

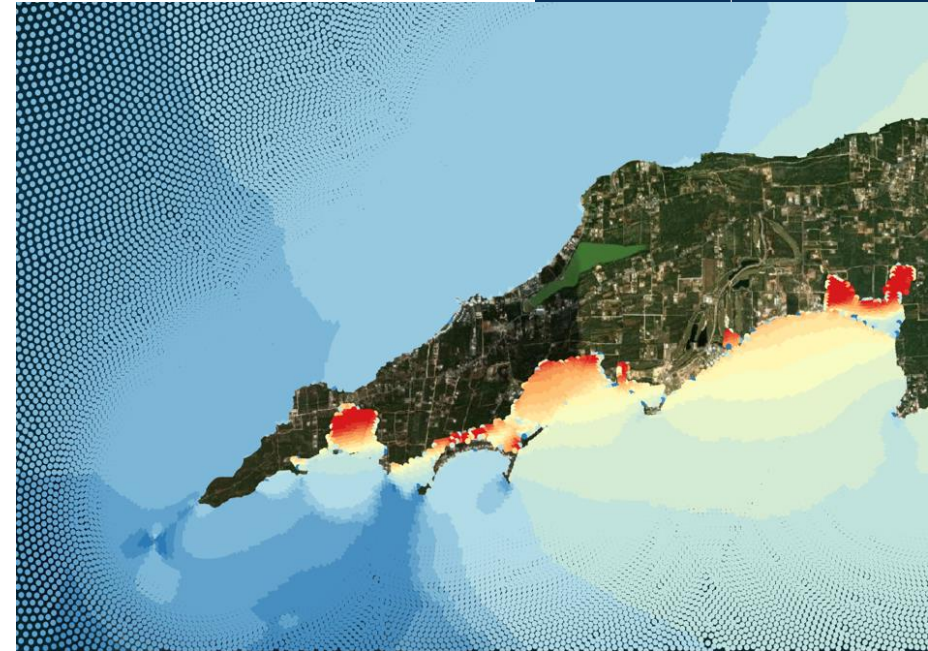


UK Hydrographic
Office

IGIF Implementation at the UKHO

+ A Caribbean Use Case

James Carey Mphil FIMarEST CMarTech
Head of Operational Delivery - Content





Marine Spatial Data Infrastructure

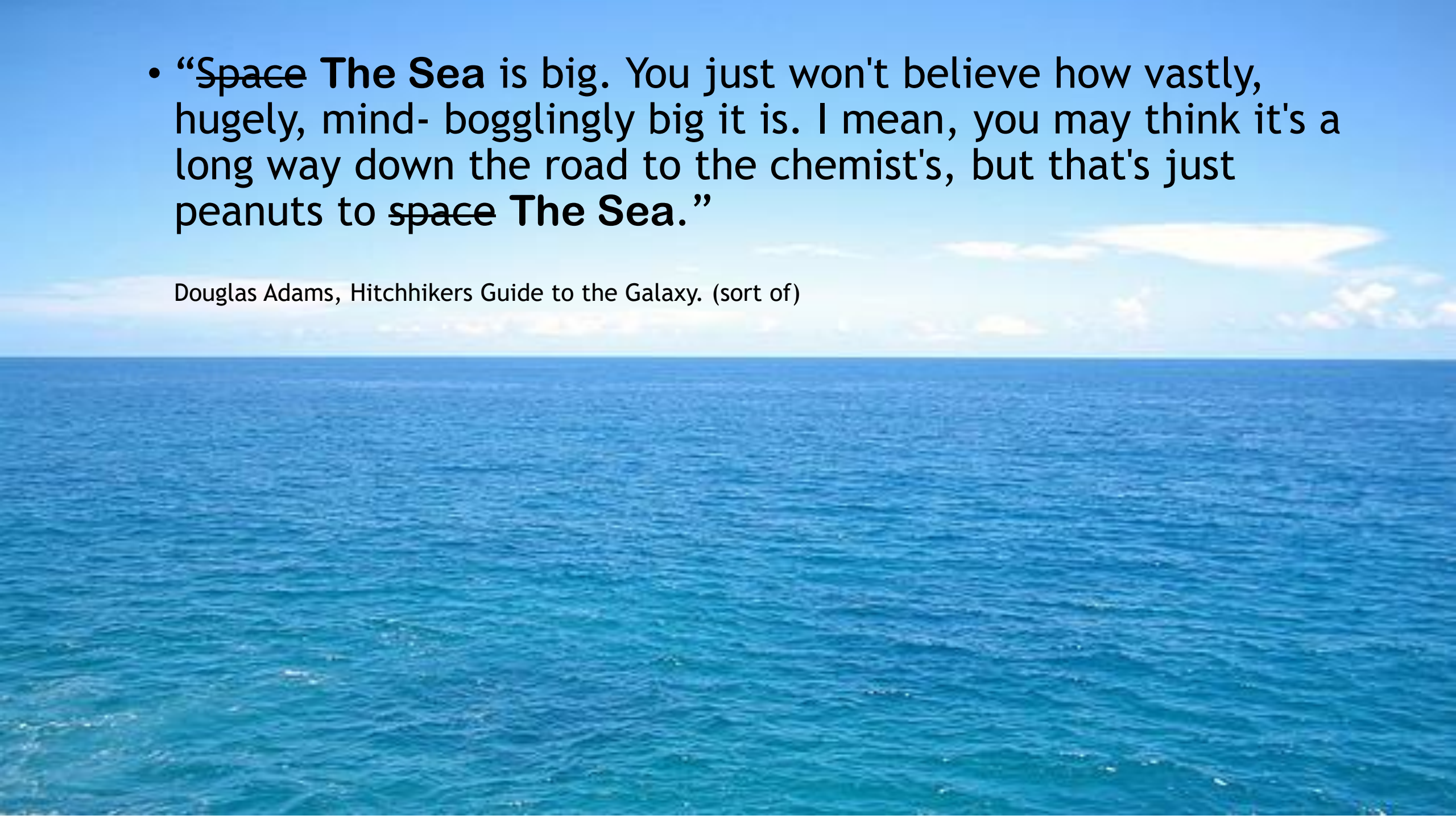


IHO

International
Hydrographic
Organization

- “~~Space~~ **The Sea** is big. You just won't believe how vastly, hugely, mind- bogglingly big it is. I mean, you may think it's a long way down the road to the chemist's, but that's just peanuts to ~~space~~ **The Sea**.”

