

Presentation on the Compilation Report on the Integration of Terrestrial and Maritime Domains

Jointly developed by the Expert Group on Land Administration and Management (EG-LAM) and the Working Group on Marine Geospatial Information (WG-MGI)

Forum – Authoritative data: land, marine and geodesy

Tuesday 6 August 2024

10:00 am - 11:15 am

Conference room 4 (CR-4 GA Building)

Presenters: Mr Roy Yuen (EG-LAM) and Mr Jotham Teo (WG-MGI)



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United Nations Committee of Experts on
Global Geospatial Information Management

Expert Group on Land
Administration and Management

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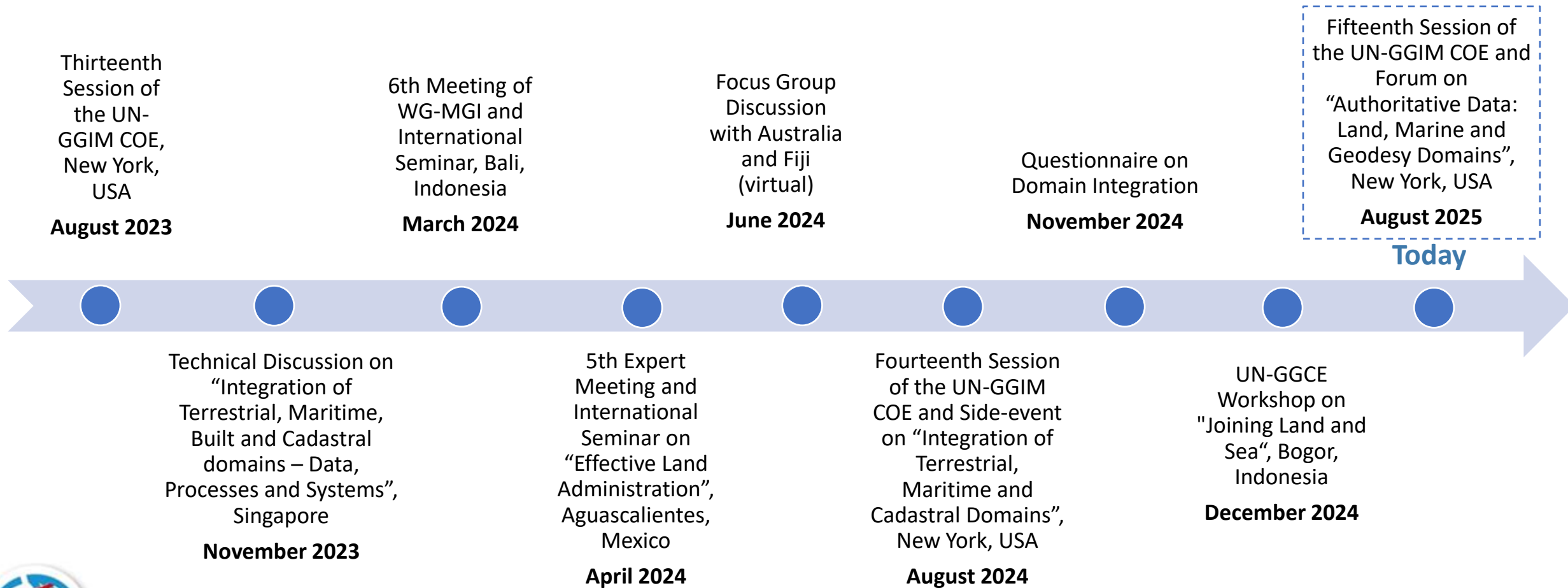
Overview

- 1) Background
- 2) About the questionnaire
- 3) Results and discussions
- 4) Recommendations
- 5) Acknowledgements



1) Background

- Following the adoption of decision 13/109 and 13/111 at the Thirteenth Session, **EG-LAM** and **WG-MGI** initiated **joint works to enhance the understanding of key issues in domain integration**, and pursue collaborative projects and activities across the domains, including the conceptualization and **development of a paper** on domain integration.



