

MSDI - Planning, Implementation & Maintenance

How are we doing?

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Chairman
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What we do!



✓ Marine Data Management and Decision Support

- Marine and Coastal **Mapping Data**
- **Monitoring** - Environmental Data Sharing & Publishing
- **Training**, Mentoring and Capacity Building
- **Software** - Enterprise GIS & Productivity Tools
- **Governance** - Data Policy, Strategy & Management Systems

✓ System Integration and Interconnectivity

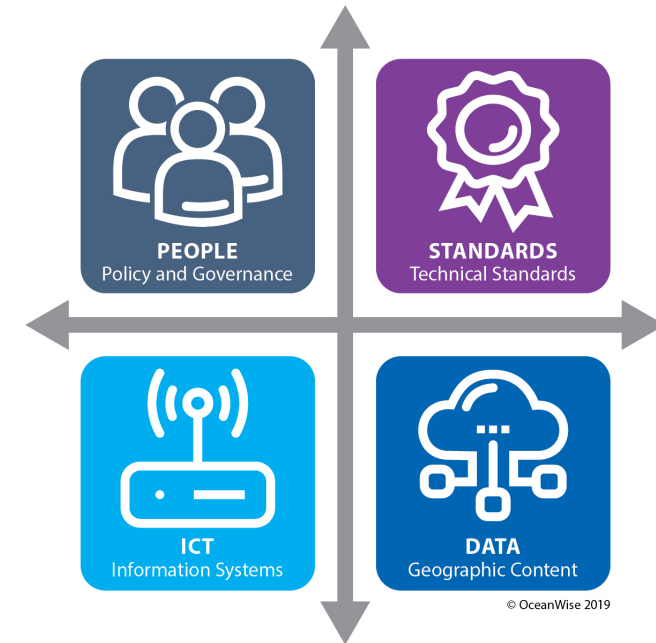


What is a Marine Spatial Data Infrastructure?



‘Best practise’ delivering...

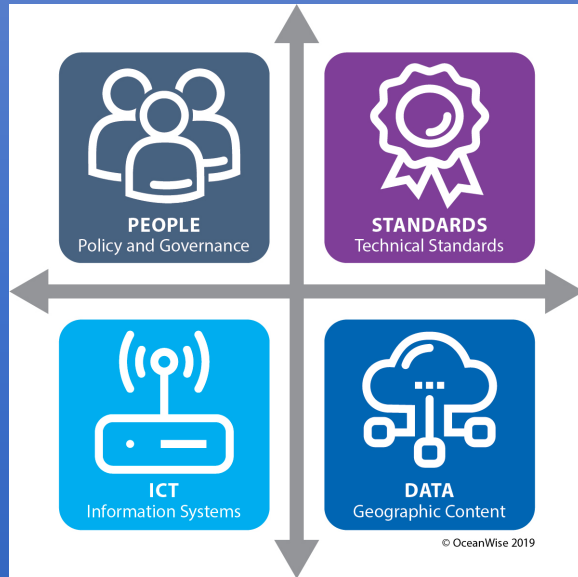
- Efficiencies
 - Effectiveness
 - Smarter operations
 - Sharing and exchange of information
 - Partnership working
 - Reduced risk
 - Data governance ‘best practise’
 - Empowered and committed people
- and much more in supporting your marine/maritime environment*



Four Pillars of a Spatial Data Infrastructure

Note: It is not a central repository for data or GIS software alone!

Education is Key!



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



**SDI
Success**

MSDI Operating Framework

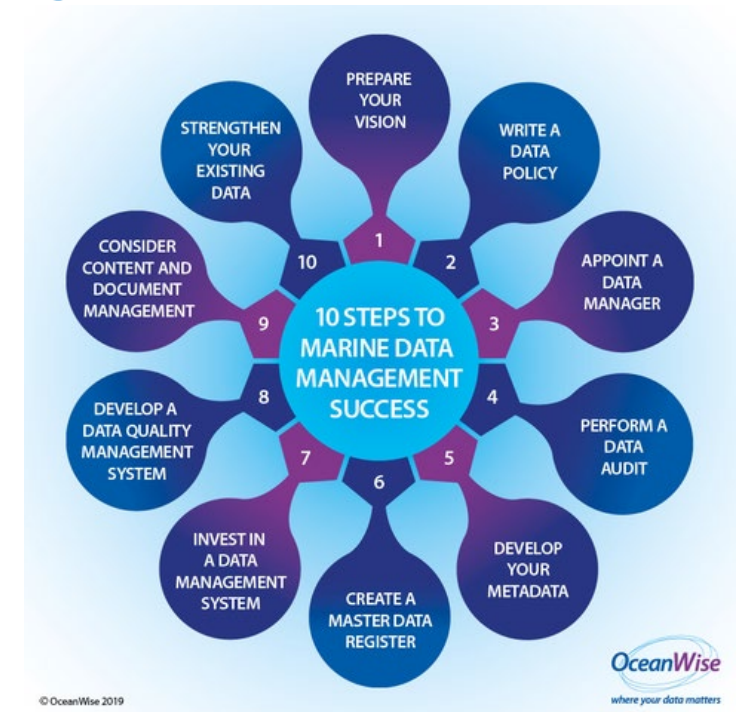


- Discovery of what data exists
- Data management is 'mission critical'
- Dataset interoperability
- Creation of foundational, coordinated 'core geographic reference' datasets
- Data publishing (including copyright and licensing)
- Data Sharing & Exchange
- Leadership, co-operation and communication between stakeholders