Douglas Adams, Hitchhikers Guide to the Galaxy. (sort of)



- “~~Space~~ **The Sea** is big. You just won't believe how vastly, hugely, mind- bogglingly big it is. I mean, you may think it's a long way down the road to the chemist's, but that's just peanuts to ~~space~~ **The Sea**.”

Douglas Adams, Hitchhikers Guide to the Galaxy. (sort of)

It is also DEEP!!!



**IT
MOVES AROUND!**

**"A Perfect Storm"
Baltimore Picture
Radiant Productions**



To survey the sea you have to go to the sea

United Nations Convention on the Law of the Sea

CONTENTS

	<i>Page</i>
PREAMBLE	21
PART I. INTRODUCTION	22
Article 1. Use of terms and scope	22
PART II. TERRITORIAL SEA AND CONTIGUOUS ZONE	23
SECTION 1. GENERAL PROVISIONS	23
Article 2. Legal status of the territorial sea, of the air space over the territorial sea and of its bed and subsoil	23
SECTION 2. LIMITS OF THE TERRITORIAL SEA	23
Article 3. Breadth of the territorial sea	23
Article 4. Outer limit of the territorial sea	23
Article 5. Normal baseline	23

The sea doesn't respect boundaries!



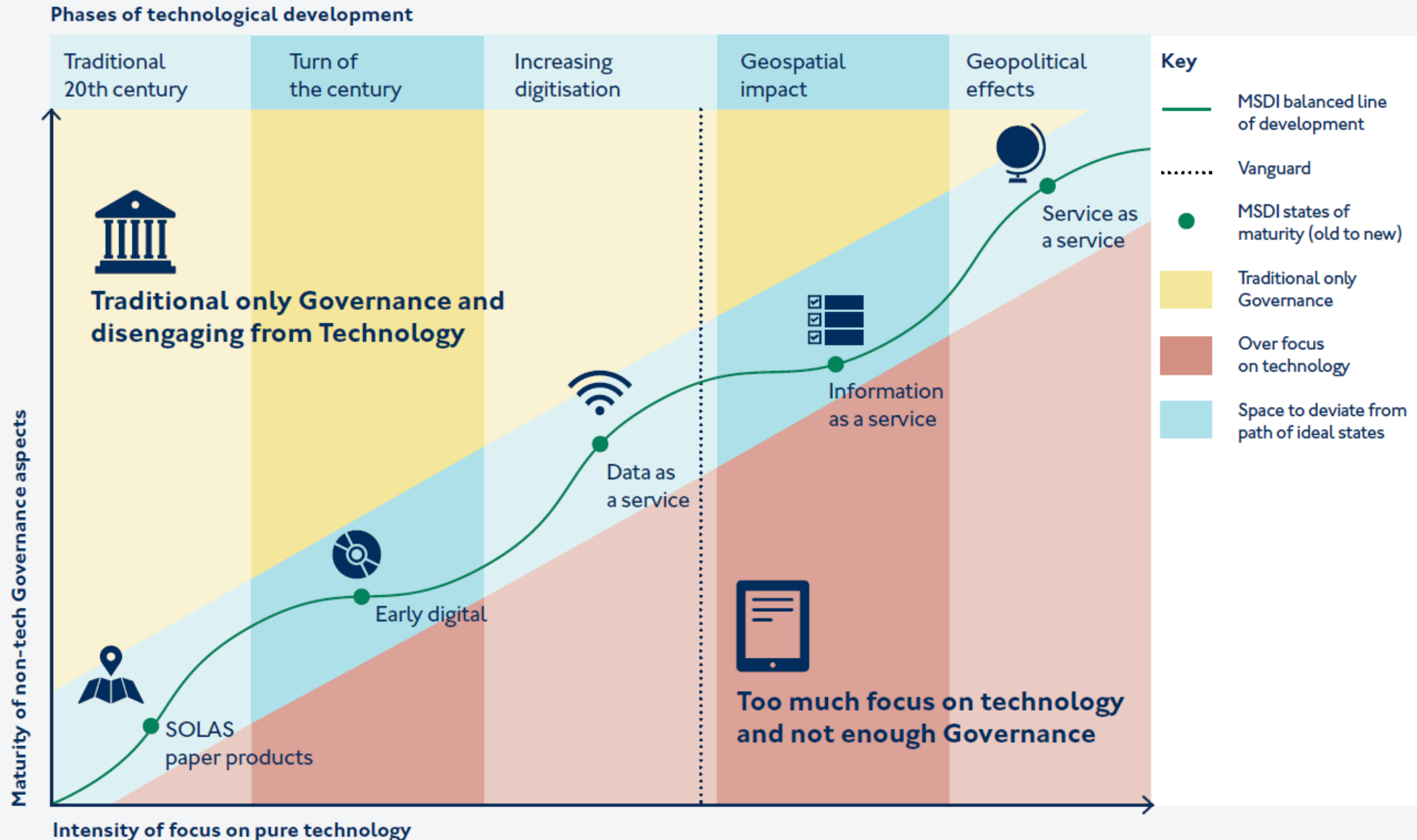
Standards live in a bubble



IHO

International
Hydrographic
Organization

MSDI is a Pathway, Maturity is a State



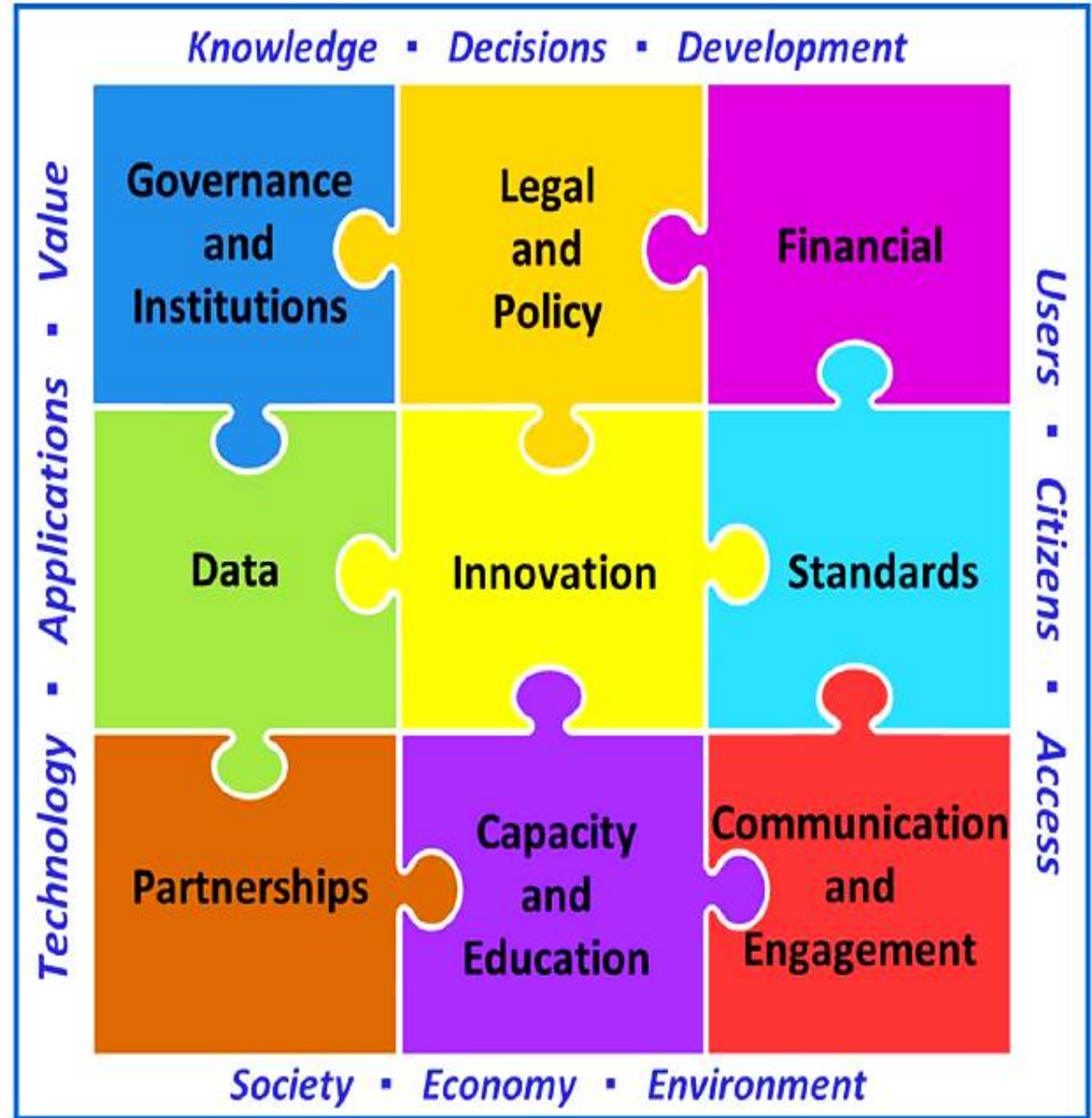
The UNGGIM Integrated Geospatial Information Framework



