

The Global Ocean Observing System
www.goosocean.org

Governance of sustained ocean observing systems: a global perspective

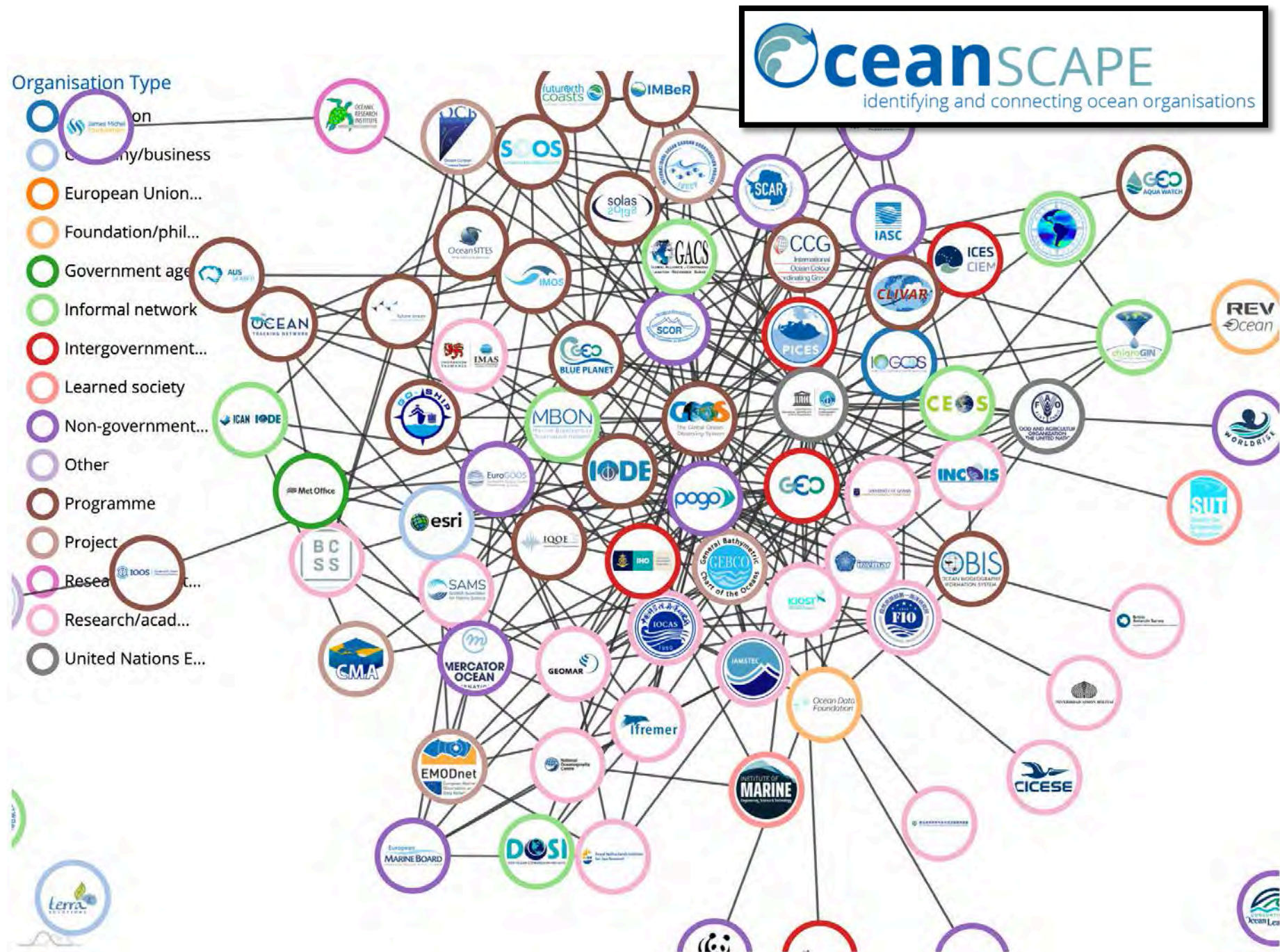
Albert Fischer

Director, GOOS Office, IOC/UNESCO

17 September 2020