1) Background

Preliminary understandings from in-person and online meetings:

- Fragmented collaboration between land and marine agencies
- Non-harmonised data policies and access
- Different technical standards limiting interoperability
- Growing number of use-cases
- Yet, the understanding of domain integration by policy-makers remains nascent



As these challenges span across **Governance, Technology, and People** dimensions, the **UN-IGIF** and **UN-IGIF-Hydro** provide structured frameworks to navigate the complexities of land-sea integration.

Goals of the Compilation Report

- To better understand the issues, the approaches and good practices in the integration of terrestrial and maritime domains
- To tap on the collective voices of Member States through the joint questionnaire to spark discussions and knowledge exchange
- To leverage the UN-IGIF and UN-IGIF Hydro and suggest innovative and feasible paths forward
- To encourage collaboration across domains and between functional groups of the Committee of Experts



2) About the questionnaire

- Questionnaire circulated in November 2024 and closed in March 2025 (~5 months)
- 47 responses received across 40 member states

1. Defining integration

- a) To assess member states' understanding of geospatial domain integration

2. Use cases & benefits

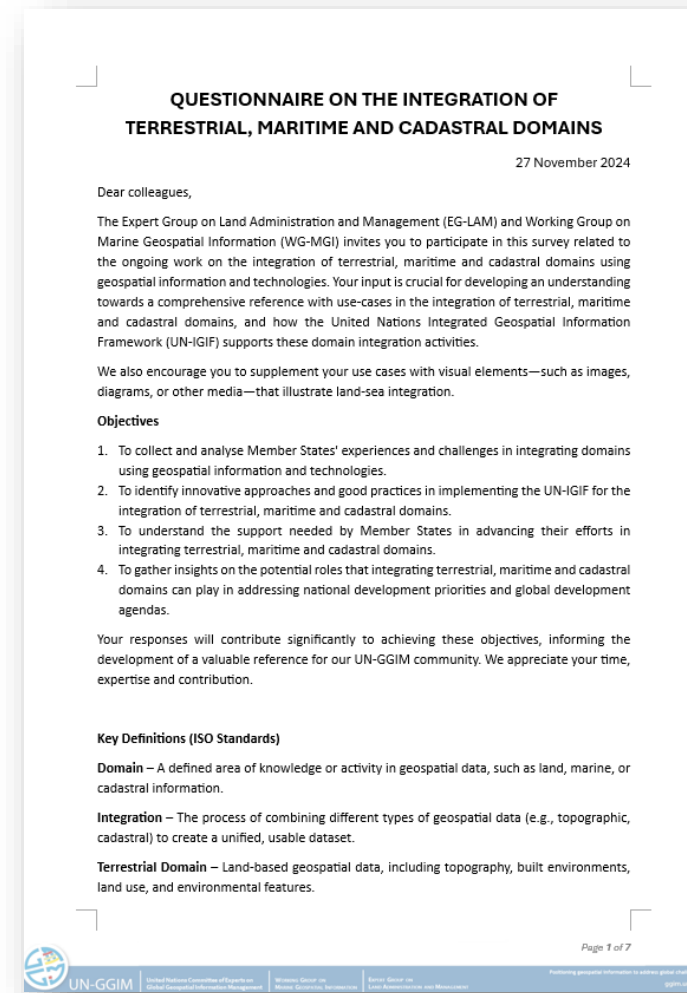
- a) To identify the benefits of terrestrial-maritime integration

3. Enabling effective integration

- a) To identify critical UN-IGIF strategic pathways for successful terrestrial-maritime integration

