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POSSIBILITY OCEAN

BIODIVERSITY OCEAN DATA TRANSFORMATION: TECHNOLOGY DRIVERS AND NEEDS

MBON & MTS:

TECHNOLOGY INNOVATION TO ADVANCE MARINE BIODIVERSITY SCIENCE AND STEWARDSHIP

MAY 30, 2025

Terry McConnell

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THEME

Why?

Why not?

Re-imagining Ocean Observing

What if?

What then?

Challenger Expedition
1872 - 1875

Origin of Modern Oceanography

Collected data on:

- Temperatures
- Ocean chemistry
- Currents
- Marine life
- Geology of the sea floor

Research vessel

HMS Challenger

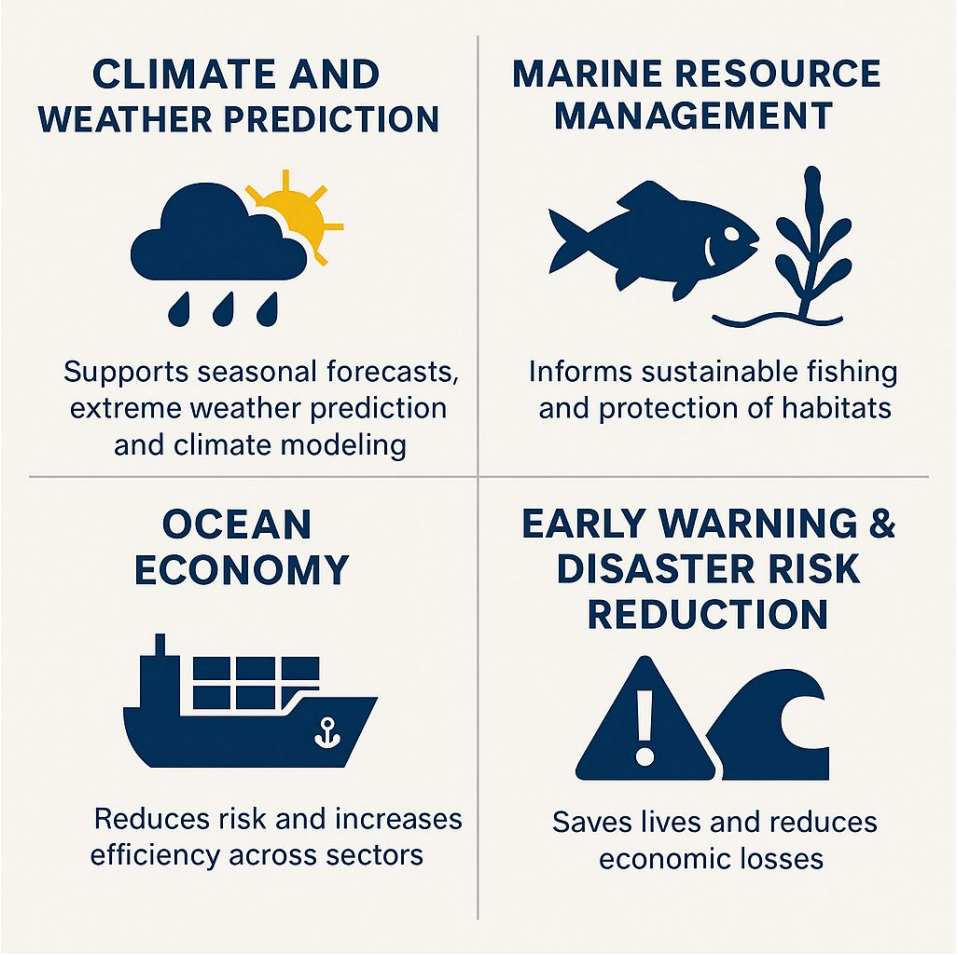
Challenger's Value Proposition

Area	Value Delivered
Science	Oceanography became a structured, data-driven discipline.
Policy	Oceans gained geopolitical and environmental importance.
Technology	New tools and techniques proved ocean science was feasible.
Public Good	Data and discoveries were shared globally, shaping future research.

