Extending the World Bank IGIF Methodology into the Marine Domain







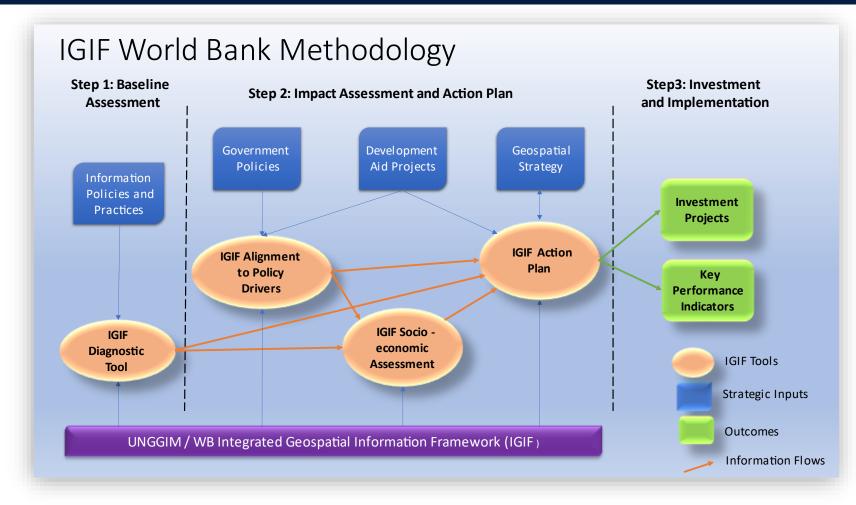




World Bank IGIF Implementation Methodology: 2017-2022

The World Bank Group has established an IGIF Implementation Methodology and corresponding analytical toolkit to support the use of the IGIF ...

- Incrementally strengthen
 geospatial information
 management: Customized to
 specific countries and priorities.
- Link to financing: Based on analytics, using standard WBG infrastructure model.



The diagram shows the analytical tools (in orange), key inputs (in blue), the IGIF in purple, outcomes (in green). Arrows show the different types of information



World Bank IGIF Templates

Diagnostic/Baseline Assessment

Business case
-Alignment to Policy/ Business Drivers
-Socio-Economic Impact Assessment

Action/Investment Plan







Baseline Diagnostic Tool

Assessment Template provide an assessment of the "as is" position of geospatial information management, structured around the nine IGIF pathways.

The DT is applicable to any geographical entity including city, region and country levels.

Used to engage stakeholders through a consultation and verification workshop.

The Baseline Assessment Diagnostic Tool Template is available for download here:

The Baseline Assessment Report Template is available for download here.







Socio-Economic Impact Assessment: Financing Justification

Benefit to Cost Ratio: 2.5:1

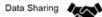
Return on Investment: 250%

Net Present Value: US \$66,1 million



Reduced operating costs by having a common National address database

12 Bn MNT (\$4.5 Mn)





Reduced survey costs for mining, construction, utilities and transport

49 Bn MNT (\$18.3 Mn)

> Geodetic Reference Stations



Improved response to disaster events

89Bn MNT (\$33.2 Mn)

Management

Increased land use fees from complete land parcel register

72 Bn MNT

(\$26.6 Mn) Fee Collection



New jobs directly linked to geospatial globally estimated at 4 million, scaled to Mongolia

Employment



Better and guicker urban planning decision making

7Bn MNT (\$2.6m)