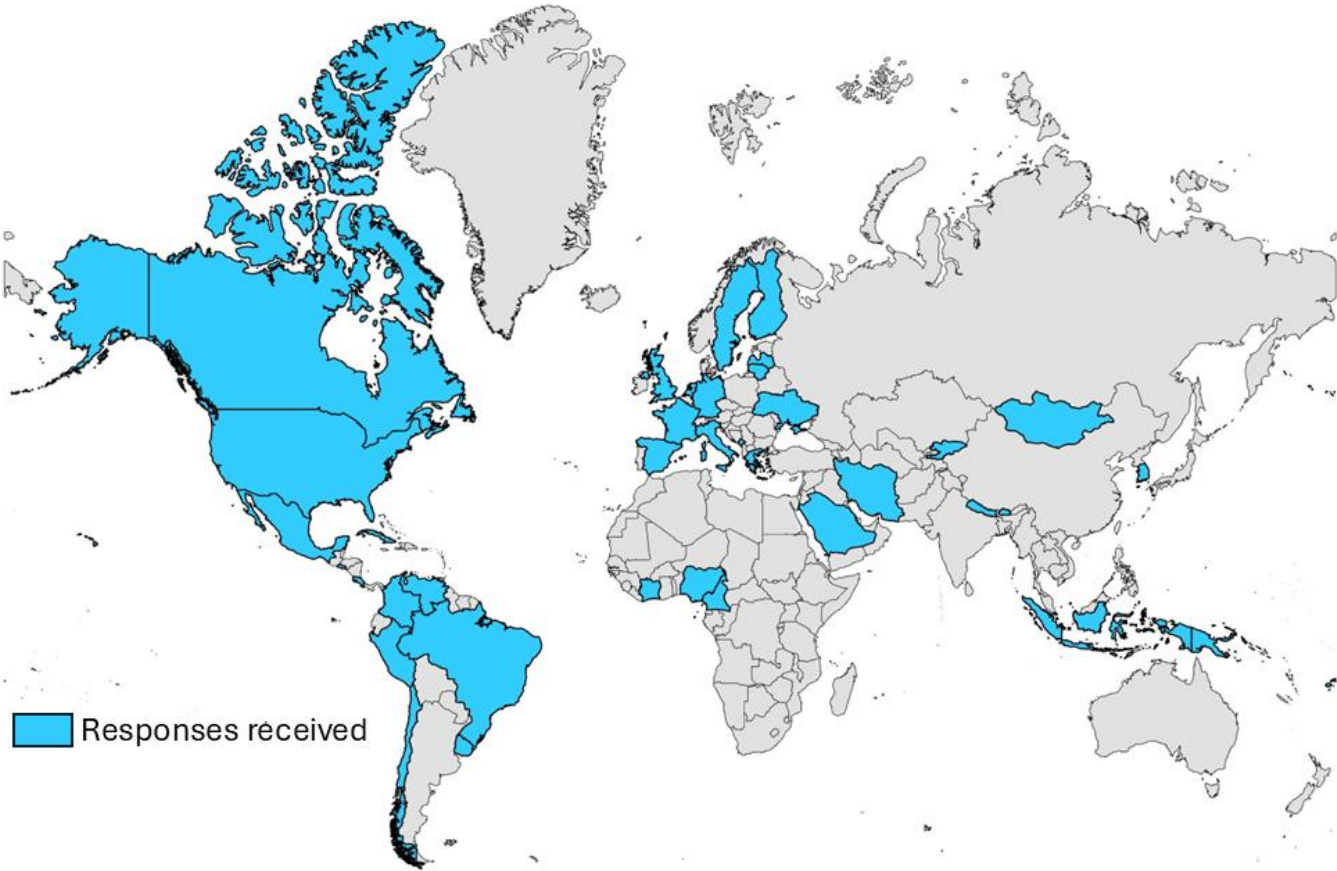
4. Assistance required for integration

- a) To identify the pathways requiring the most assistance to advance integration



3) Results and discussion

Region	Responses received
Africa	Cameroon, Côte d'Ivoire, Nigeria
Americas	Canada, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Mexico, Peru, Uruguay, United States of America, Venezuela
Arab States	Kingdom of Saudi Arabia
Asia Pacific	Bhutan, Fiji, Indonesia, Iran, Kyrgyzstan, Mongolia, Nepal, Papua New Guinea, Republic of Korea, Singapore
Europe	Cyprus, Finland, France, Germany, Greece, Italy, Kingdom of the Netherlands, Latvia, Lithuania, Montenegro, Spain, Sweden, Ukraine

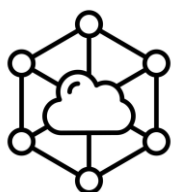


Thank you for your valuable insights!



