

# **Extension and Application of SDI to Support a Marine Dimension**

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# Personnel

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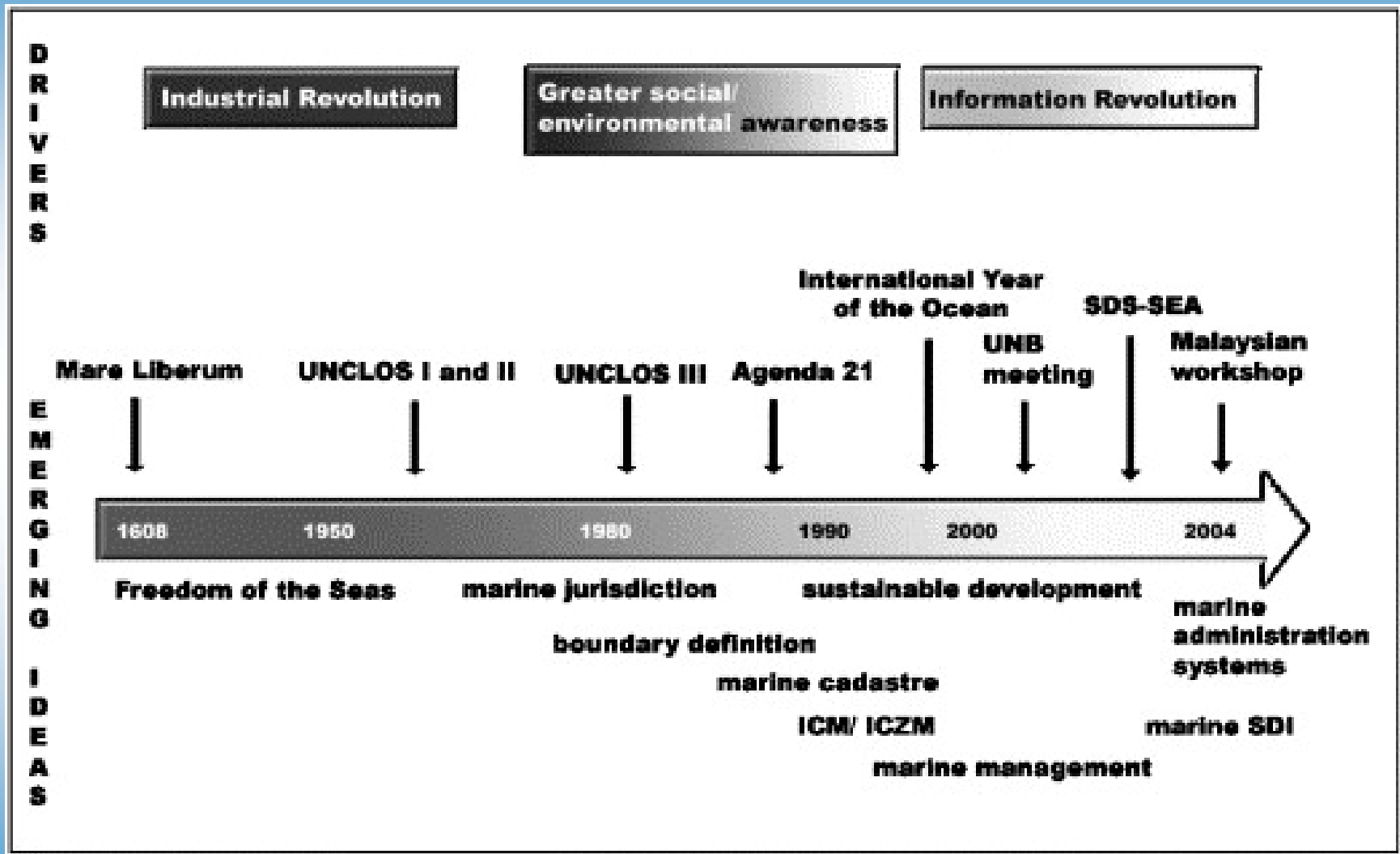


# Background

Current SDI design is mainly focused on access to and use of **land** related datasets as well as **land** related problems.

However, decision-makers in both land and marine related areas also need to access **marine related datasets** in order to effectively achieve their economic, social and environmental objectives.