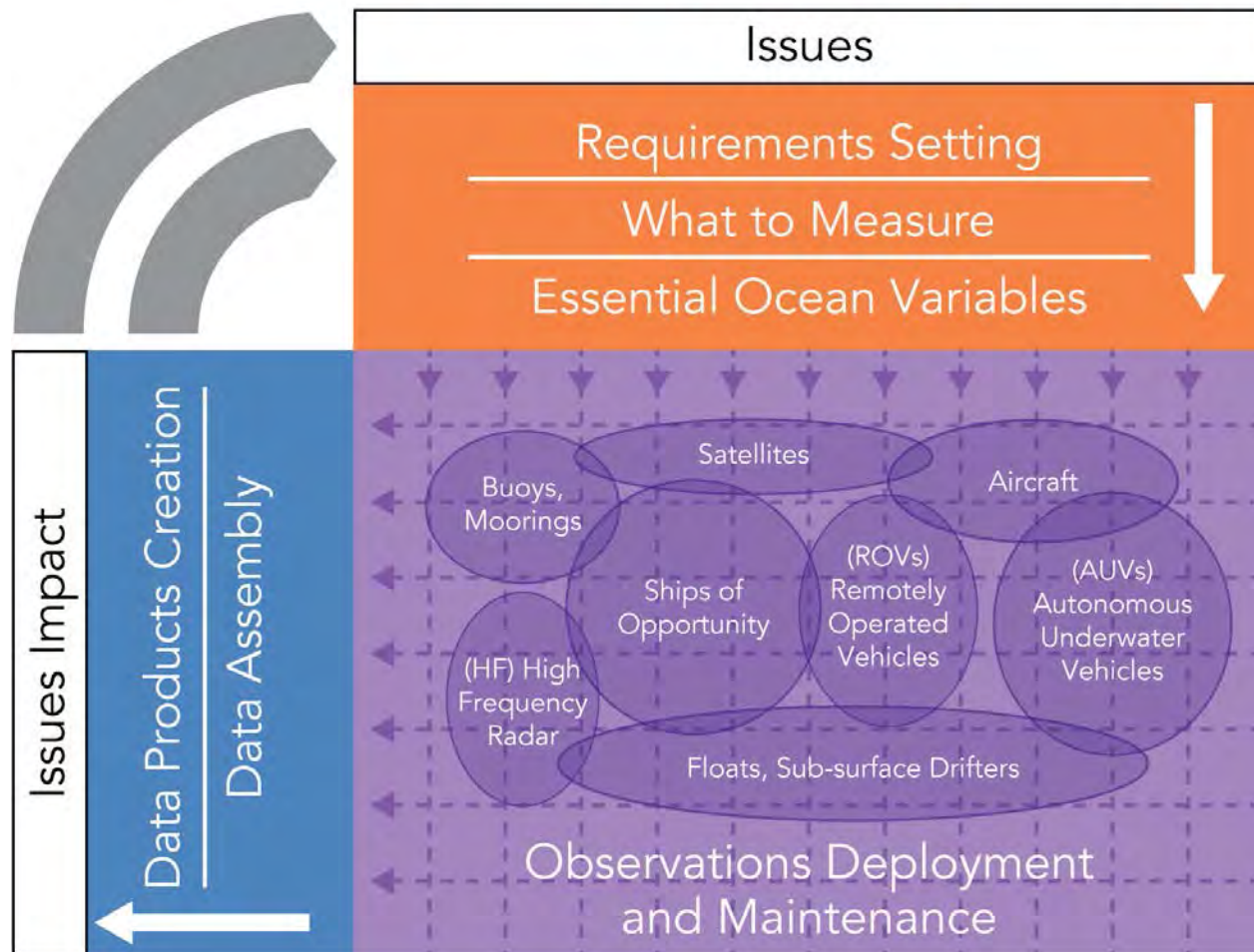
*“Alphabet
soup”*

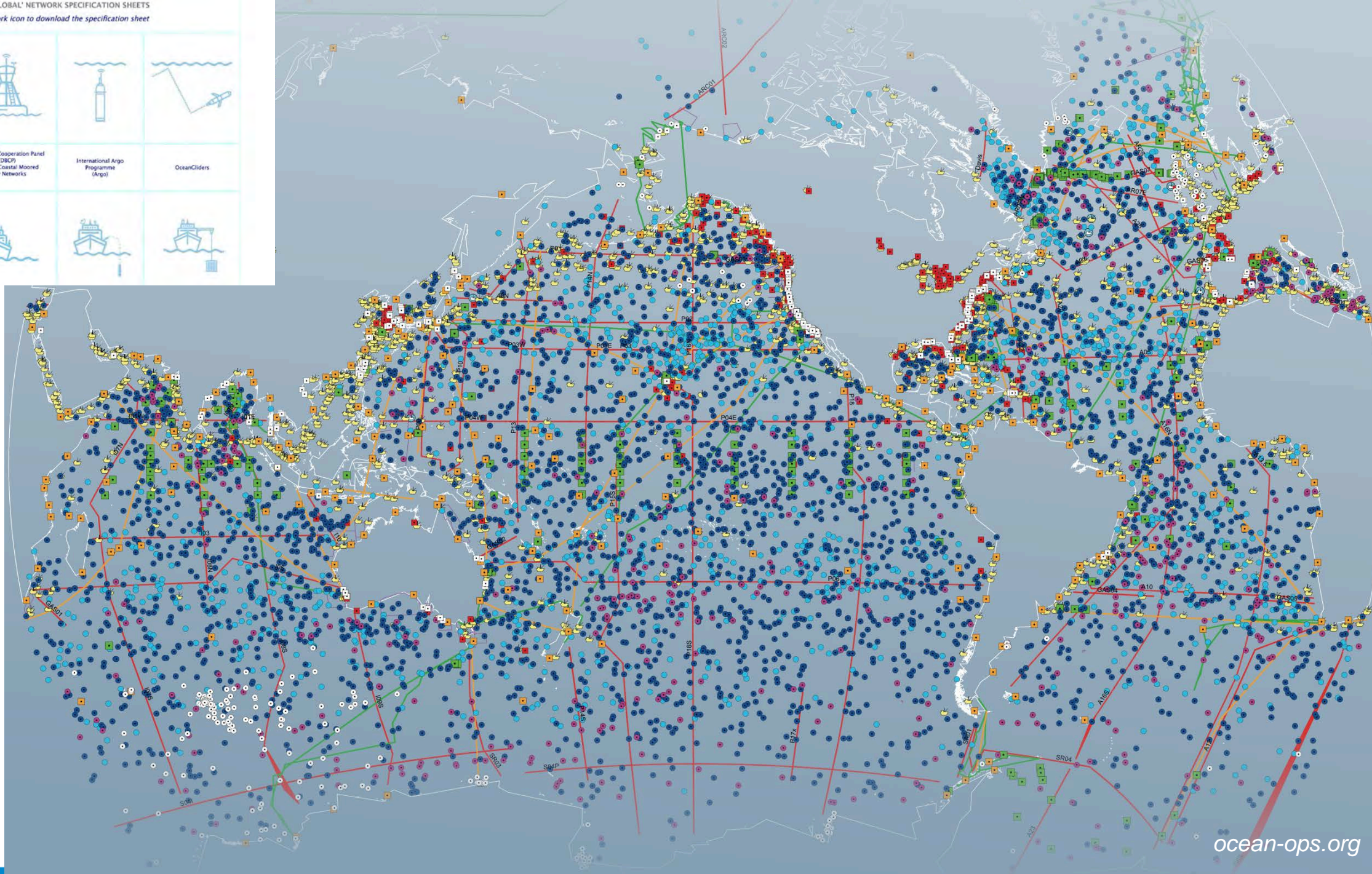
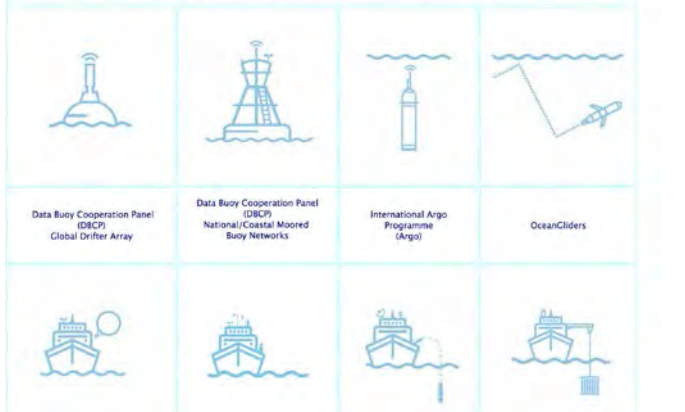