Governance →

Technology →

People →





Governance



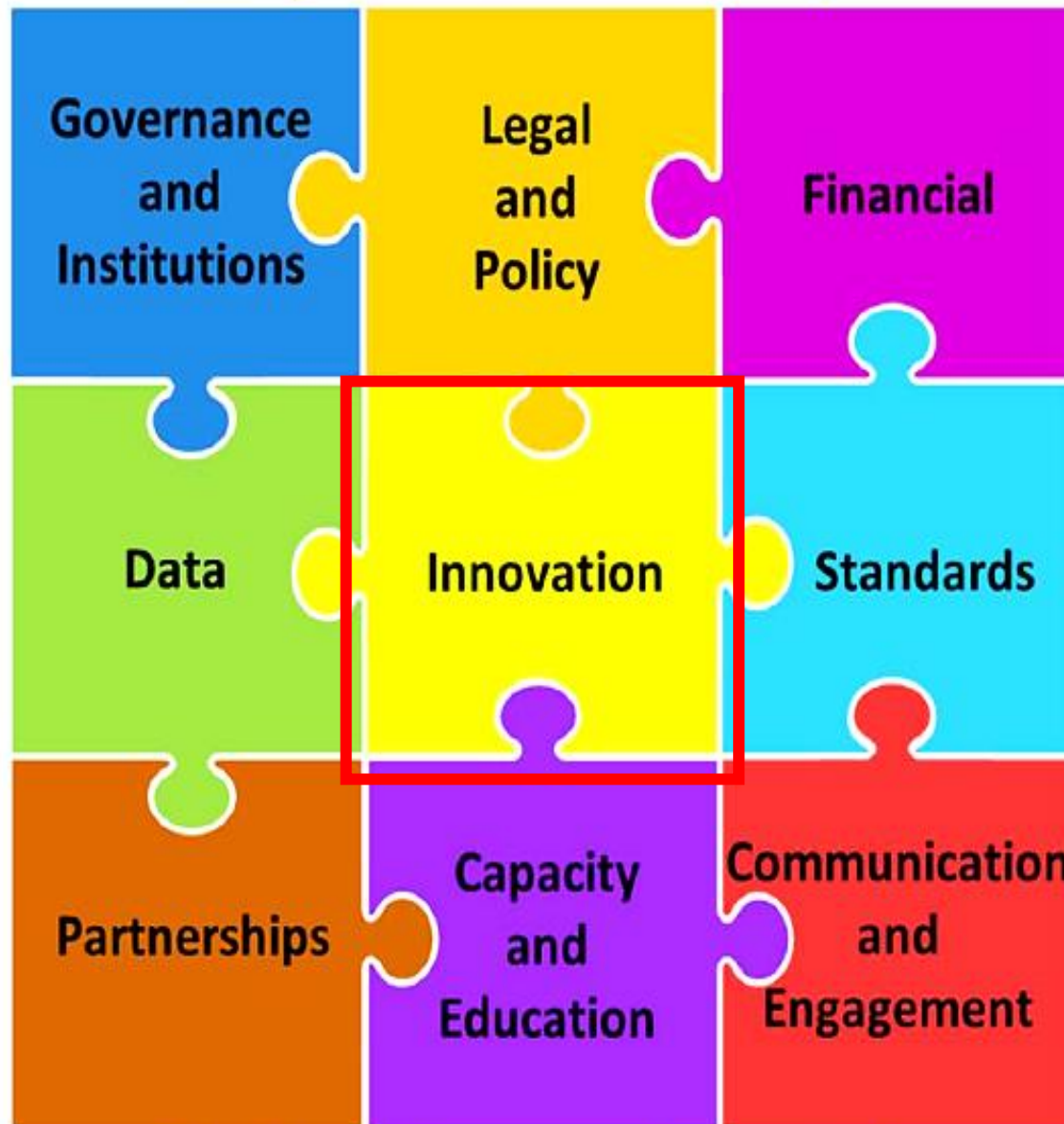
Technology



People



Technology ▪ *Applications* ▪ *Value*



Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

Society ▪ *Economy* ▪ *Environment*

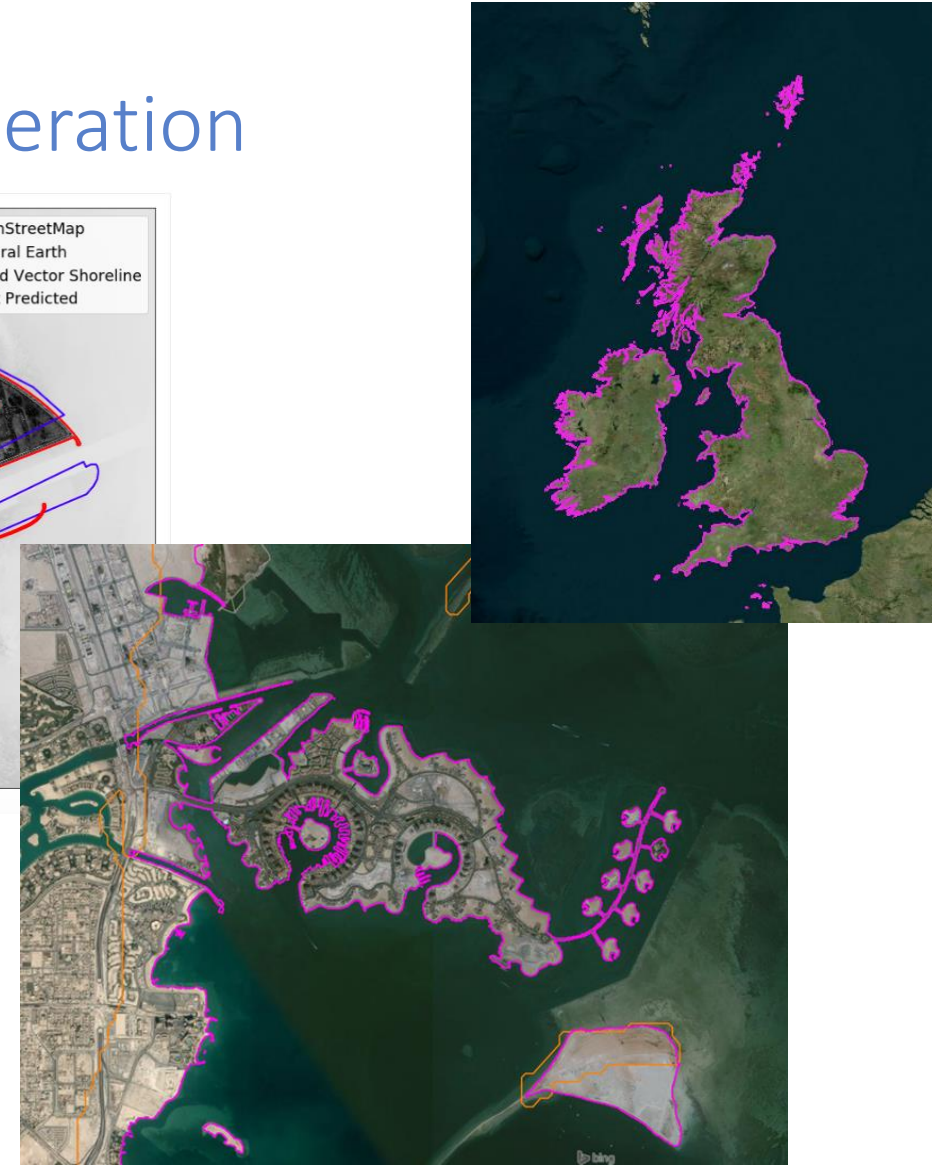
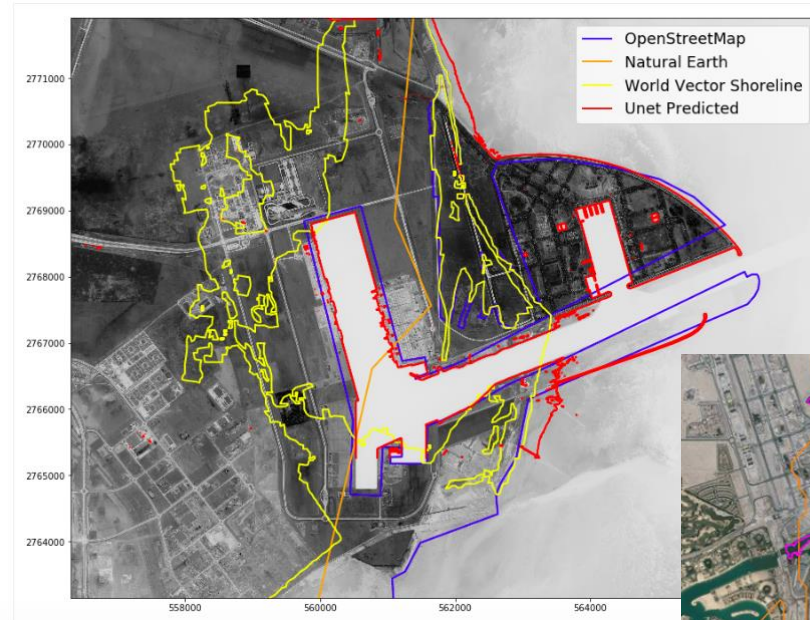


UK Hydrographic
Office

Automatic Coastline Generation

Why?

- Form the basis of a global coastline change monitoring capability
- Monitoring port construction work
- Could potentially automate coastline data creation, semi-automatic updating of charts





UK Hydrographic
Office



Belize

Supporting preservation and protection of coral reefs and mangroves using aerial survey to map Belize's coastal waters



