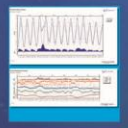
OceanWise

End-to-End Marine and Coastal Data Management and Decision Support.

Intelligent Marine and Coastal Mapping Data

Data Policy, Strategy and Management Systems

Enterprise GIS and Productivity Tools



Environmental Data Sharing and Publishing

Capacity Building, Training and Mentoring

www.oceanwise.eu

Independent • Experienced • Innovative • International • Trusted

Maximising the Utility in Hydrographic Data

"Hydrography is more than Charting!"

John Pepper

Secretary – IHO MSDIWG

Marketing Director – OceanWise

6th ROPME Sea Area Hydrographic Commission, Abu Dhabi;
9th-11th February 2015

John.pepper@oceanwise.eu

Content

- About OceanWise
- The Geospatial World in 2015
- Data “Evolution”
- Data Management
- Open and Linked Data
- Data Management Plans
- MSDI
- The Need for Change

About OceanWise

UK based company specialising in all aspects of marine environmental data acquisition, data and knowledge management and GIS

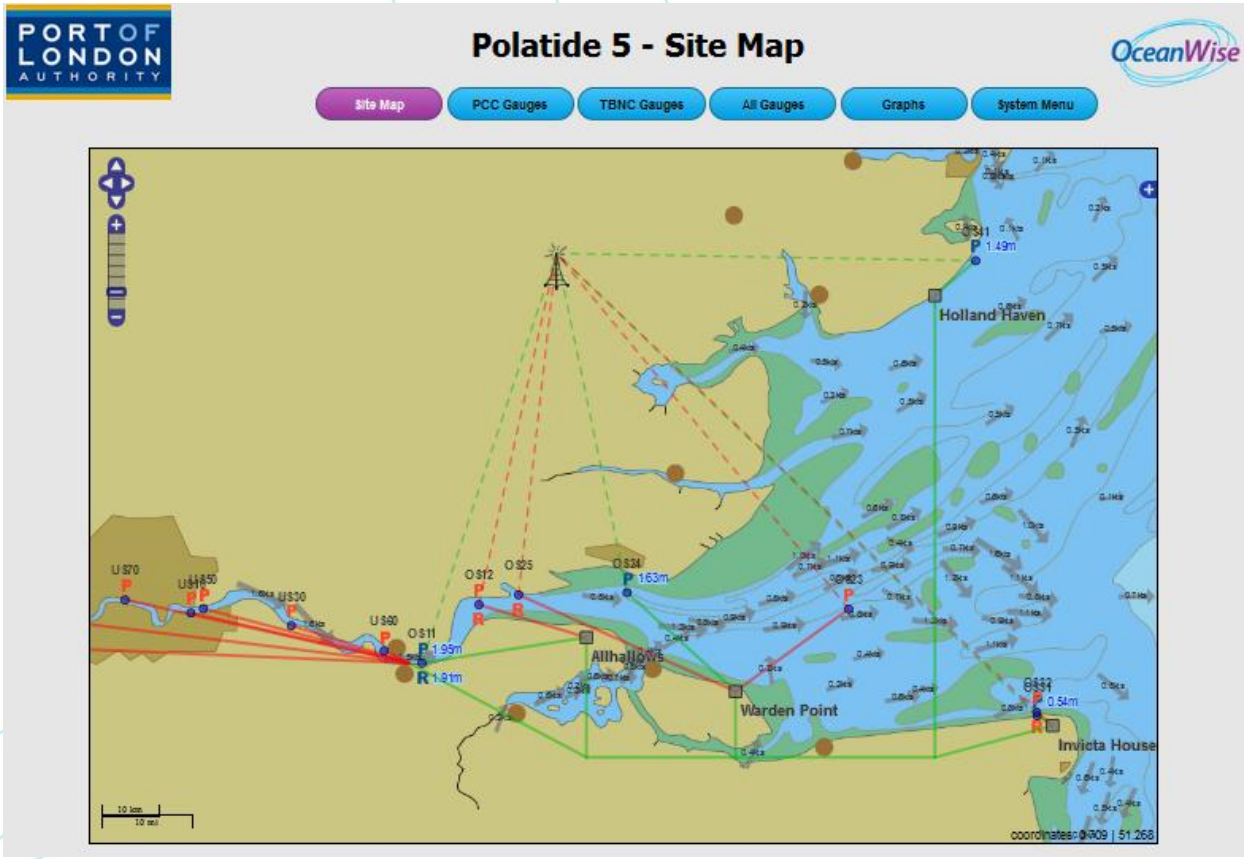
- Expertise in gathering and applying marine data to solving offshore environmental and engineering challenges
- Off-the-shelf software provision and system development
- Key partners - instrument manufacturers, software vendors, public service data holders, standards bodies & distributors
- Provides customers with comprehensive and efficient end-to-end coastal and ocean data management solutions
- Operates worldwide directly and via distributors
- Active in UK, European and International marine data initiatives (e.g. IHO Marine SDI WG, EMODNet, MEDIN, SeaDataNet, IOC Caribbean Marine Atlas SG)

