



# Coastal/Marine SDI Capacity Building Webinar

*Your Moderator:*

**Roger Longhorn, Secretary-General, GSDI Association** ([gsdiassociation.org](http://gsdiassociation.org))

*The Panelists:*

- **Cdr Kamaruddin Yusoff, RMN, Head of METOC, National Hydrographic Centre of Malaysia**
  
- **Mr Jens Peter Hartmann, IC-ENC Vice Chairman, Senior Advisor at the Danish Geodata Agency, Chair of IHO Marine SDI Working Group and the Baltic Sea Marine Spatial Data Infrastructure Working Group (BSMSDIWG).**
  
- **Capitao-Tenente, Julierme G. Pinheiro, Asst. of Environmental Data Exchange Section, Navy Hydrographic Center, Brazil**

# Welcome to the Webinar!

- **Part 1 – Introduction (*Roger Longhorn*)**
- **Part 2 – Presentations by our three Panellists – from Malaysia, Denmark and Brazil**
- **Part 3 – Q&A Session and Close**

# Some Webinar ‘Housekeeping’!

- **Documents available for download from the ‘Handouts’ tab in the control panel to the right of your screen include:**
  - A brief Marine SDI Questionnaire
  - The four presentations (as PDF files)
- **Your microphones are all muted automatically.**
- **Questions can be asked by typing your question into the Question Box in the panel to the right of your screen. We will answer as many of these as possible in the final session of the webinar and all will be answered by email to all attendees.**

# Marine Spatial Data Infrastructure (MSDI)

A Marine Spatial Data Infrastructure (MSDI) is that element of an SDI that focuses on the marine input to SDIs in terms of governance, standards, ICT and content.

The concept of MSDI is gaining wider appreciation in terms of the way a variety of data types might be combined for efficient analysis by a wide range of disciplines, such as spatial planning, environmental management and emergency response.

This requires the data to be held in a generic way, rather than for a particular product for a limited user group or for a specific purpose.

An MSDI is ... an infrastructure that promotes interoperability of data at all levels.

*from Spatial Data Infrastructures – “The Marine Dimension”*

*Guidance for Hydrographic Offices - IHO Publication C-17 - Edition 2.0 - April 2016*



# What is a Marine/Coastal SDI?

- A **subset of NII** - developed under the umbrella principles & policies of the broader National Information Infrastructure (and e-Government plans).
- A **subset of NSDI** - involving many different sectors and disciplines where 'location' in respect of the marine/coastal environment is especially important or essential – and usually complex (coastal).
- 'Marine' is one of the few themes **developed today within NSDI** (geology? transport?).
- **Key 'People' questions – who leads and/or how do multiple sectors work together effectively in creating what is a complex, multi-sector SDI?**

