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Ten Easy Steps to realising the Benefits of a Marine SDI

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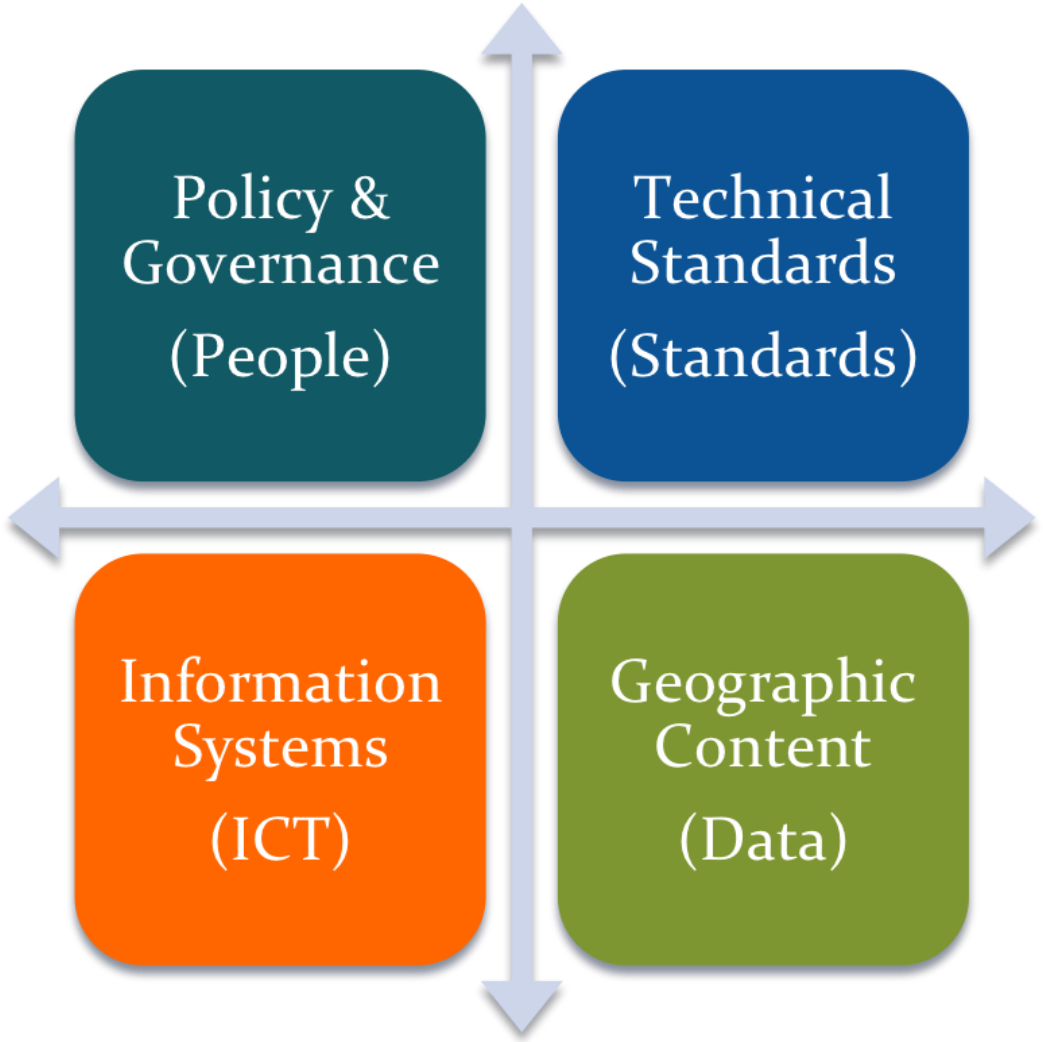
Marine Data Management & SDI Advisor

Presentation Objectives

- What is a Marine SDI
- Relevance and benefits
- The role of Data Governance
- Ten steps to MSDI success
- What can go wrong and how do I put it right
- Where can I get some help

What is a Marine SDI



Simply described as the FOUR pillars (ref. IHO C-17)

A means of giving people what they want …

Source: OceanWise MSDI Training course, SEAHC, 2011

What People Want –

"The data they need easily accessible in one place"

Also known as a:

- Common Operating Picture (COP) or
- Recognised Environment (REP)

Provides data that is:

- Relevant
- Described
- Understood
- Up to date

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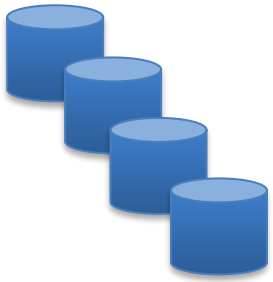
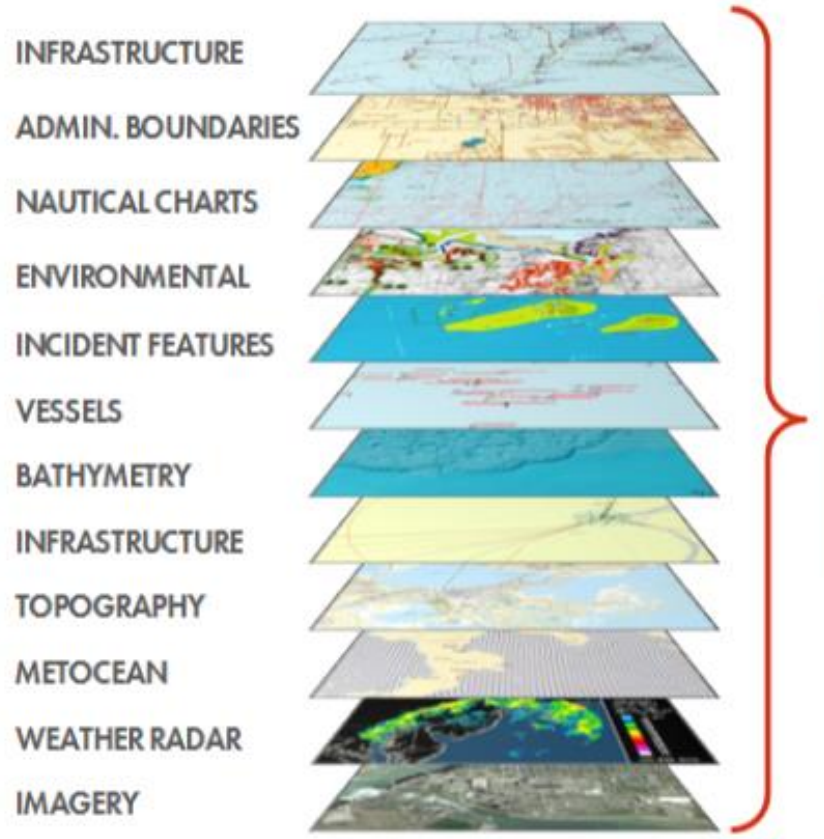
But … How is it achieved?

For every data layer:

- What is the source?
- Provenance?
- Data Quality?
- Update/Life Cycle?
- Pre-preparation?
- Plan for improvement?





Achieved through 'Data Governance'

What is Data Governance

A process for controlling and improving data for the benefit of all stakeholders:

- Rule by right of authority
- Direct or exercise influence
- Regulate or hold in check

The same as Corporate Governance i.e.:

- Provides oversight
- Establishes ‘order’ (from disorder)

But for Data and Information …

1) Understand the Problem

Is this You?

