Hydrographic Data, the IGIF and Digital Twins of the Oceans

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We are the UK government’s hydrographic and marine geospatial experts
Enabling better use of the marine environment
Loch Ewe Digital Twin

UK Hydrographic Office
What is a Digital Twin?
The sparkly fountain

Presented by Terry McConnell
Fugro DITTO22

Digital Twins:

Are the visible part of a complex digital data eco-system

Are empowered by that digital data eco-system

and

Dictate the design of the digital data eco-system.
Q-FAIR: Quality

Figure 5-13: Simulated Run-up heights along Anguilla coast (source LA2 with 10m bathymetry)

• Figure 5-15: Simulated Run-up heights along Anguilla coast (source LA2 with GEBCO bathymetry)
Q-FAIR: Interoperability and Reusability
The UN- GGIM IGIF Nine Pathways model

- Governance
- Technology
- People

Knowledge
- Governance and Institutions
- Legal and Policy
- Financial

Decisions
- Data
- Innovation
- Standards

Development
- Partnerships
- Capacity and Education
- Communication and Engagement

Society
- Economy
- Environment

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Embedding an IGIF-Aligned MSDI into wider Geospatial considerations

Hydrographic & Marine
- All-Domain NSDI and National Geostrategy
- National Marine Infrastructure, EEZs & Home Waters

IGIF-Aligned MSDI
- Capabilities to support wider Government(s)
- Authoritative and assured information to Civil interests
- Intergovernmental Organisations (UN, IHO, OGC, & World Bank)
- Regional Groups of Shared Interests (Tech, industry, NGOs)

Private Citizens & Small Businesses
- Emergent Industries (Undersea data centres & autonomous vessels)

Emergent Industries (Undersea data centres & autonomous vessels)
- Established sea-based Industries (Windfarms, shipping)

National Government
- Law Enforcement, Defence and Overseas Aid
- HADR, Anti-Piracy, Development & Climate Change

International Partnerships
- Industry & Society
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

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**Foundation Elements: Financing & National Ecosystem**

**SDI Diagnostic Toolkit**

**Alignment to Policy Drivers**

**Socio-Economic Plan**

**Country Action Plan**

**Industry Ways of Working**
Holistic Approach to an IGIF-Aligned MSDI

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

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

A. Publish following feedback from reviewers
B. Secure commitment from countries to pilot its value in use and refine
Thank you