About OceanWise (2)

Numerous high profile customers across different sectors including:

- Public Sector (DEFRA, CEFAS, MMO, Welsh & Scottish Govts)
- Port of London, ABP Southampton, Harwich Haven, Peel Ports Group
- BP, Premier Oil, RWE, Centrica, npower, European Commission
- Thai Navy, KHOA (Korea), NARA (Sri Lanka), Brazilian Navy, MPA (Singapore)
- Bayanat (UAE), Port of Ras Al Khaimah (UAE), Malta Transport Authority

Marine Monitoring, Telemetry & Display Systems



Example systems:

- Port of London (UK)
- BP Shipping (Iraq)
- Centrica (UK)
- The Wash Ports (UK)
- AMC (Australia)
- Bayanat (UAE)
- RAK Port (UAE)
- Malta Transport Auth.

Web based mapping and administration

Port of London Tidal System

Replace 8 existing tide gauges in the outer estuary.

2 Control Servers/DB systems:

PCC: Gravesend

TBNC: Thames Barrier Navigation Control

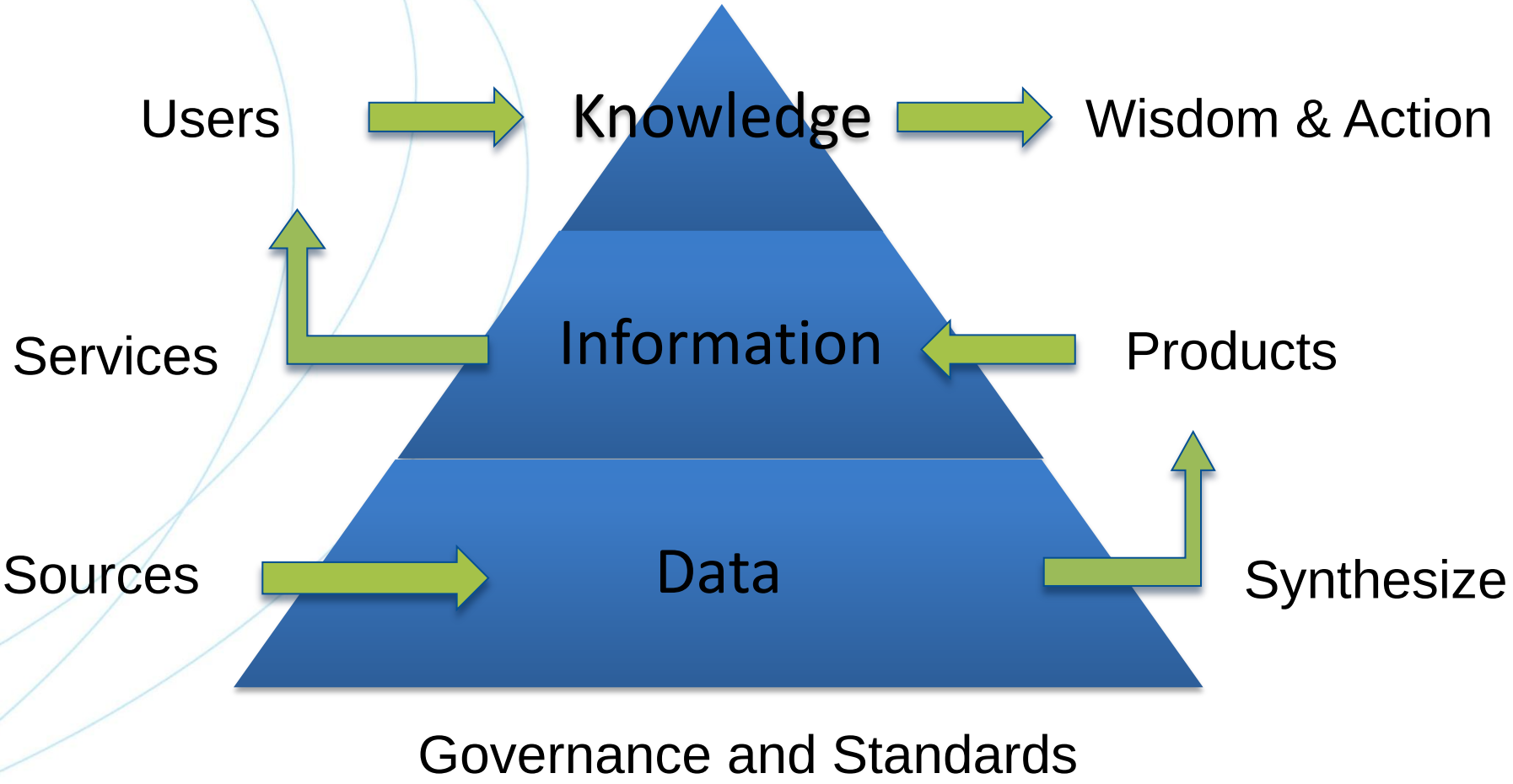
The Geospatial World Today

- We operate in the **global "Knowledge Economy"**
- **Appetite for information is growing** very fast!
- **Geospatial Information is now ubiquitous**!
- **Government, Commerce and the Citizen expects access** to publically funded data
- Government Transparency & Efficiency drivers are mandating the **release of data (e.g. Open Data)**
- Data Interoperability is now becoming the norm
- Data as a service through the web is now the norm!

Evolution of Data!

- Knowledge Doubling and the Data Deluge
- Open Government and Transparency
- Open Data
- Linking Data
- Citing Data
- Changing the way we do things?

Data - Information - Knowledge - Wisdom (DIKW) Pyramid



HERE BE DRAGONS

HC SVNT DRACONES

We are with DATA now where we were with GEOGRAPHY *circa* 1510 (and they thought they were pretty good as well!)

