



Quantifying the benefits of Marine Spatial Data Infrastructures

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ConsultingWhere is an International specialist IT consulting organization focused on location Information, particularly:

- *SDI Development*
- *Economic analysis (and Rol) studies*
- *Business Strategy*

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Overview

- Common Concepts
- Key Ideas
- Geospatial data - case studies of economic value:
 - Land-based Information
 - Marine studies
 - MSDI
- A Community of Practice
- Shared Challenges
- Call to Action

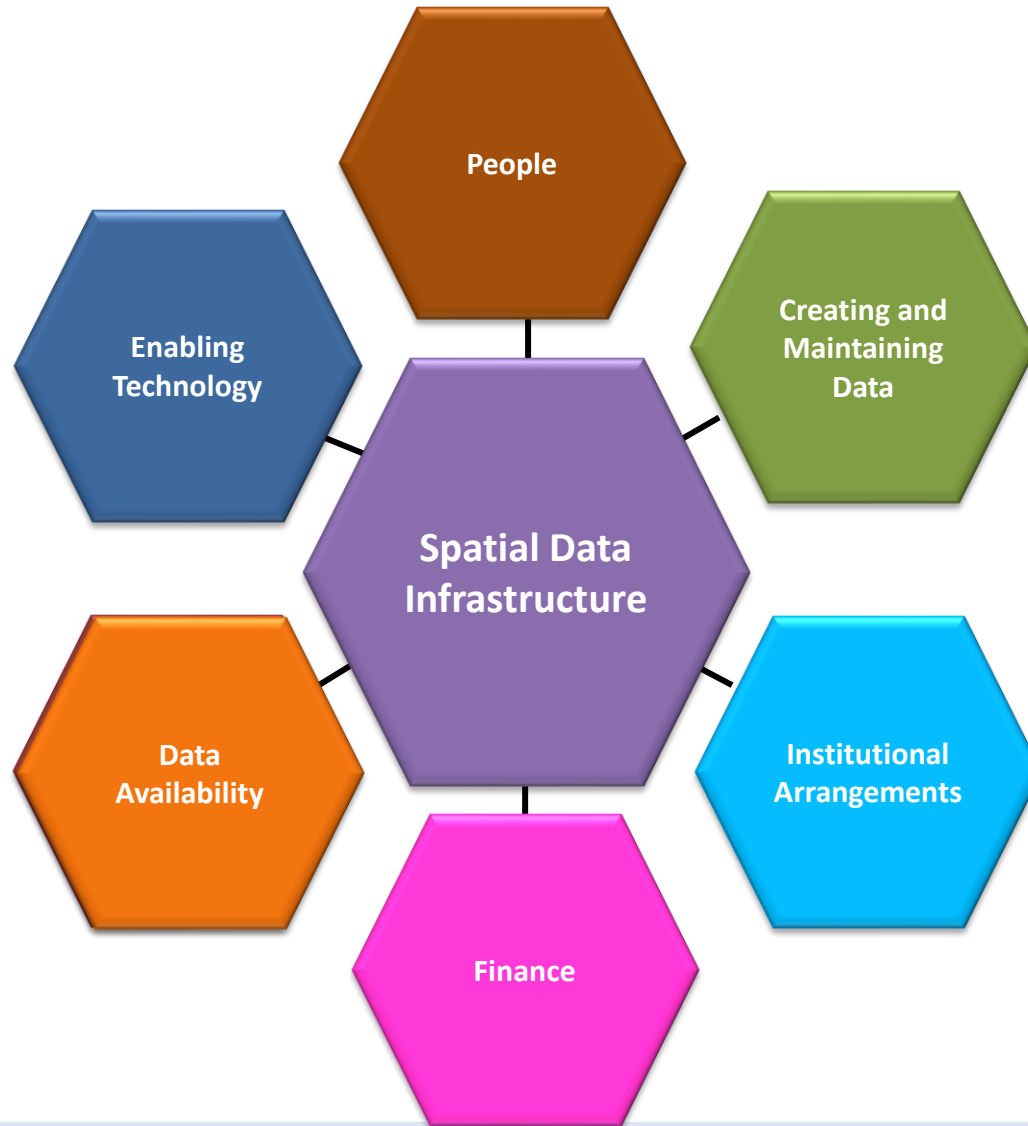
Common Concepts

Strong case for Integrating land and sea experience

To borrow from George Bernard Shaw:

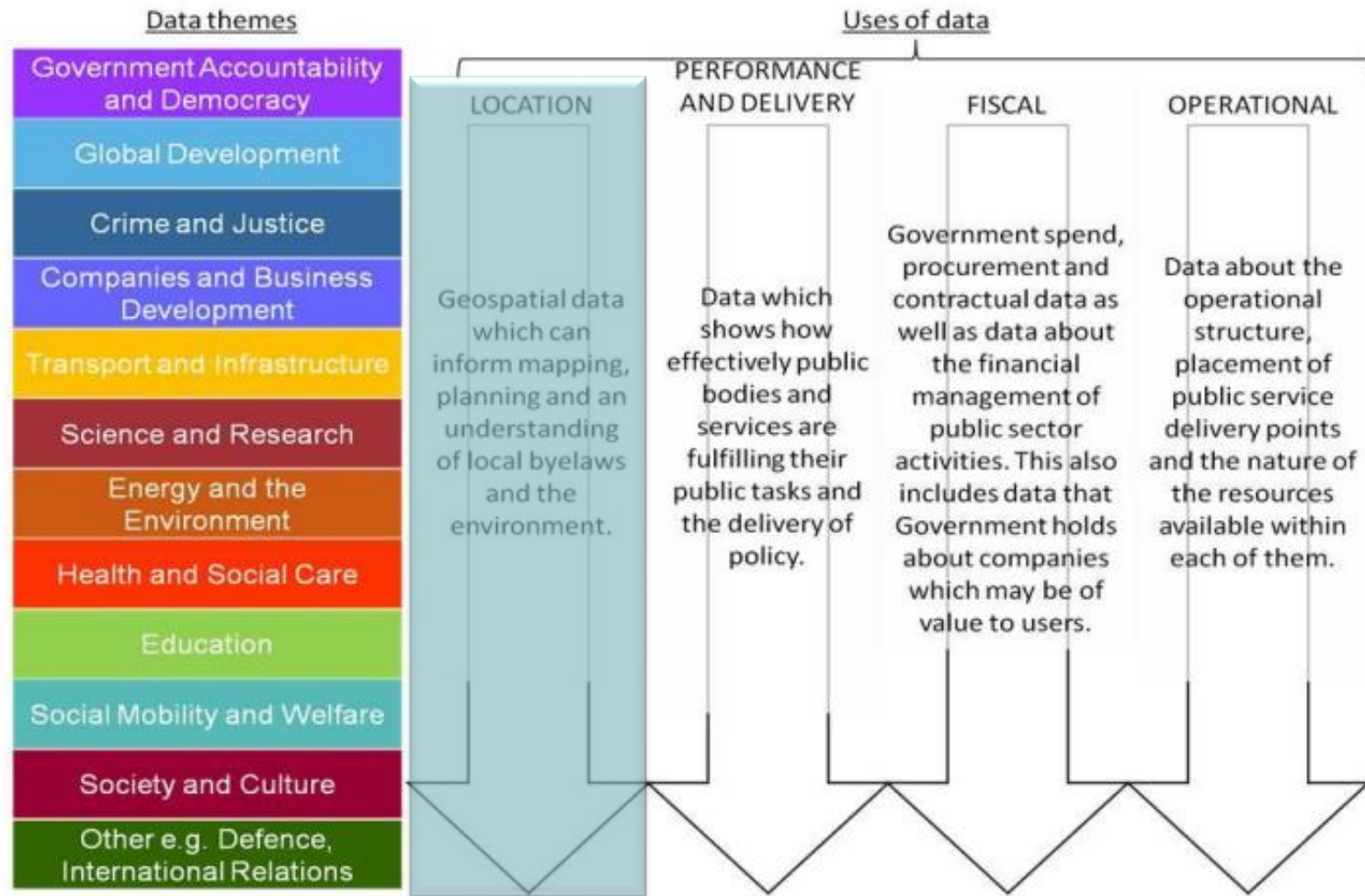
“Two disciplines seeking to solve the same problem but separated by a common language.”

