



Coastal/Marine SDI Capacity Building Workshop: Addressing the Challenges

Your Presenters:

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Welcome to the Workshop!

- *Part 1 – SDI Basics, Experiences and Good Practice*
- *Part 2 – Research into Marine Geoportals*
- *Part 3 – Meeting the Challenges Ahead*
- *Part 4 – Q&A Session*

<http://gsdiassociation.org/index.php/projects/marine-sdi.html>

Implementing a national SDI: Key challenges & opportunities for the marine community

NII – NSDI – Coastal/Marine SDI

The premise: *Government establishes policies for information use at national level (NII) based on perceived needs of government, of businesses, and of civil society.*

Rationale: *To link up the disparate parts of our society more efficiently.*



NII – the National Information Infrastructure

NII as a process, not a ‘thing’:

- **identify and ‘value’ information assets (create metadata),**
- **satisfy legal mandates – data needed by each organisation to do its ‘public task’,**
- **evaluate economic benefits of wider use of the data,**
- **evaluate societal benefits of wider use of the data,**
- **establish data & information policies that support the benefits,**
- **evaluate (alternatives) and establish implementation strategies,**
- **enact legislation to enforce the policies and enact the strategies,**
- **assess cost-benefit of the NII, sector-by-sector, and make future plans.**

NII versus NSDI

NII is all encompassing - embracing and/or impacting upon ALL of society:

- **government performance (increase efficiency in executing public tasks),**
- **economic performance (efficiency of business operations, innovation, employment, ...)**
- **providing benefits to civil society (quality of life, security, welfare of citizens, ...)**

Key point is that NII principles and policies apply to ALL forms of data, sector neutral.

National Spatial Data Infrastructure (NSDI)

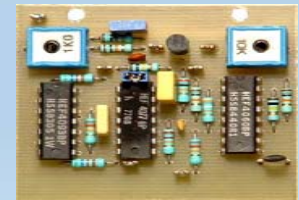
- SDI is an Information Infrastructure first, and spatial second – existing within an NII.
- SDI is not only:
 - Maps & digital geo or location-based data (although content is important!)
 - Information Technology (GIS & other ICT, remote sensing, sensor webs, mobile devices, etc.)
 - Web-based Geoportals (although these are important windows for delivering SDI objectives)
- SDI includes: governance, data policies & principles, legislation, monitoring, enforcement, technical standards & infrastructure, capacity building, stakeholder engagement –and people!
- There may be no ‘best’ way to implement an SDI – what works best depends upon existing NII objectives, principles, policies - and local information culture.

SDI Objectives

- The key objectives for SDI are data sharing and interoperability (between systems & organizations) in order to:
 - reduce duplicated effort (in some cases, not all)
 - permit re-use of the same data in new ways and by new users
 - may reduce the cost of using geospatial data by original owner
- But... data sharing has a cost (people + time + ICT)
- Integrated information infrastructure helps reduce that cost (proven by studies)
...
- ... and increases the value of geospatial information to business, government and society in general (also proven by studies).
- Some successful SDIs start 'bottom up' – but 'top down' goals, principles and standards help – and are mandatory to achieve national scope at least cost.

SDI Components

- **Governance:** gives direction, oversees ownership, plans for sustainability, monitors operational implementation.
- **Data policies & principles:** standards, quality, access, sharing, publishing, charging, re-use of data, ownership rules, licensing, restrictions.
- **Legislation:** monitoring and enforcement of data policies, intellectual property rights (IPR), liability issues, privacy rules.
- **Implementation:** creating and managing the infrastructure, monitoring progress, managing technology evolution.
- **Capacity building:** human resource development, training & professional education, educating institutional users.
- **People!**



Implementing SDI the traditional way

1. **Government sets 'Information Policy' and/or 'SDI Policy'.**
2. **Identify the datasets you have that are governed by the policy(ies).**
3. **Create metadata - using an agreed (and published) standard.**
4. **Publish the metadata – electronically (using a standard).**
5. **Provide a Data Discovery Service - using a standard, applied to the metadata.**
6. **Publish the data – prepare and deliver viewing & downloading services, using standards.**
7. **Support data delivery - monitoring, reporting, 'customer' support – all comes at a cost.**
8. **Review value of the data/services – conduct CBAs (cost-effectiveness, cost & time savings, performance indicators, etc.).**