# Background



# Objectives

- The first objective is to demonstrate the need for the development of a framework to enable SDI to incorporate and facilitate the access and use of marine cadastral data.
- The second objective is to research interoperable data design, an important aspect of data integration and exchange between marine agencies using SDIs, as the basis of spatial business systems.

# Objectives

- The intention of this component is to extend, modify and test the principles that underlie SDI models (in particular the ASDI model) in an offshore context with particular attention on the coastal zone.
- The ultimate aim is to facilitate the inclusion of a marine dimension to SDI models so that they work seamlessly both on land and at sea through better understanding the nature of SDIs and to be able to map their complex components.

# Objectives

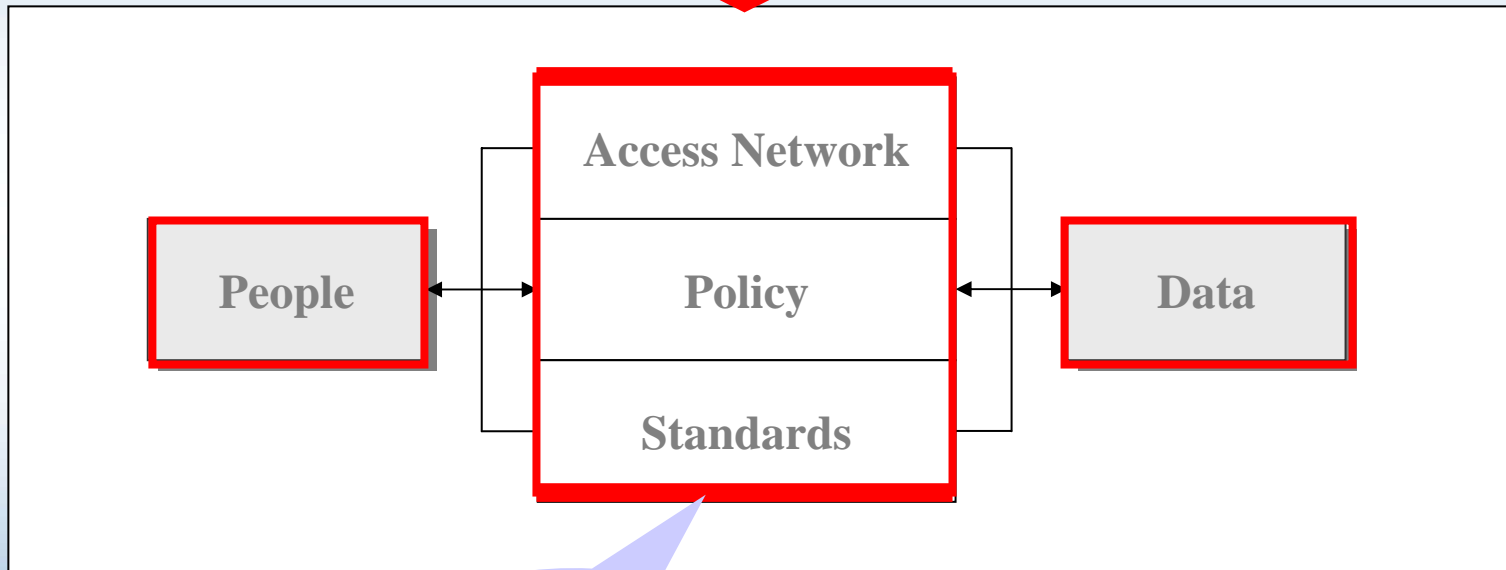
- This research uses a case study approach to examine the applicability of the SDI concept and components to the marine environment. The Marine SDI concept is examined at local, state, national and international levels to evaluate the ability of the SDI model in this environment.
- The end result is an **extended model** that will facilitate the development of a ‘**seamless infrastructure**’.

# Spatial Data Infrastructure

- **SDI** is an initiative necessary for the effective collection, management, access, delivery and utilisation of spatial data;
- **SDI** is whole about facilitation and coordination of the exchange and **sharing** of spatial data;
- **SDIs** constitute a set of **relationships** and **partnerships** that enable data sharing, update and integration.

