HCA13-08.5.3A

MSDI in Antarctica
"Interoperability at Work?"

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IHO MSDIWG Secretary

Content

- About MSDI – What it is and What it is not!
- Why MSDI is important
- What is required to make MSDI a reality
- MSDI in Antarctica
- Stakeholders
- Benefits
- User perspective
- IHOMSDIWG

IHO Policy

A successful national hydrographic policy will not only meet the requirements of the mariner but can provide additional and often greater benefits to the State. Such benefits include:

- ✓ Safe and efficient operation of maritime traffic;
- ✓ Exploration and Exploitation of Marine Resources;
- ✓ Marine Spatial Planning;
- ✓ Integrated Coastal Zone Management;
- ✓ Environmental Protection and
- ✓ Maritime Defence

What is SDI?

SDI is **"the relevant base collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data" .***Ref: Global Spatial Data Infrastructure (GSDI) Cookbook*

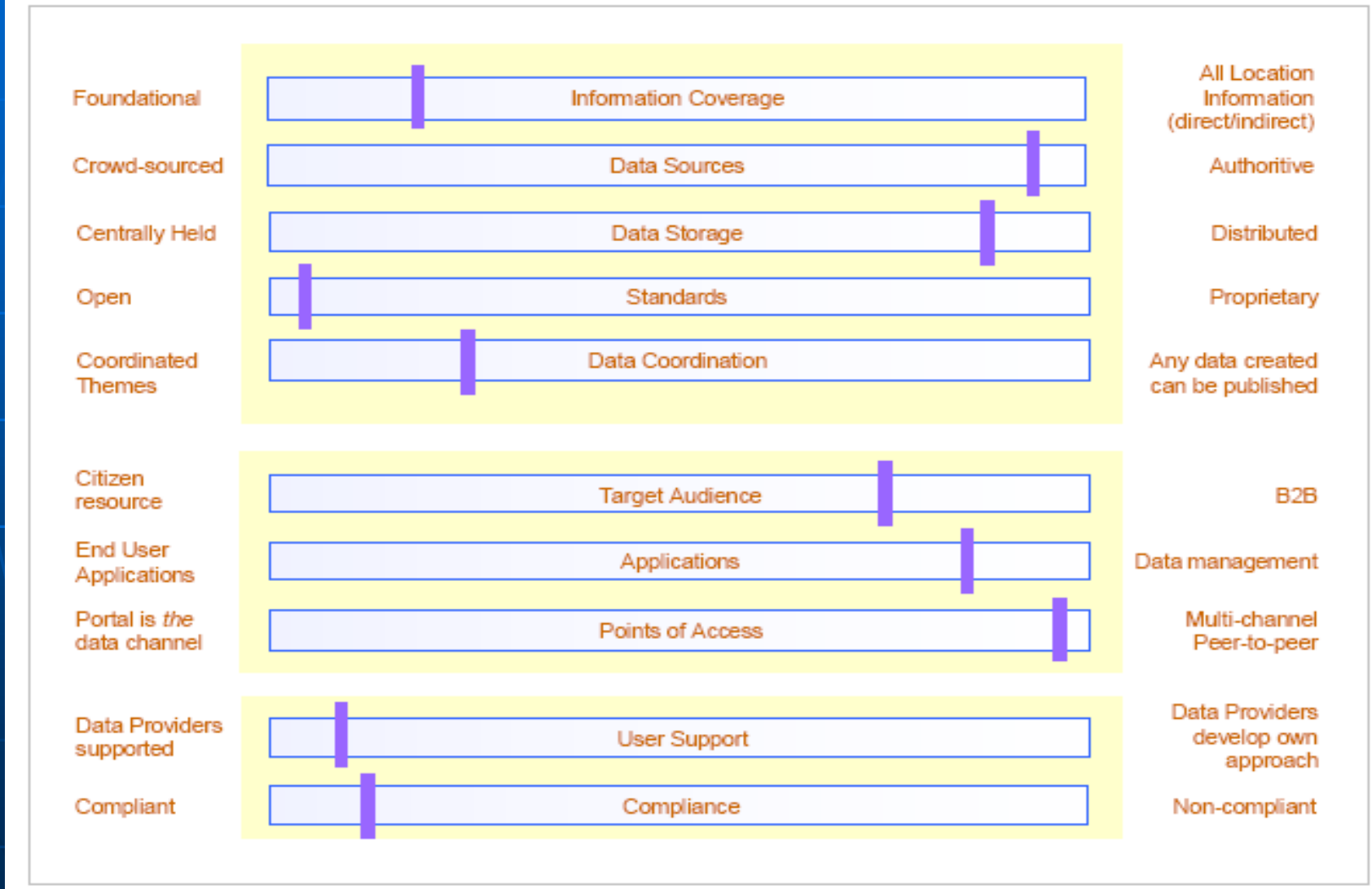
It covers ...