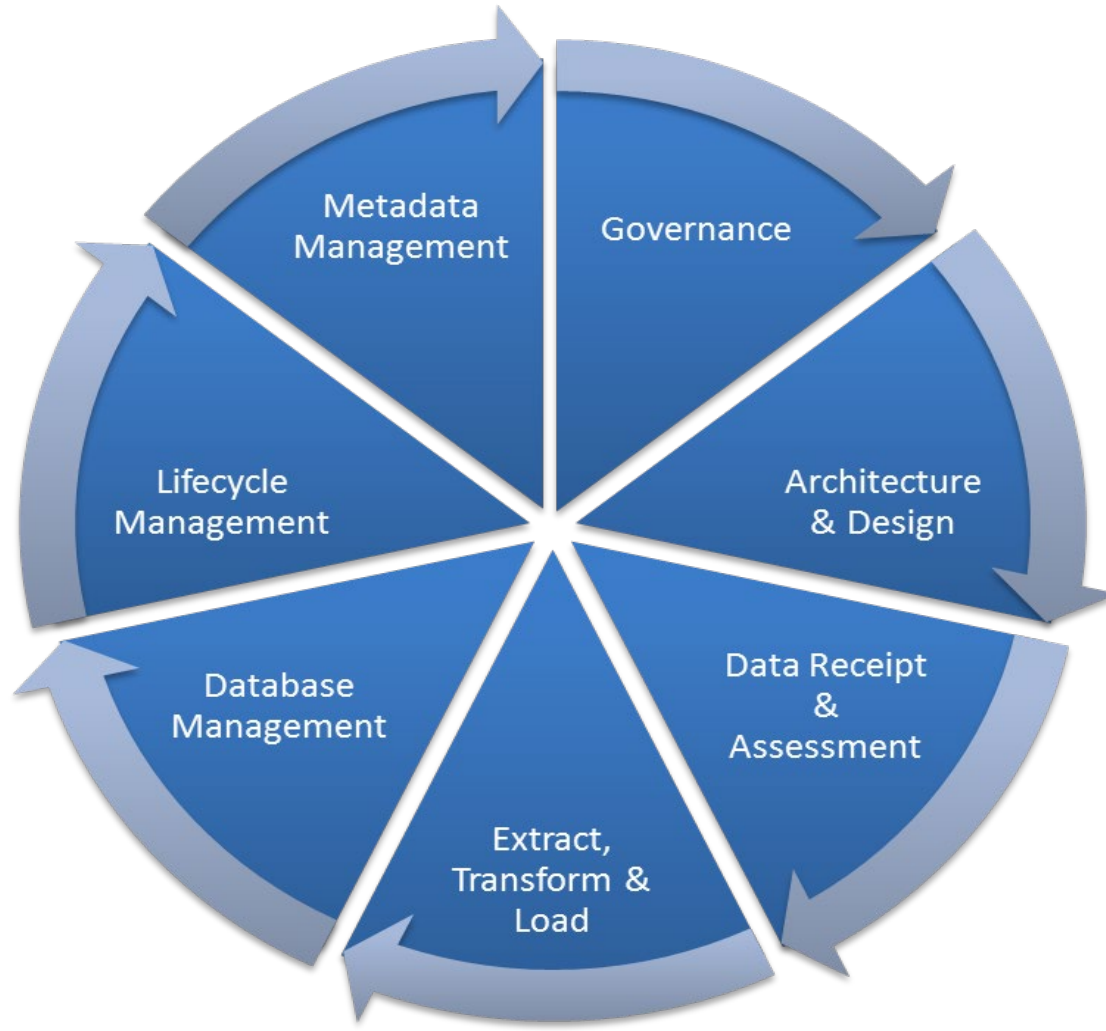
Data Management

‘The development, execution and supervision of plans, policies, programs and practices that control, protect, deliver and enhance the value of data and information assets’ by knowing...

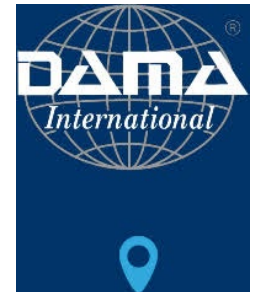
- What data we have?
- Where we get it from?
- How is it used?
- When it is updated?
- How is it controlled?
- How we get it back if ‘lost’?
- How it can be shared and /or exchanged?
- If and how it can be archived?