SDI Policy Drivers

- **Increase operational efficiency** across (all levels of) government – reduce costs.
- **Share services** underpinned by **shared data** – requires active partnerships – G2G, G2B, B2G, G2C - & today - C2G.
- **Support information society** and **e-Government** goals by enabling more cost effective citizen-based services.
- Help the **information economy** grow by increasing market size (= employment and more tax revenue).
- Enable better, quicker, more reliable **decision making**.

SDI Policies

‘Information Policy’ is a very broad term – interpreted differently by different people for different purposes.

Key data policies for SDI are:

- **access to data (IPR, data protection, privacy, open data ‘by default’?)**
- **use and re-use of data (the above + competition, 3rd party considerations, potential liability issues, monitoring)**
- **charging or not for government data - the debate on ‘free or for a fee’ (where philosophy meets economics!)**

Other SDI Policy Issues

- **custodianship** of key reference data sources – topography, geology, hydrography, addresses, cadastre, land use, etc.
- **voluntary** or **mandatory participation** in the SDI,
- **enforcement** measures – ‘light touch’ or strong,
- providing **financial support** or other incentives (if the SDI is creating a ‘public good’).

Challenges in the SDI Process

- **Consultation, Cooperation, Collaboration and Coordination** – the “4 C’s” for successful SDI implementation.
- Raising **awareness** of benefits, at all levels - continuously.
- Overcoming **skills shortages** among data owners, creators, and users - at all levels of government, businesses and citizens.
- **Convincing stakeholders** that **harmonized geospatial data** has greater value due to its ability to support interoperable services – and new services.
- **Managing expectations** of all stakeholders in a process that will take many years to complete.
- **Measuring success** (identifying early ‘win-win’ cases & using performance indicators) - to combat concerns over cost.
- **Adapting to change** – nothing stands still in the information world!

Why the Challenges exist?

- **capacity building** issues – lack of human resources with the right skills and knowledge, lack of adequate ICT infrastructure, lack of funding...
- **conflicts** with other departmental or government policies (prioritize SDI?),
- **lack of incentives** to managers and high-level decision makers to make the changes,
- concern over **data quality** – mistakes & inaccuracies in ‘my’ data,
- **data hoarding** – retaining control over ‘my’ data, and
- ... **institutional inertia** – change of any kind does not come easily!

Strategies to meet the Challenges

- From the UK ACIL Tasman Geovalue study - **'top barriers'**:
 - **lack of awareness** of benefits,
 - **resistance to change** among users,
 - **implementation costs** – or fear of them!
 - **inappropriate data pricing**,
 - **restrictions on access**, use and/or re-use.
- **Implementation strategies** need to define ways to meet and overcome these challenges...
 - **within budgets and human resources capabilities**

Strategy Recommendations

- **SDI development strategy** should be **tied to e-Government initiatives** – and goals - now underway in most countries.
- Strategy also **sets the timelines for implementation** – defining **parallel actions** and **serial actions, e.g. ...**
 - harmonized metadata cannot be created until standards have been agreed,
 - but once agreed, metadata creation can proceed independent of, for example, licensing policy development.
- **Implementing early ‘win-win’ scenarios** is important - keeps stakeholders engaged in the process – addresses, cadastre, reduce road congestion, disaster mitigation?
- Provide for **continuous awareness raising, training** and related **capacity building** initiatives.

What is Marine/Coastal SDI?

- **A subset of NII** - developed under the umbrella principles & policies of the NII.
- **A subset of NSDI** - involving many different sectors and disciplines where 'location' in respect of the marine/coastal environment is especially important or essential – and usually **complex** (coastal).
- Marine is one of the few themes developed today within NSDI (geology? transport?).
- **A key 'People' question** – who leads and/or how do multiple sectors work together effectively in creating what is a complex, multi-sector SDI?