Spatial Data Infrastructure



Key Ideas

UK National Information Infrastructure



Source: UK Cabinet Office¹

Valuing Information

- We should not confuse the *value of information* with the *value of benefits from policies and/or systems that use it in decision making* (the apportionment problem)
- There is almost always alternative evidence to support decisions (economists call this the “counterfactual”):
 - other data sources (increasing in a world of data abundance)
 - different evidence bases (often from social science)
- It follows that an information source is only worth the “delta” in value between it and the next best alternative.

Determining the Value of Information (VOI)¹

Determined by four key factors:

1. The degree of uncertainty faced by decision makers;
2. What is at stake as an outcome of their decisions;
3. The cost of using the information to make decisions;
4. The cost/price of the next-best information substitute.

However, we must also factor-in the ability and willingness of individuals to act on the information they receive.

Ultimately, politics trumps economics.

Geo-economics: Quantitative Studies

Open Data - Ordnance Survey

- ConsultingWhere Study for BIS¹ undertaken in 2012 of benefits of OS OpenData™ to commercial users:
 - Datasets included small and medium scale topographic data
 - Excluded high revenue earning data MasterMap™ and Geoplace™
- Result of making OS OpenData free at point of delivery:
 - Net £13.0M - £28.5M increase in GDP after 5 years (in 2016)
 - Improved levels of output and innovation
- Identified barriers to adoption
 - Need for continuous maintenance
 - Biggest benefits are initially to existing users
 - Importance of awareness programme for new user communities, through initiatives such as Geovation²

Geospatial Value to National Economy - NZ

- ACIL Tasman report¹ valued contribution as:
 - Geospatial information is estimated to have added **NZ\$1.2 bn (£600m)** in productivity-related benefits to the New Zealand economy.
 - Equivalent to slightly more than **0.6% of GDP**.
 - Removing key barriers would add **NZ\$100m (£50m) p.a.** to Government revenue.
- Used Computable General Equilibrium (CGE) Modelling to:
 - Simulate economy-wide effects of benefits to multiple sectors
 - Based on trade statistics within and between national economies
 - Particularly suited where effects are best presented in terms of productivity, tax, trade (imports / exports) and employment
- CGE also used in studies on augmented GNSS in Australia² and economic value of Geomatics to the Canadian economy³

Economic value of hydrographic data

Socio-Economic Study: Scoping the Value of NOAA's Coastal Mapping Program

Final Report

Irv Leveson
Leveson Consulting



Prepared for the Remote Sensing Division of the National Geodetic Survey, National Oceanic and Atmospheric Administration, U.S. Department of Commerce under contract DG133C119E1521