- processes that integrate technologies, policies, standards, and people
- the structure of working practises and relationships across data producers and users for access, sharing and analysing geospatial information across government and commerce
- hardware, software and system components necessary to support the processes
- BUT it is not a central repository for data

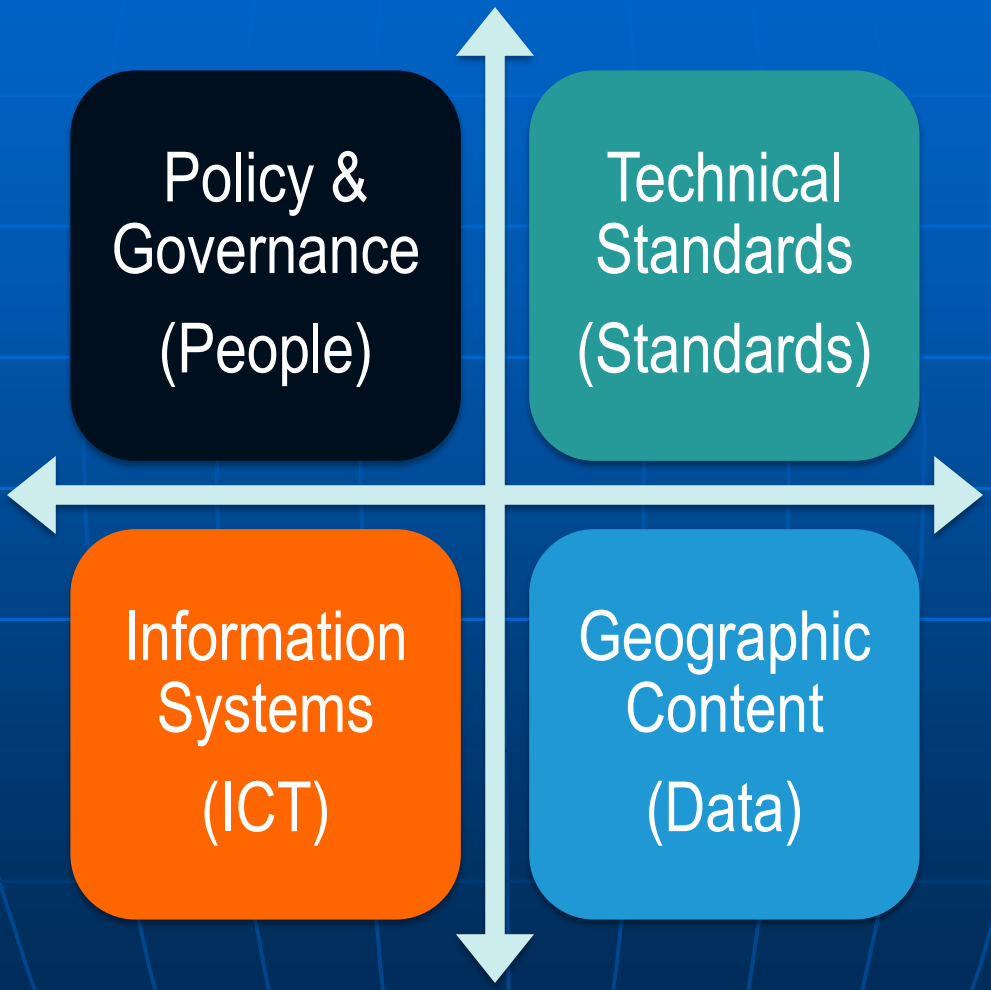
SDI Operating Framework

- the discovery of what data exists;
- the creation of foundational, coordinated ‘core geographic reference’ datasets;
- dataset interoperability;
- data publishing;
- data sharing, inc. rights management and charging and
- co-operation and communication between stakeholders