OceanObs'09



Framework for Ocean Observing Process Diagram

















































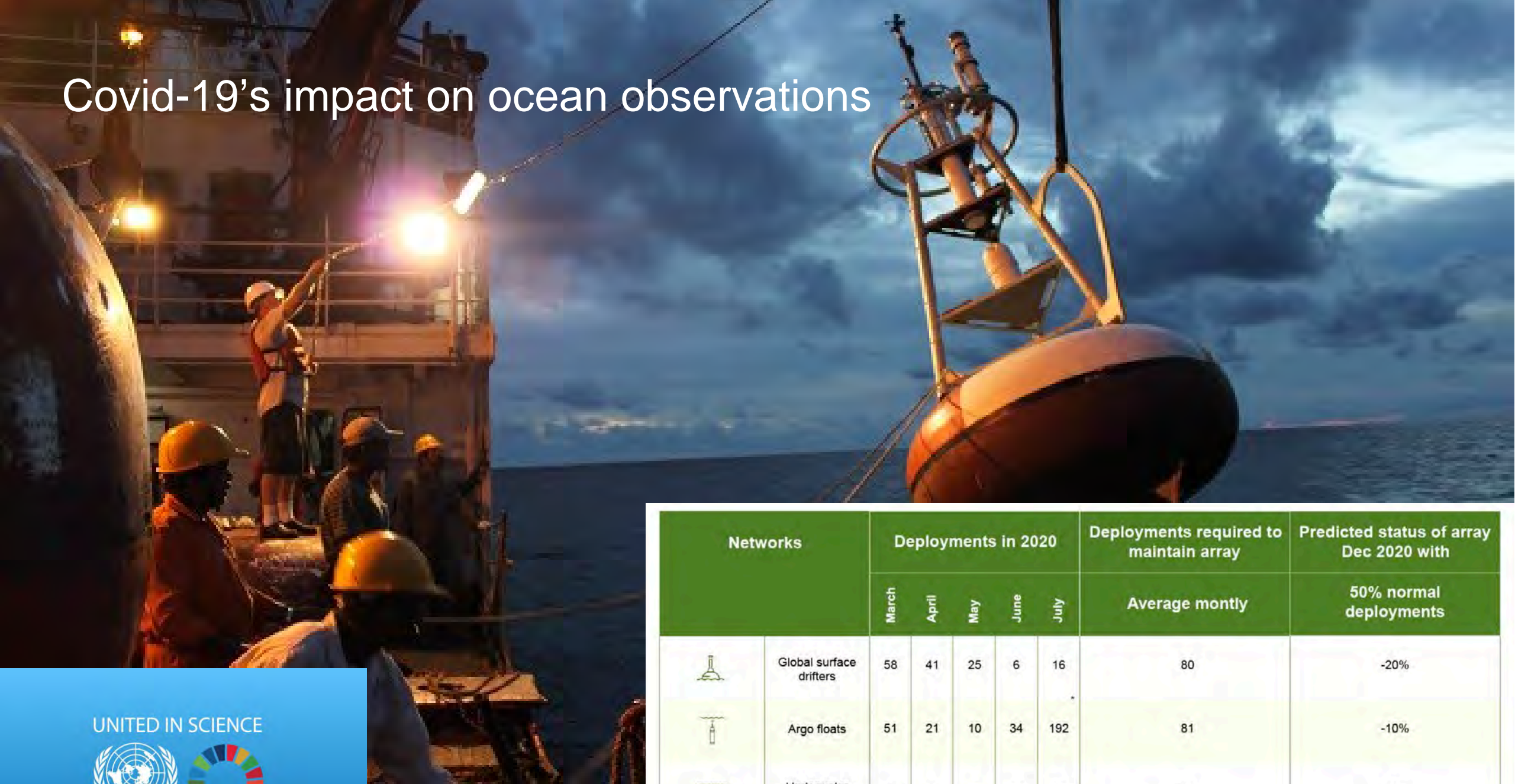
Ocean Observing Report Card 2020




ocean-ops.org



GOOS <i>in situ</i> networks ¹	Implementation Status ²	Data & metadata			Best practices ⁶	GOOS delivery areas ⁷		
		Real time ³	Archived high quality ⁴	Meta- data ⁵		Opera- tional services	Climate	Ocean health
 Ship based meteorological measurements - SOT/VOS	★★★	★★★	★★★★	★★★	★★★			
 Ship based aerological measurements - SOT/ASAP	★★★	★★★	★★★	★★★	★★★			
 Ship based oceanographic measurements - SOT/SOOP	★★★	★★★★	★★★★	★★★	★★★			
 Sea level gauges - GLOSS	★★★★	★★★	★★★★	★★★	★★★			
 Drifting and polar buoys - DBCP	★★★★	★★★	★★★	★★★	★★★			
 Moored buoys - DBCP	★★★	★★★★	★★★	★★★	★★★			
 Interdisciplinary moorings - OceanSITES	★★★	★★★	★★★	★★★	★★★			
 Profiling floats - Argo	★★★★	★★★★	★★★★	★★★★	★★★			
 Repeated transects - GO-SHIP	★★★★	★★★	★★★★	★★★	★★★★			
 OceanGliders	★★★ Emerging	★★★	★★★	★★★	★★★			
 HF radars	Emerging	★★★★	★★★★	★★★	★★★★			
 Biogeochemistry & Deep floats - Argo	★★★ Emerging	★★★★	★★★	★★★★	★★★			
 Animal borne ocean sensors - AniBOS	Emerging	★★★★	★★★	★★★	★★★			

