

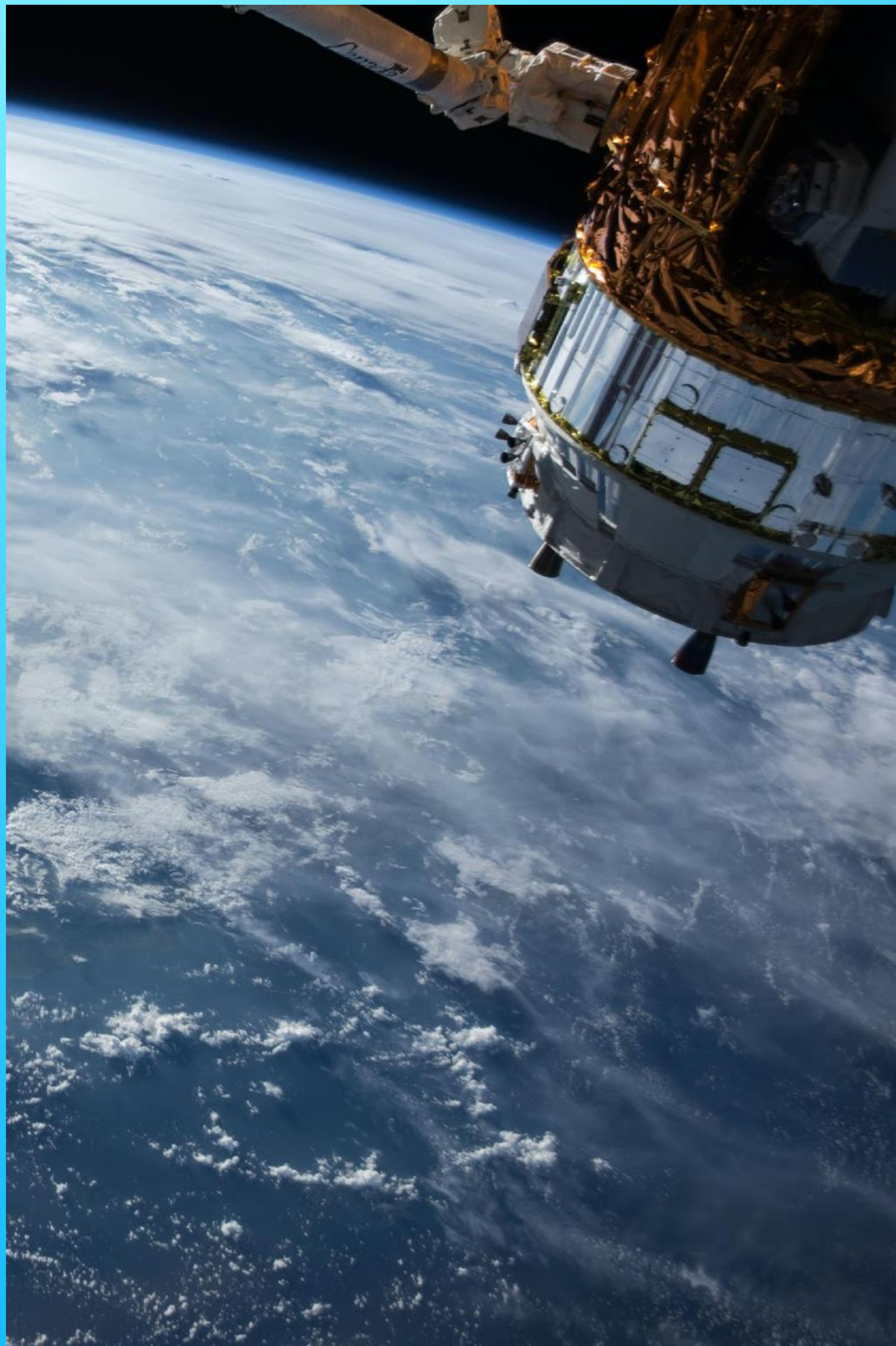


Open
Geospatial
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The OGC Community Connecting Land and Sea Federated MSDI Pilots and ISO 19152 LADM

Trevor Taylor & Chris Body OGC
UNGGCE Workshop – Joining Land & Sea
2-5 December 2024
Bogor, Indonesia





What is OGC?

A hub for thought leadership, innovation, and standards for all things related to location

Our Vision

Building the future of location with community and technology for the good of society

Our Mission

Make location information Findable, Accessible, Interoperable, and Reusable (FAIR)

Our Approach

A proven collaborative and agile process combining consensus-based standards, innovation project, and partnership building

Who Are Our Members?