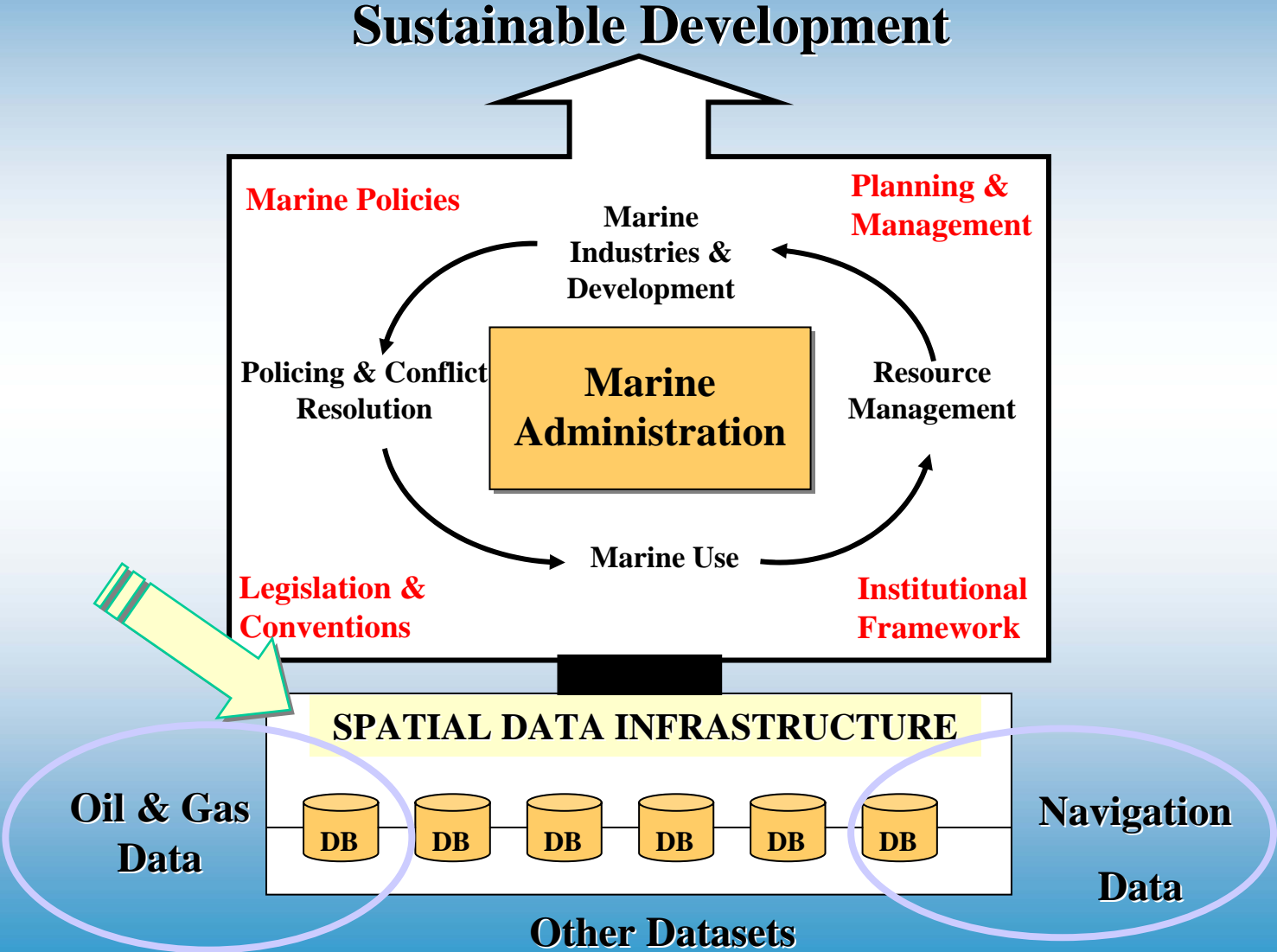
# Nature of SDI

**Dynamic**

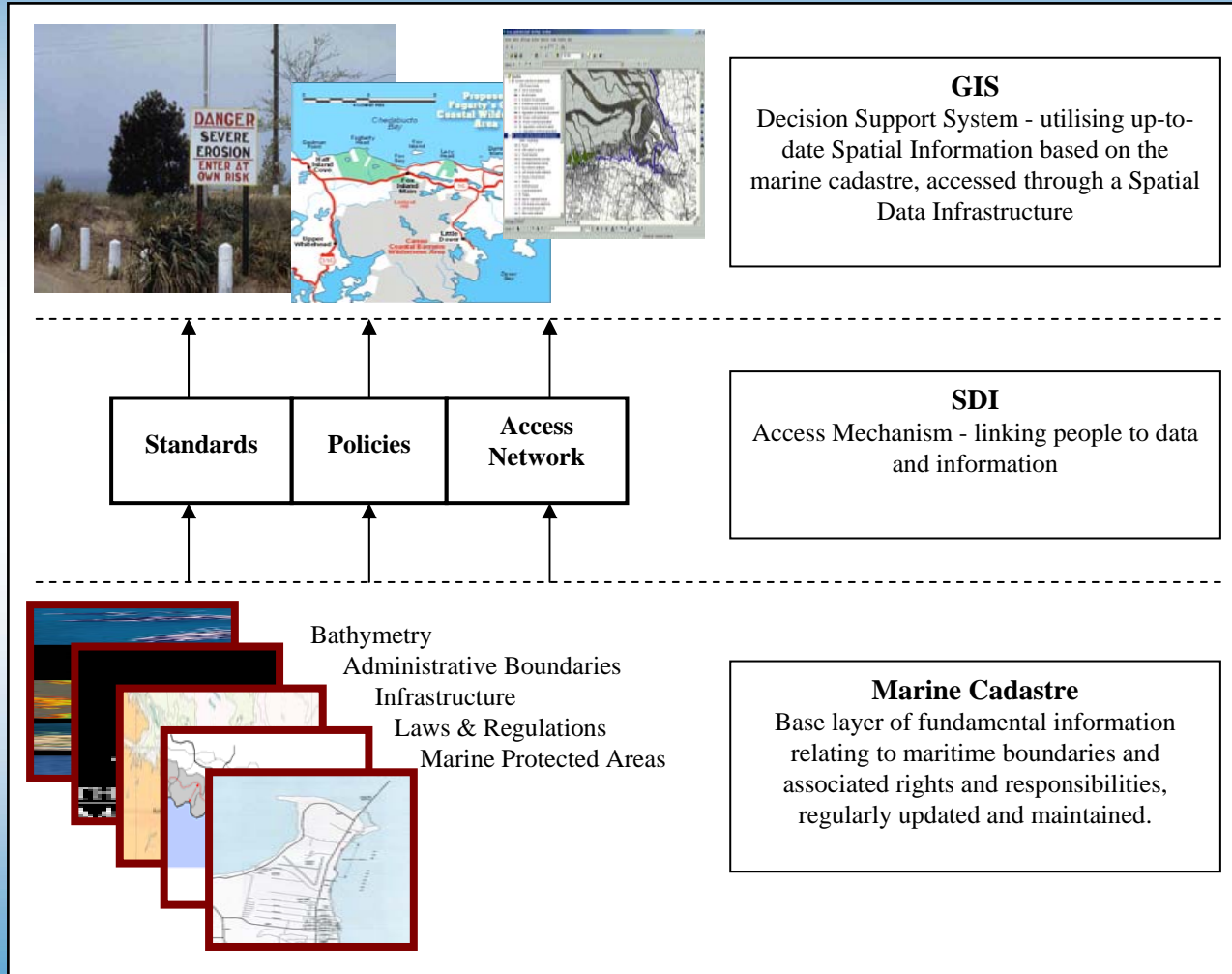


**Technological components**

# SDI and Marine Administration

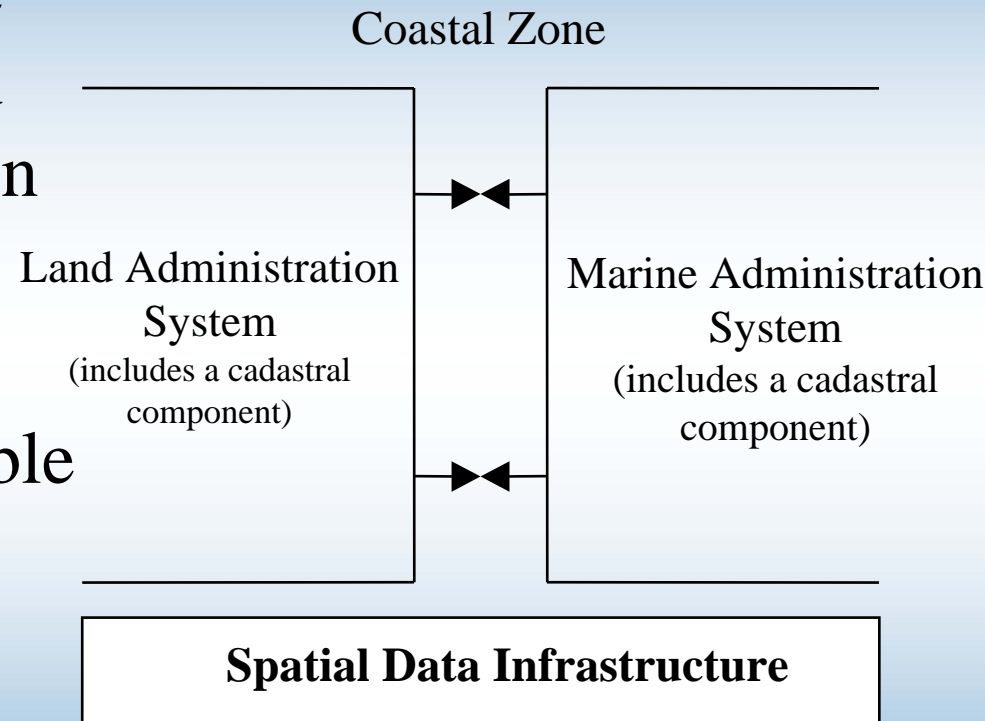


# Decision Making



# SDI and Marine Administration

- Development of SDI in the marine environment would provide basis for integration of marine & terrestrial environments.
- Aid in facilitating sustainable management objectives across a countries entire jurisdiction.



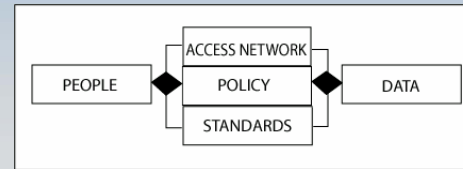