Covid-19's impact on ocean observations



Networks		Deployments in 2020					Deployments required to maintain array	Predicted status of array Dec 2020 with
		March	April	May	June	July	Average montly	50% normal deployments
	Global surface drifters	58	41	25	6	16	80	-20%
	Argo floats	51	21	10	34	192	81	-10%
	Underwater gliders	10	1	5	20	23	20	-50%

UNITED IN SCIENCE



goosocean.org/covid-19



OceanObs'19 – what we heard

- **Planning for impact:** codesign of the observing system, end-to-end, with stakeholders and users
- Core system **integration:** Democratization of data, best practice, integration of biological and ecological observations, and a growing emphasis on the coast
- Embracing **innovation** in technology and governance, and looking to the [#OceanDecade](#) as a vehicle for transformation



Governance should enable all of the above, together with partners and stakeholders

An **ambitious strategy** for the Global Ocean Observing System

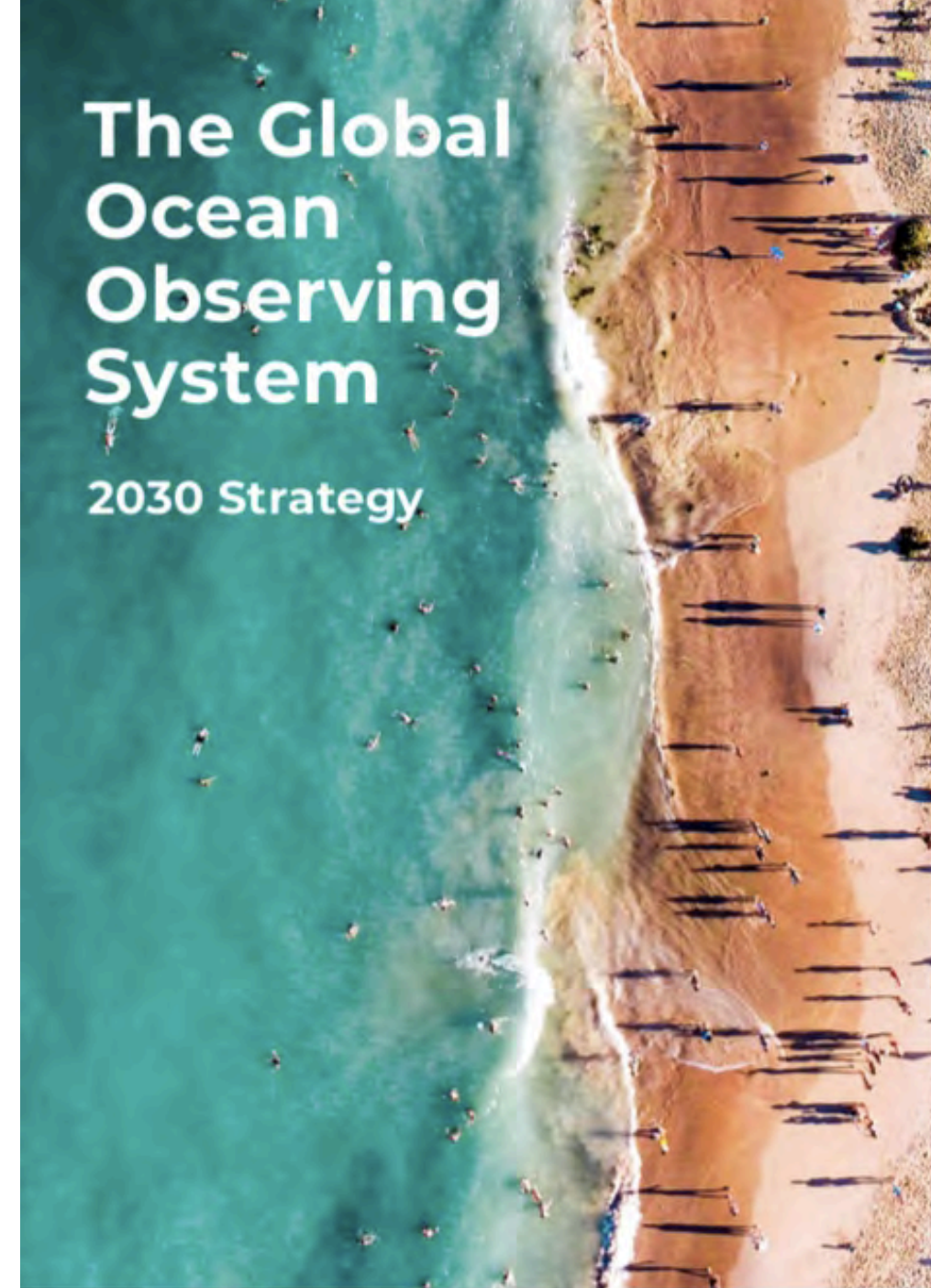
The Strategy demands a step change in the level of effectiveness of partnerships across the scientific, government, and private sectors, to meet the needs of growing end-user communities