Hunt-Lenox Globe

via

The Map Myth of Here be Dragons

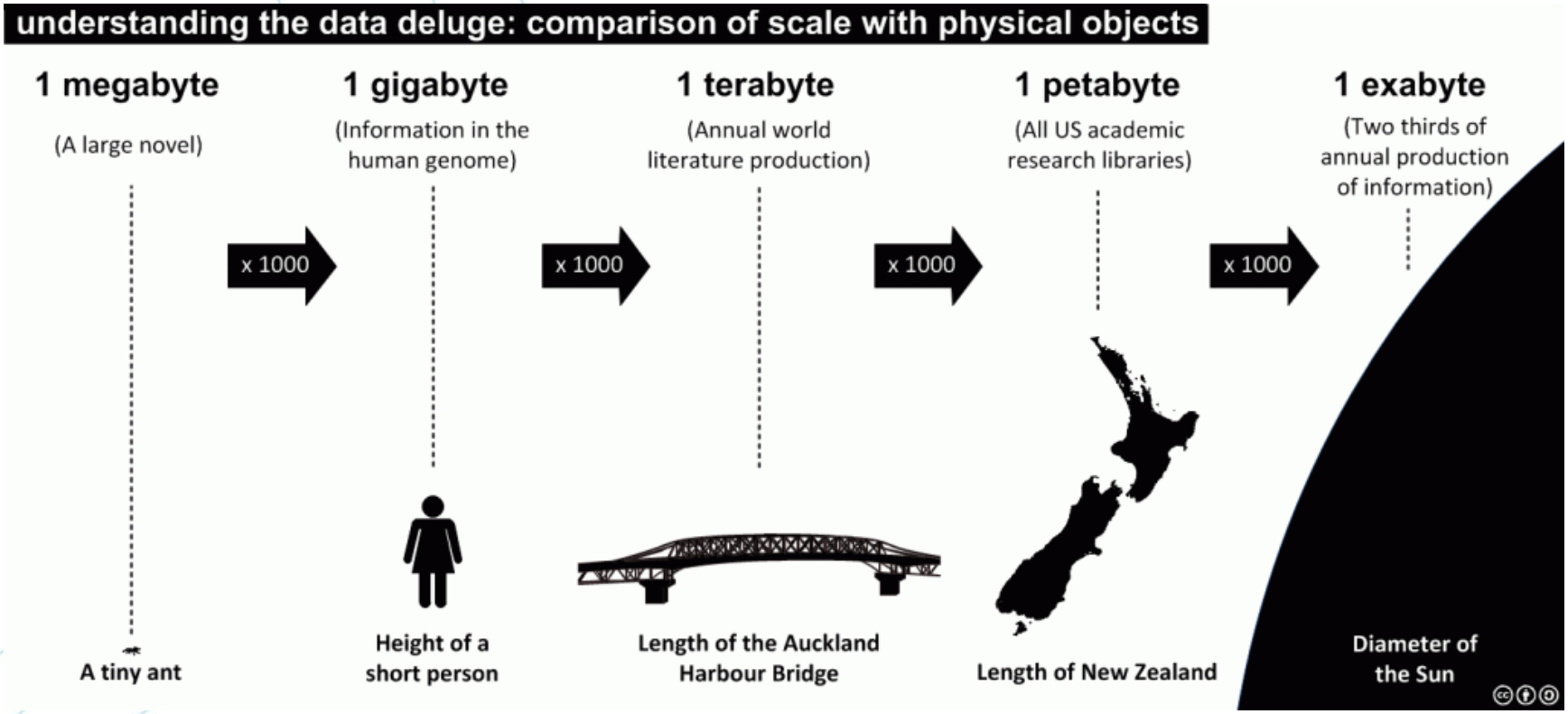
Now for the EVOLUTION
(and the EVIDENCE)...
Knowledge Doubling Curve

Buckminster Fuller created the "Knowledge Doubling Curve"

- He noticed that until 1900 human knowledge doubled approximately ***every century***.
- By the end of World War II knowledge was doubling ***every 25 years***.
- Today things are not as simple as different types of knowledge have different rates of growth. For example, nanotechnology knowledge is doubling every two years and ***clinical knowledge every 18 months***.
- But on average human knowledge is doubling ***every 13 months***.
- IBM states that the build out of the "internet of things" will lead to the doubling of knowledge ***every 12 hours*****!**

The Data Deluge!

Linear to Exponential Growth of Human Knowledge



Beyond the data dump! How can we manage it all?

Good Data Management

- Capture once, use many times
- Manage data as close to source as possible
- Minimise work on input
- Maximise work on outputs (multiple products and services)
- **Adopt a data-centric approach**
- Interoperability of systems, standards and specifications
- Data Exchange and Sharing using agreed standards and protocols
- Implement data strengthening with stakeholders
- Training and mentoring to make this happen effectively and efficiently

Data Management Approaches

1) Process Management Driven or Product Centric

2) Data Management Driven or Data Centric

The Role of Data Management Plans

- Growing Government-wide emphasis on “community” access to data supports a substantive push towards **more open sharing of data**
- National Science Foundation (NSF) in USA requires **data management plans** as a pre-cursor to it providing Federal funds
- This is consistent with NSF's mission and US policymakers in making sure that any data obtained with federal funds **be made accessible to the general public as OPEN DATA**
- NSF is subject to the **US Federal Open Government Directive** to make government more transparent and more participatory
- This addresses the trends and needs in the modern era of data-driven science and solutions

What is MSDI?