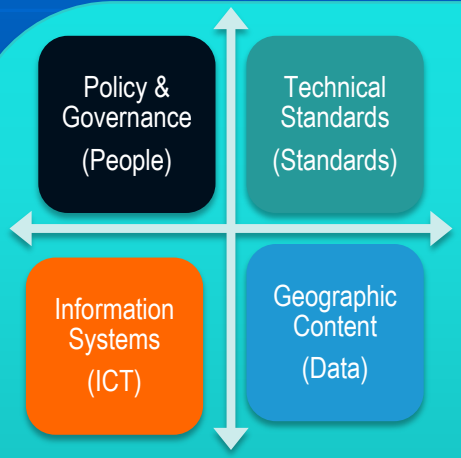
MSDI Design Choices



SDI Components



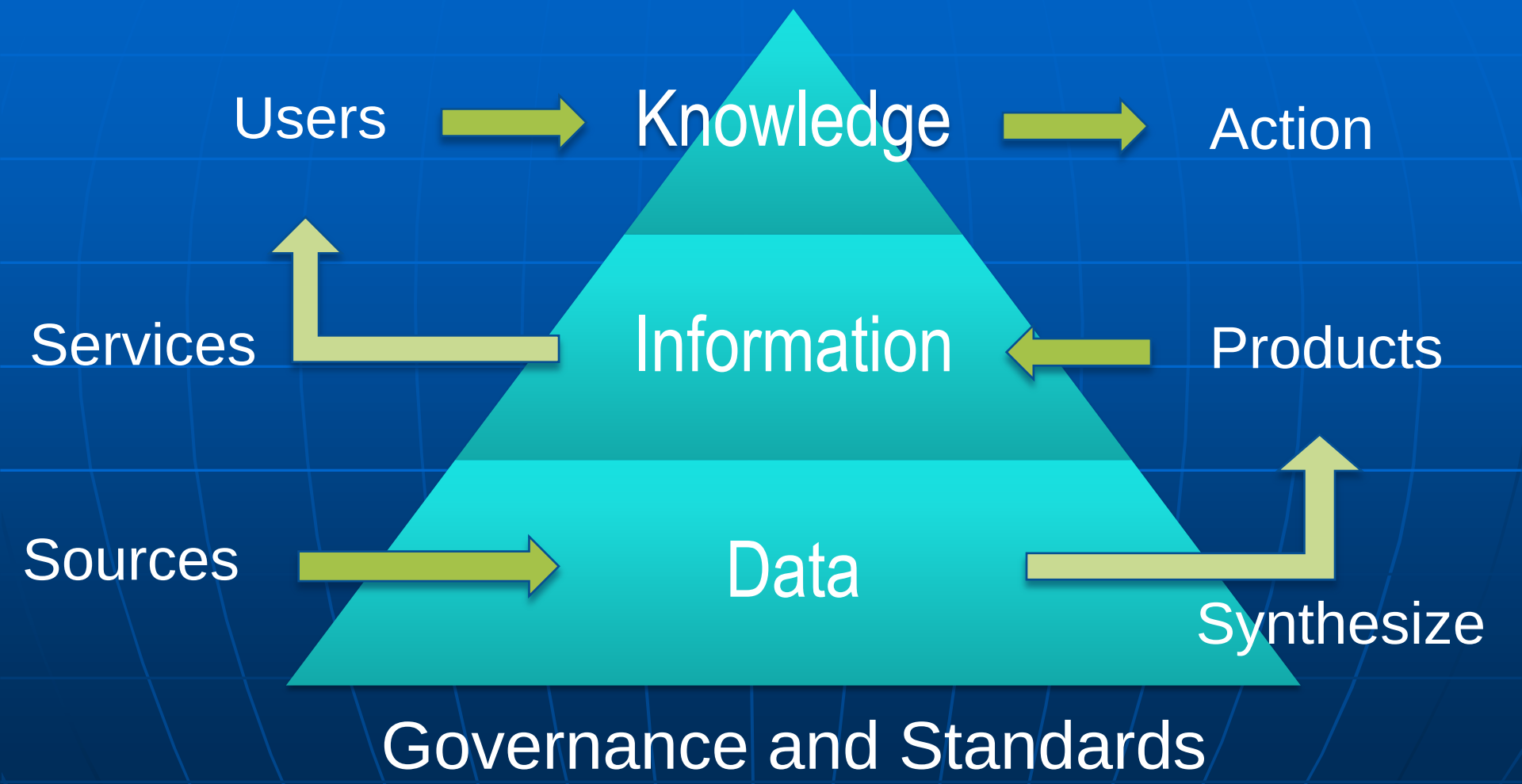
Education



- Guidance Notes
- Literature
- Wikis
- Knowledge Bases
- Training
- Mentoring
- Sharing Best Practice
- Consulting
- Capability Building
- Capacity Building