Data Management Governance

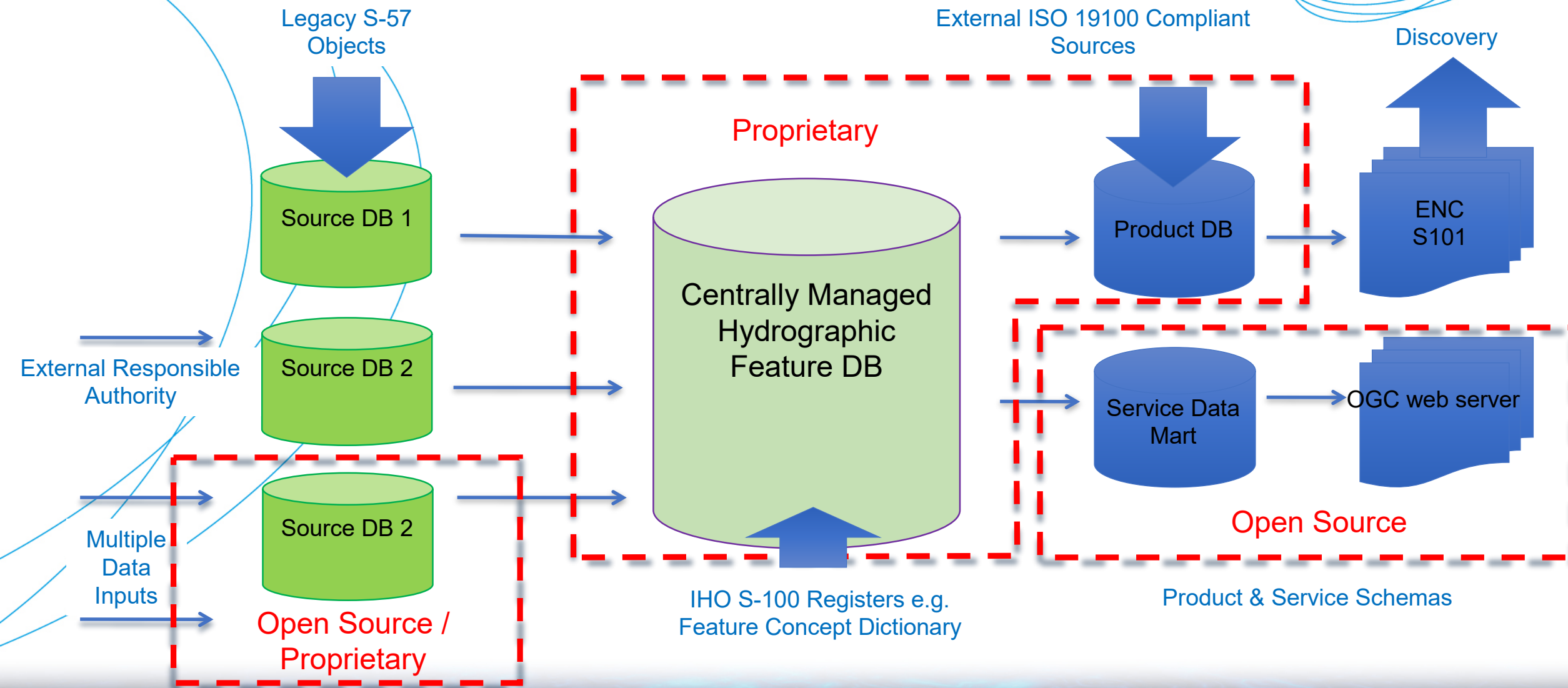


- Organization
- Culture
- Ownership
- Responsibilities
- Outcomes
- Performance
- Review
- Adapt



Adapted from the Data Management Association (DAMA) BOK Framework

SDI Design Overview



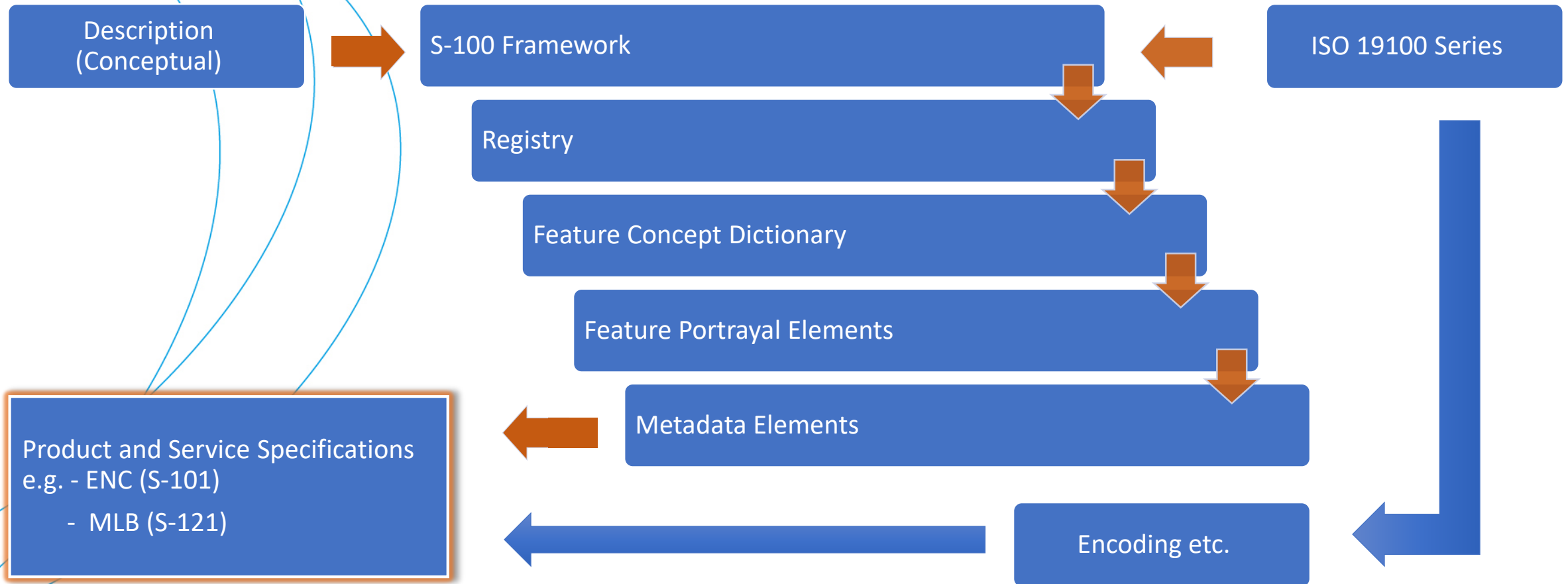
Technical Standards



- ✓ **Standards are essential for sharing and using geographic content** and other forms of data
- ✓ Standards are ***enablers*** for the creation of SDI
- ✓ **Open standards** from internationally based bodies **are essential** for successful implementation of SDI
- ✓ Different **standards apply for each SDI component** (information services and content) and for **different stages of the data value chain** (acquisition, production, exchange, publication)