Today's Ocean Observing Value Proposition:

The value of ocean observing today is **strategic, economic, environmental, and humanitarian –**

providing essential data and insights that underpin global stability, sustainability, and prosperity.

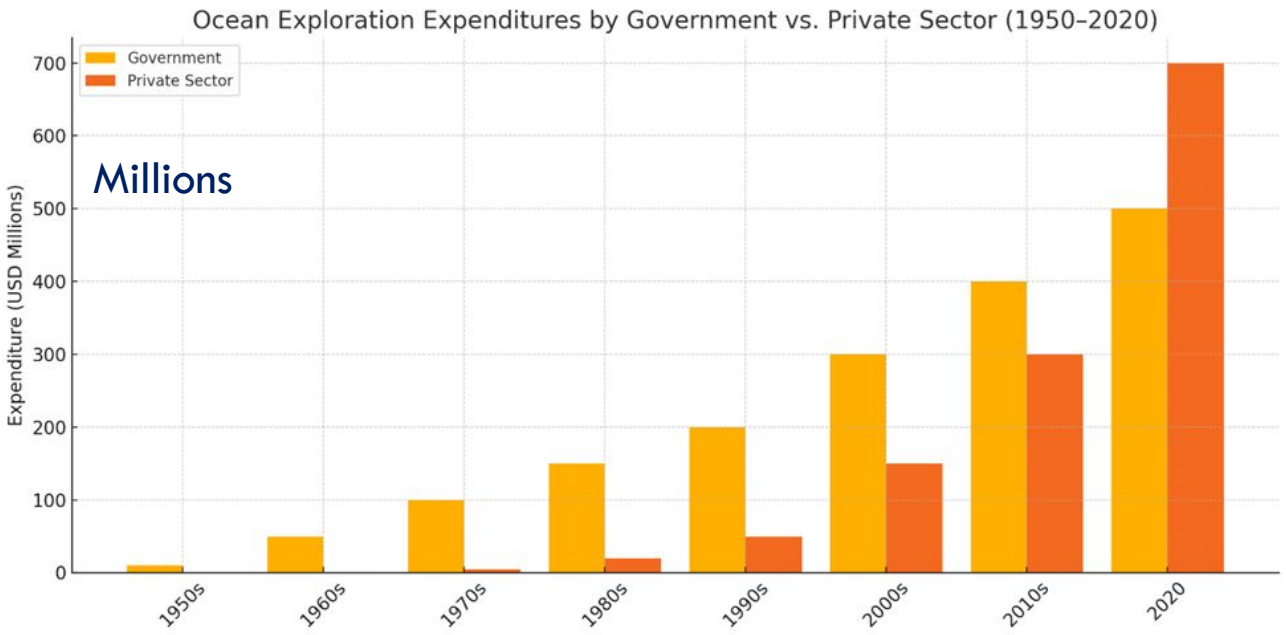


Ocean Science

The role of the Private Sector

Sustained and strategic private investment in oceanographic exploration really took off in the last 15 years,

shaped by technology and the emerging value of ocean data in global markets.



Era	Private Sector Role
Pre-1990s	Supportive but niche (mainly oil & telecoms).
1990s	Quiet growth; start of tech partnerships.
2000s	Growing curiosity-driven & market-aligned investment.
2010s–present	Strategic, scaled investment across sectors—exploration, tech, ESG, and data.