Commercial

Business Development

Global: Brand Exposure

Competitive Technical Advantage

Funding for Innovation

Government

Innovation & Market Support

International Partnerships

Trusted Advice

Operational Policy

Support & Certification

Research & Academia

Applied Research Partners

International Collaboration

Funding for Innovation

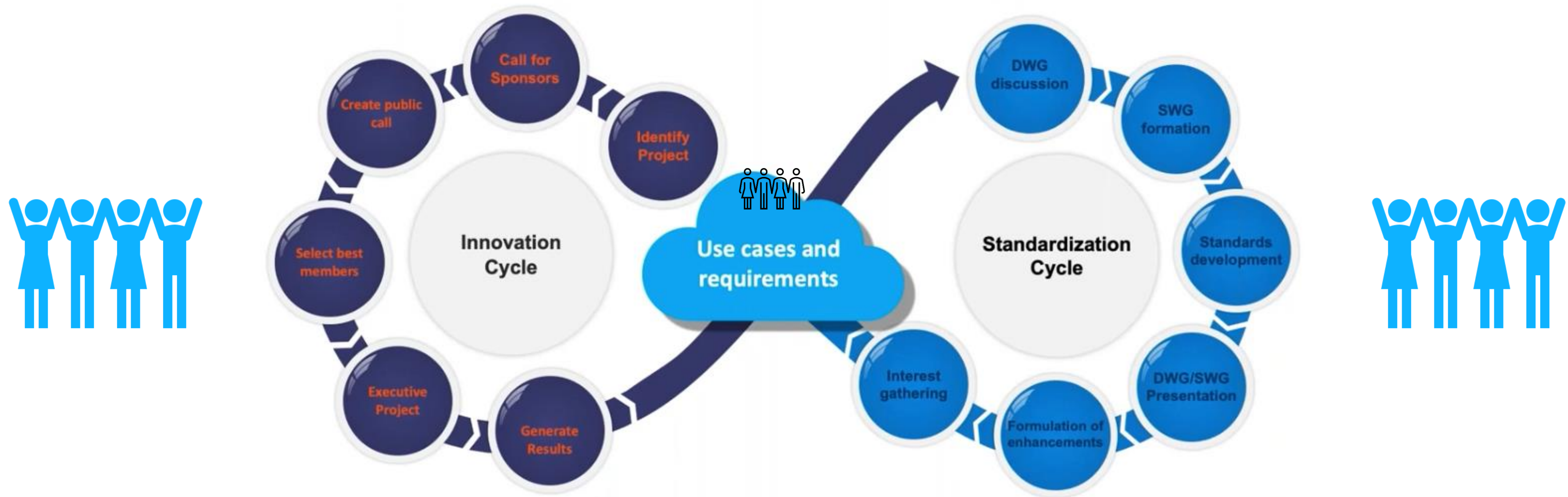
Citations



How does OGC Work?

Collaborative Solutions and Innovation Program (COSI)