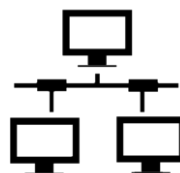
3) Results and discussion

Question 1: How would you define the integration of terrestrial and maritime domains in the context of geospatial information management?



1. Harmonized Collection and Management of Geospatial Data

Adopt the perspective of a **spatial data ecosystem**, aligned with FAIR principles, in which information across domains is **interoperable** across processes, platforms, and agencies.



2. Technical Infrastructure Requirements

Adopt a technical perspective in the **establishment of common reference frames** and the alignment of **spatial data infrastructure** across domains.



3. Use-case Driven

Adopt a use case driven perspective by focusing on **meeting the specific outcomes** required for a particular domain integration project.

There is **not yet a universally agreed definition or understanding** in terrestrial and maritime domain integration. There is value in **establishing a shared conceptual foundation** of what land-sea integration can entail.



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3) Results and discussion

Question 2: How could the integration of terrestrial and maritime domains contribute to your country's efforts in achieving national development priorities and the Sustainable Development Goals?

Key themes highlighted in the responses:

- Coastal protection & management
- Disaster management & preparedness
- Sea-level rise monitoring
- Benefits to the blue economy



The benefits are **non-exhaustive** and success stories remain **under-documented**. As such, opportunities exist for Member States to benefit from a repository of detailed use cases and implementation experiences.



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3) Results and discussion

Question 3: Out of the nine strategic pathways in the UN-IGIF, which three pathways are the most critical for integrating terrestrial and maritime domains in your country, and why?

1. Governance (44.6%) - Integration success depends primarily on strong institutional frameworks

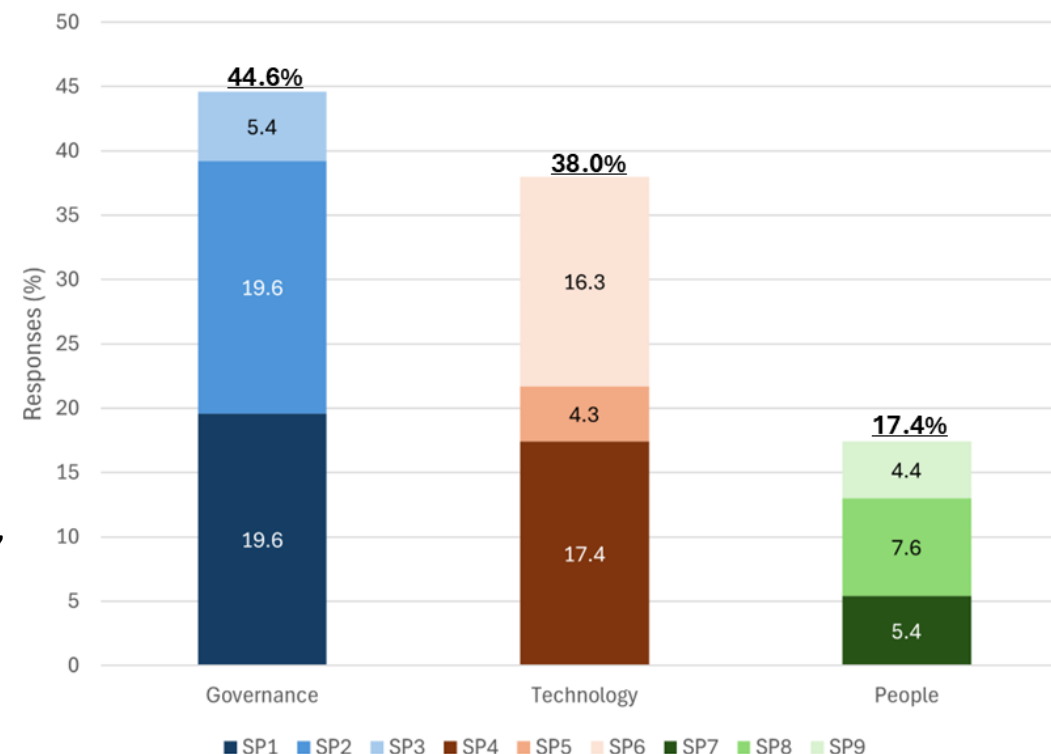
- a) Top priority identified by Member States
- b) Need for coordinated leadership & clear institutional mandates
- c) Sustainable funding models are crucial