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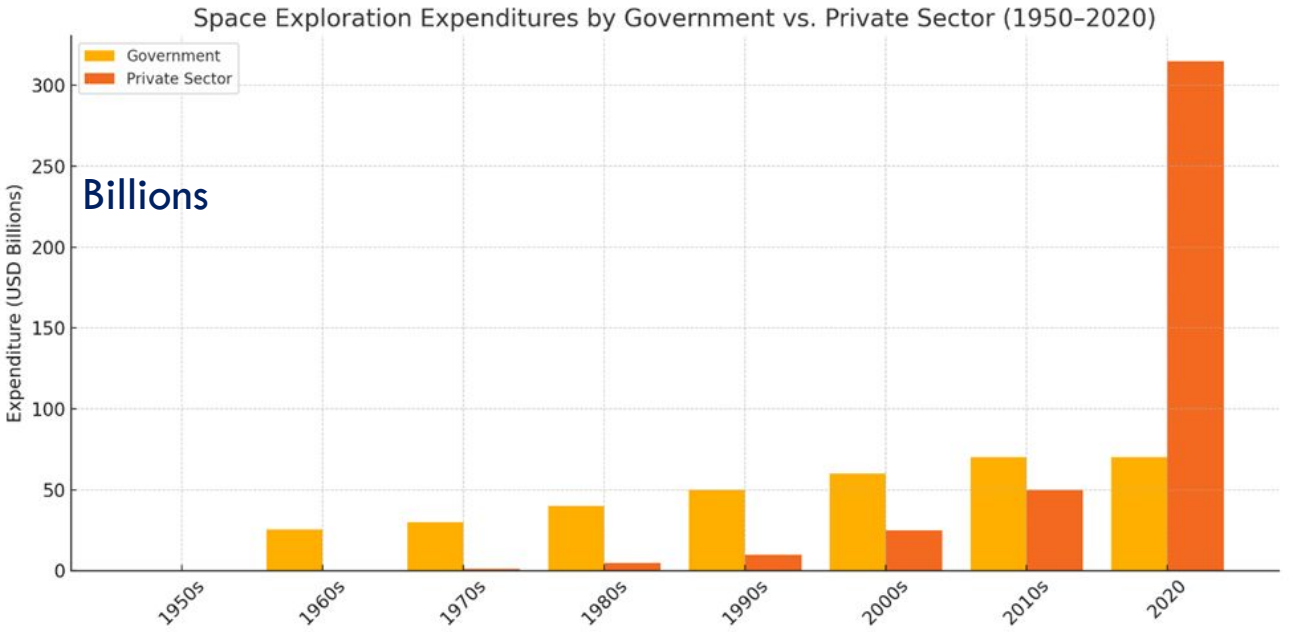
Space Science

The role of the Private Sector

Exponential growth since 2015

What Drove the Takeoff?

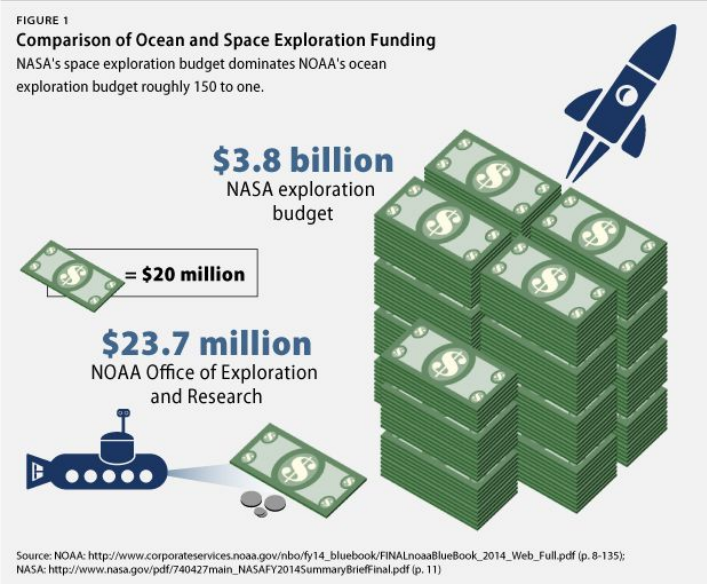
- **Public-private partnerships** (shift from cost-plus to performance-based contracts).
- **Declining launch costs** (market disruption).
- **Moore's Law** for satellites (smaller, cheaper, faster to deploy).
- **Investor appetite** for frontier tech



Era	Private Sector Role
Pre-2000	Private sector = contractors to governments.
2000–2008	Visionaries plant seeds, early resistance.
2008–2015	Public-private collaboration fuels first major successes.
2015–present	Exponential growth; private sector becomes dominant force in innovation, launch, and infrastructure.