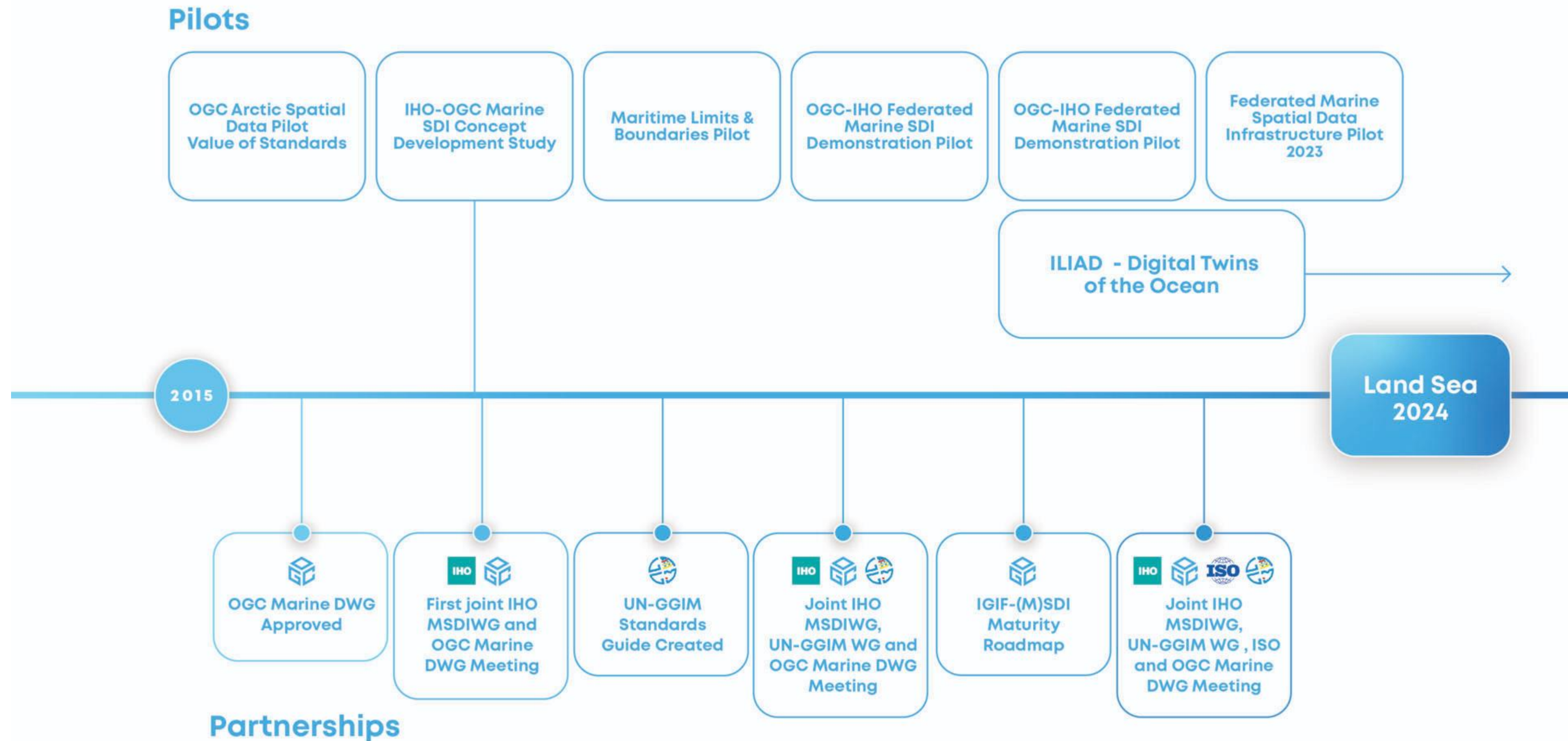
Standards Program



Testbeds , Pilots
Sprints and more

Domain Working Groups (DWGs)
Standards Working Groups (SWGs)

A Committed and Strong Community



Thank you to our Sponsors (to FMSDI 2023)



Partnerships




Why?

Federated Marine Spatial
Data Infrastructure Pilot:
**Data Integration at the
Land-Sea Interface**



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**Around 40% of the World's
population lives in a Coastal zone
(up to 100KM inland)**

An aerial photograph of Singapore, showing a dense urban landscape with numerous skyscrapers and modern buildings. The city is situated along a coastline, with a large body of water in the foreground. The Marina Bay Sands hotel and the Esplanade - Theatres on the Bay are prominent landmarks. The text "75% of Megacities are in coastal zones" is overlaid in large white letters across the center of the image. Various geographical labels are visible, including "CENTRAL AREA", "DOWNTOWN CORE", "MARINA CHANNEL", "SINGAPORE RIVER", "CIVIC DISTRICT", "PULAU SICCOO", "PORT CANNING RESERVOIR", "TANjong Pagar", "CHINA TOWN", and "MUSEUM".

75% of Megacities are in coastal zones

Climate Change

With Climate change comes a massive increased risk to billions of people

Disasters, reduced food security, environmental degradation and more.

We need to get better at connecting data and information!