goosocean.org/2030strategy

The Global Ocean Observing System

2030 Strategy



Geared for delivery to end-users

Increasing demand for an improved evidence and information base for:

- Policy
- Sustainable development
- Environmental management
- Safety, industry, defence

from governmental, intergovernmental, private and societal sectors



Vision

A truly global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing and prosperity





The need for expansion of a global ocean observing system, designed to meet the requirements of a broad suite of users is urgent

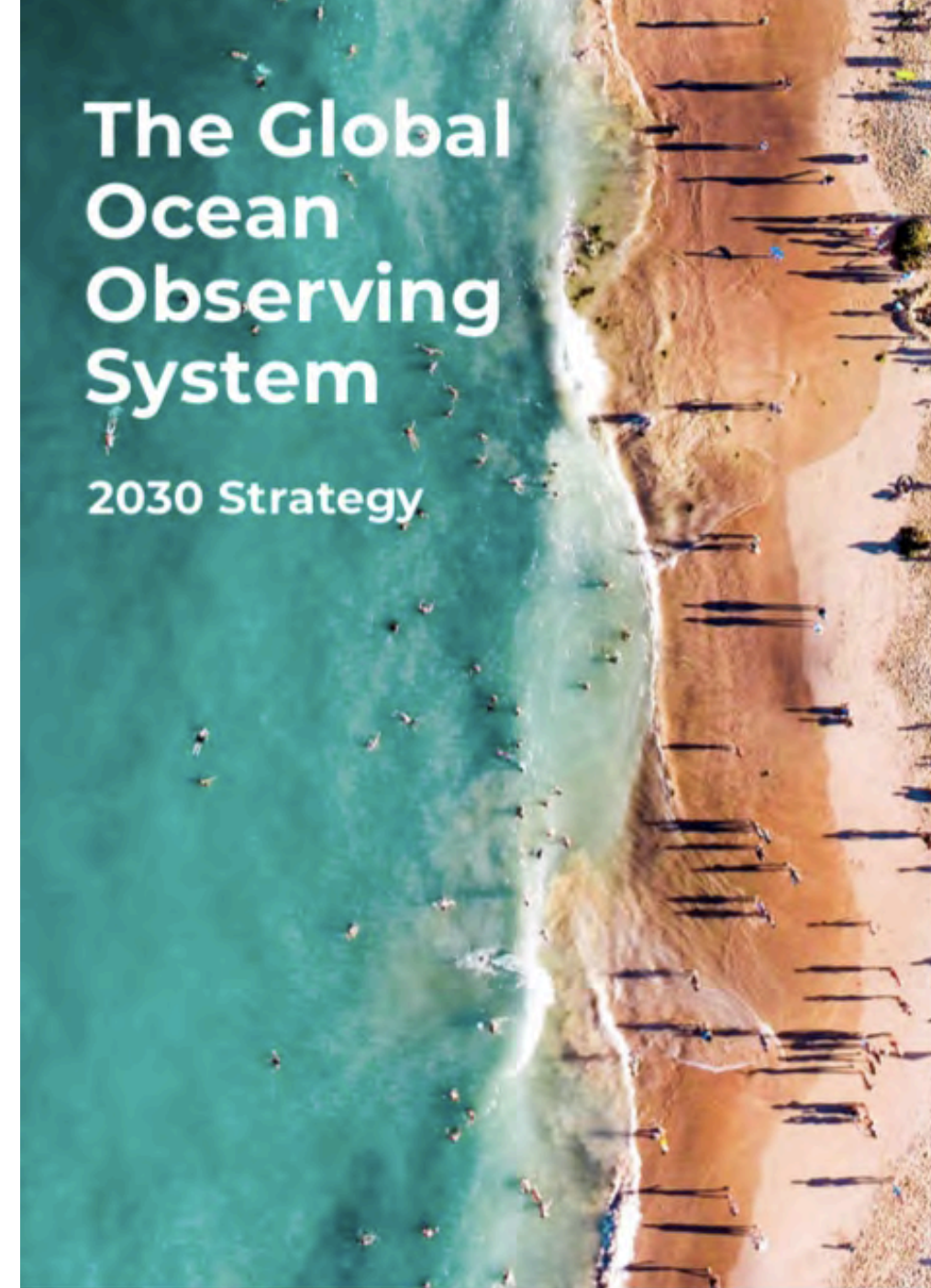
GOOS Mission

To lead the ocean observing community and create the partnerships to grow an integrated, responsive and sustained observing system.