Administering the Marine Environment – the Spatial Dimensions

# Major Steps

- Review current marine management systems,
- Review current land based cadastral systems, to analyse the applicability of legal, institutional and administrative arrangements in the marine environment
- Identify and consult with industry and special interest groups in the marine environment that will be directly affected by the introduction of a marine cadastre
- Review of existing SDI components and partnerships
- Potential for use with marine spatial data
- Methodology for adoption
- Test through a pilot project/case study
- Design criteria to add a marine dimension to SDI

# What are the Essential Ingredients of Marine SDI?

- Same general *components* as terrestrial equivalents:



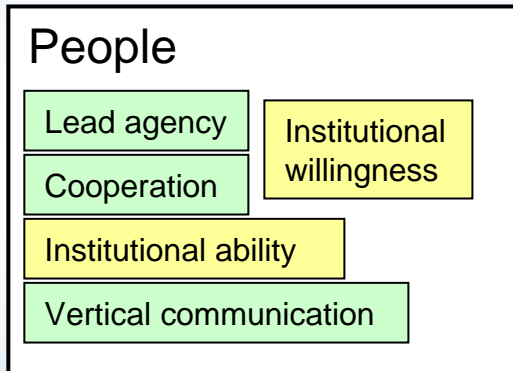
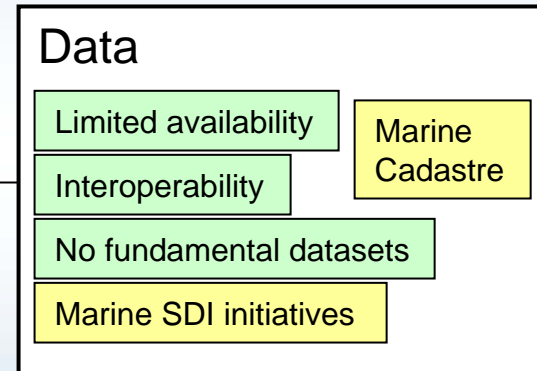
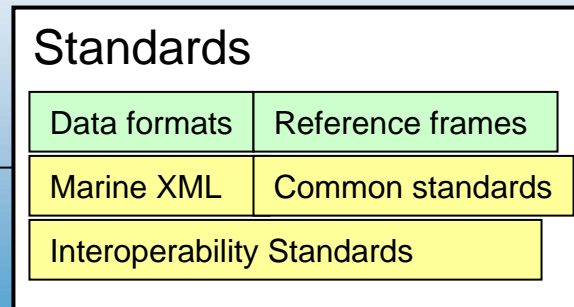
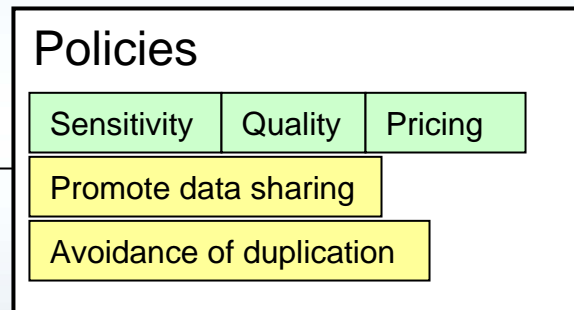
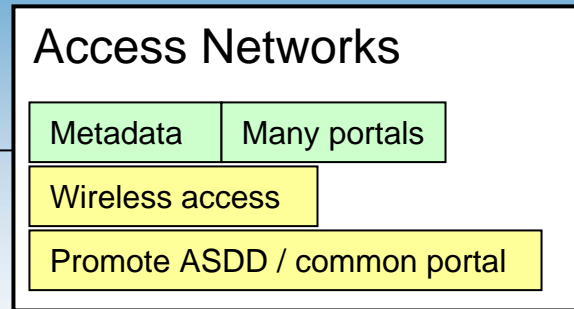
- Basic Reference Data
- Metadata creation and Standards
- Enabling Technologies
- Regulatory Frameworks
- Institutional Arrangements and Policies
- People