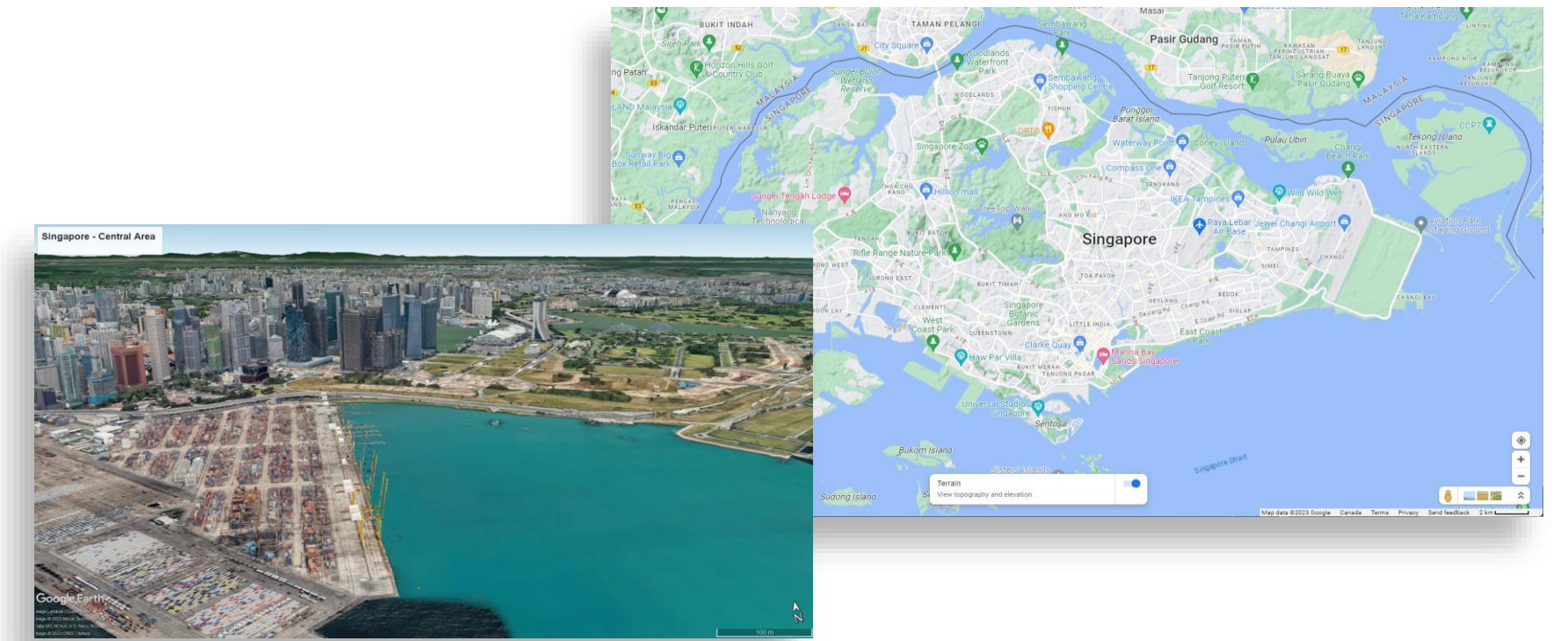


The global Geospatial/Hydrospatial community recognized fundamental need to:

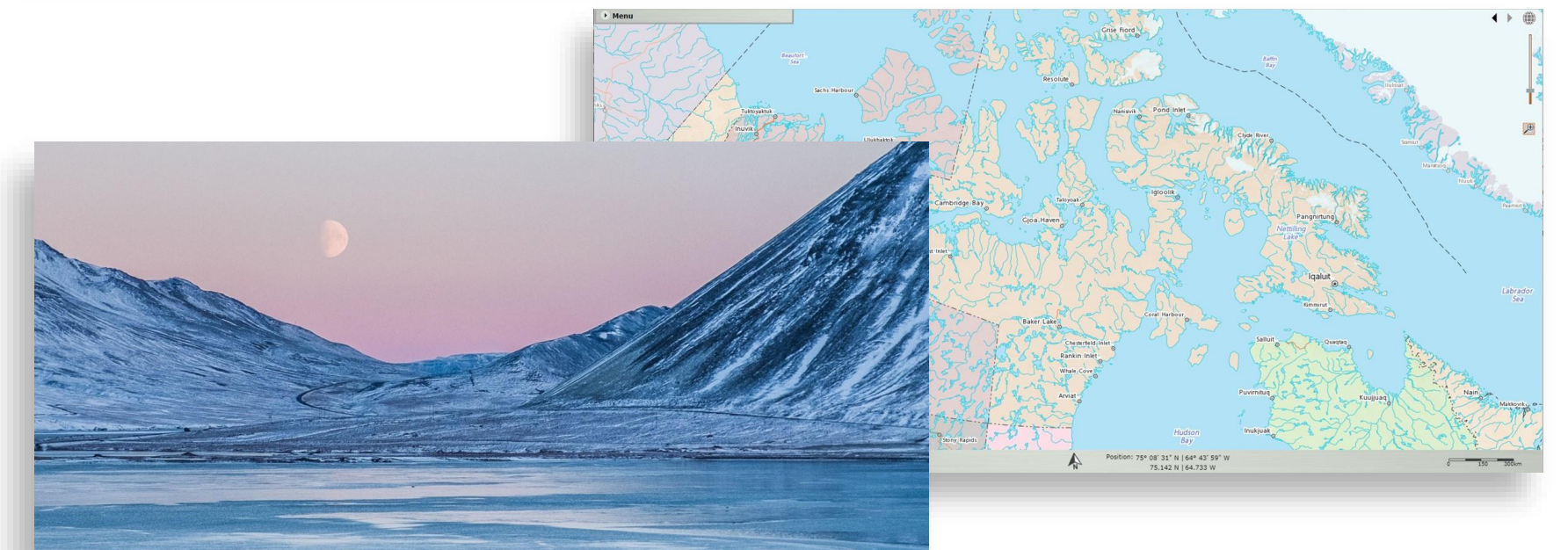
- Improve how well we connect land and sea data **(a big challenge!)**
- Improve **regional connectivity** between various MSDIs at different maturity levels
- Unlock **the value of non-navigational data**
- Make everything **more FAIR!**