2. Technology (38.0%) - Standardization is key to bridging the technology-practice gap

- a) Harmonization of reference frames, standardization of data formats, integration methodologies

3. People (17.4%) - Building cross-domain expertise is fundamental for sustainable integration

- a) Gaps in technical expertise, particularly in areas requiring cross-domain knowledge and need for meaningful stakeholder engagement



Distribution of strategic pathways identified by Member States as critical enablers for terrestrial & maritime domain integration.



3) Results and discussion

Question 4: Out of the nine strategic pathways in the UN-IGIF, which three does your country or region most need support with for integrating terrestrial and maritime domains, and why?

1. Technology (37.6%) – Member States require most assistance in technical implementation

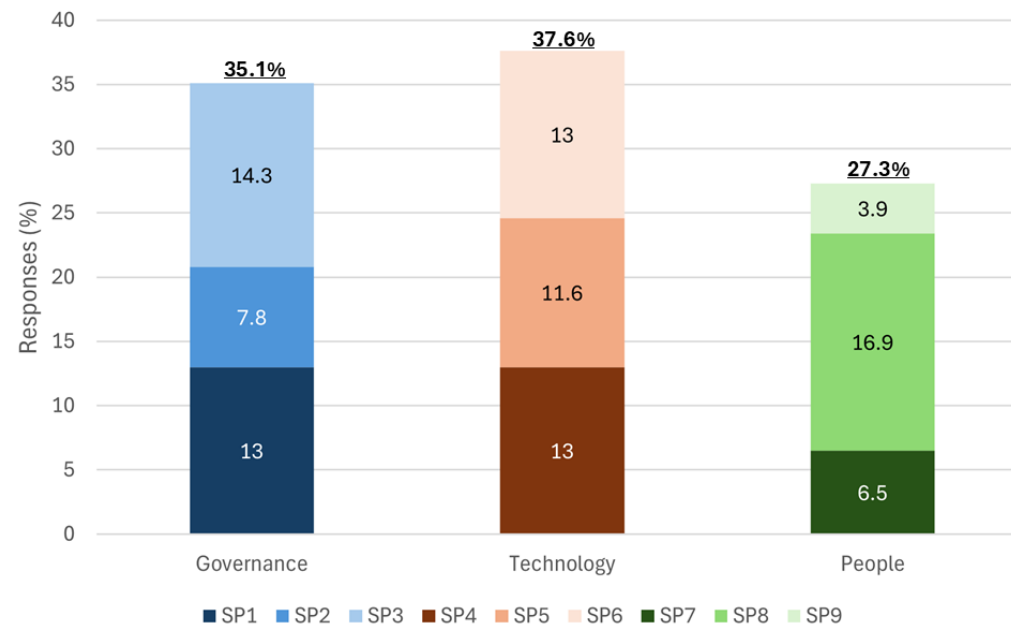
- a) Equal emphasis on Data and Standards suggests both pathways are closely interconnected
- b) E.g. “Difficulty harmonizing datasets due to different coordinate systems and data formats”, “Disparate IT environments hindering access”

2. Governance (35.1%) – Financial assistance is top concern

- a) Funding remains as main barrier to implementation
- b) Policy & legal framework assistance required
- c) E.g. “Fragmented governance structures impeding standards creation and adoption”

3. People (27.3%) – SP8 is the most frequently cited pathway requiring support

- a) Suggests the need for a workforce equipped with specialized technical competencies & comprehensive training programs