But many of these presents unique *challenges* off-shore

# Pilot Project Location



# Summary: Main Opportunities and Limitations for Marine SDI



# How Does this Research Fit in the Marine Cadastre Project?

- Cadastre is a fundamental data layer in SDI
- Underpins other data layers
- Will need to comply with standards, policies, and access components of SDI
- Also supported by ASDI that enables access and use of marine cadastral data

# Conclusion

- Development of ASDI well underway in the terrestrial environment
- Impediments to ASDI in the marine environment:
  - Immature institutional arrangements
  - Lack of overarching government department to coordinate spatial data
- Advantages:
  - Aid in the creation of partnerships
  - Provide standards and interoperability of technology and data
  - Ensure the compatibility of the marine cadastre to the terrestrial cadastre

# Thank You



# Spatial Data Infrastructure

- ASDI ‘a tool to allow different people to share their spatial data products’
- ASDI components ‘people, policies and technologies’
- In 2002 ANZLIC extended the definition of the ASDI to include a marine dimension, however we need to consider the application of these components to marine spatial data

# Spatial Data Infrastructure

- **People**

- Already some level of spatial data sharing occurring in ad-hoc manner
- Institutional unwillingness and perceived lack of ability to share data
- Need to identify possible custodians of ‘fundamental’ marine spatial datasets
- Custodians responsible for following set standards and policies will influence implementation and development of marine dimension of NSDI
- Form institutional framework

# Spatial Data Infrastructure

- **Policies**

- Influenced by international best practice in spatial data management
- NOO – Marine Science and Technology Plan
  - avoiding duplication
  - data consistency
  - improved access to data
  - coordinated data management
- Similar to policies in ANZLIC (1999) Policy Statement on Spatial Data Management

# Spatial Data Infrastructure

- **Policies cont.**

- Some other differences in marine and spatial data may concern policies including
  - Privacy – fishing data, oil and gas exploration data
  - Access – wireless data download for real time access in emergency response
  - Quality – complex environment, may be difficult to collect data to same level of quality and completeness

# Spatial Data Infrastructure

- Technology
  - GIS and remote sensing increasingly being used as decision support systems in marine and coastal environments
  - Standards cover data access, content and exchange
  - Interoperability of data relies on use of common standards
    - Data formats, dictionaries, metadata, reference frames etc
  - Many data access networks occurring as separate initiatives from ASDD, although some are available
  - Marine XML developing as an exchange language for marine spatial data



# User Access

- **User Interface**
  - ‘based on my current location, what legislative restrictions impact on what I can do?’
  - Access and query spatial data and metadata to provide decision support for stakeholders in the marine environment
- **Web services**
  - a metadata search facility with links to relevant metadata
  - keyword search facility
  - spatial location search facility with the ability to view location on a map
  - ~~data download mechanism to access spatial data~~