Specifications as Enablers of SDI



Data Publishing

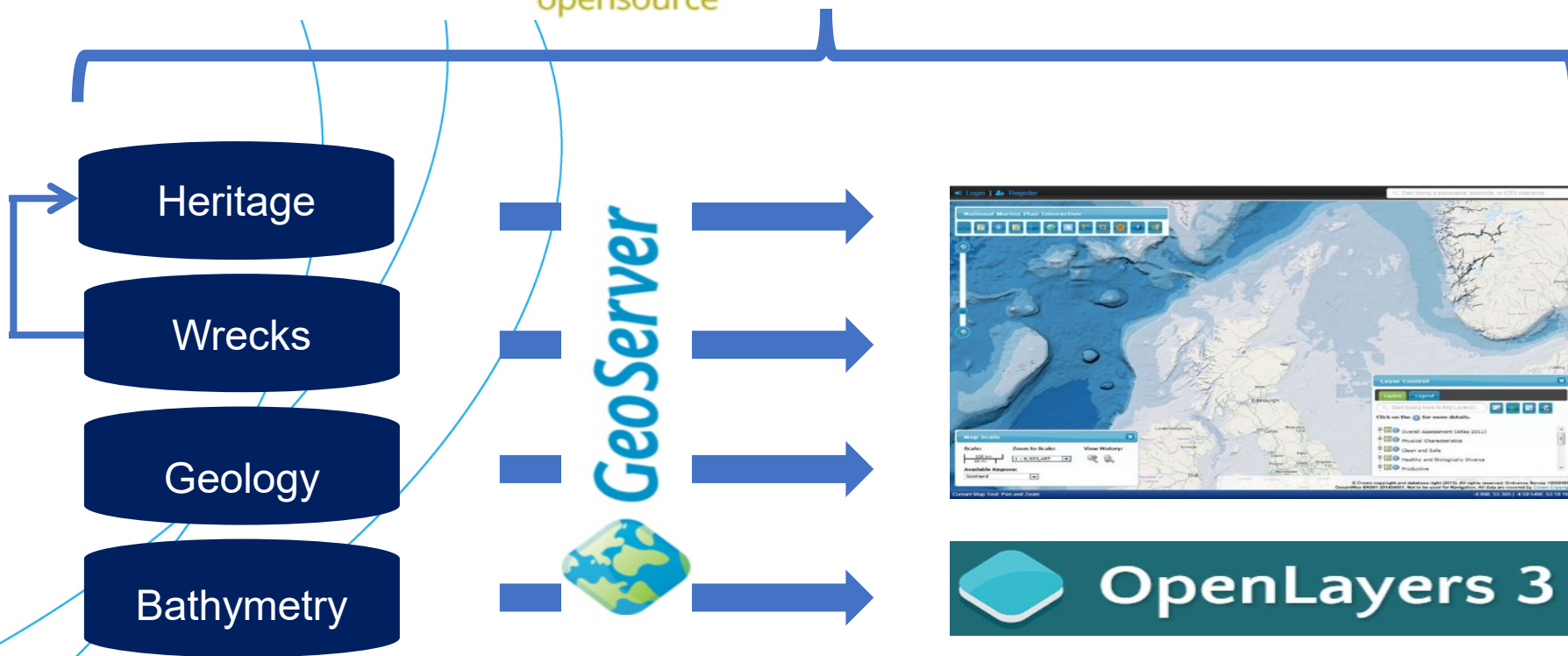


- ✓ **Production and dissemination of data** or information or literature to the general public
- ✓ Includes **Discovery, View and Download** Services
- ✓ **Copyright is inherent** in all types of spatial data
- ✓ MSDI relies on **data sharing** so **copyright needs to be managed** carefully
- ✓ **Standard licensing** e.g. Creative Commons will provide best results
- ✓ Where licensing is not open, a system of **Digital Rights Management** must be implemented