SDI Success

Data - Information - Knowledge



Policy & Governance

- SDI Policy; Legislative (Act or Order)?
- Mandatory or Optional participation?
- Organisational Culture
- People Skills and Knowledge
- Training & Education
- Change Management
- Understanding of Best Practise

Technical Standards

- Standards should be treated as “enablers”
- Use sector based standards with which the IHO is already compliant
- SDI standards requirements ensures:
  - conformity
  - consistency
  - best practise is reflected but...
- Can stifle innovation
- Inflexible
- Difficult to understand and implement

Information Systems (ICT)

7. Application Layer
   (Products/Cargo)
6. Presentation Layer
   (Services/Packaging)
5. Session Layer (Timetable)
4. Transport Layer (Train)
3. Network Layer (Signals)
2. Data Link Layer (Points)
1. Physical Layer (Track)

Geographic Content (Data)

- Reference Data (e.g. Bathymetry, Structures, Borders)
- Application Data (e.g. Managed Areas, Natural Resources)
- Business Data (e.g. Environmental Statistics)
- Personal Data (e.g. Supplier Contact Details)
- Internal or Working Data (e.g. Product Schemes)
- Publications and Services (e.g. Thematic Chart)

Data Management Approaches

1) Process Management Driven or Product Centric

2) Data Management Driven or Data Centric

S-100
Framework Data Structure for Hydrographic and Related Data

- Broad geospatial framework structure
  - Not specific to ECDIS or charting
  - Capable of accommodating other requirements
  - Increasing interest from non-navigational data providers
  - Based on ISO 19100 series of geographic standards

S-100 will support :

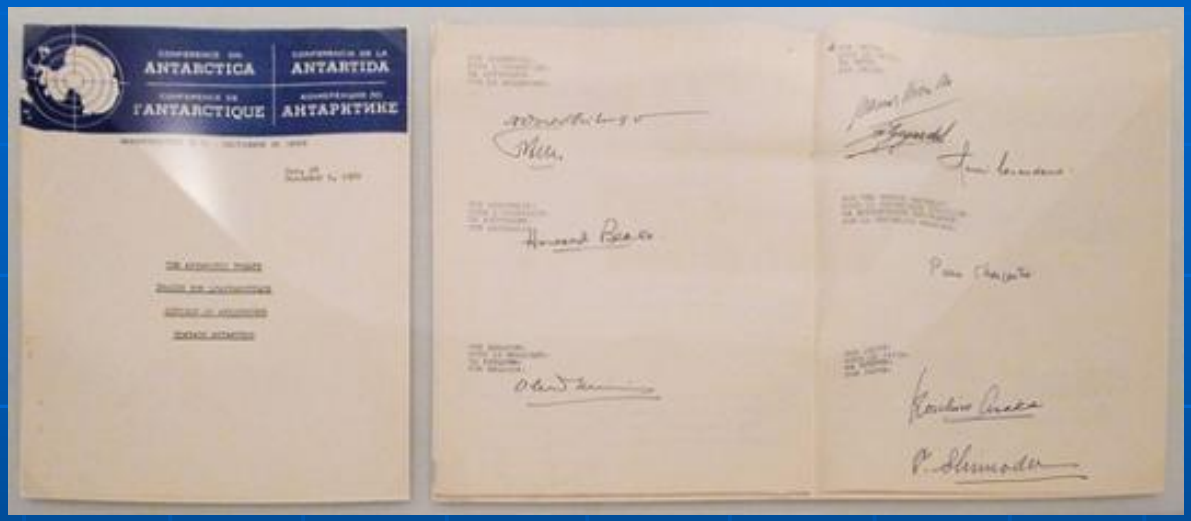
- ✓ Imagery and gridded data
- ✓ High-density bathymetry
- ✓ Seafloor classification
- ✓ 3D and time-varying data (x,y,z and time)
- ✓ Dynamic ECDIS
- ✓ MIOs
- ✓ Marine Mapping
- ✓ Web-based services
- ✓ other maritime data applications …

…and is a standard which supports MSDI !