Data exists in silos -

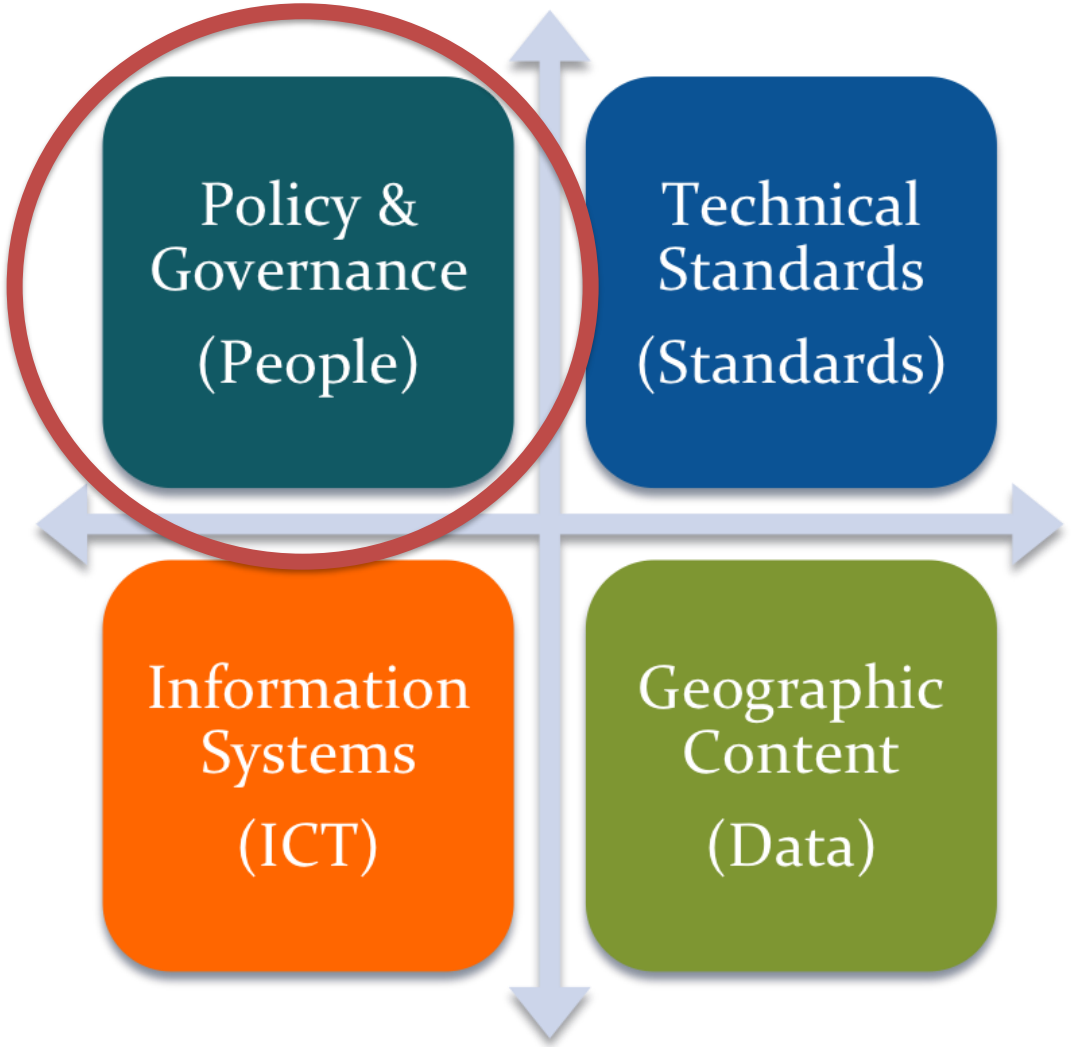
- In departments
- In products (e.g. on charts) or
- Embedded in applications

Resulting in -

- Inconsistency
- Replication
- Inefficiency
- Confusion

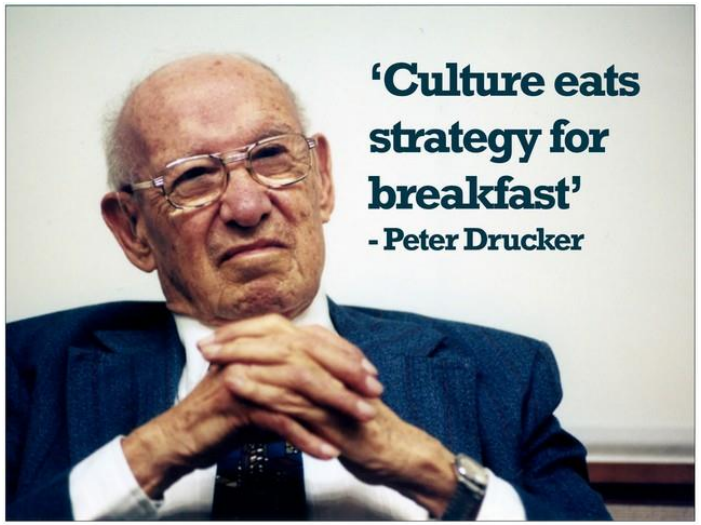
Making data sharing -

- Difficult and
- Time consuming



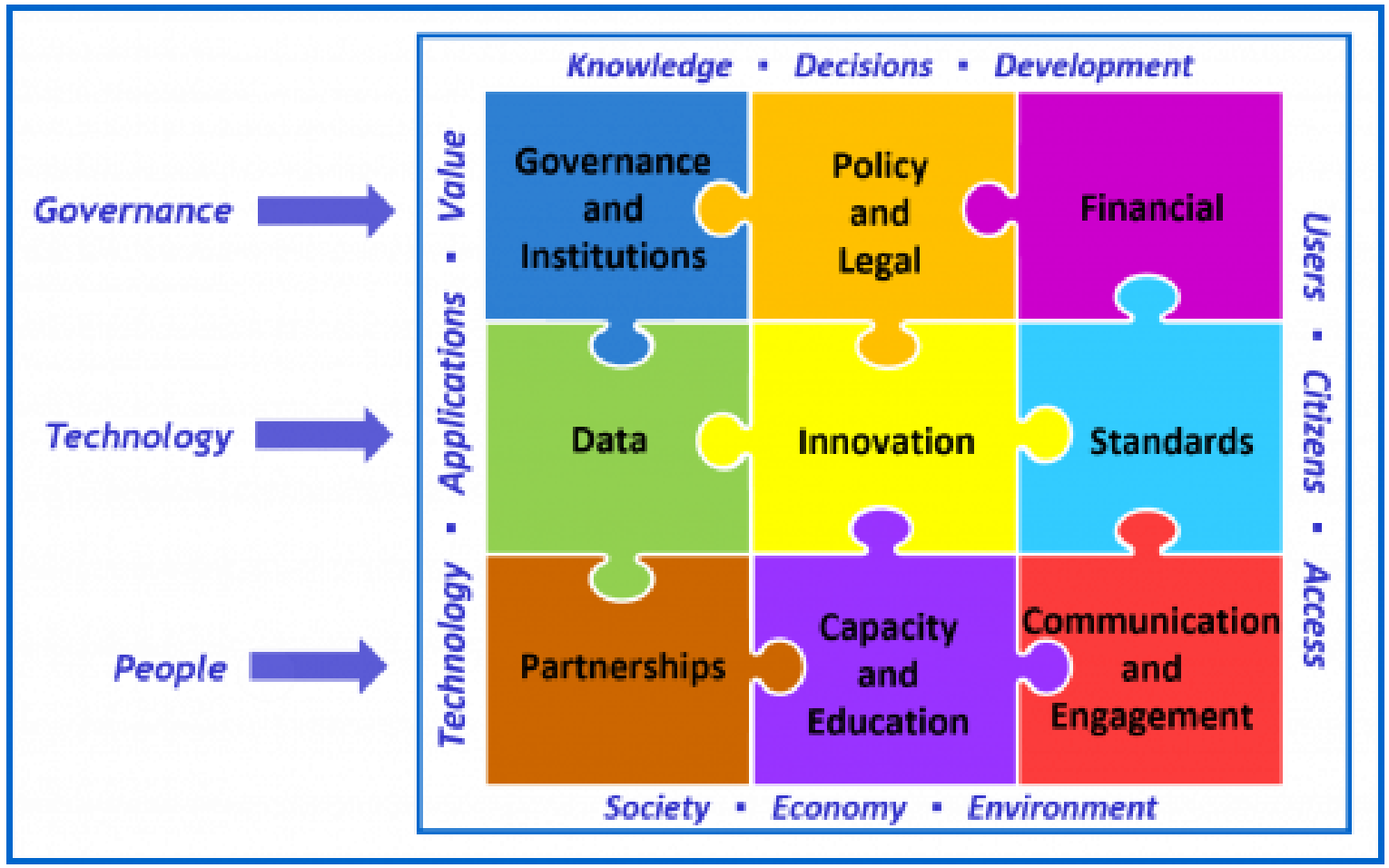
Source: OceanWise MSDI Training course, SEAHC, 2011