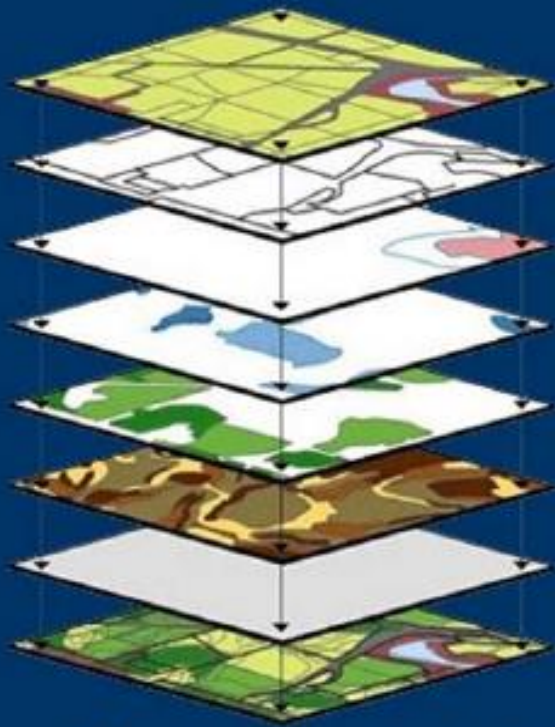
# Coastal/Marine SDI Challenges

**What are the SDI challenges facing the coastal and marine information communities?**



# Marine Data Challenges – Many Themes!

## Multipurpose Marine Cadastre Data Themes



Jurisdictional Boundaries

Federal Georegulations

Federal Agency Regions

Navigation & Marine Infrastructure

Marine Habitat & Biodiversity\*

Human Uses\*

Physical & Oceanographic\*

Basemaps

## EU Marine Spatial Planning (MSP) Themes:

- aquaculture areas
- fishing areas
- oil, of gas and other energy resources
- minerals and aggregates
- production of energy from renewable sources
- nature and species conservation sites and protected areas
- maritime transport routes and traffic flows
- submarine cable and pipeline routes
- raw material extraction areas
- military training areas
- scientific research
- tourism
- underwater cultural heritage

# Marine Data Challenges – Variable Legal Basis?

- **EU Maritime Policy** has no explicit legal basis in the Treaty of Rome as exists in other sectors, such as agriculture, transport, etc., so...
  - ... implementation of different elements of the EU Marine Strategy Framework Directive (MSFD) and Marine Spatial Planning (MSP) Directive rely on specific Treaty provisions that most closely relate to the proposed policy initiatives.
  - The data components (data, tools, management, etc.) are then enacted (typically) via Regulations (law) – but not always in detail and with multiple enforcement regimes (whether EU-wide or national).
- **USA** – “regional planning bodies are not regulatory bodies and have no independent legal authority to regulate or otherwise direct Federal, State, tribal or local government actions.” (EO 2010)

