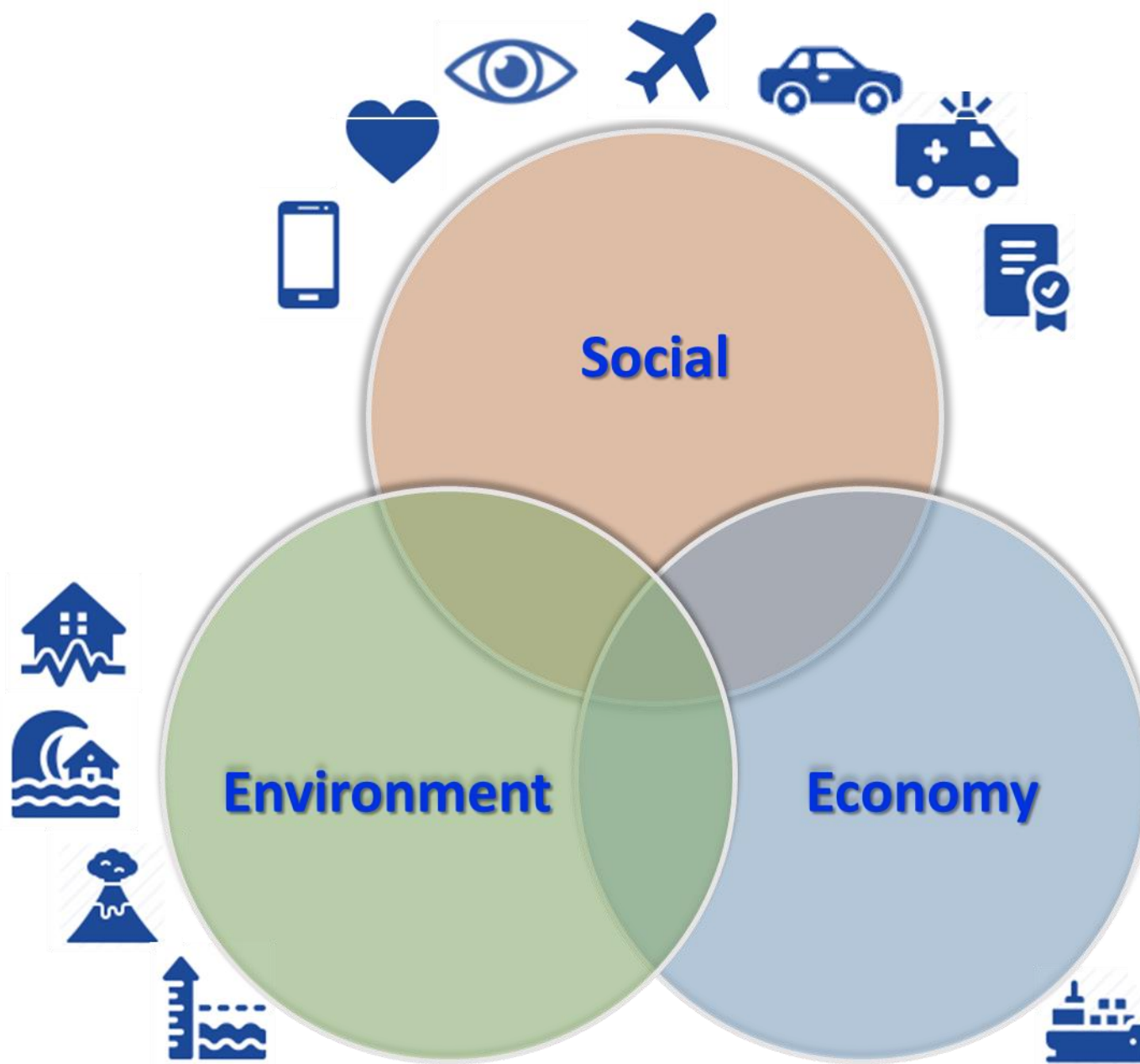
Conclusion:

The geospatial community must work across sectors/silos to address the complex issues posed by Artificial Intelligence.

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There need to be more institutional collaboration, coordination, interoperability and integration across national data and information systems and platforms, and influenced by Governance, Technology and People



“the availability of high-quality data is also critical, helping decision makers to understand *where* investments can have the greatest impact”

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Stronger. Together




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THANK YOU



Fourteenth Session
of the United Nations
Committee of Experts
on Global Geospatial
Information
Management
7 – 9 August 2024
UNHQ, New York



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