Where's the biggest challenge?



How and where do we start?

UN-GGIM Geospatial Information Framework



The Integrated Geospatial Information Framework (IGIF) includes all the components of the FOUR PILLARS plus

- Capacity & Education
- Communication
- Engagement

All mentioned in IHO C-17!

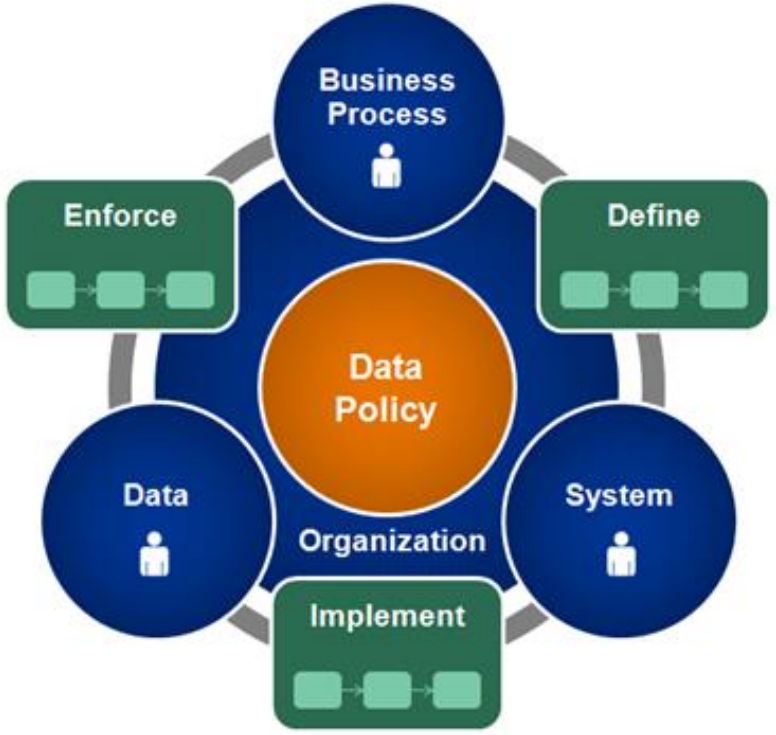
2) Make Data a Business Priority

- Data Policy complements other corporate policies:
  - Quality Policy (ISO 9001)
  - Information Security Policy (ISO 27001)
  - Privacy Policy (GDPR etc.)
  - Environment & Sustainability (ISO 14001)
  - Occupational Health and Safety (ISO 45001)
  - Corporate and Social Responsibility
  - HR Policies etc.
- Implements Corporate and hence Data Governance
- Data & Information should sit within a **Business Management Framework**

ISO International Organization for Standardization

3) Create a Data Policy

- High level document for implementing Data Principles and Governance
- Describes
  - Importance of data to the organisation
  - How data will be controlled / secured
- Implements
  - Compliance and other legal frameworks
  - Government / Group policies
  - Commitment and responsibilities to Data
- Defines
  - Approach to data supply/capture and publication
  - Support policies, standards and specifications



Source: Tremont Consulting

4) Apply Data Principles

1. Uniquely identify data to facilitate discovery and linking
2. Create a master data register and metadata for data ‘assets’
3. Assign data stewards who are responsible for data ‘assets’
4. Acquire reference data from bona fide sources
5. Implement consistent naming structures for folders and files
6. Keep data accurate and up to date
7. Manage data close to source and avoid replication
8. Use standard reference frames and means of transformation
9. Use standard vocabularies and enumerated lists
10. Communicate to all stakeholders

5) Put Data at the Centre

Is this You?