March 8, 2012

NEW ZEALAND PROGRAMME
PACIFIC REGIONAL HYDROGRAPHY SURVEY AND MARITIME CHARTING

ASSESSING THE COSTS AND BENEFITS
HYDROGRAPHIC SURVEY AND CHARTING

A CASE STUDY OF VANUATU



Economics and Public Policy

INFOMAR
Marine Mapping Study
Options Appraisal Report:
Final Report
30 June 2008

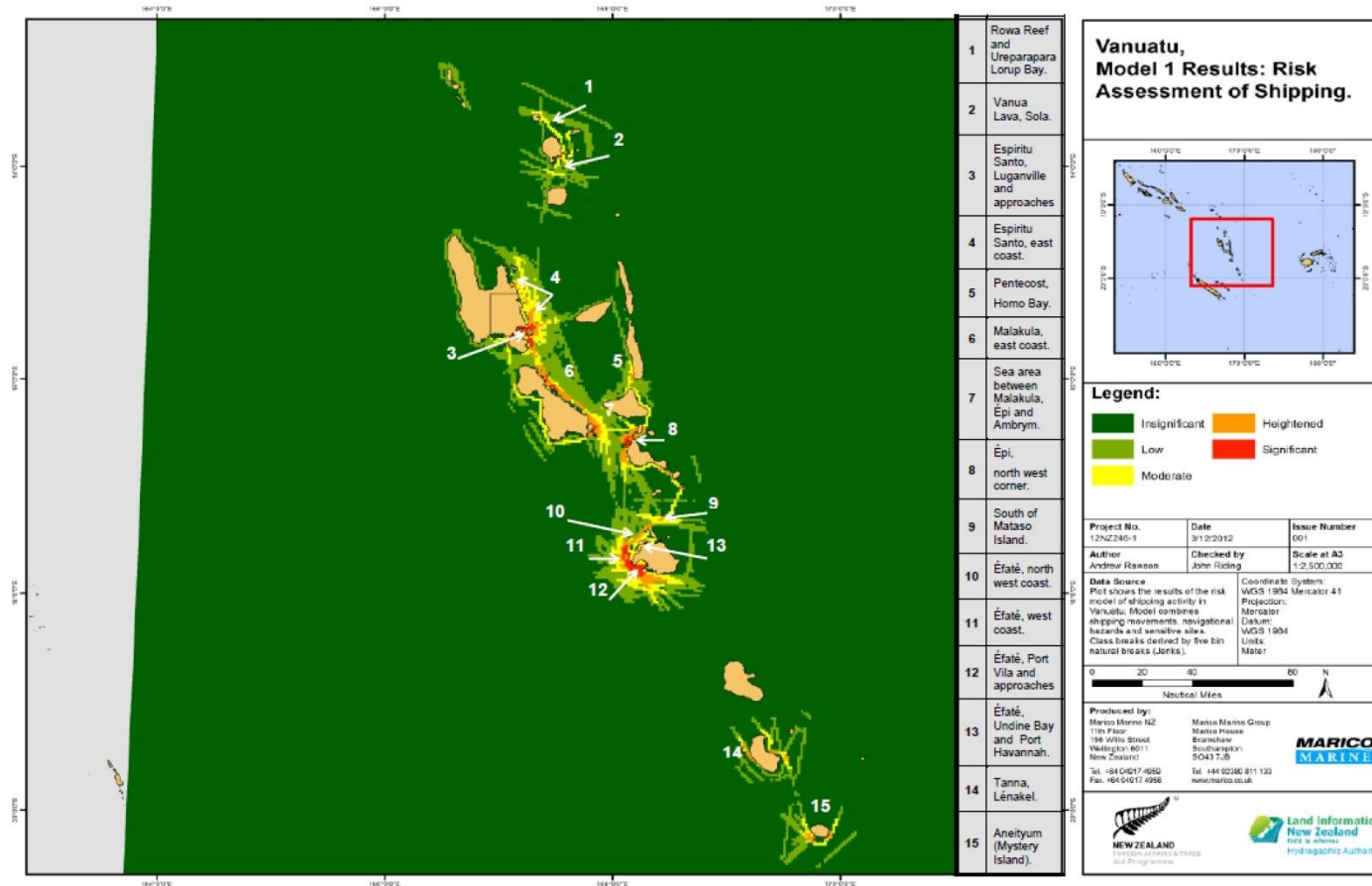


Vanuatu Case Study

- Makes the business case for updated hydrographic surveys and electronic navigational charts for Vanuatu's ports
- Local economy very dependent on maritime trade:
 - relies heavily on cruise tourism
 - Lack of such accurate charts meant that cargo and cruise ships traffic compromised
- Preliminary study confirmed that the benefits of better charting far outweigh the costs
 - The Net Present Value of implementing this project would be **US\$ 383 million over 5 years**
- Ground breaking in its use of GIS to produce a geographically-based CBA and risk profiling