Web Service Applications

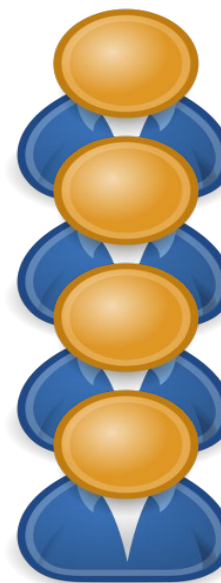


Manage metadata and discover
datasets and services



Individual
Data Marts

Web Application



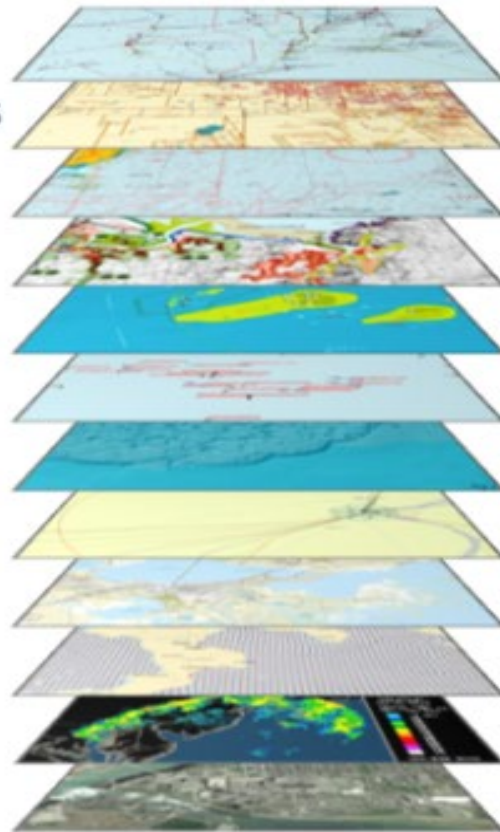
USERS

MSDI Common Operating Picture

The data you need easily accessible in one place



INFRASTRUCTURE
ADMIN. BOUNDARIES
NAUTICAL CHARTS
ENVIRONMENTAL
INCIDENT FEATURES
VESSELS
BATHYMETRY
INFRASTRUCTURE
TOPOGRAPHY
METOCEAN
WEATHER RADAR
IMAGERY



International
Association
of Oil & Gas
Producers



OceanWise Maps

Welcome to the OceanWise online demonstration portal for intelligent marine and coastal mapping data. Demonstrators are available by selecting from the list below, hover over a product to preview. As well as individual web pages built using OpenLayers the data is available on the OceanWise website data pages. These pages provide an illustration of what is available as OGC compliant web services. Please contact us for actual end points for the web services if you would like to trial these in your own desktop and web GIS.