Governance



Technology



People



Value ▪ *Applications* ▪ *Technology*

**Governance
and
Institutions**

**Legal
and
Policy**

Financial

Data

Innovation

Standards

Partnerships

**Capacity
and
Education**

**Communication
and
Engagement**

Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

Society ▪ *Economy* ▪ *Environment*





Governance



Technology



People



Technology ▪ *Applications* ▪ *Value*

**Governance
and
Institutions**

**Legal
and
Policy**

Financial

Data

Innovation

Standards

Partnerships

**Capacity
and
Education**

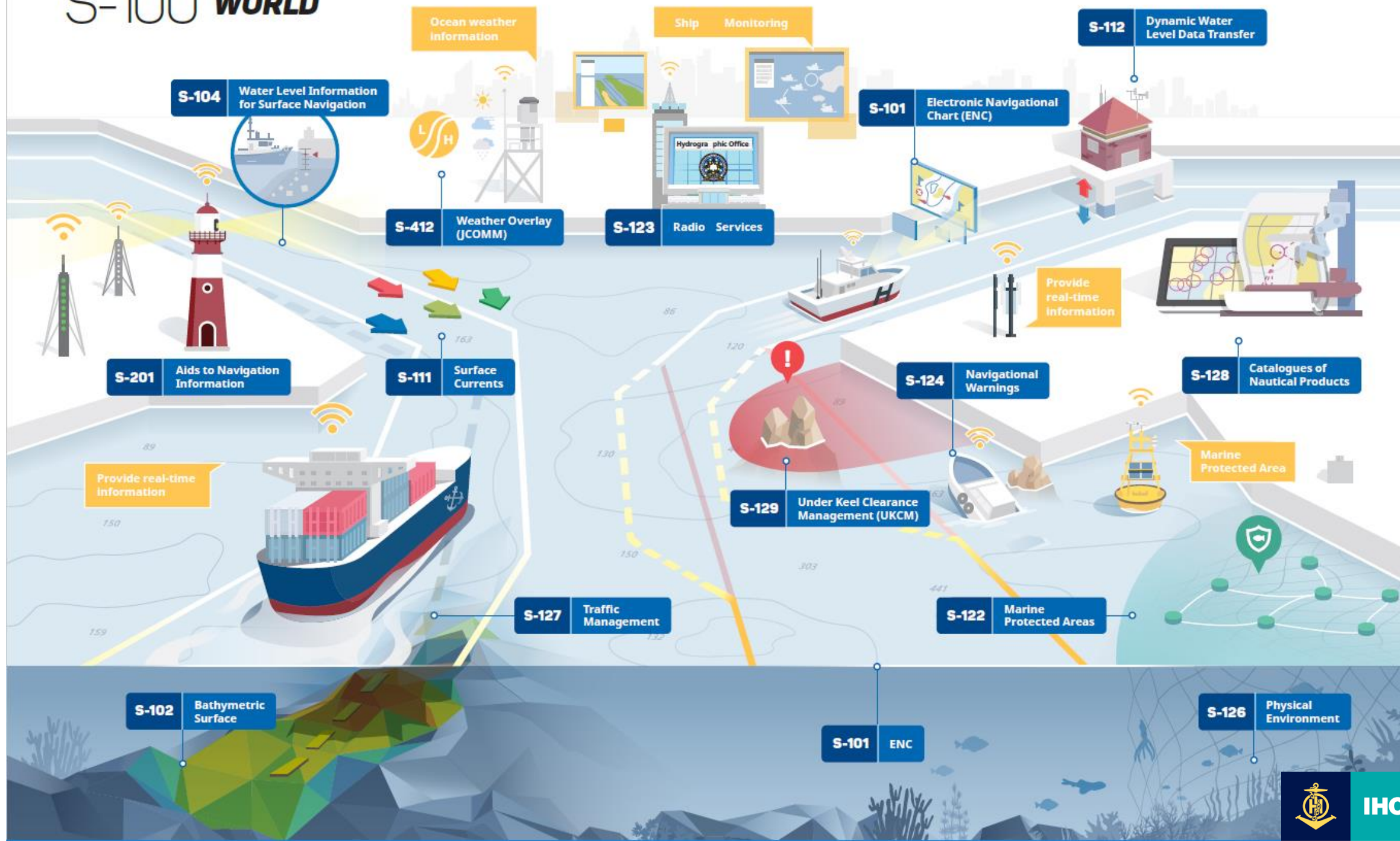
**Communication
and
Engagement**

Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

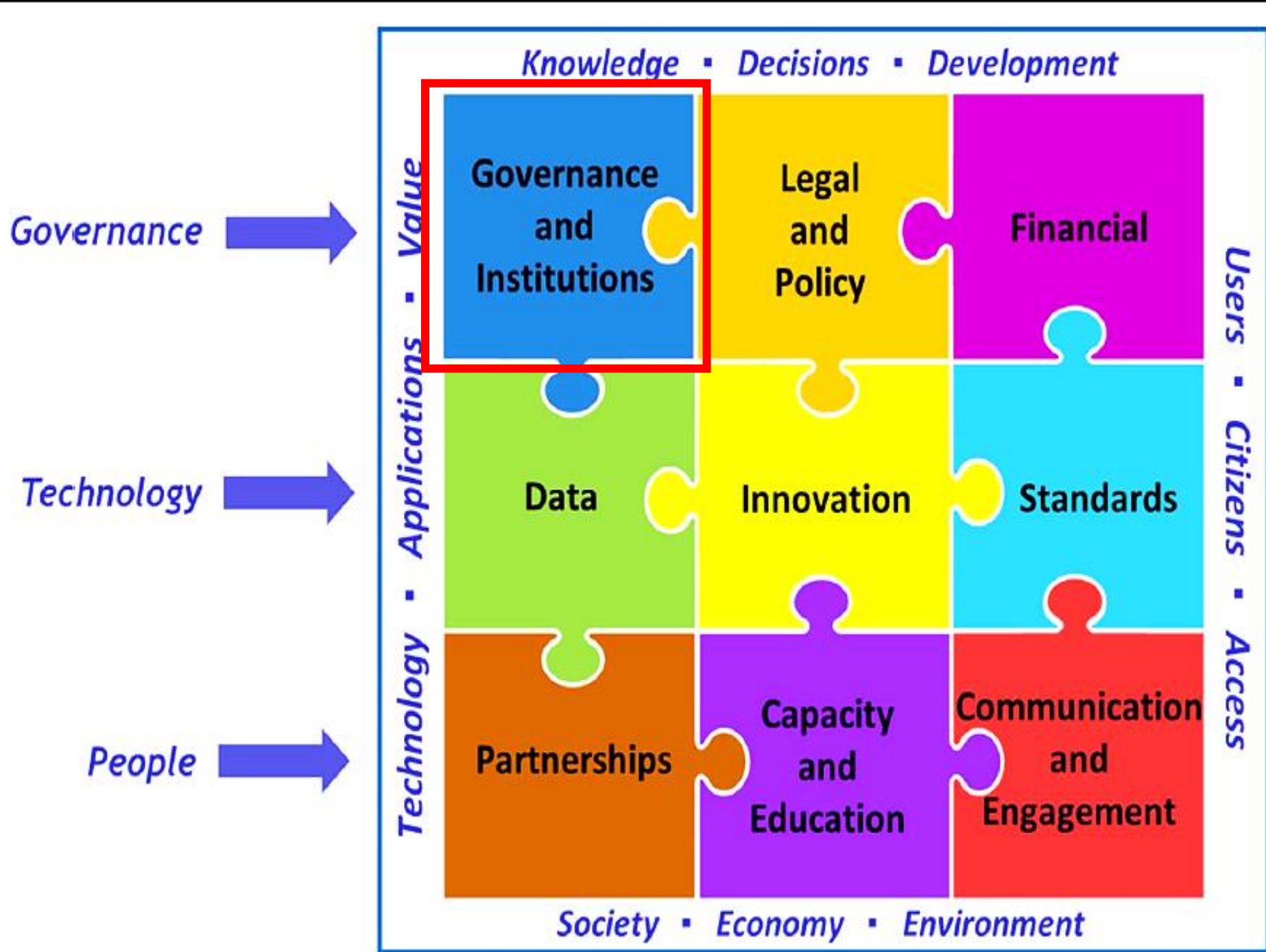
Society ▪ *Economy* ▪ *Environment*

S-100 WORLD



IHO

International
Hydrographic
Organization



Basic key elements of the multiagency MSDI umbrella Governance model





Governance



Technology



People



Value
Applications
Technology

**Governance
and
Institutions**

**Legal
and
Policy**

Financial

Data

Innovation

Standards

Partnerships

**Capacity
and
Education**

**Communication
and
Engagement**

Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

Society ▪ *Economy* ▪ *Environment*

OGC Maritime Limits & Boundaries Pilot Project

Sponsors:

- Geoscience Australia
- Canadian Hydrographic Service
- Natural Resources Canada
- United Kingdom Hydrographic Office



February 2020	Engineering Report
March 2020	Demonstration and End of Prototype Development Phase



UN-GGIM

United Nations Initiative on
Global Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org



Governance



Technology



People



Value ▪ *Applications* ▪ *Technology*

**Governance
and
Institutions**

**Legal
and
Policy**

Financial

Data

Innovation

Standards

Partnerships

**Capacity
and
Education**

**Communication
and
Engagement**

Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

Society ▪ *Economy* ▪ *Environment*

MEDIN Cost Benefit Analysis

Final Report

MEDIN

November 2019

4 City Road
London EC1Y 2AA
+44 (0) 20 7580 5383
eftec@eftec.co.uk
eftec.co.uk

- **MEDIN Cost Benefit Analysis**
- **Nearly £60M in saved costs from FAIR access to marine data**