Operational Approach to SDI in Antarctica

- What are the key elements of a MSDI in Antarctica?
- Why is MSDI necessary?
- What would be the benefits?
- Who are the users?
- What do the users want?
- What are the priorities?
- Are there use cases available?

Why is Antarctica different?



- No single country owns Antarctica.
- Countries wishing to have a say in how the Antarctic (both the continent itself and the surrounding Southern Ocean) is governed must sign and agree to abide by the Antarctic Treaty signed in 1959.

Antarctica MSDI Stakeholders

- UNEP
- IHO
- IOC-IODE
- WMO
- Scientists
- Politicians (Antarctica Treaty)
- Tourists
- Environmentalists

Antarctica MSDI Users

Scientific, Commercial and Governmental…

- HCA Member States
- Search and Rescue Bodies
- Environmental Scientists (e.g. BAS)
- Climate Change specialists (e.g. Risk Managers)
- Offshore Oil & Gas Exploration Companies
- Survey Companies (Hydro, Seismic, Geo-physical)
- Fisheries
- Tourism (e.g. Cruise companies)
- NGO's (e.g. SCAR)
- United Nations Convention on the Law of the Sea (UNCLOS)

Does HCA have a role in MSDI in Antarctica?

YES it does by…

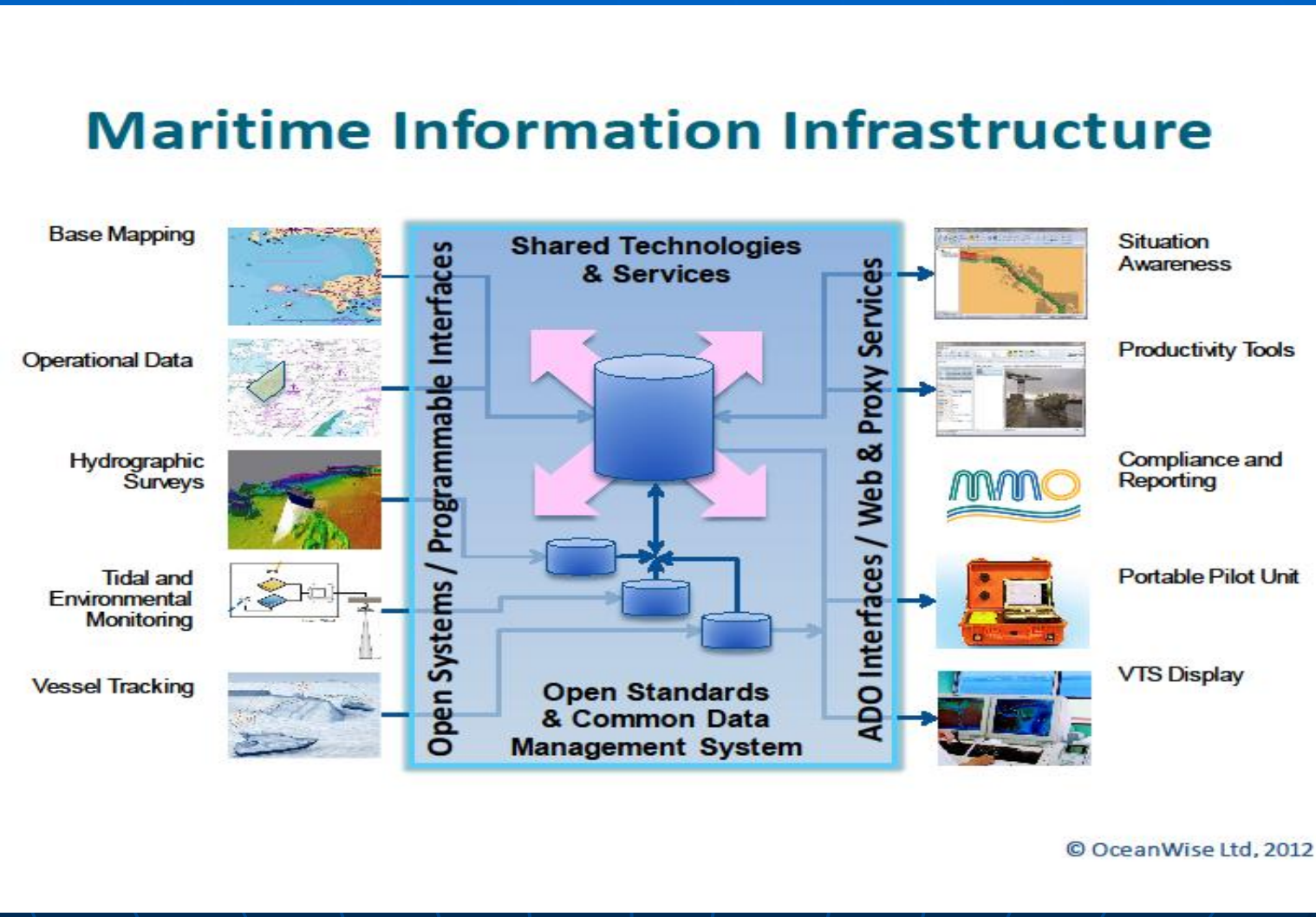
- **Providing Content** via hydrographic services (e.g. bathymetric surveys, physical oceanography, Law of the Sea, ENC's , DEM's)
- **Providing knowledge** and **"best practise"** plus experience from Baltic Sea and Arctic MSDI programmes
- **Providing Standards** (e.g. S-100, S-57, S-44)
- **Providing ICT** (e.g. Antarctica GIS)
- Contributing a regional approach to IHO MSDIWG Work Plan 2013-18