Data exists in silos -

- In departments
- In products (e.g. on charts) or
- Embedded in applications

Resulting in -

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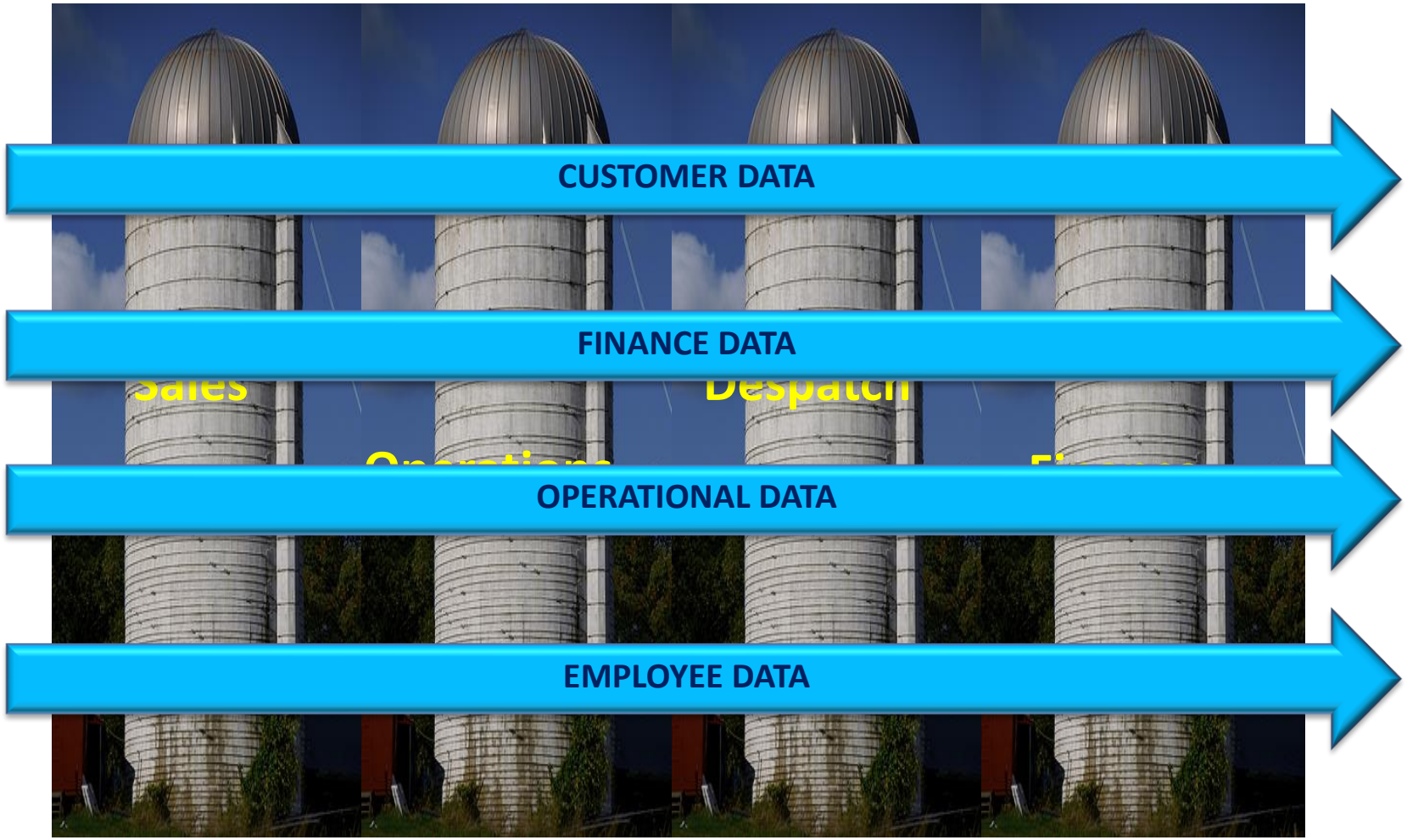
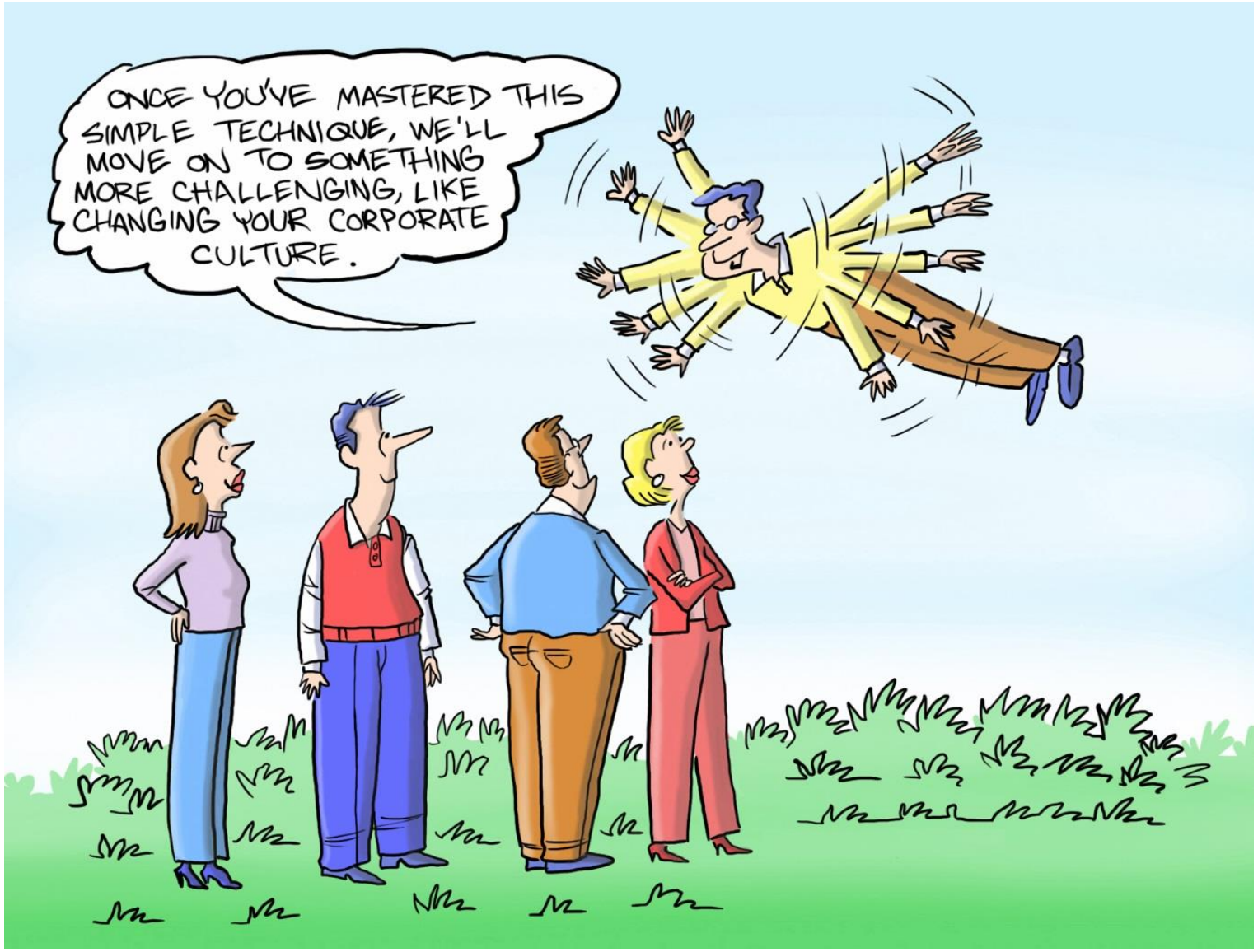