Improved Commercial Property Tax Collection

7 Bn MNT

Tax Revenues



9 Bn MNT (\$3.5 Mn)

Land market



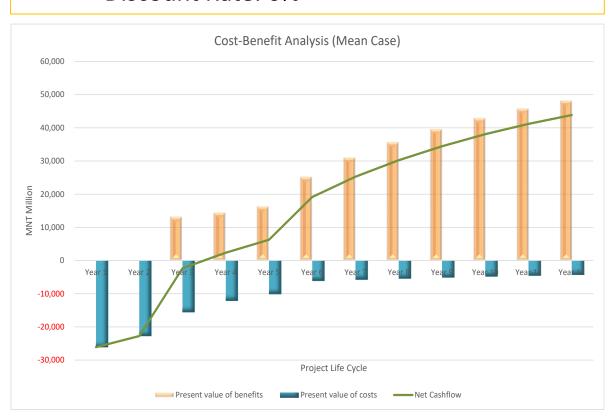
Global decrease in CO2 emissions

1686m Tonnes

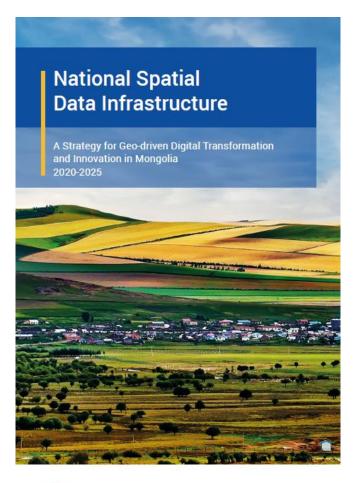
Climate Change

World Bank Infrastructure Project Model

- Project Life Cycle:
 - 5 years development
 - 7 years operation
- Discount Rate: 6%



IGIF Action/Investment Plan: Mongolia

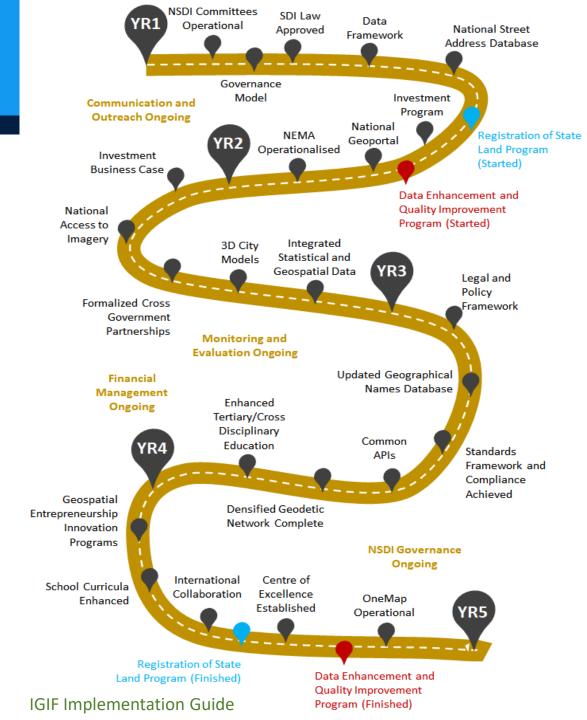


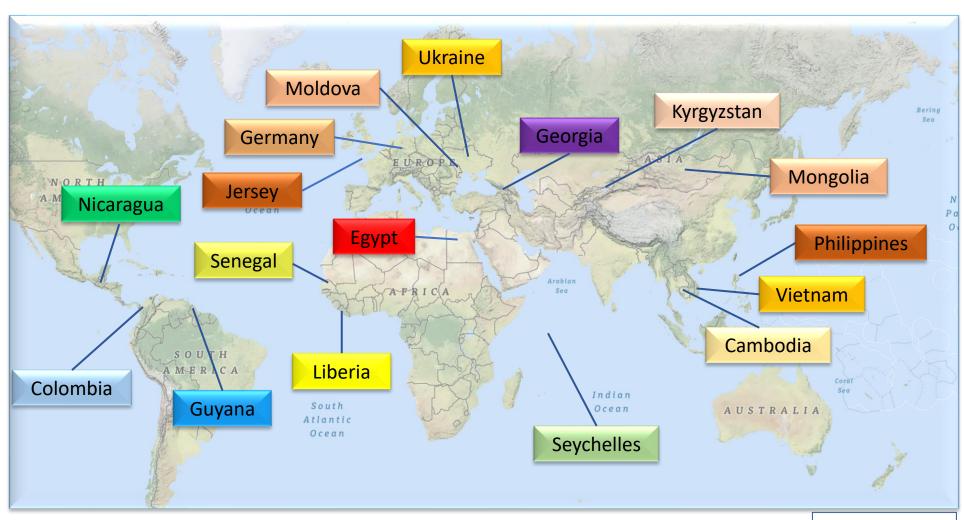
Vision: Geo-driven
eGovernment and innovation
that empowers efficient and
effective use of geospatial
information towards national
sustainable development and
economic growth.