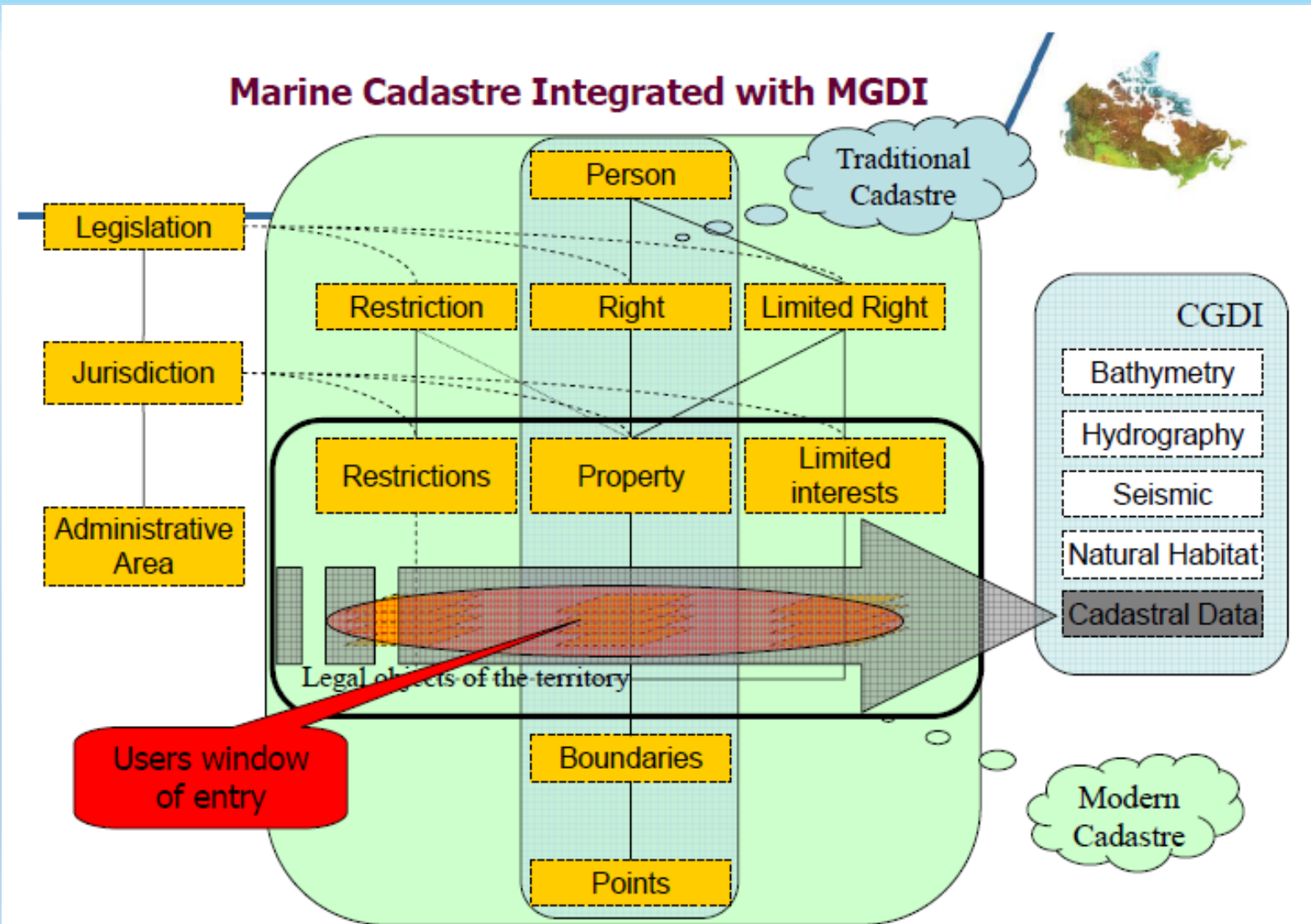


# MSP Data Challenges - Standardisation & Conformance?

## EU MSP Directive - Article 10 - Data use and sharing

1. Member States shall organise the use of the best available data, and decide how to organise the sharing of information, necessary for maritime spatial plans.
2. The data referred to in paragraph 1 may include, inter alia:
  - (a) environmental, social and economic data collected in accordance with Union legislation pertaining to the activities referred to in Article 8;
  - (b) marine physical data about marine waters.
3. When implementing paragraph 1, Member States shall make use of relevant instruments and tools, including those already available under the IMP, and under other relevant Union policies, such as those mentioned in Directive 2007/2/EC (INSPIRE).