Ocean Science vs. Space Science

The role of the Private Sector



- **Space exploration** has consistently received far higher investment.
- **Ocean exploration** shows modest government investment and a steep rise in private funding in recent decades.
- **By 2020**, private sector investment in both domains significantly outpaces government contributions in relative growth.

LEANING INTO THE NARRATIVE OF IMAGINATION

WHAT DOES THE FUTURE LOOK LIKE?

WHAT DOES A THRIVING OCEAN ECOSYSTEM AND ECONOMY LOOK LIKE IN THE FUTURE?

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Building Awareness

Breaking down silos

Imagination.

As climate risks intensify and global markets increasingly depend on marine intelligence, scalable, cost-effective ocean data is
no longer just a scientific challenge—**it's a business imperative.**

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Where is the UNICORN?

Imagine what might be, once ocean data is solved.

Example: The Geospatial sector

POSSIBILITY OCEAN

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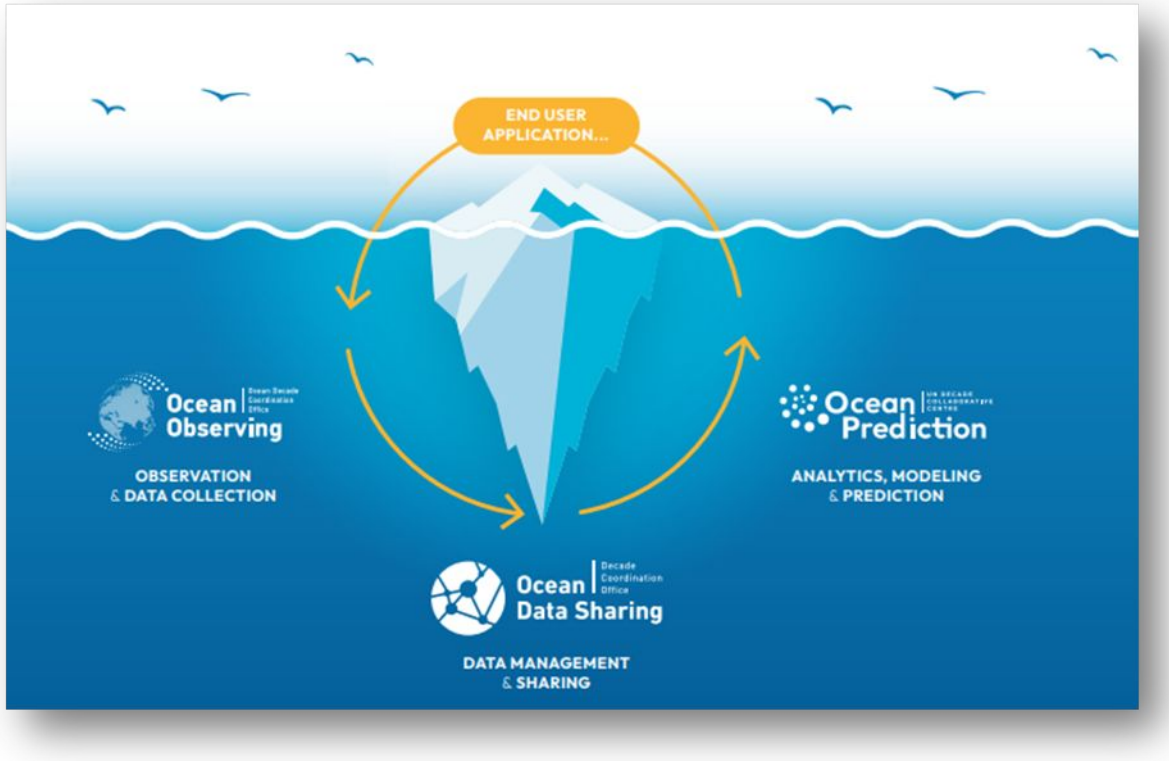