GIS-based Risk Assessment

Overall Hydrographic Risk Profile for the Vanuatu Archipelago



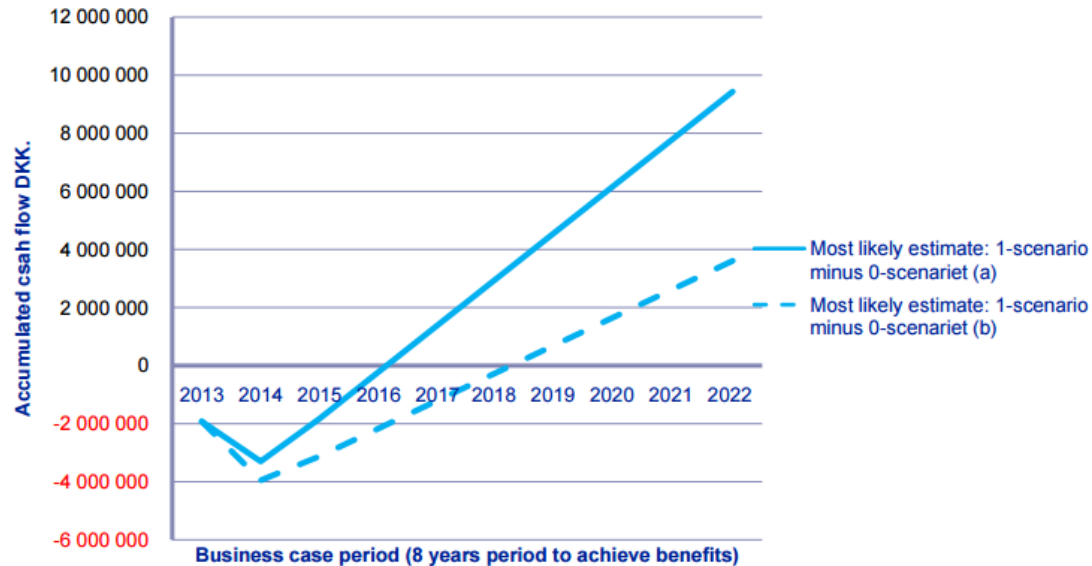
Source: Land Information NZ and Marico Marine

Economic Appraisal: MSDI Denmark

BUSINESS CASE RESULTS

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Summarising Business Case Table



Source: Devoteam presentation at IHO MSDI Working Group 2013¹

Socio-economic benefits: A Community of Practice

- Group originally formed to help to quantify the business value of INSPIRE
- Objective to advance understanding of the benefits of geospatial and environmental information for complex socioeconomic decisions.
- Holds international annual workshop to discuss key issues
- Sponsored by NASA, USGS and EC
- Runs a website www.socioeconomicbenefits.org
- Also LinkedIn group for knowledge exchange
- Free, open membership

Shared Challenges

- Too many important projects are “shelved” or delayed because the business value is not well articulated
- Increasing body of evidence on quantitative benefits
 - BUT the range of methodologies used makes direct comparison of results difficult
 - Cells of expertise are fragmented Internationally
 - How to engage with other disciplines such as Environment and Transport economists who have established standard methodologies and databases of case studies
- Economic benefits studies only useful when linked to effective “storytelling” aligned to political agenda
 - There is a strong communication dimension to achieving support for the building of information infrastructures

Call to Action

IHO and FIG are already working in this space as are earth observation and land geospatial community

There seems to be a strong case for greater inter-disciplinary knowledge sharing between these communities

Let's use today to start a wider dialogue

Further Information on economic benefits

- **ConsultingWhere - Return on Investment (RoI) Information Centre**
<http://www.consultingwhere.com/resources/roi-information-centre.html>
- **Environmental Valuation Reference Inventory (EVRI)**
<http://www.evri.ca>
- **Socio-economic Benefits Community website**
<http://www.socioeconomicbenefits.org>
- **NASA: Measuring Socioeconomic Impacts of Earth Observation**
<http://www.nasa.gov/sites/default/files/files/SocioeconomicImpactsPrimer.pdf>



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