Potential financing through the new WB-financed Digital Development Project: Delivery 2022

















Source: World Bank





IGIF-MSDI Maturity Roadmap

"Quick-Start Guide for undertaking an IGIF-aligned MSDI"

EUR ING **Dr Gerald J Wong** MPhys MBA EngD MIET MInstP CEng CPhys

UKHO Data Strategy and Information Governance Lead













I. Who?

For Hydrographic Offices (or national equivalents) and their marine/maritime geospatial data stakeholders.

2. Why?

Cross-agency engagement is crucial for delivering complex future capabilities such as Digital Twins.

3. What?

Alignment of an MSDI implementation with the IGIF, leveraging World Bank expertise in SDI assessment.

4. When?

Pre-implementation to the early and middle stages of an IGIF-aligned MSDI transformation programme.

5. Where?

As a stepping-stone to the full IGIF-MSDI ecosystem for national, regional, and port-specific MSDI solutions.

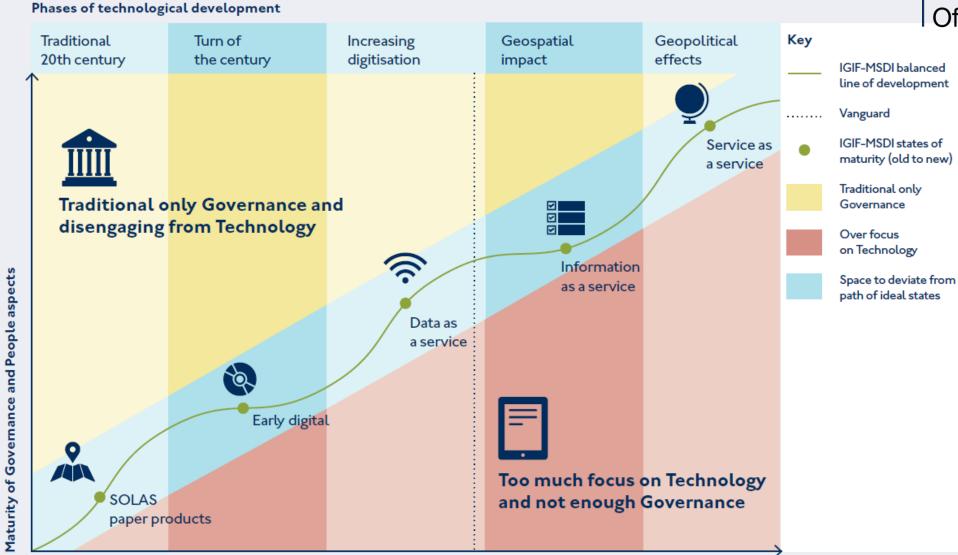
6. How?

Early alignment will reduce future costs of divergence by ensuring interoperability with an All-Domain NSDI⁽¹⁾.

I All-domain: Air, land, sea, space, and cyberspace (if applicable). NSDI: National Spatial Data Infrastructure.