MSDI is the component of an SDI, at the enterprise, regional, national or wider level, that encompasses marine geographic and business information in its widest sense and could typically include:

- seabed topography (bathymetry)
- geology and geomorphology
- marine infrastructure (e.g. wrecks, offshore installations, pipelines and cables)
- administrative and legal boundaries
- areas of conservation and marine habitats
- physical oceanography (tides, currents, waves etc.)
- maritime transport and ports

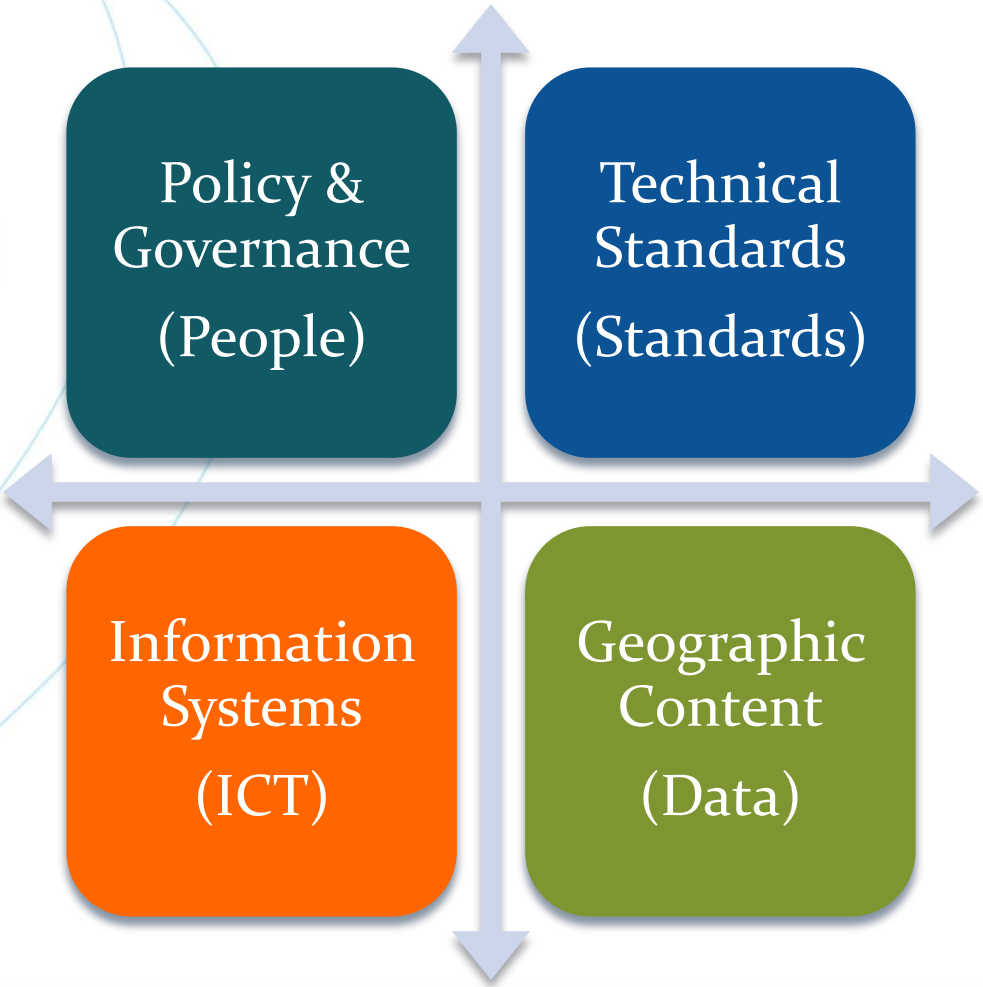
Why is MSDI important?