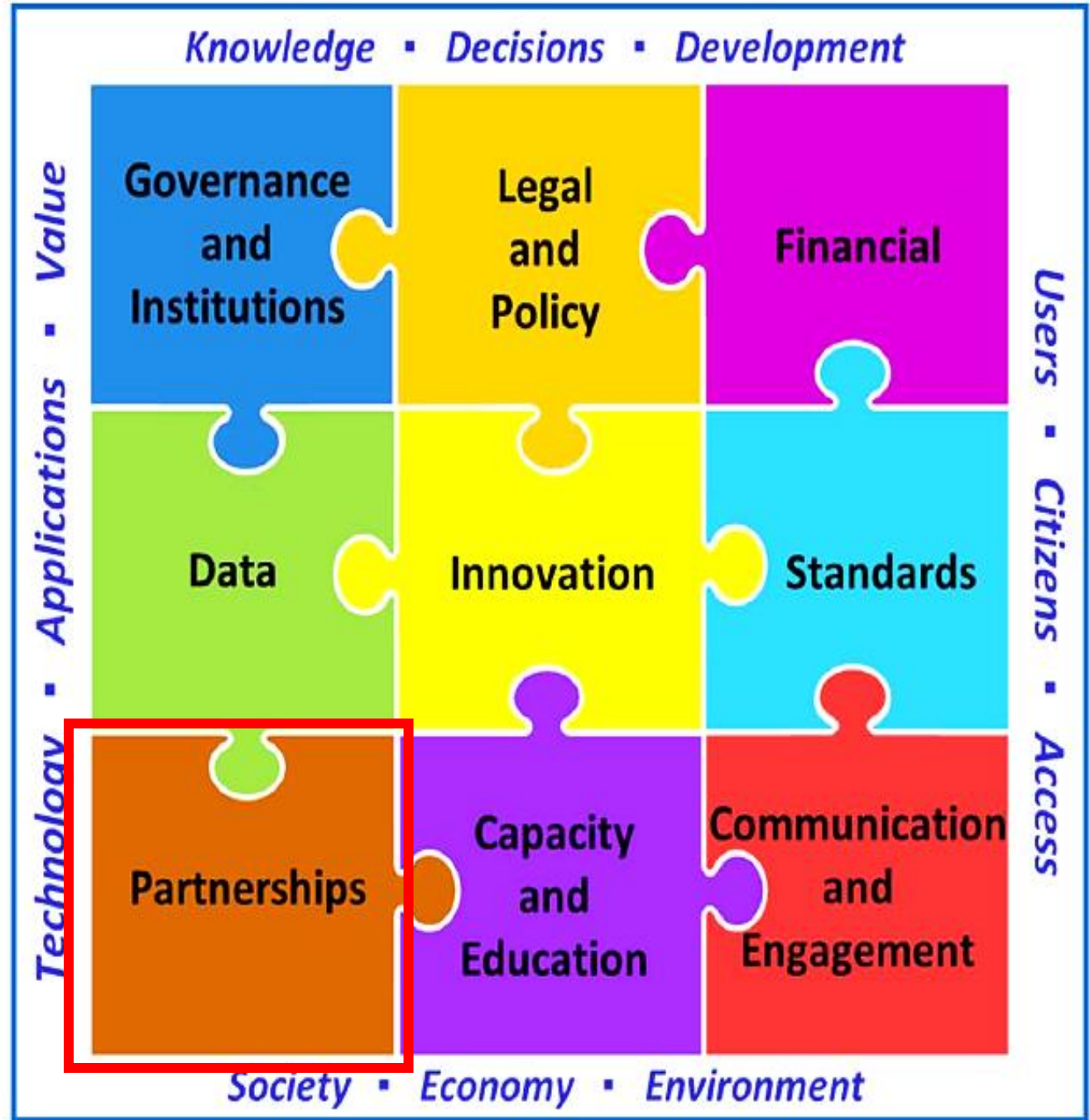
Governance



Technology



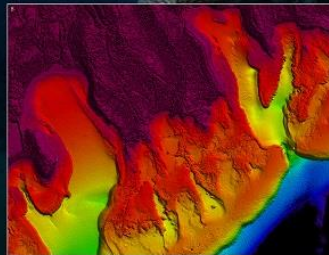
People



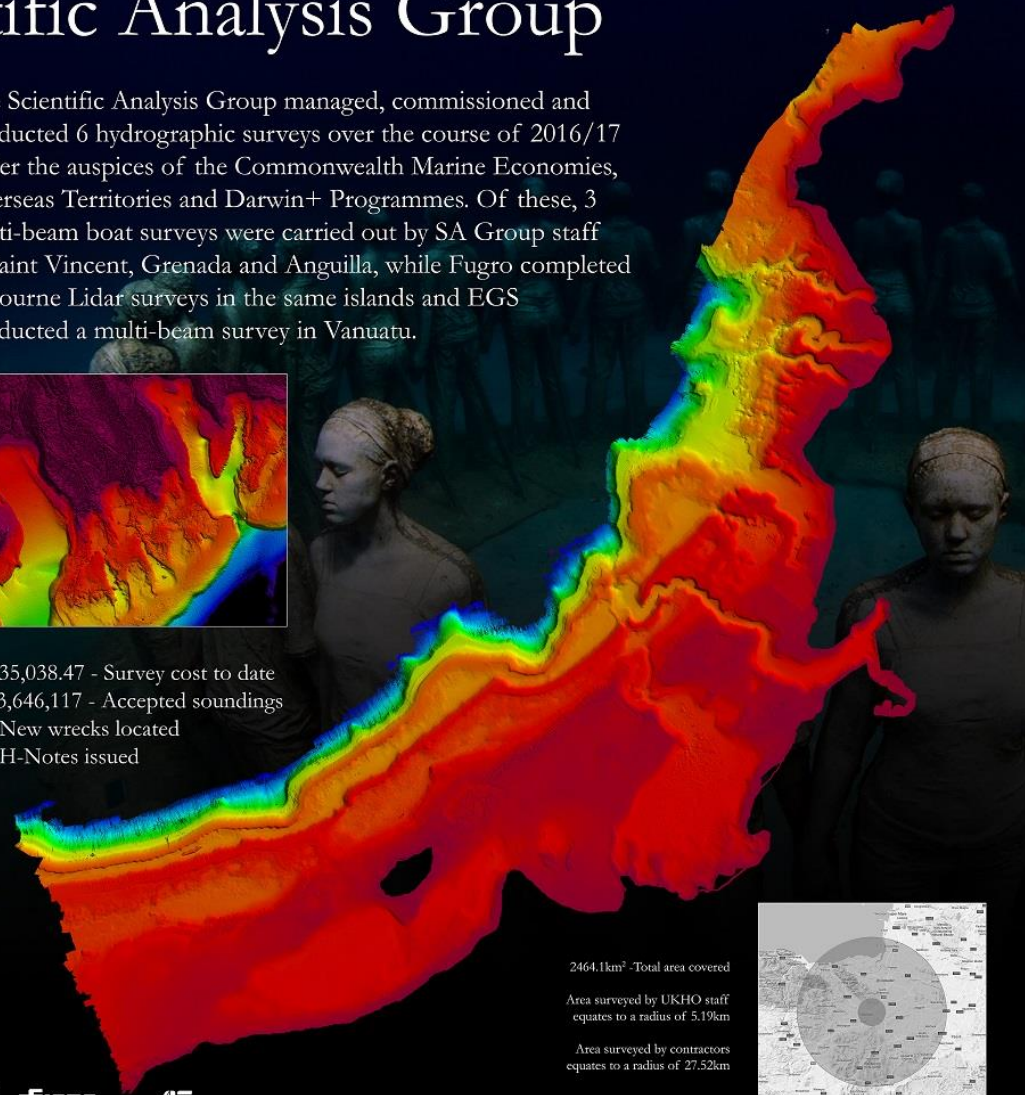
Seabed Mapping Programme

Scientific Analysis Group

The Scientific Analysis Group managed, commissioned and conducted 6 hydrographic surveys over the course of 2016/17 under the auspices of the Commonwealth Marine Economies, Overseas Territories and Darwin+ Programmes. Of these, 3 multi-beam boat surveys were carried out by SA Group staff in Saint Vincent, Grenada and Anguilla, while Fugro completed airborne Lidar surveys in the same islands and EGS conducted a multi-beam survey in Vanuatu.



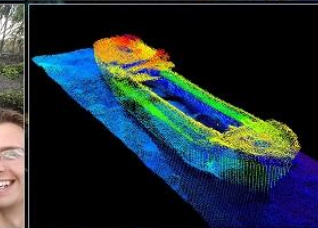
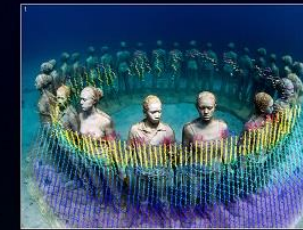
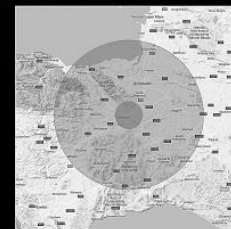
£2,135,038.47 - Survey cost to date
5,093,646,117 - Accepted soundings
37 - New wrecks located
85 - H-Notes issued



2464.1km² - Total area covered

Area surveyed by UKHO staff equates to a radius of 5.19km

Area surveyed by contractors equates to a radius of 27.52km



1. "Vicissitudes" sculpture in the Grenada Underwater Sculpture Park. The area contains many different concrete sculptures in shallow water which act as artificial reefs. Data from UKHO multi-beam echo sounder survey is superimposed.

2. Land surveying on the island of Tanna in Vanuatu.

3. Alan Nicholls from the Terrestrial Science Team meets the locals in Tanna.

4. A newly discovered wreck in the approaches to the Port of St George's in Grenada. The wreck is approx 30m long and has a minimum depth of 8.14m.

5. Panorama of Port Resolution in Tanna. A key area of the survey which will help to enable tourist access to the local volcano.