FMSDI 2023: A Taste

1. Digital Twin of Land Sea Interface – Singapore



2. Digital Arctic Connecting Land & Sea – Canadian Arctic

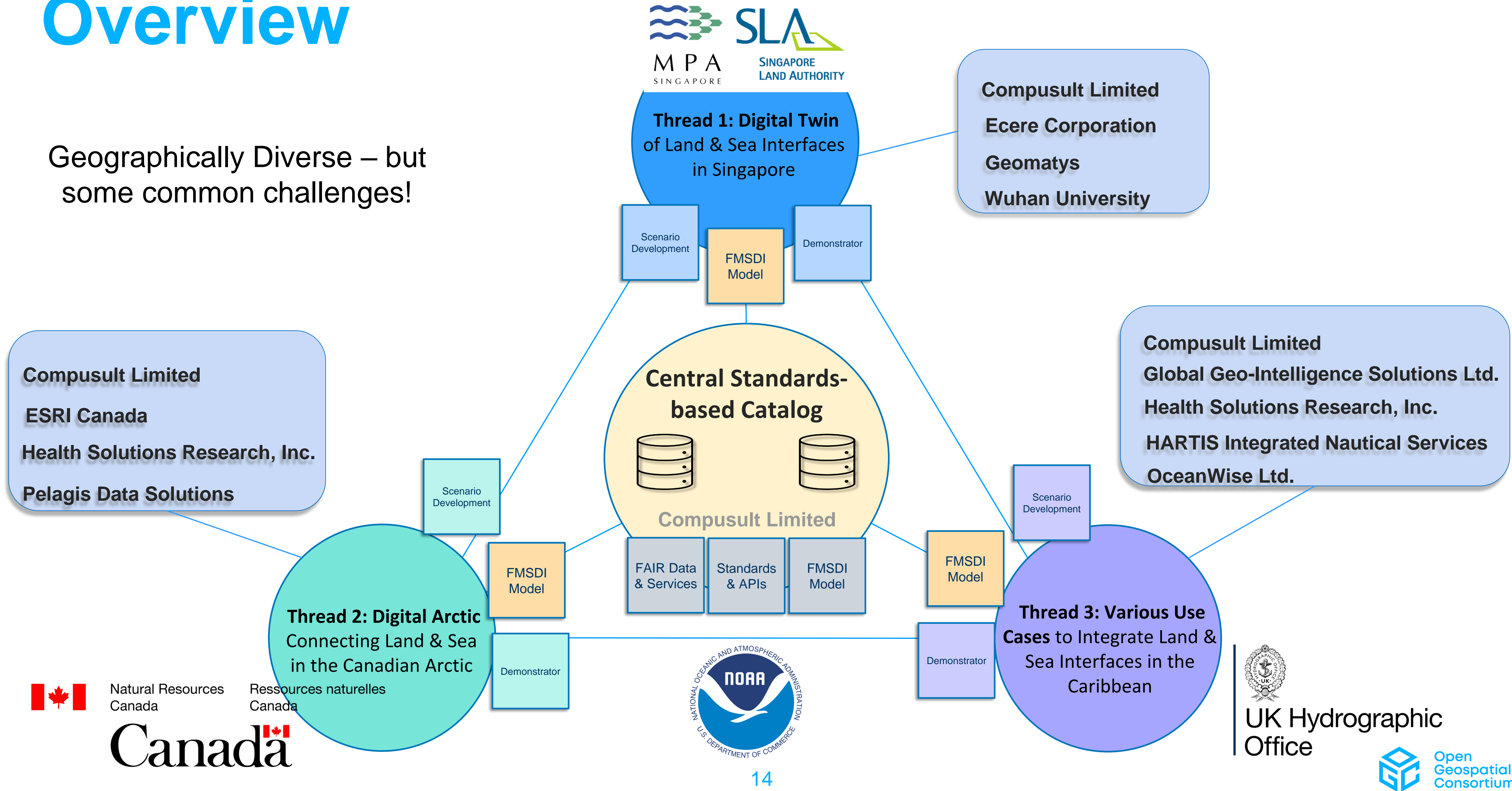


3. Integrating Land & Sea for Various Use Cases – Caribbean



Overview

Geographically Diverse – but some common challenges!