- Stimulates organisations to make data accessible
- Improves data management practises
- Increases market exposure for information
- Generates social and economic benefits
- Allows better use of public funds
- Eliminates organisational isolation
- Enables co-operation and working together
- Improves security and reduces risk
- Brings cost savings
- Can allow access to additional resources

MSDI Components and Hydrography

Greatest challenge resides here! We do not have the hearts and minds of all HO's

We have the technologies

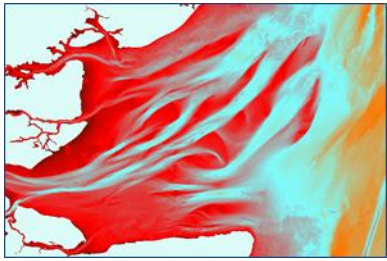


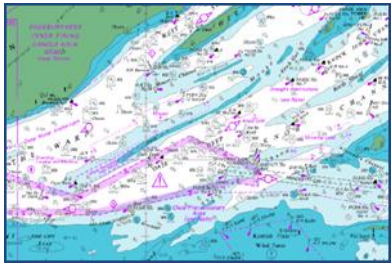
We have ISO,OGC and IHO standards

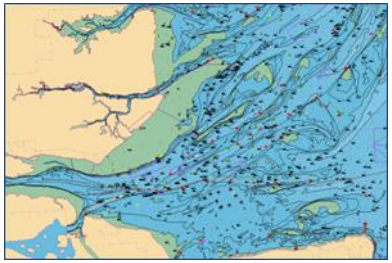
We are collecting more and data

Wider Use of Hydrographic Office Data

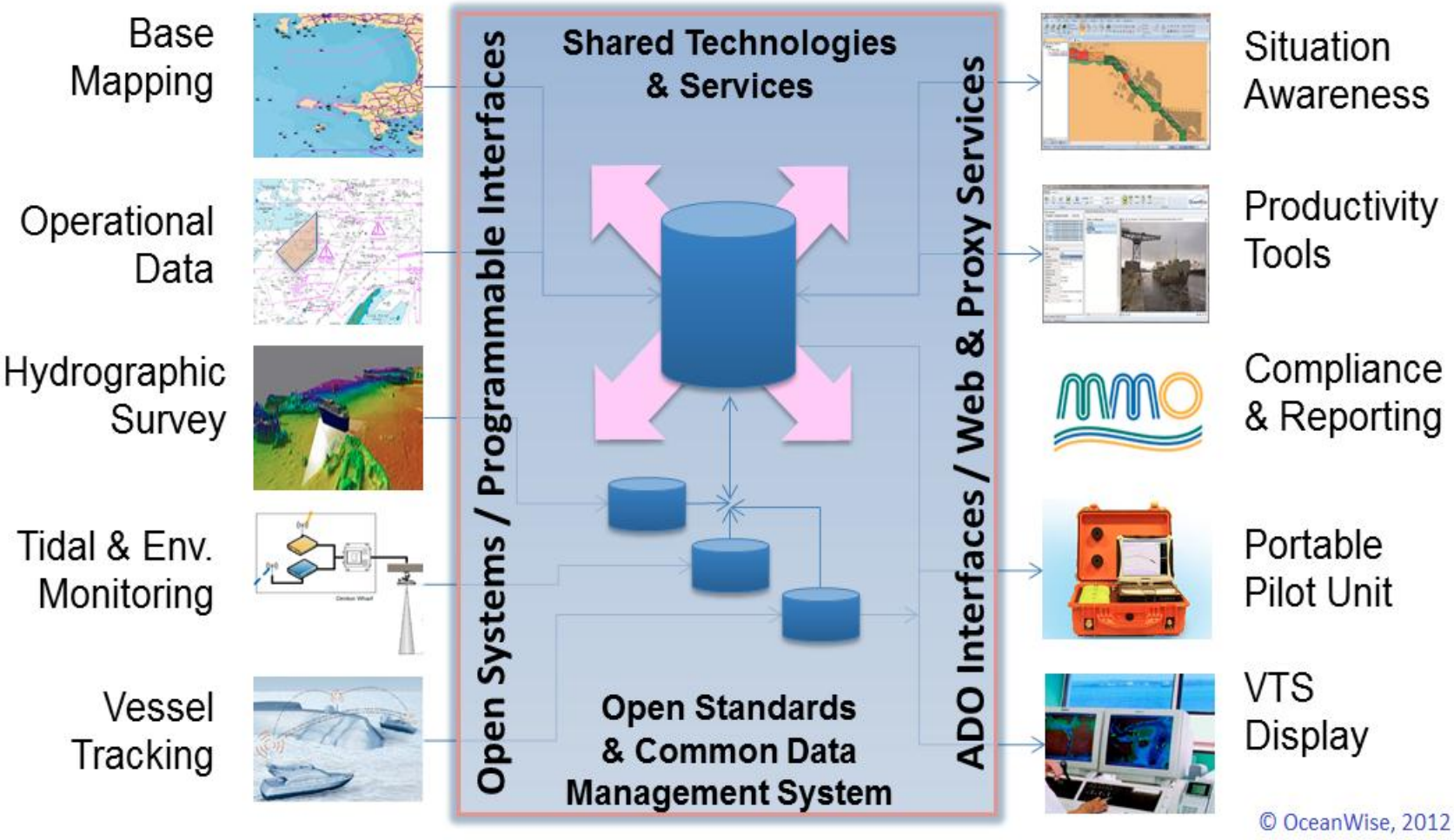
- Integrated Coastal Zone Management (ICZM)
- Strategic Environmental Assessments (SEA)
- Shoreline Management Plans (SMP)
- Environmental Impact Assessments (EIA)
- Emergency Response /Risk Profiling
- Offshore Renewable Energy
- Aggregates Extraction
- Oil and Gas
- Infrastructure Development (e.g. Ports and harbours)
- Economic and Social Development (e.g. Tourism)
- Marine Spatial Planning (MSP)