6. The UKHO Survey Team on board the survey vessel "Trophy hunter" in St Vincent.

7. HI1527 Grenada, UKHO, MBES surface.

8. HI1530 Grenada topographic & bathymetric, Fugro Lidar surface.





Governance



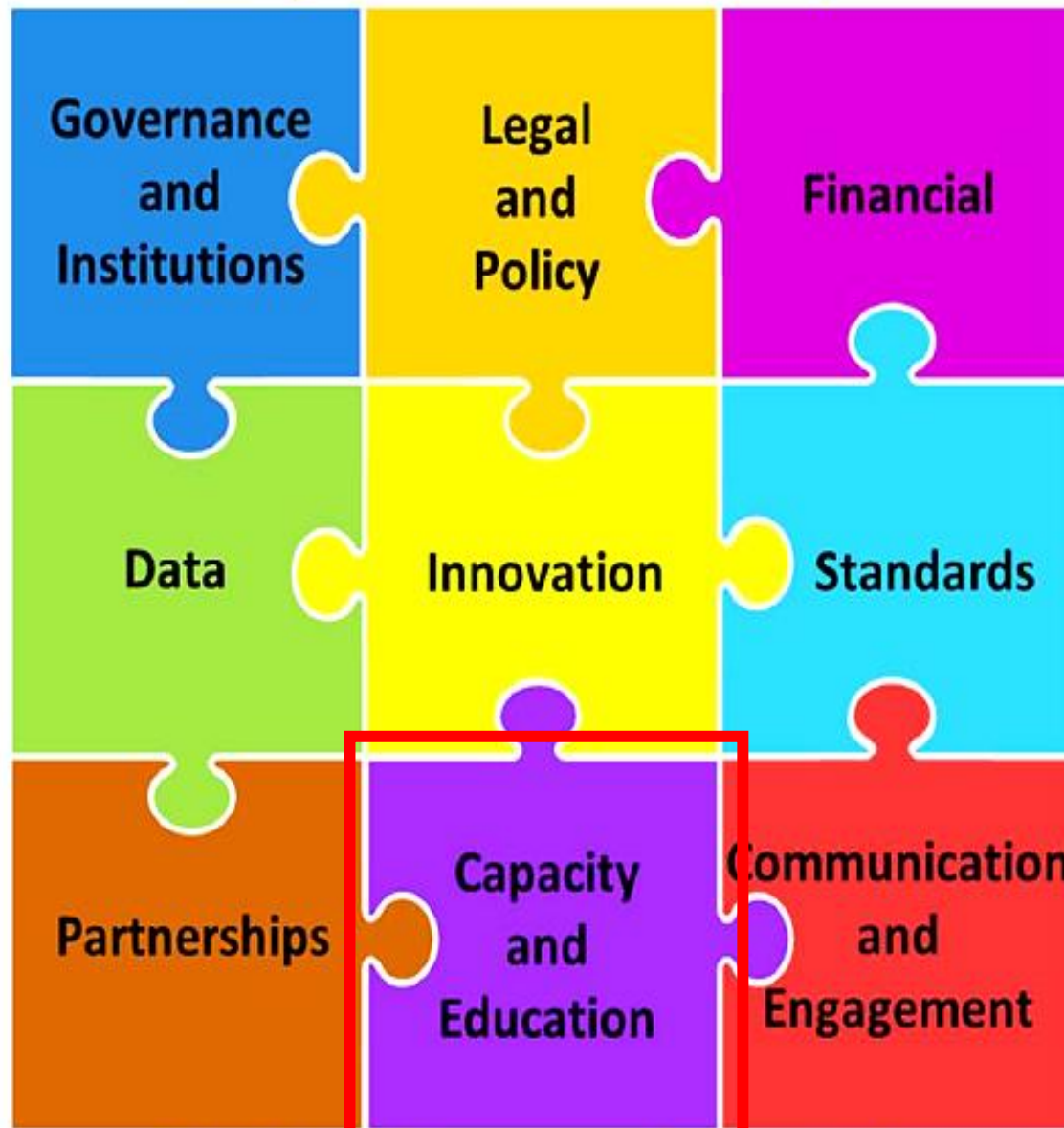
Technology



People



Technology ▪ *Applications* ▪ *Value*



Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

Society ▪ *Economy* ▪ *Environment*



Capacity Building

- Survey Training in Jamaica (Left) and Guyana (Right)
- We also provide training in Hydrographic Governance and MSDI Awareness



Governance



Technology



People



Value ▪ *Applications* ▪ *Technology*

**Governance
and
Institutions**

**Legal
and
Policy**

Financial

Data

Innovation

Standards

Partnerships

**Capacity
and
Education**

**Communication
and
Engagement**

Users ▪ *Citizens* ▪ *Access*

Knowledge ▪ *Decisions* ▪ *Development*

Society ▪ *Economy* ▪ *Environment*



UN CLIMATE
CHANGE
CONFERENCE
UK 2021
IN PARTNERSHIP WITH ITALY



Geospatial
Commission



Communication
and Engagement

UKHO Caribbean Activity Examples

UKHO have undertaken a number of activities within the Caribbean region, partnering with both UK Overseas Territories and PCA nations...

Data Collection

- Overseas Territory Seabed Mapping Programme
- Commonwealth Marine Economies Programme

MSDI Data Management Solutions

- Anguilla Data Hub
- Overseas Territory Seabed Mapping Programme Portal

Storm Surge & Tsunami Hazard Modelling

- UKHO Innovation Challenge – Run from Singapore, focus on Anguilla
- Master Data Team Inundation collaboration

Satellite Derived Data

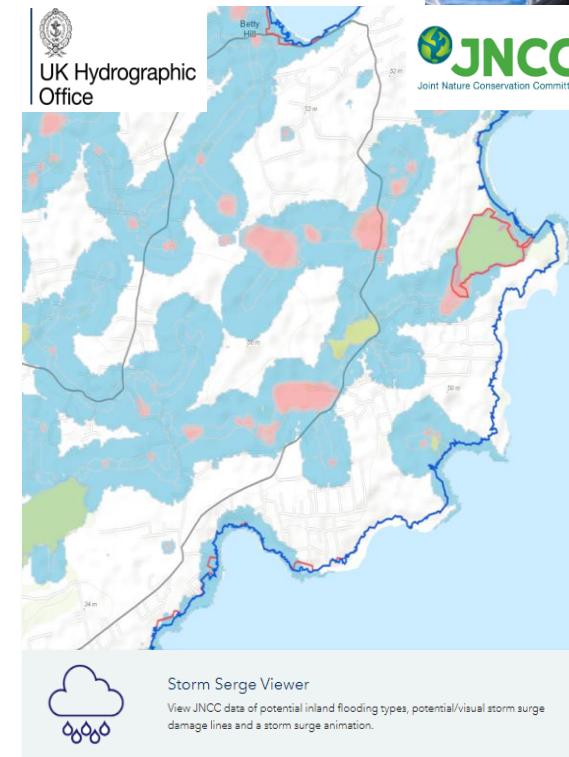
- Mangrove identification
- Coastline modelling and analysis

Disaster Resilience

- Humanitarian and Disaster Response (HADR) protocol
- Support to Royal Navy and wider defence community

Partnering and Collaboration

- Bilateral agreements with Caribbean nations
- Access to/provision of 3rd Party data (JNCC)
- Member of MACHC and Vice Chair, will be Chair in two years





Thank you and
Any Questions?