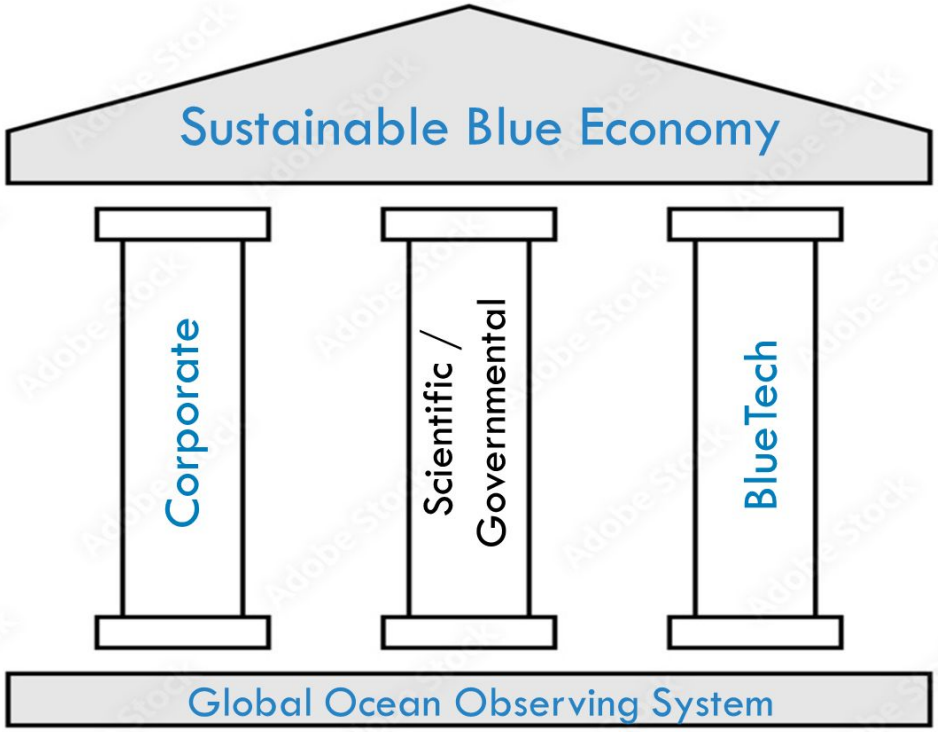
OCEAN DECADE
DIGITAL ECOSYSTEM

Ocean Decade Challenge 7

Sustainably expand the Global Ocean Observing System

Ocean Decade Challenge 8

Create a digital representation of the Ocean

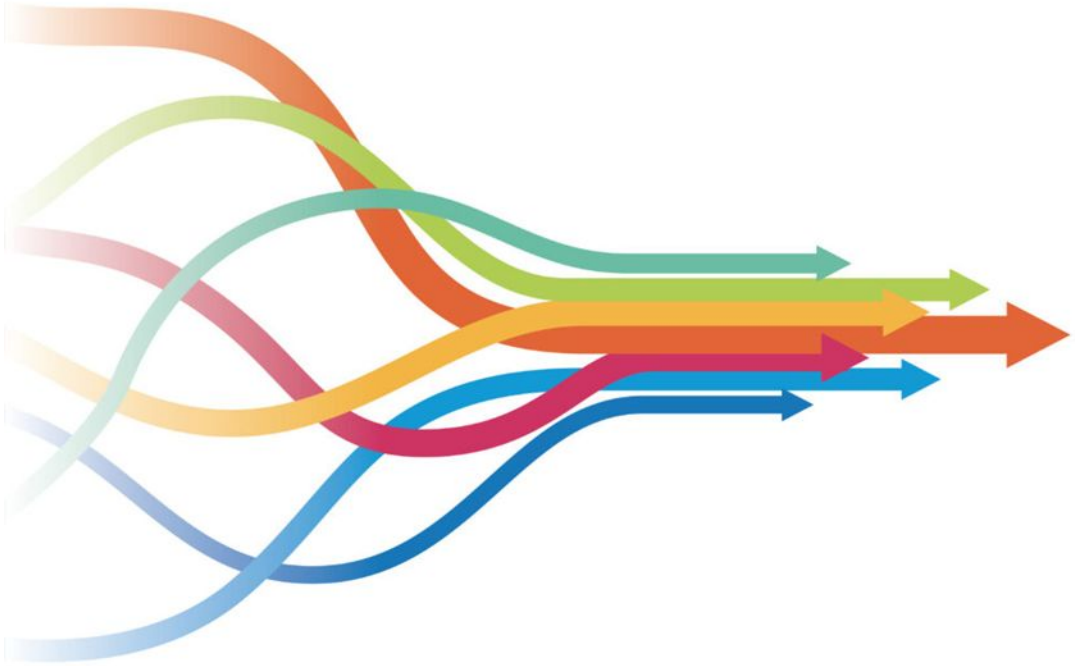


THE THREE PILLARS
OF OCEAN OBSERVING

Supporting Ocean Decade Challenge 7:

Sustainably expand the
Global Ocean Observing System

Scale Credibility Creativity



TRANSFORMATIONAL ALIGNMENT INITIATIVE

Supporting Ocean Decade Challenge 7:

Sustainably expand the
Global Ocean Observing System

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Ocean Observing

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…in Marine Biodiversity

- Ad hoc community consists of 27 members
- Agreement to focus on strengthening and expanding the **Marine Biodiversity Digital Data Ecosystem**

THE TEAM

TRANSFORMATIONAL ALIGNMENT INITIATIVE

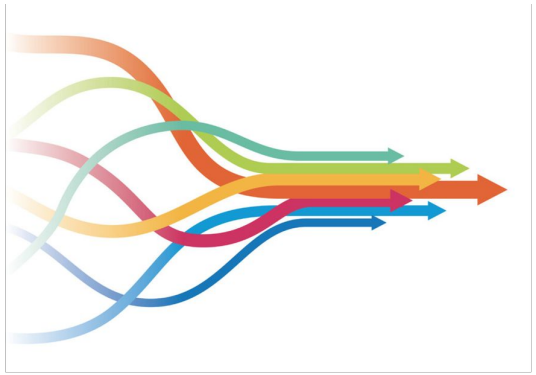
CENTER FOR Ocean Leadership

OBIS OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

OCEAN NETWORKS CANADA

BEAM Studio

ORRAA Ocean Risk and Resilience Action Alliance



TRANSFORMATIONAL ALIGNMENT INITIATIVE

Phase 1

Understand the Ecosystem of Potential Contributors

a) Map Potential Contributor Communities

b) Conduct Needs and Gap Analysis

Phase 2

Co-develop Targeted Value Propositions and Support Pathways

a) Co-create Contributor Personas or Use Cases with matching Value Propositions

b) Map, Adapt, and Develop Support Materials

Phase 3

Support the Transition for 'Local Data Holder' to 'Global OBIS Contributor'

a) Launch a 'Path to Contribution' Program

b) Facilitate Peer Learning and Recognition

Phase 4

Activate Regional & Global Campaigns

- Identify local OBIS ambassadors
- Use cases relevant to the region
- Live support for data preparation
- Matchmaking with regional projects or initiatives

Phase 5

Communicate

- Contributor & Community stories
- Map conversion success rates (holders → contributors)
- Discuss how to blow-up remaining blockers

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2021 2030 United Nations Decade of Ocean Science for Sustainable Development

THE FUTURE OF OCEAN OBSERVING