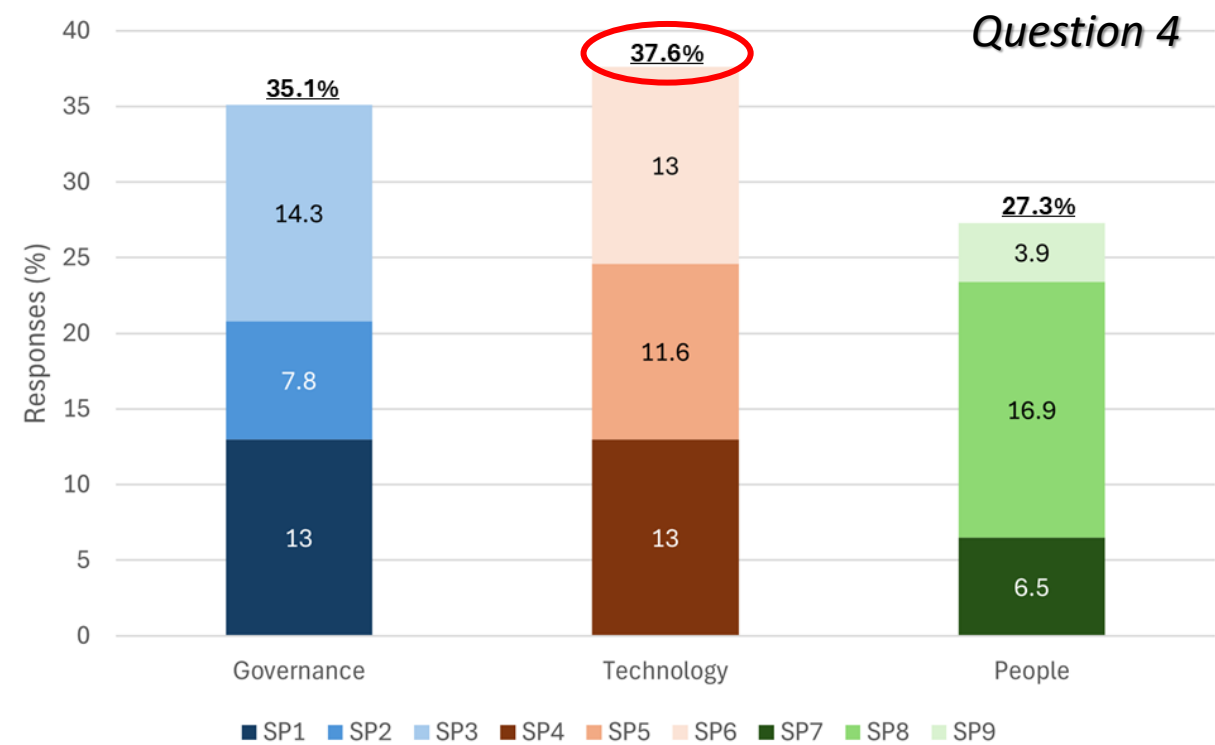
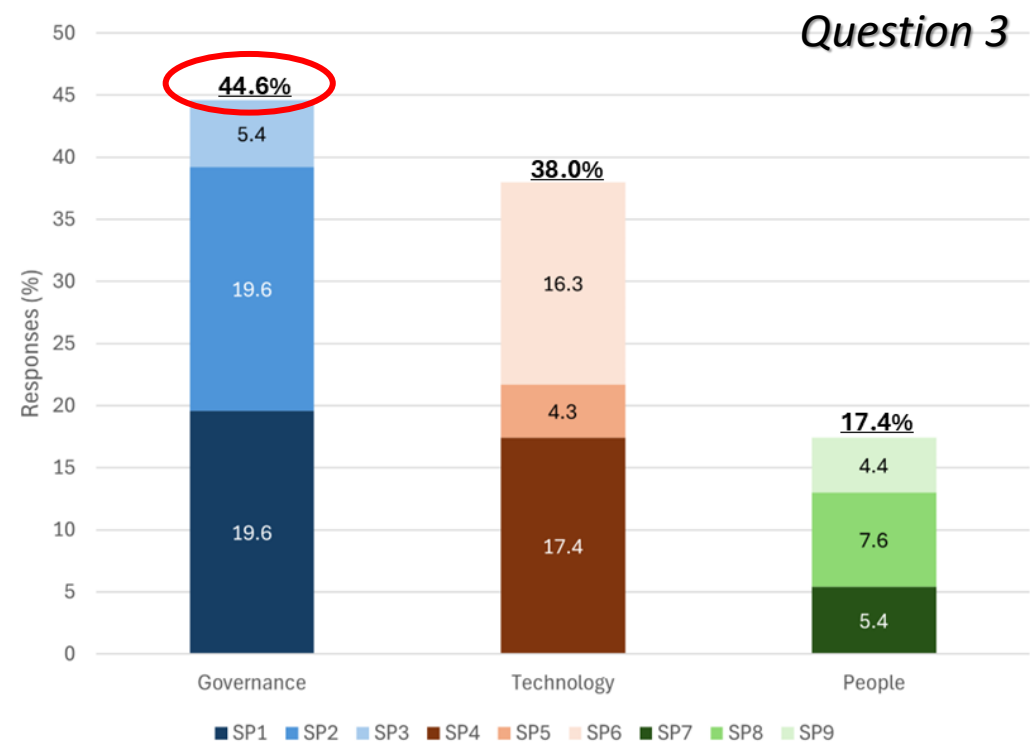