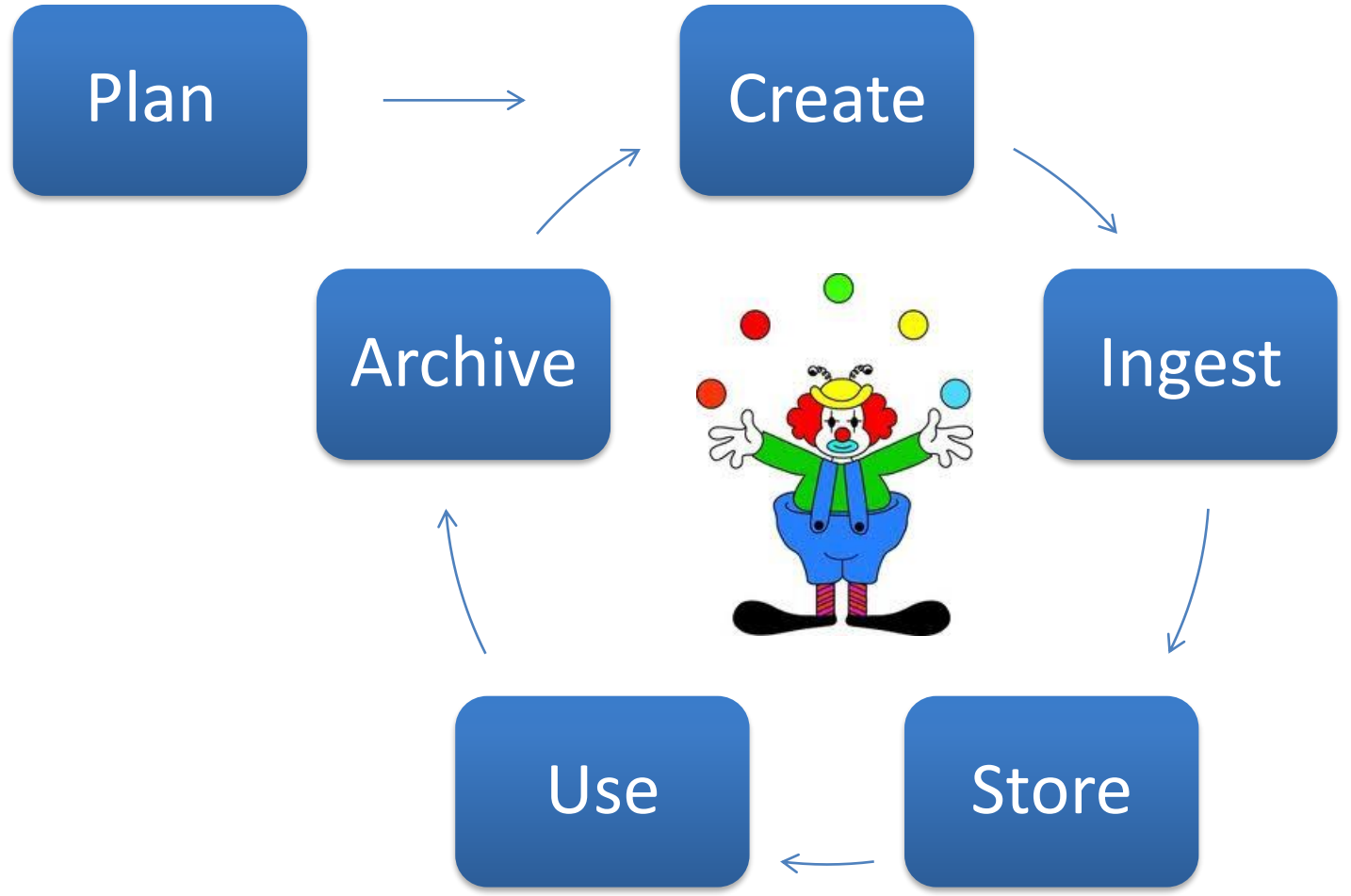
Source ©2021 Arras People

6) A Change Management Issue

Like HSEQ, successful Data Governance is a cultural issue so when implementing it, think Change Management and treat its introduction accordingly

7) Define Your Data Lifecycles

- Depends on:
  - Data Category
  - Ownership
  - Update Frequency
  - How data is used
- Accords with Data Retention, Archive and Destruction Policy
- Compliance requirements
- Publishing and reporting



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8) Implement the ISO Data Quality Model

Inherent		System Dependent
	Accessibility	
	Compliance	
Accuracy	Confidentiality	Integrity
Completeness	Efficiency	Reliability
Consistency	Precision	Availability
Credibility	Traceability	Portability
Currency	Understandability	Recoverability

Objective versus Subjective Metrics

Subjectivity means ‘Fitness for Purpose’

i.e. Purpose must be defined **and** communicated

9) Engage with Your Stakeholders

Agree what data to share and how to do it!