# Marine Data Challenges – Complex Integration?

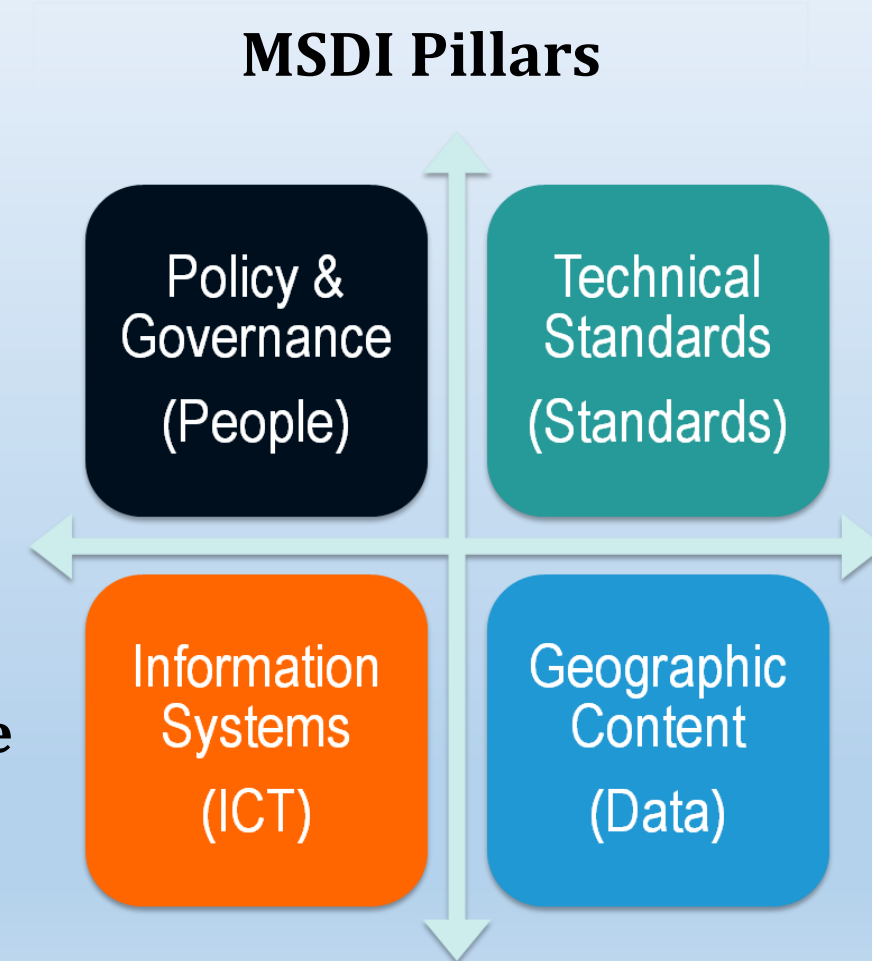


1. Marine Cadastre components are critical for implementation of marine spatial plans.
2. Data, jurisdictions and legal issues all overlap with MSP requirements.
3. Integrated spatial data infrastructures (SDI) encompassing both marine and terrestrial data are key enablers for both marine cadastre and MSP.