and in doing so…will support scientific and commercial development

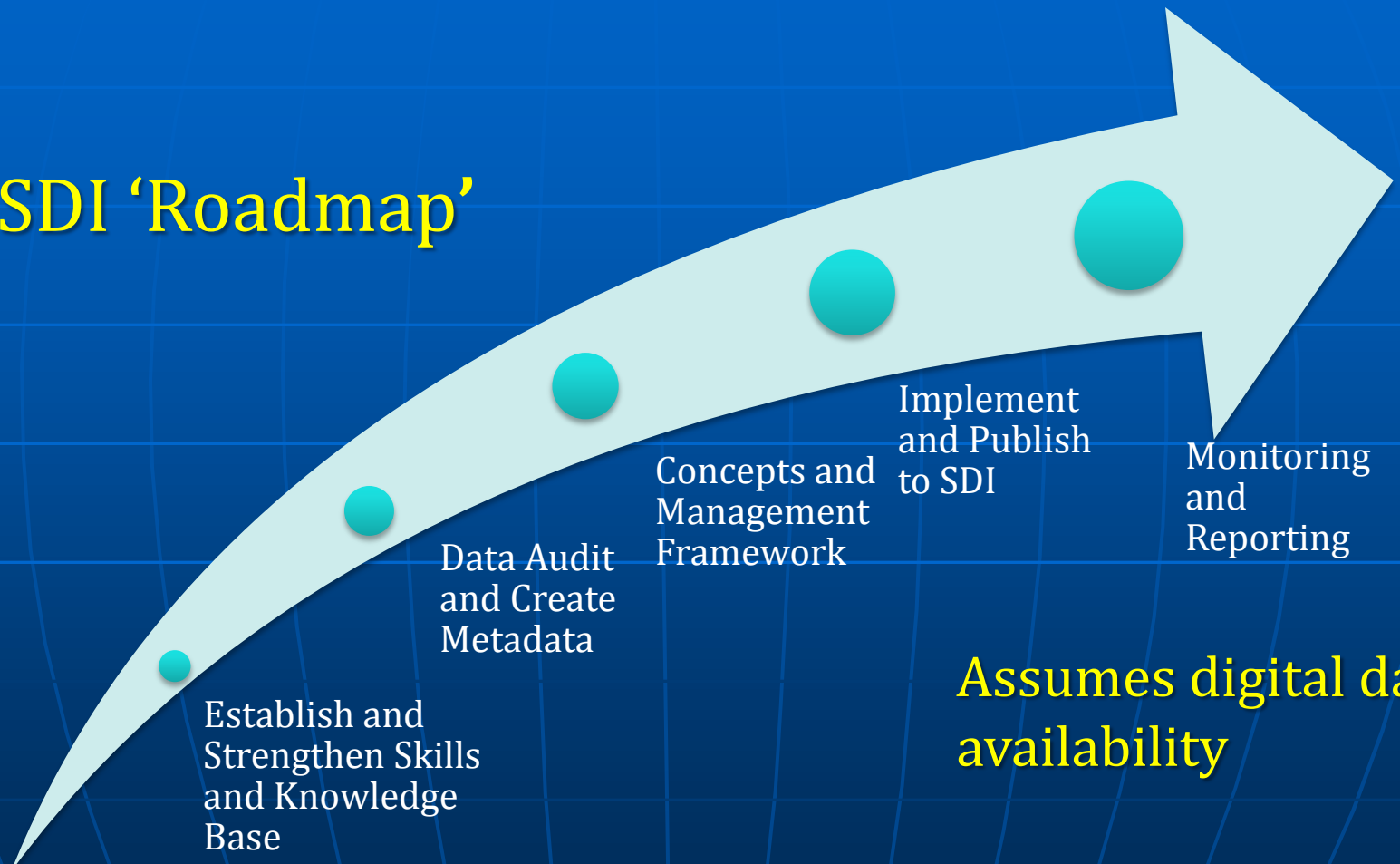
Benefits of MSDI

- Promotes data and information sharing and exchange
- Enables the wider use of HO data and information
- Lead to development of new products and services
- Will improve organisational decision making
- Will reduce duplication of activities
- Will increase co-ordination and co-operation of activities and processes across stakeholders
- Will ensure more effective use of public funds
- Places HO's (HCA) in the mainstream of geospatial decision making
- Will stimulate commercial and scientific activity
- Will ensure a safer operating environment

Approach to MSDI?



Making SDI Happen



IHOMSDIWG Work Plan 2013-18

A	Identify and promote national and regional best practices: - for land-sea integration - for cross-border integration
B	Review the appropriateness of existing standards for the provision of the maritime components of spatial data infrastructures
C	Develop content for an MSDI training course
D	Maintain MSDI reference documentation on the IHO website
E	Maintain and extend Publication IHO MSDI C-17 (IHO Task 2.9.2 refers)
F	Conduct annual meetings of MSDIWG, arranged back to back with 1-day MSDI Open Forum (IHO Task 2.9.1 refers)
G	Ensure that MSDI is a standing agenda item for RHCs' meetings (IHO Res 2/1997, as amended, refers)

Key Work Plan Activities (1)

Task A

- Set up a survey to establish current position in respect of benefits and challenges faced by MS's role in NSDI and/ or MSDI.
- Monitor and report on national, regional and international MSDI activities and report to increase visibility of hydrographic importance
- Create relevant use cases, from potential users of MSDI

Task B

- Liaise with TSMAD regarding level of S-100 understanding and use in support of SDI activities (e.g. INSPIRE)

Key Work Plan Activities (2)

Task C

- Identify the need for education and training among the Member States and report to WG Chair