Memorandum of Understanding

Contracts and Sub-Contracts

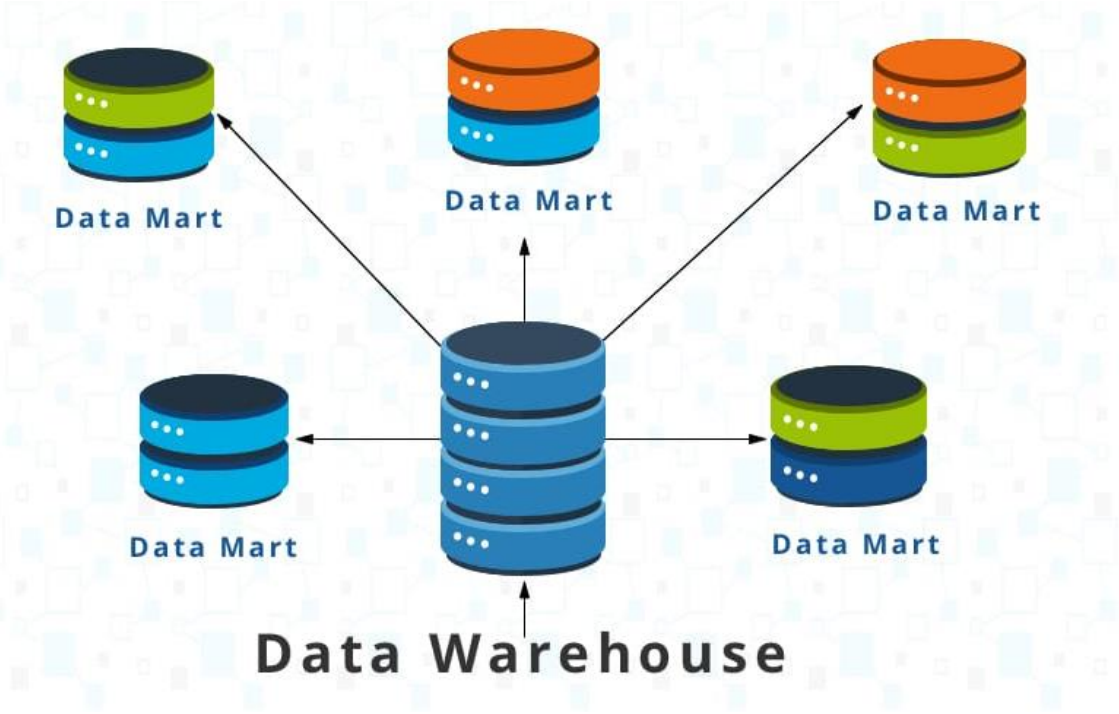
Shareholders Agreement

Consortium Agreement

Make it Contractual

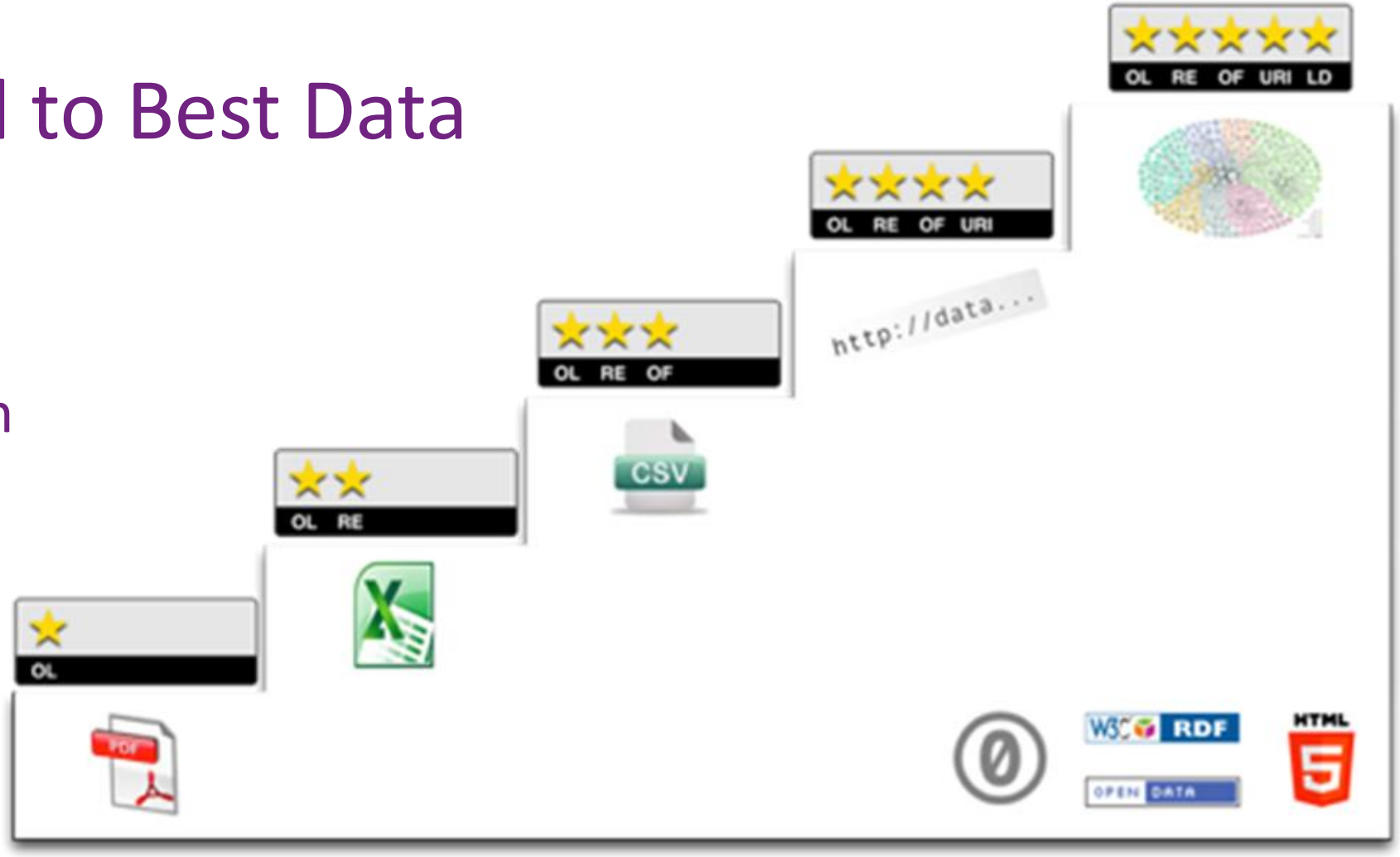
10) Use Web Services

- Subset of a primary database known as a **Data Mart (extranet)**
- Features and Attributes are strongly bound
- Can comprise content from external ISO 19100 compliant sources:
  - Geographic domain (e.g. land) or
  - Supplementary datasets (e.g. geology) or attributes (e.g. heritage)
- Opensource technology is available:
  - RDBMS (e.g. PostGIS)
  - Web Server (e.g. GeoServer)



Bad to Good to Best Data Publishing

Where are you on this staircase?



http://5stardata.info

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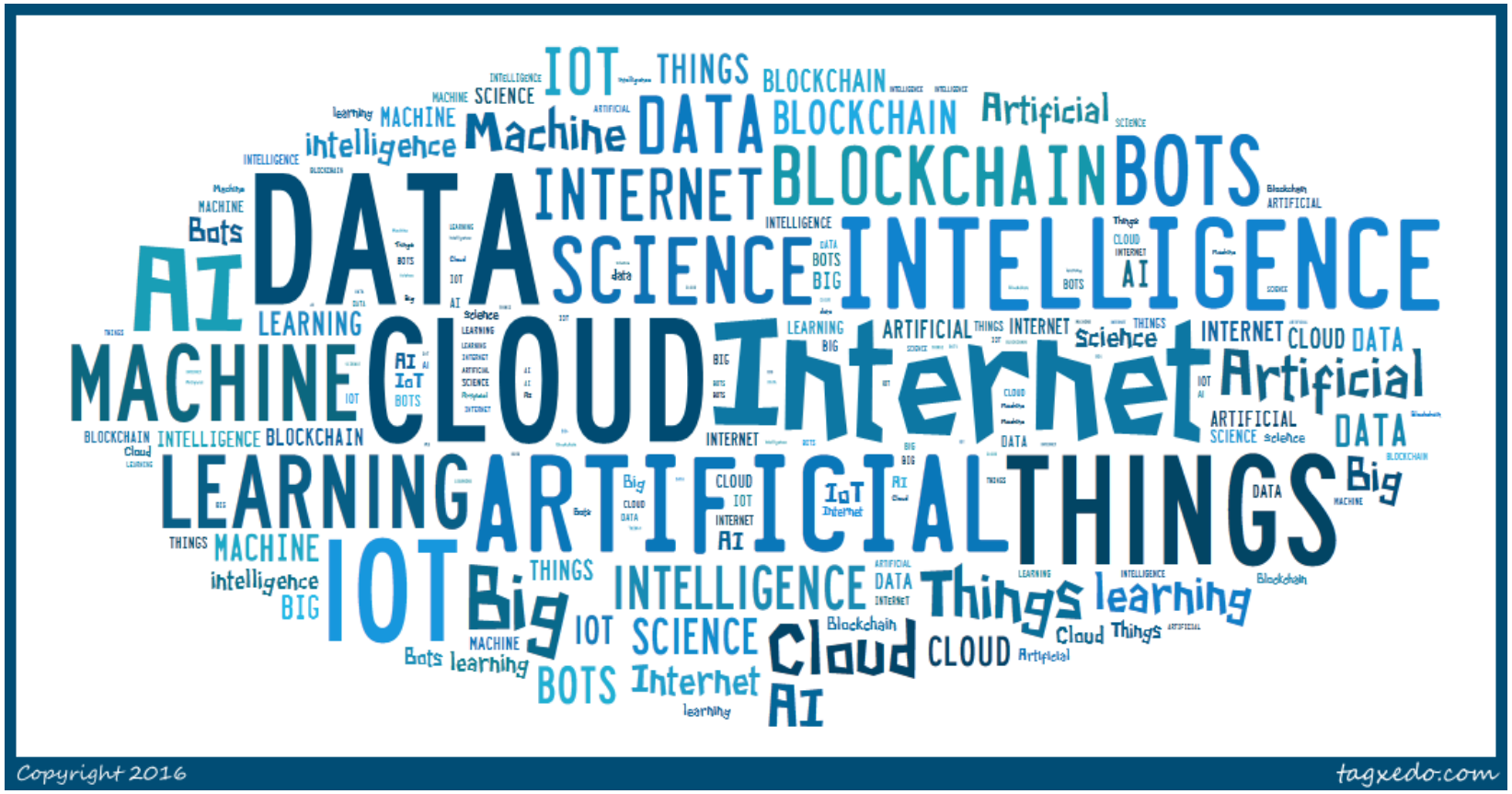
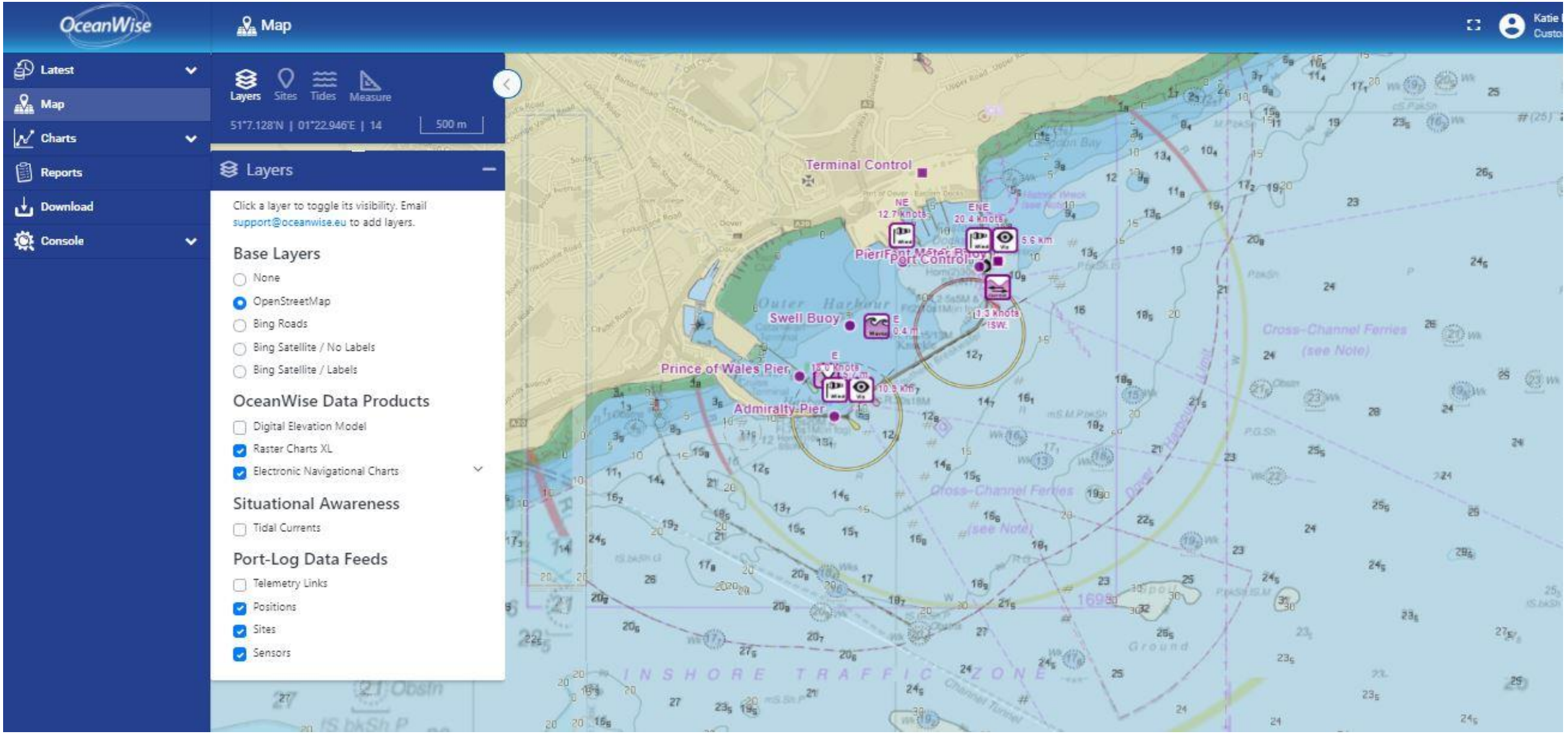
Technology Alone will NOT make an SDI