Singapore Thread: Overview

Overall Scenario

- A storm surge flooding event in Singapore
- Simulate this event using a digital twin to aid in future planning and decisions

Methodology

- Bring together land and sea data from separate land/sea agencies.
- Determine how well this data “fits” together.
- Are there gaps and how would this be addressed
- Integrate this data within a 3d/4d environment

Arctic Thread: Overview

The Challenge

- How to efficiently discover and present diverse data, from many sources, for a variety of scenarios in the Arctic

Scenarios

- Impact of Arctic ice melt rates on Bow whale and Killer whale populations and behavior
- How spatial data can be used to analyze and visualize the impacts of climate change on the Arctic environment, infrastructure and inhabitants.
- Identify Arctic communities at higher risk of adverse health outcomes due to microplastic bioaccumulation toxicity.

Caribbean Thread: Overview

Five Scenarios

- Concentration and distribution of micro-plastics before and after climate events
- Tropical storms and hurricanes: Improving decision making using improved data availability through standards
- Develop a Offshore Wind Farm Decision Support System framework to aid site selection.
- Hurricane Health Risk Index identifies a priori the underlying health and medical needs of a hurricane-impacted population
- Leveraging navigational data for non-navigational purposes by understanding how useable this type of data is for building a geospatial information management foundation

Methodology

- Use OGC / IHO and other standards to improve FAIR within a collection of diverse scenarios.
- Determine how well data from disparate sources “fits” together.
- Determine non-navigational data use within the “Blue Economy” - sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem

Federated Marine Spatial Data Infrastructure Pilot: Data Integration at the Land-Sea Interface

FMSDI Pilot Phase 5



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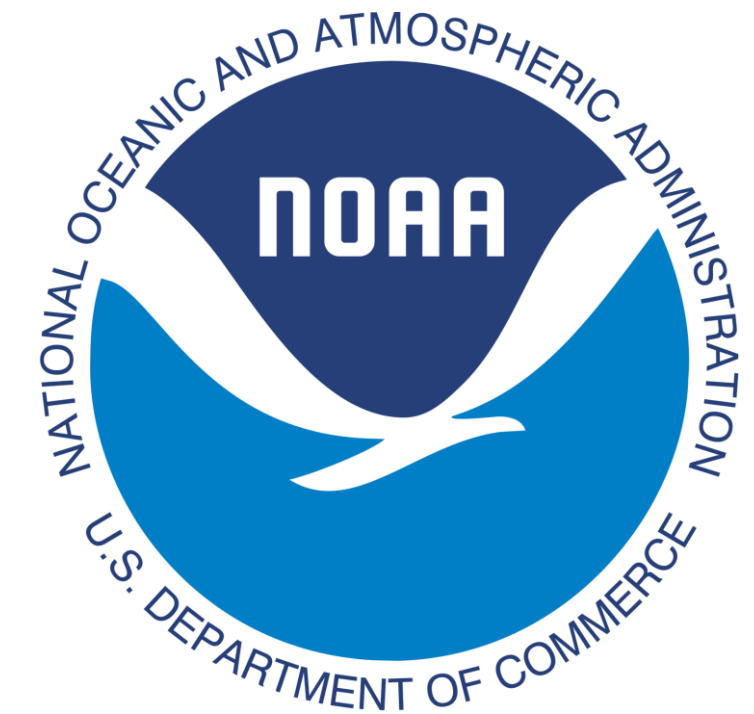
A Thank You to Our Sponsors

- United Kingdom Hydrographic Office (UKHO)



UK Hydrographic
Office

- National Oceanic and Atmospheric Administration (NOAA)