- Establish a MSDI training syllabus for use across IHO community

Task D

- Maintain MSDI reference documentation on the IHO website
  - Set up schedule for presentations/papers from MSDIWG members/others to be uploaded to Web site.
  - Identify and make available MS Web sites/papers that address technical issues such as datum, WMS, WFS for charting data.
  - Poll MSDIWG members for input work, with IHB to post on IHO Web site.

Key Work Plan Activities (3)

Task E

- Conduct a review of MSDI that includes conceptual descriptions of the four sub-areas of MSDI as per:
  - Technical issues
  - Governance
  - Standards and specifications
  - Content (data)
- Monitor technical developments in relation to MSDI
  - Define the scope of the work related to interoperability (e.g. Linked data)
- Determine hydrographic data set(s) that should be included in MSDI
  - Prioritize data layers by usefulness to non- navigational sectors
  - Identify priority order of importance
  - Identify "core" reference datasets for MSDI
  - Define publishing mechanism for sharing data

Governance

Chair: Jens Peter HARTMANN, Denmark.

Email: jepha@kms.dk

Vice-chair: Ellen VOS, Netherlands.

Email: em.vos@mindef.nl

Secretary: John PEPPER, OceanWise, UK.

Email: john.pepper@oceanwise.eu

MSDIWG Open Forum and Meeting No 5 will take place at NOAA, Silver Spring, Maryland from Feb 4th-7th 2014 (see MSDI Web pages at www.iho.int for MSDIWG Members)

Conclusions

- MSDI is about “best practise”
- MSDI is not something you can deliver quickly
- MSDI requires all stakeholders to work together
- The biggest challenge is “people” and “organisations” (culture)
- Antarctica would benefit from an MSDI because of its governance model
- There are many benefits to be realised from MSDI
- IHO through HCA could coordinate activities in the region
- MSDIWG can support HCA in doing this…but how?
- Learn from lessons of Arctic Region and Baltic Sea RHC SDI’s

Thank You

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