Marine Themes

Marine Themes DEM

Raster Charts

Raster Charts eXcluding Land

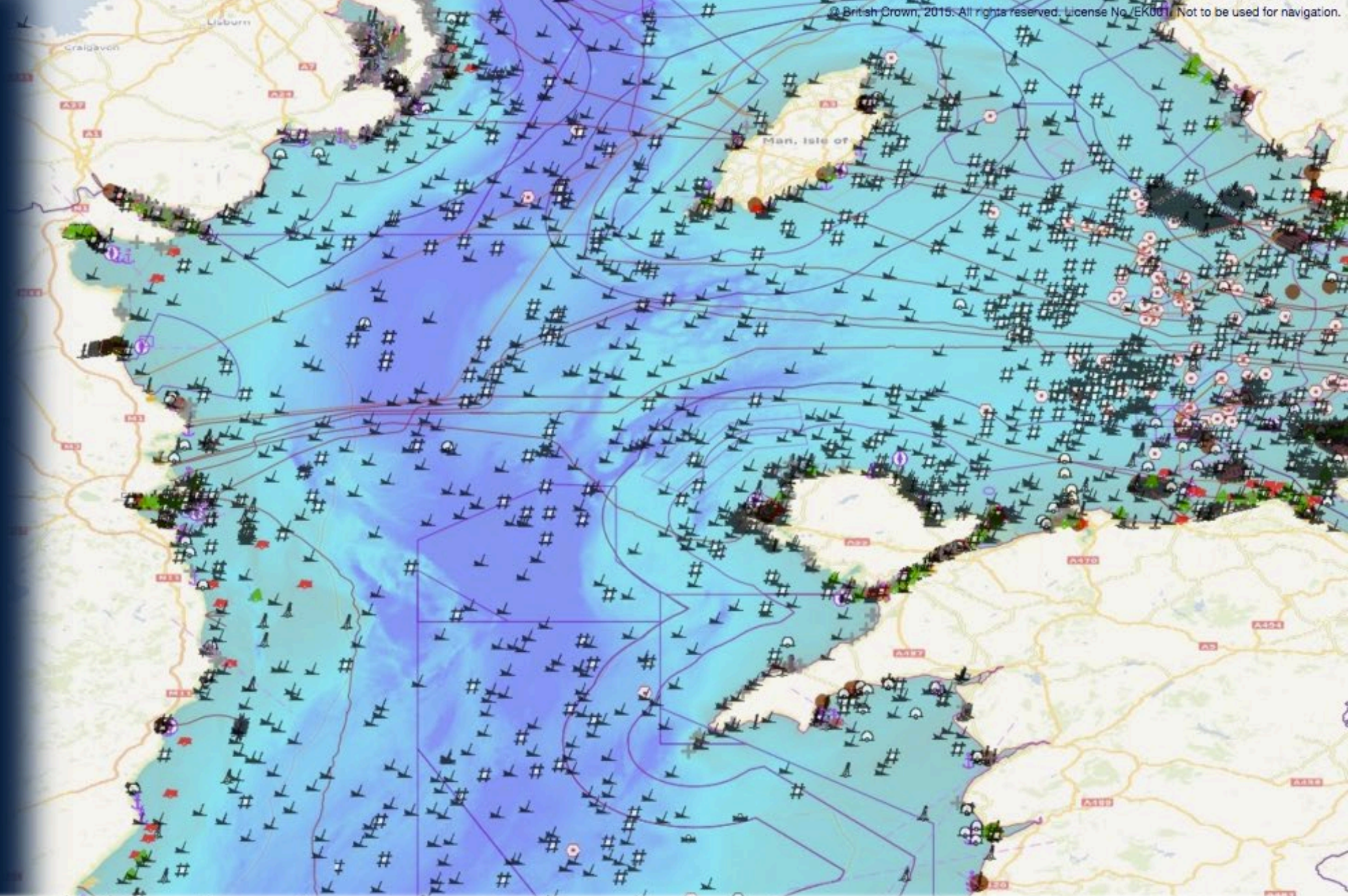
Electronic Navigational Charts

Wrecks

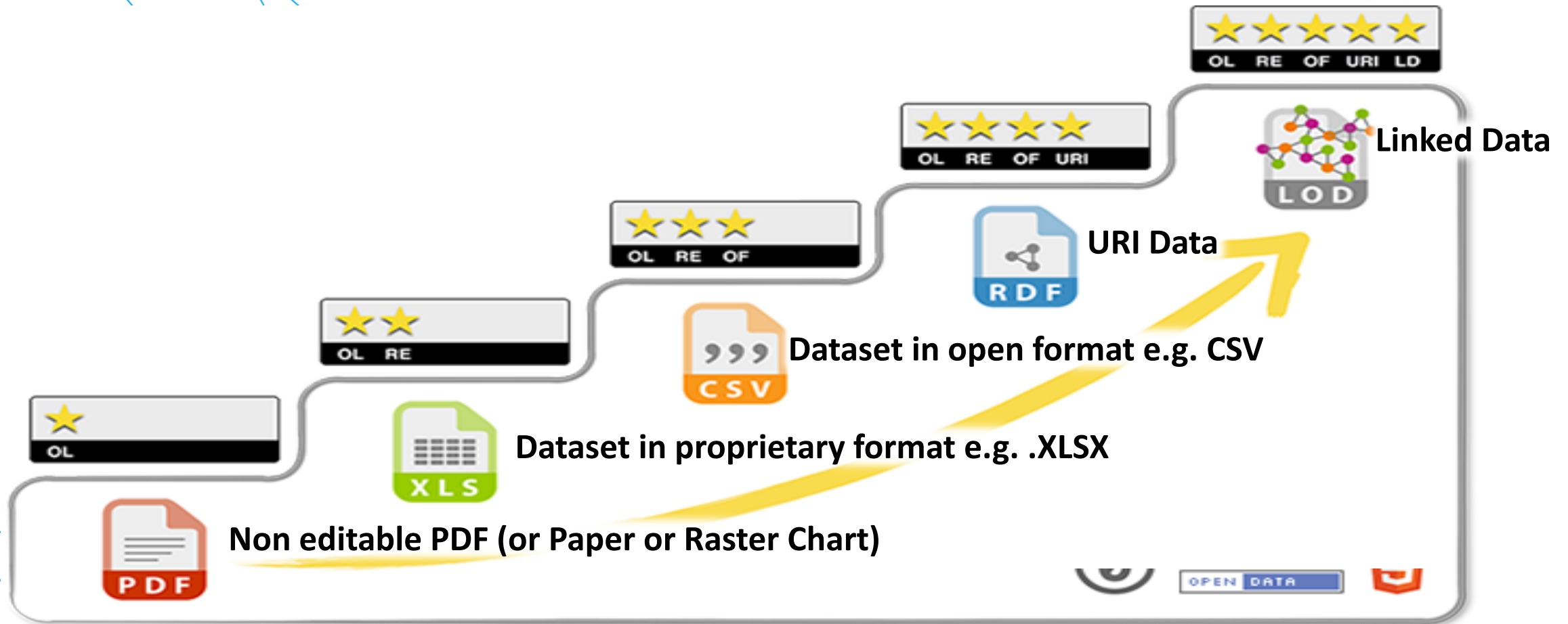
IMO Areas

OceanWise Limited is an independent company specialising in marine environmental data acquisition, management, publishing and GIS.