Distribution of strategic pathways where Member States indicated need for additional support in terrestrial & maritime domain integration.



3) Results and discussion

Interesting shift from Question 3's prioritization where **Governance** was seen as most **critical for successful integration** (44.6%), but **Technology** emerged as the area **needing most assistance** in Question 4.



Member States recognize that while **governance frameworks** are essential for integration, **technical and capacity building** challenges remain largely similar across regions, regardless of their governance structures.



4) Recommendations

1. **Establishing a clear definition of terrestrial–maritime domain integration** to foster a shared understanding among Member States and to guide the coordinated implementation of land–sea geospatial frameworks.
2. **Sharing successful use cases** of terrestrial–maritime integration to help Member States better leverage geospatial solutions in advancing the **UN Sustainable Development Goals**.
3. **Sharing their experiences and challenges** in establishing **cross-domain governance frameworks** that support enforceable legal mandates and sustainable financing required for effective integration of geospatial information.
4. **Addressing immediate technical gaps** at the interface of terrestrial and maritime geospatial **data, standards, and innovation** – such as through harmonized reference systems, open standards, and fit-for-purpose tools.
5. **Capacity development programmes and workshops** to build expertise in terrestrial–maritime geospatial integration.
6. **Developing targeted communication materials** that illustrate and visualize the benefits of terrestrial–maritime domain integration, to **promote awareness**, understanding, and **uptake** among stakeholders.
7. **Developing an integration roadmap template** with **clear milestones, responsibilities**, and **success metrics** to guide Member States in their progressive implementation of terrestrial-maritime domain integration.

It is suggested that the Secretariat, in collaboration with interested Member States and the UN Centers of Excellence, explore the development of a proposal outlining possible approaches for the Committee to advance the above recommendations.



5) Acknowledgements

The writing team extend our sincere thanks to:

- 47 respondents from 40 Member States for sharing valuable insights
- UN-GGIM Secretariat for coordination support
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Your contributions have been instrumental in developing this report.

The Writing Team

Name	Organization	Country	Work Group
Dr Victor KHOO (EG-LAM co-chair)	Singapore Land Authority	Singapore	EG-LAM
Ms Raffaella Anilio Olguín (EG-LAM co-chair)	La Infraestructura de Datos Geoespaciales de Chile	Chile	
Mr Roy YUEN Ze Min	Singapore Land Authority	Singapore	
Mr Willis LAU	Singapore Land Authority	Singapore	
Mr LOH Eng Chu	Singapore Land Authority	Singapore	
Dr Parry OEI (WG-MGI co-chair)	Maritime and Port Authority of Singapore	Singapore	WG-MGI
Mr Jotham TEO	Maritime and Port Authority of Singapore	Singapore	



Link to Compilation Report