Participants – FMSDI 2024

Connecting Land and Sea –
draft best practice



Pelagis



Data Integration
Demonstrators



Pangaea
Innovations Pty Ltd



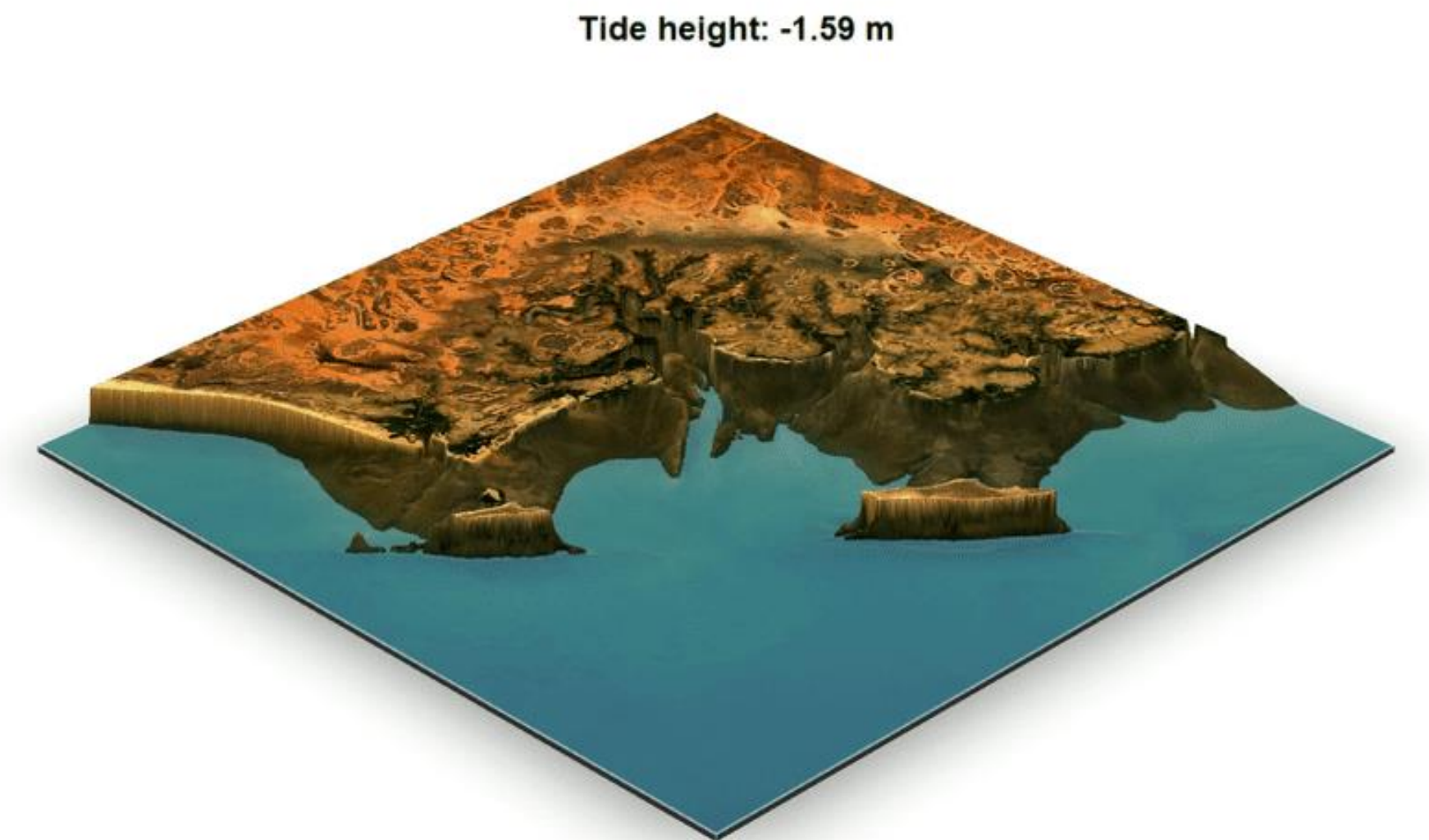
Website and Pilot Reporting



Pilot Project to Bridge Land and Sea Data

Data, relationships and modeling concepts from two communities collide. This initiative tackles these challenges with two leading questions:

1. What needs to be captured and defined in *best practices* so that inter-agency interoperability for white ribbon data can be ensured in the future?
(A framework for a future best practice document)
2. How can existing data sets be integrated dynamically, i.e. at runtime with minimal information loss across land-sea, sea-land boundaries?
(Software demonstrators illustrating data integration across communities & agencies)



FMSDI Pilot Phase 5 Schedule

Milestone	Date	Event
M01	02 October 2024	Public Release: Call for Participation
M02a	20 October 2024	Questions due for Bidders Q&A Webinar on Oct 20th See Appendix D for written Questions and Answers
M02B	22 October 2024	Bidders Q&A Webinar 9:00 AM EDT The Webinar information will be made available on the initiative website.
M03	10 November 2024	Proposals Due at 23:59 US Eastern Time Zone <u>Online bid submission form</u>
M04	26 November 2024	Kick-off Workshop (virtual)
M05	31 January 2025	Initial results website/report due
M06	18 March 2025	Virtual demonstration meeting and final draft results website/report
M07	31 March 2025	Pilot report (ER) submitted for evaluation by OGC working group
M08	31 March 2025	End of the initiative

ISO 19152: Land Administration Domain Model (LADM)