Bathymetry DEM, Wrecks, Boundaries and OpenStreetMap

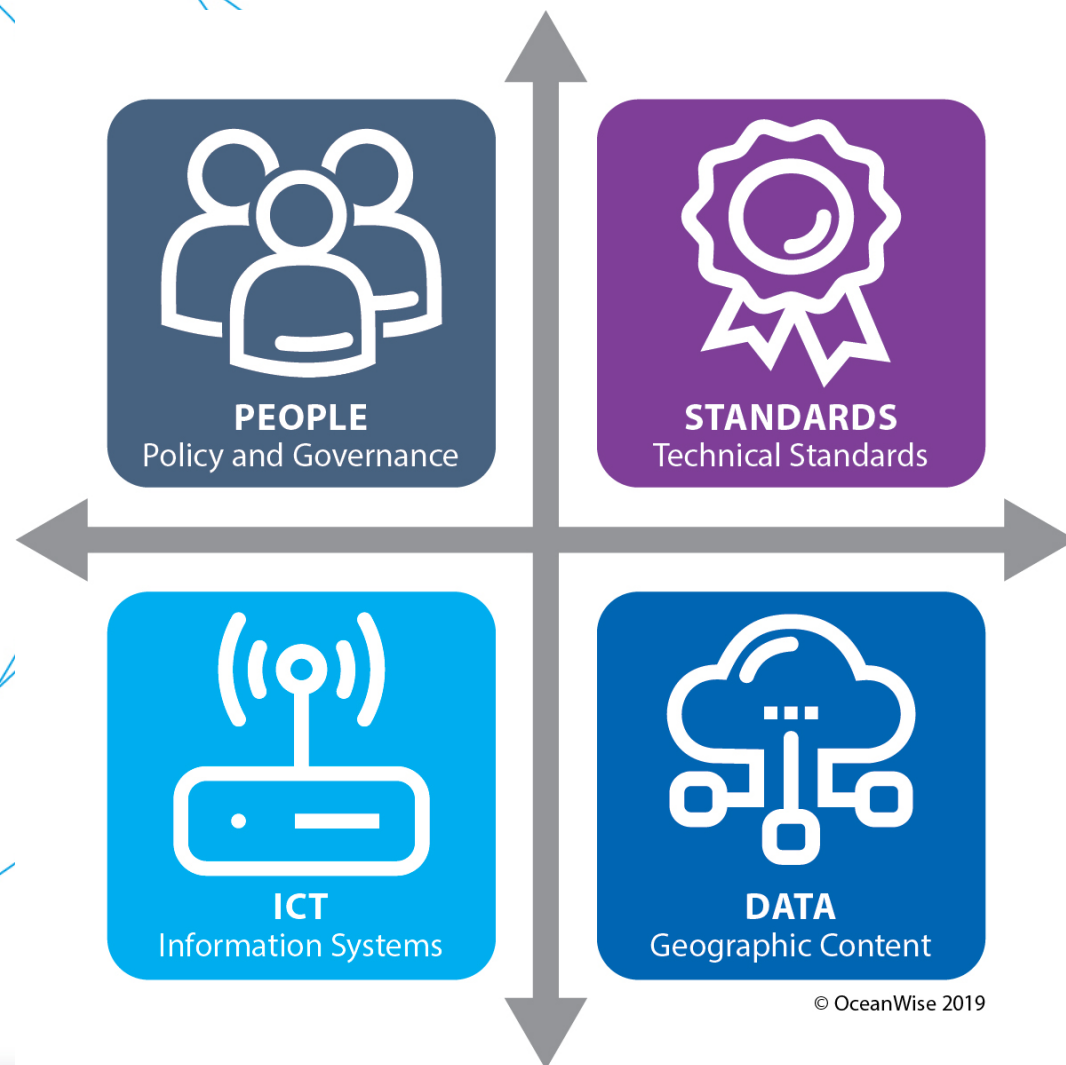


Data Publishing 'Staircase'



<http://5stardata.info>

Making the Case for MSDI



Where's
the biggest
challenge?



Policy & Governance



MSDI Policy & Governance should be built on...

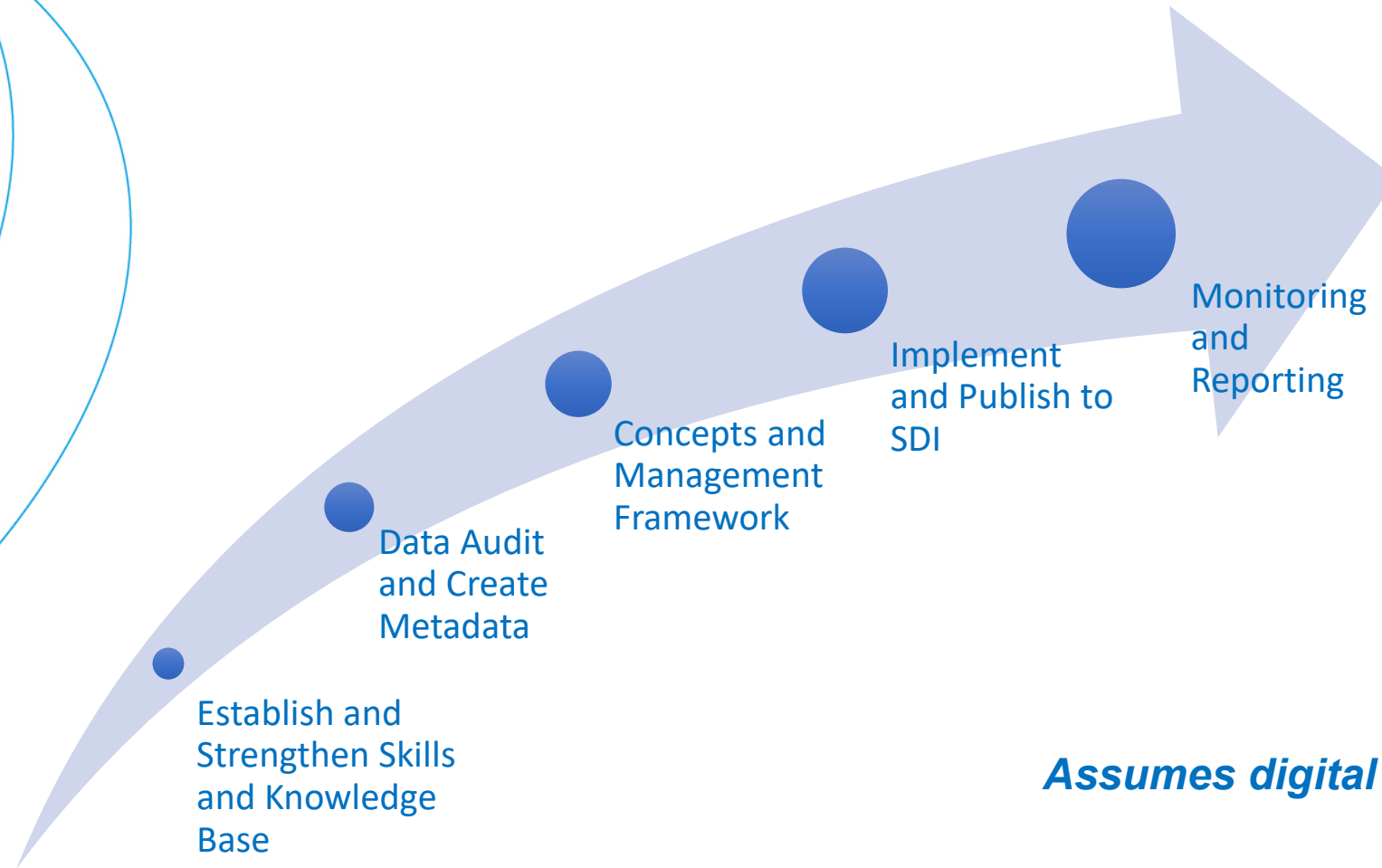
- ✓ Legislation (an Act or Order)
 - ✓ Mandatory or Optional participation
 - ✓ Organisational Culture
 - ✓ Skills and Knowledge
 - ✓ Training & Education
 - ✓ Best Practise
- } = Change Management?