All require understanding and addressing Data Quality issues

Real-Time Environmental Data Collection, Management, Display and Dissemination



Management System to visualize and maintain Aids to Navigation and other Maritime Assets

PORTLAND PORT

Assets | Maintenance | Faults | Systems | Zones | Map | Details | Logout | Help | OceanWise

- Land
- Marine
- Vessels
- Organisations
- Personnel
- Components

Options

Type / Category: -ALL-

Status:

Assets List

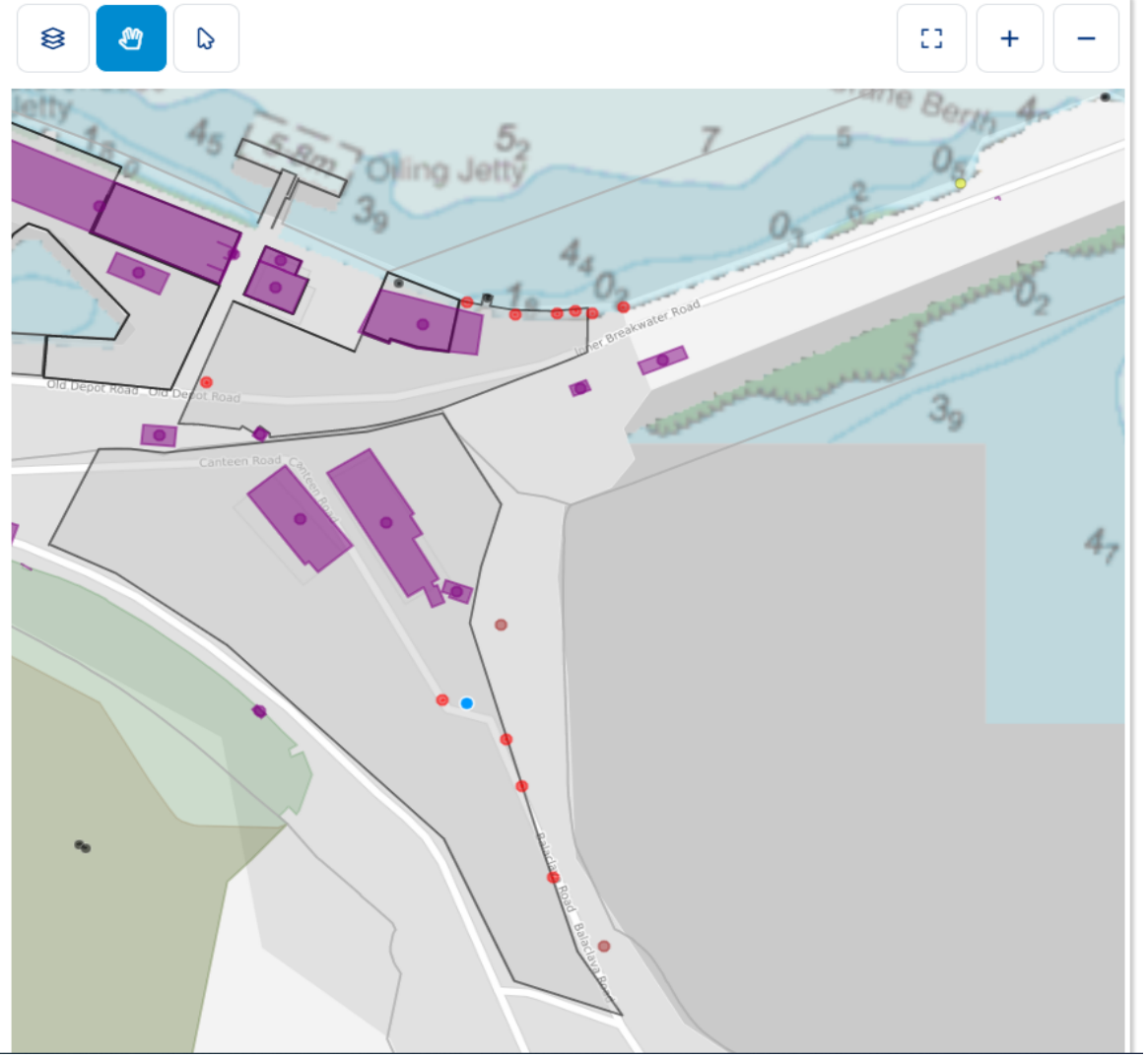
Clear Search

Create | Edit | Download

Search:

Code	Name	Type	Category	Status	Serial_No
PP/Lnd/K/BLD/024	Dragon Alpha Cement	Obstruction	Other	Current	
PP/Lnd/I/BLD/009	##Building/Other/2824	Building	Other	Current	
PP/Lnd/K/FND/007	##Fender/Other/2121	Fender	Other	Current	
PP/Lnd/K/BOL/118	Q Pier Bollard 16	Bollard	Other	Current	
PP/Lnd/D/BLD/010	##Building/Other/2565	Building	Other	Current	
PP/Lnd/K/FIR/004	##Fire Hydrant/Other/341	Fire Hydrant	Other	Current	
PP/Lnd/F/FIR/002	##Fire Hydrant/Other/829	Fire Hydrant	Other	Current	
PP/Lnd/K/BLD/025	##Building/Other/2554	Building	Other	Current	
PP/Lnd/E/PIL/022	##Pile/Other/2844	Pile	Other	Current	
PP/Lnd/K/FND/005	##Fender/Other/2119	Fender	Other	Current	
PP/Lnd/K/BOL/095	##Bollard/Other/604/BOL2	Bollard	Other	Current	
PP/Lnd/K/BOL/096	##Bollard/Other/605/BOL2	Bollard	Other	Current	
PP/Lnd/E/LBY/014	##Lifebuoy/Other/575	Lifebuoy	Other	Current	
PP/Lnd/E/BLD/002	##Building/Other/1246	Building	Other	Current	
PP/Lnd/F/BOL/007	##Bollard/Other/2246/13.93	Bollard	Other	Current	
PP/Lnd/K/BLD/010	##Building/Other/122	Building	Other	Current	
PP/Lnd/K/BOL/025	Q Pier Bollard 32	Bollard	Round	Current	

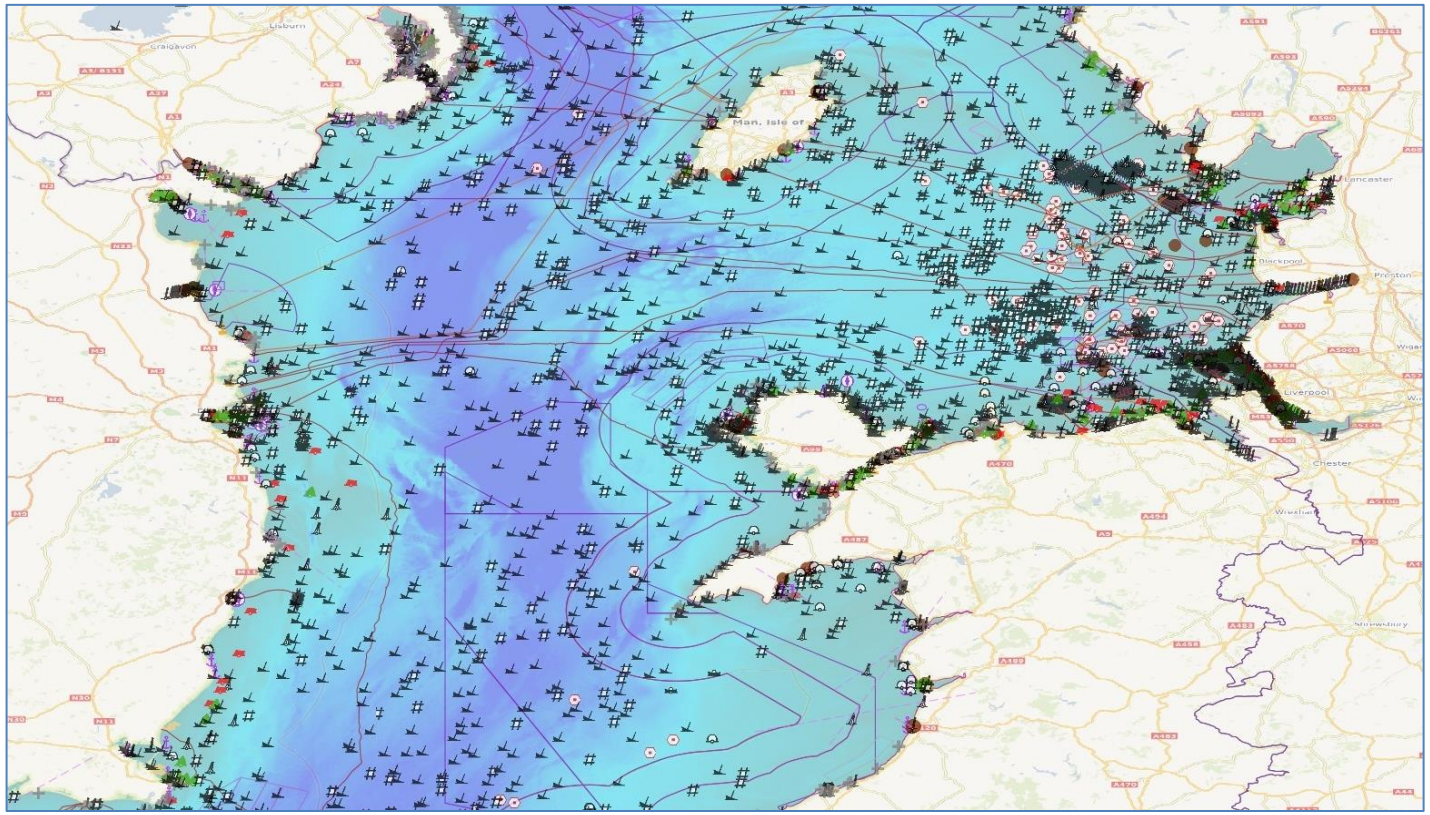
Previous 1 2 3 4 5 ... 30 Next



Consider Visualization and Cartography

Representing the real world on paper or digitally in a manner that meets the needs of the user:

- Purpose
- Output scale
- Generalization and Derivation
- Visualization
- Symbology
- Style and Font
- Color and Hue



Source: maps.oceanwise.eu

Measuring Progress (See DAMA)

Environmental Factors	+	-	RAG
Vision & Strategy	Strong recognition of the need for DG	No clear alignment between DG and the goals of the organisation	
Organisation & People	Widespread recognition that ownership of data is required	DG is not seen as business as usual therefore there is a lack of awareness	
Culture & Communications	Access to shared platforms to help communicate DG messages	No communications plan or ownership of DG communications	
Processes & Workflows	Elements of DG methodology in place in parts of the business	No overarching and consistent approach to DG	
Data Management & Metrics	Some validation of data formats	Insufficient focus on verification of data	
Tools & Technology	Distributed data sources allow user flexibility and independence	Complex, disjointed and unplanned infrastructure	

Thank you for Listening
Questions?

Find out more - Download the MSDI White Paper

Attend an OTGA Introduction to Marine Data Management Course (Free Course)

Request a Customised Data Management Course, Data Audit or Strategy from OceanWise

Email me at mike.osborne@oceanwise.eu