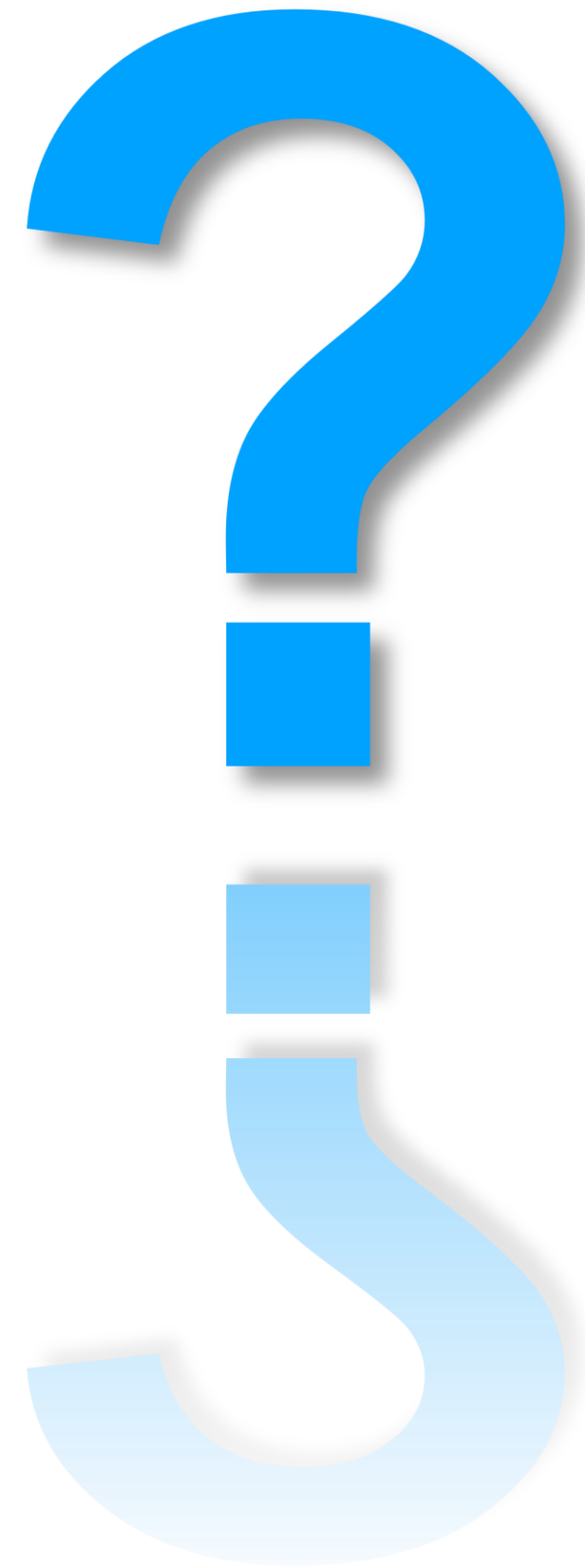
- Provides the concepts and basic structure for standardization in the land administration/ marine georegulation domain.
 - ISO 19152:1 LADM – Part 1: Fundamentals (Published)
 - ISO 19152:2 LADM – Part 2: Land Registration
 - ISO 19152:3 LADM – Part 3: Marine Georegulation (Published)
 - ISO 19152:4 LADM – Part 4: Valuation Information
 - ISO 19152:5 LADM – Part 5: Spatial Plan Information
 - ISO 19152:6 LADM – Part 6: Implementation (OGC)



Summary

- OGC, ISO/TC 211 and FIG have ongoing programs and standards development in support of connecting land & sea information
- One of the key deliverables from the OGC Land Sea Pilot – develop a draft best practice document
- The current limited timeline and funding mean the outcome is intended as a first step in a best practice document, with the goal that the follow-on phase (expected q3/q4 2025) will complete the work. Ultimately, the goal is to contribute the results to the Pilot
- Feedback is particularly encouraged from all participants to ensure the outcomes are representative of the global community
- For further information please contact - Trevor Taylor (ttaylor@ogc.org).

Questions?



Thank You

Community

- 500+ International Members
- 110+ Member Meetings
- 60+ Alliance and Liaison partners
- 50+ Standards Working Groups
- 45+ Domain Working Groups
- 25+ Years of Not for Profit Work
- 10+ Regional and Country Forums

Innovation

- 120+ Innovation Initiatives
- 380+ Technical reports
- Quarterly Tech Trends monitoring

Standards

- 65+ Adopted Standards
- 300+ products with 1000+ certified implementations
- 1,700,000+ Operational Data Sets
- Using OGC Standards