Organizations & MSDI



- ✓ Identify your Organization's 'Culture' and its readiness to participate
 - ✓ What Change is required?
 - ✓ Gain Stakeholder Management Support
 - ✓ Identify Key Staff to drive forward the Change
 - ✓ Participation will create ownership - via a 'Guiding Team'
 - ✓ Good Communication is vital to succeed
 - ✓ Training – New Skills, support to reduce Resistance
 - ✓ Imbue Values and Attitudes to change the corporate culture
- ✓ Implement the Change with demonstrable 'Quick Wins'

The SDI 'Road Map'



Assumes digital data in HO's

SDI Development – Timeframe?



Milestone	Time (mths)
Develop Data Management Framework in HO	0 – 3
Engagement with other national organisations	3 – 6
Prepare Policy and Strategy ‘Roadmap’	6 – 9
Data and Process Audit	6 – 9
Design and Specify Solution	9 – 12
Fund, Acquire, Build and Implement	12 – 36
Adapt and Innovate	36 plus
Report Progress through RHC’s or Government	Annually



How well are we doing?

MSDI Audit template



ACTIVITY	+ve	neutral	-ve	RAG status
Staff skills and knowledge	Our staff have knowledge of MSDI principles	Some of our staff have knowledge of MSDI principles	Our staff have no knowledge of MSDI principles	
Organisational culture	The organisation is willing and able to participate	The organisation is not sure whether to participate	The organisation is not willing to participate	
Data holdings	We know what data we hold	We are not sure what data we hold	We do not know what data we hold	
Data Ownership	We know what data we own	We are not sure what data we own	We do not know what data we own	
Digital data holdings	All our data is digital	Some of our data is digital	None of our data is digital	
Master Data Register	We have an MDR	We are creating an MDR	We do not have an MDR	
Core data for MSDI	We know our core data sets for MSDI	We know some of our core datasets for MSDI	We do not know our core datasets for MSDI	
Creating metadata	We have created metadata for all our data	We have created some metadata for our data	We have no metadata for our data	
Technical architecture and environment	We have a technical architecture and environment	We are in the process of developing a technical architecture and environment	We do not have a technical architecture and environment	
Searchable metadata	All our metadata is searchable	Our metadata is not all searchable	Our metadata is not searchable	
Data availability	Our data is available	Some of our data is available	None of our data is available	
Data standards	We use ISO/OGC/IHO standards	We sometimes use ISO/OGC standards	We do not use ISO/OGC/IHO standards	
Data quality	Our data is fit for purpose	Some of our data is fit for purpose	None of our data is fit for purpose	
Monitoring and reporting	We provide regular progress reports to IHO	We sometimes provide progress reports to IHO	We do not provide progress reports to IHO	
Sustainable involvement	Our involvement is sustainable	We are not sure our involvement is sustainable	Our involvement is not sustainable	

Support & Maintenance Resources



- ✓ Data Management Association (DAMA) Body of Knowledge (BoK) (www.dama.org)
- ✓ OceanWise Training / Mentoring / Consultancy & Advice (www.oceanwise.eu)
 - Data Management & MSDI (via IOC Ocean Teacher e-learning programme)
 - Data and Capability Audit
 - Data Policy and Strategy development
 - Change Management
- ✓ UK MEDIN Metadata Workshops (www.medin.org.uk)
 - Discovery Metadata Standard and Tools
 - Data Guidelines
 - Controlled Vocabularies & Coordinates Reference Systems
- ✓ IHO MSDI Projects - Baltic & North Sea, Arctic Ocean, Malaysia, Singapore etc. (<https://iho.int/en/msdiwg>)

IHO Programmes and Projects



- ✓ MSDI Working Groups - developing MSDI work plans/ initiatives at a regional level:
 - Baltic Sea / North Sea
 - Meso-America & Caribbean
 - Arctic Ocean
 - South East Asia
- ✓ MSDI Concept Development Study (CDS)
 - Provide a foundation and framework for future MSDI development
 - Assist content/data providers in the marine domain with future discoverability, accessibility and interoperability considerations when providing core data to a broader and growing user base outside of IHO traditional sectors.
- ✓ UN-GGIM Working Group on Marine Geospatial Information (WG-MGI)
 - Developing marine components of UN-GGIM's worldwide Integrated Geospatial Information Framework (IGIF)



Thank you

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www.oceanwise.eu