IGIF-MSDI is a Pathway, Maturity is a State





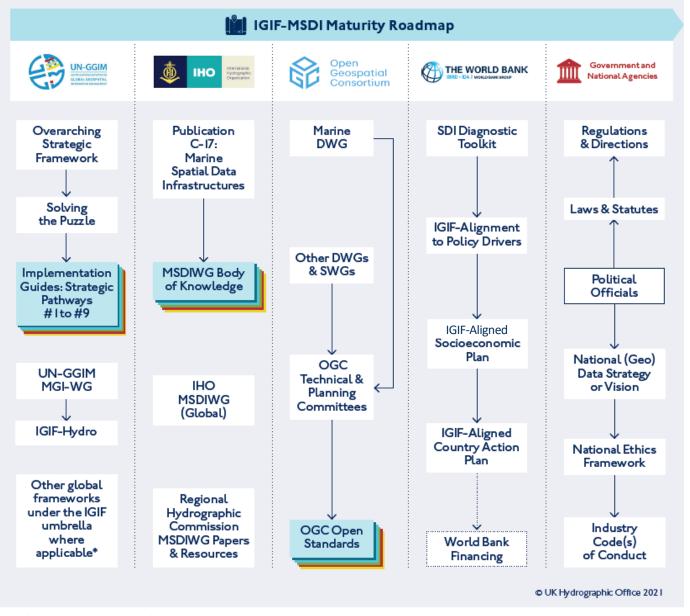
Intensity of focus on pure Technology

Embedding an IGIF-Aligned MSDI into wider Geospatial considerations





(Simplified) Ecosystem of IGIF and MSDI Resources





*Including the Fundamental Geospatial Data Themes and the Global Statistical Geospatial Framework

The Context of the UN-GGIM, IHO, OGC, and World Bank

WHY?

Socio-economic motivations and inclusive benefits from global geospatial information management

WHAT?

Developing a spatial data infrastructure suited for unlocking the value in marine and maritime data

HOW?

Implementing OGC Standards to maximise the capabilities of Tech via the cost benefits of interoperability

Foundation Elements: Financing & National Ecosystem





SDI Diagnostic Toolkit

Alignment to Policy Drivers

Socio-Economic Plan

Country Action Plan Laws & Statutes

National Geodata Policies

Industry Ways of Working

Organisation







Solving the Puzzle



Implementation Guide: 9 Strategic Pathways



Country-Level Action Plans (Incl. When? Who?)







Representation at UN-GGIM MGI-WG and OGC Marine DWG



Publication C-I7 on the MSDI Concept



MSDIWG Body of Knowledge









Holistic Approach to an IGIF-Aligned MSDI











Socio-economic motivations and inclusive benefits from global geospatial information management



Developing a spatial data infrastructure suited for unlocking the value in marine and maritime data

HOW?

Implementing OGC Standards to maximise the capabilities of Tech via the cost benefits of interoperability

FINANCING?

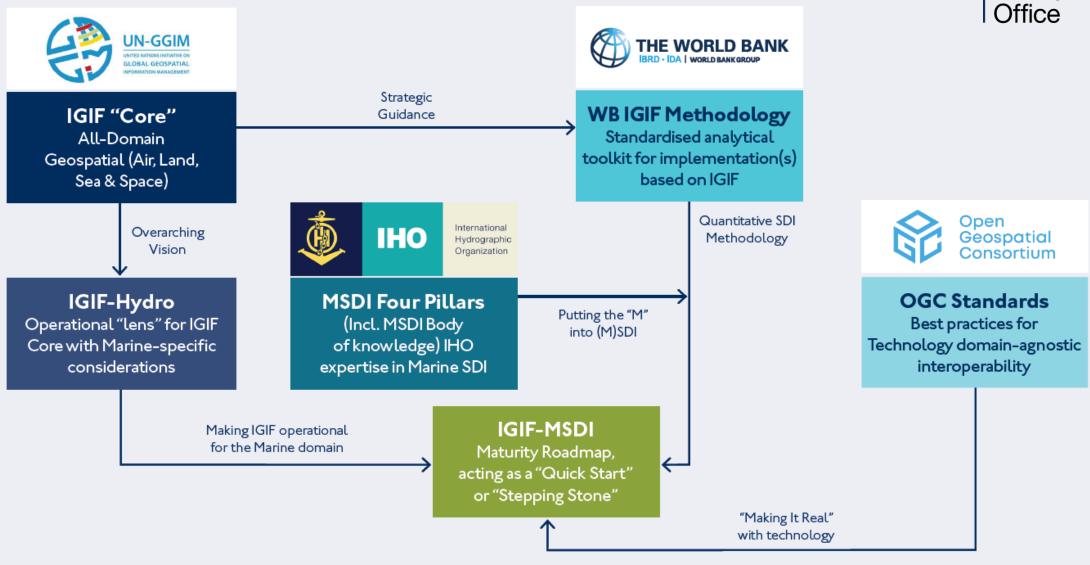
Defining and measuring socio-economic benefits to justify and/or monitor the use of financial resources