Port Maritime Information Infrastructure



Can the IHO Community respond?

Cultural and Organisational inertia!

- Many HO's still find it difficult (or refuse) to release data except for SOLAS purposes but why?
  - No mandate from Government
  - Decision Makers do not understand the need to release
  - No re-use licensing capability
  - Cannot accept or gain benefit from any revenue derived
  - Security concerns (an excuse not a reason)?
  - Too difficult?
- The current situation is not sustainable!

Why Change?

- Chart data is cartographically derived and adjusted specifically for SOLAS
- Chart data does not give an adequate “real world” representation for uses other than SOLAS
- Charts contain <5% of the data held by HO’s
- The other 95% often remains “locked away”
- If you don’t lead MSDI – another organization will!
- HO’s will become irrelevant?

…Hydrography is much more than just Charting!

The Way Forward

- Capacity Building
- Training
- Mentoring
- Change Management
  - People
  - Organisational
  - Technical
  - Open Access to Data will drive Interoperability
- IHO MSDIWG Open Forum and Meeting 6 : 3rd-6th March 2015, Heathrow Airport, London

Reflections

- There is an urgent need for quality maritime and marine spatial data to support non-SOLAS applications and services
- HO data is still difficult or impossible to access, share and exchange outside of SOLAS
- “Open” Data from government providers is happening
- The need exists to supplement chart data with marine mapping
- Core Reference data supplied by HO’s is a “must” for asset management and decision support
- Consequences of not doing this will affect economic and social development, investment in- country/region and isolate HO’s
- MSDI allows stakeholders to act together to deliver interoperability
- HO’s are valuable stakeholders…so get involved **now**!

Thank you

Any Questions?

http://www.iho.int/mtg_docs/com_wg/MSDIWG/MSDIWG_Misc/MSDIWG_WP_2014-15.pdf

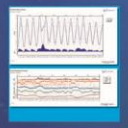
OceanWise

End-to-End Marine and Coastal Data Management and Decision Support.

Intelligent Marine and Coastal Mapping Data

Data Policy, Strategy and Management Systems

Enterprise GIS and Productivity Tools



Environmental Data Sharing and Publishing

Capacity Building, Training and Mentoring

www.oceanwise.eu

Independent • Experienced • Innovative • International • Trusted