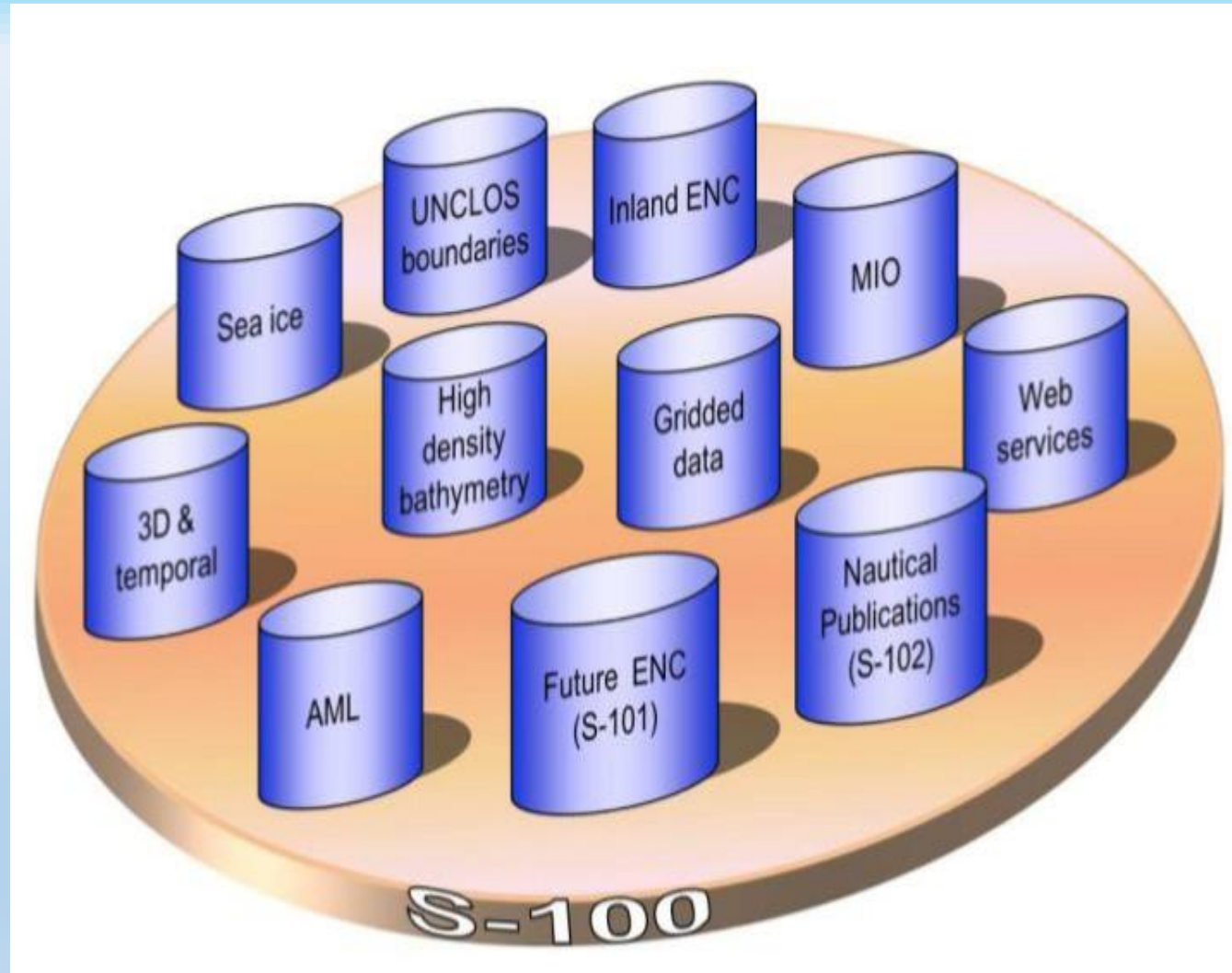
# IHO Marine Data Standards

## (New) S-100 Framework Data Structure for Hydrographic and Related Data

- broad geospatial framework structure,
- not specific to navigation or charting,
- capable of accommodating other requirements,
- based on ISO 19100 series of geographic information standards,
- will support development of Marine SDIs globally,
- marine cadastre is one of the first sub-components to be developed.



# IHO Marine Data Standards



# IHO Marine SDI Working Group - Work Plan 2018-2020

- Establish an IHO **MSDI vision for 2030** and implement an **MSDI Maturity Assessment** to enable consistent reporting from IHO Member States.
- Create an **implementation “roadmap” template** for MSDI (at national and/or regional level).
- Identify **definitions, appropriate and relevant standards** and **components** of (M)SDI.
- Assess the **suitability of existing standards** in supporting data interoperability.
- Draft a **conceptual architecture, governance model** and **data policy statements** for MSDI.
- Develop and provide **Guidelines for MSDI implementation** and relevant **Case Studies**.
- Identify **core data** for input to MSDI to **support multiple applications** and wider user **requirements for bathymetry data**.
- Report on the **future technology and policy trends** affecting MSDI.
- Identify and/or develop and maintain a **validated MSDI training syllabus** and support development of **MSDI e-learning products and platforms**.

# OGC Marine Domain Working Group

- The **OGC Marine DWG** was formed on **30 May 2016** and the charter defines the role for OGC activities within the marine geospatial community to provide an open forum for the discussion and presentation of interoperability requirements, use cases, pilots, and implementations of OGC standards in this domain.
- The Marine DWG liaises closely with the IHO Marine SDI WG (including on its workplan).
- Several meetings have been held in conjunction with OGC Technical Committee meetings and IHO Marine SDI WG.
- Main areas for study and activity (in cooperation with IHO):
  - Topic 1: **Land and Sea integration**
  - Topic 2: **The wider use of marine data and related standards**
  - Topic 3: **Current Marine SDI initiatives**

# OGC Marine DWG Workplan Items (2017)

- Create **White Paper** on the IHO's MSDIWG top issues for consideration, addressing the technical aspects to the focus areas.
- Explore and document appropriate/usable **formats for bathymetry dissemination** to a broader user base.
- Begin a **structured OGC Project**.
- Develop **primary Use Case document** with focus on a Pan Arctic bathymetry database, with core themes, e.g. raster and vector bathymetry, sonar, Lidar, crowd sourced, satellite imagery and data, land and sea integration, coastline definition, seamless DE.
- Develop a proposal for an **OGC Concept Document Study (CDS)** for MSDI.
- Investigate feasibility and funding for a **Combined Technology Demonstrator** (Caris, Esri, OGC).

# On to our Panellist Presentations!

- **Cdr Kamaruddin Yusoff, RMN, Head of METOC, National Hydrographic Centre of Malaysia**
- **Mr Jens Peter Hartmann, IC-ENC Vice Chairman, Senior Advisor at the Danish Geodata Agency, Chair of IHO Marine SDI Working Group and the Baltic Sea Marine Spatial Data Infrastructure Working Group (BSMSDIWG).**
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# Questions and Answers!

**Questions that we do not have time to answer during the webinar, or for which more time is needed to realize effective answers, will be dealt with by email, answers copied to all who participated in today's webinar.**



# **Thank you for your attention!**

*Your Moderator was:*

**Roger Longhorn, Secretary-General, GSDI Association (rlonghorn@godi.org)**

*The Panellists were:*

- **Cdr Kamaruddin Yusoff, RMN, Head of METOC, National Hydrographic Centre of Malaysia (kama.yus77@gmail.com)**
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- **Capitao-Tenente, Julierme G. Pinheiro, Asst. of Environmental Data Exchange Section, Navy Hydrographic Center, Brazil (pinheiro@chm.mar.mil.br)**