Strategic Iteration

Fixed review period (5 or 10 year), linked to political cycle(s), or external triggers (geopolitical, technological, or environmental)

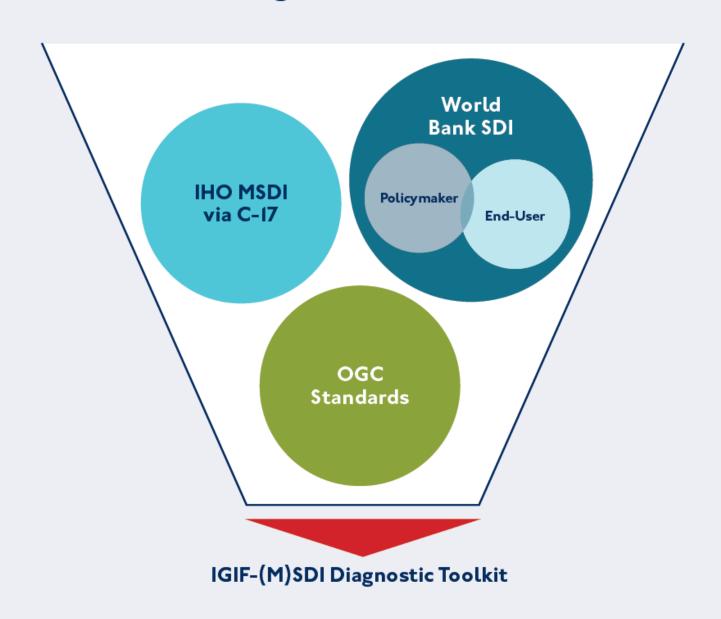
Key inputs for an IGIF-Aligned MSDI





Components of the IGIF-(M)SDI Diagnostic Toolkit





IGIF-MSDI Maturity Assessment





Standards

Innovation

Lead Authorship, Contributors, Reviewers, and Facilitators

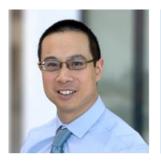
Jens Peter Hartmann

Chair of IHO MSDIWG

Danish Geodata Agency,

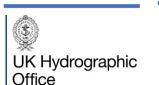
Geodatastyrelsen Danish Geodata Agency

Kingdom of Denmark



Dr Gerald J Wong Co-Chair of OGC Marine DWG & OGC Planning

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United Nations



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Andrew Coote Principal NSDI Consultant



Special thanks for Side Event support and/or endorsement: **IHO SecGen Mathias Jonas OGC CEO Nadine Alameh** ISO/TC-211 Chair Peter Parslow

Next Steps before Publication

- A. Feedback on the IGIF-(M)SDI Maturity Roadmap from Expert Reviewers ...
 - i. Chairs of the IHO MSDIWG and UN-GGIM WG-MGI respectively
- B. Secure commitment from countries to pilot its value in use and refine (as necessary)
 - Developed Country Candidate(s)
 - ii. Developing Country Candidate(s)

Questions for the Community

- 1. Does the Maturity Roadmap help meet your (M)SDI requirements?
- 2. If yes, how can it be refined to even better meet your needs?
- 3. If not, what tools or guidelines would accelerate the strengthening of marine geospatial information management at the country-level?
- 4. Other Questions ...