The Global Ocean Observing System

2030 Strategy

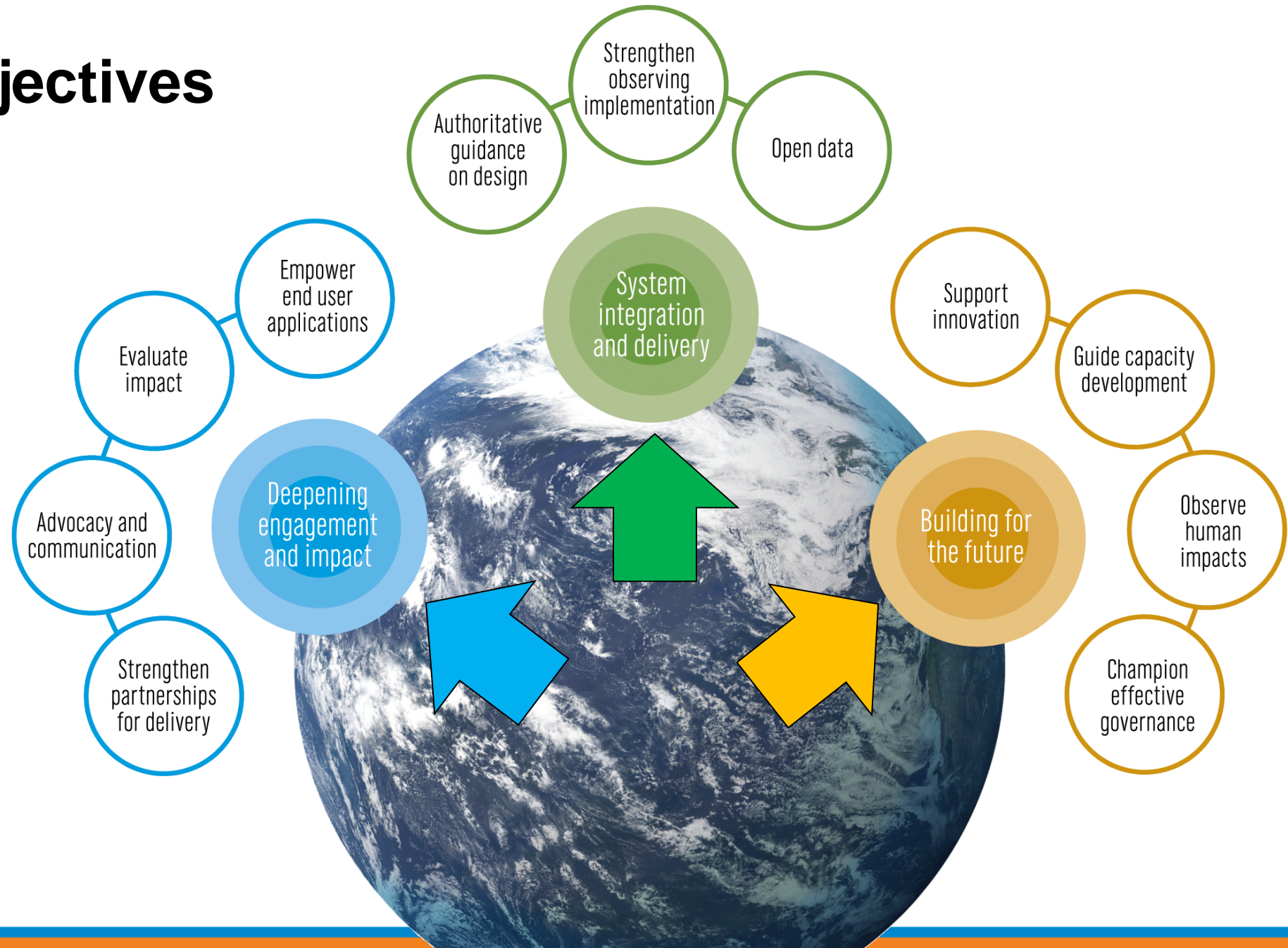


11 Strategic Objectives

**System integration
and delivery**

**Deepening
engagement and
impact**

**Building for
the future**



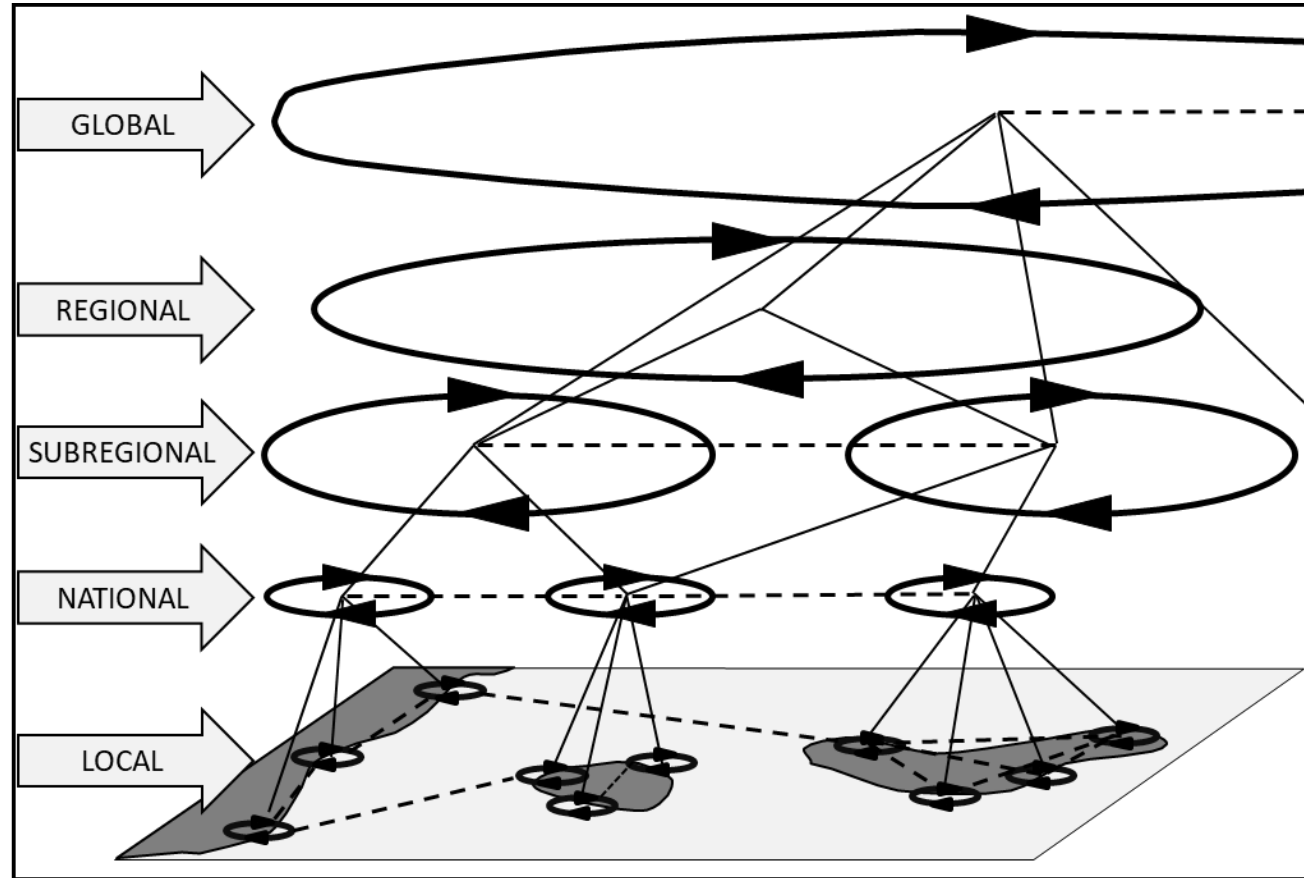
Champion effective governance of the observing system



- Needs to evolve as the strategy is implemented
- GOOS is ready to contribute to / lead a dialogue on governance with the many actors

.. Including observing systems at global, regional, national and local levels, partners, industry, funders, service providers, and users...

Multi-level polycentric 'bricolage'



Polycentricity as a way of governance

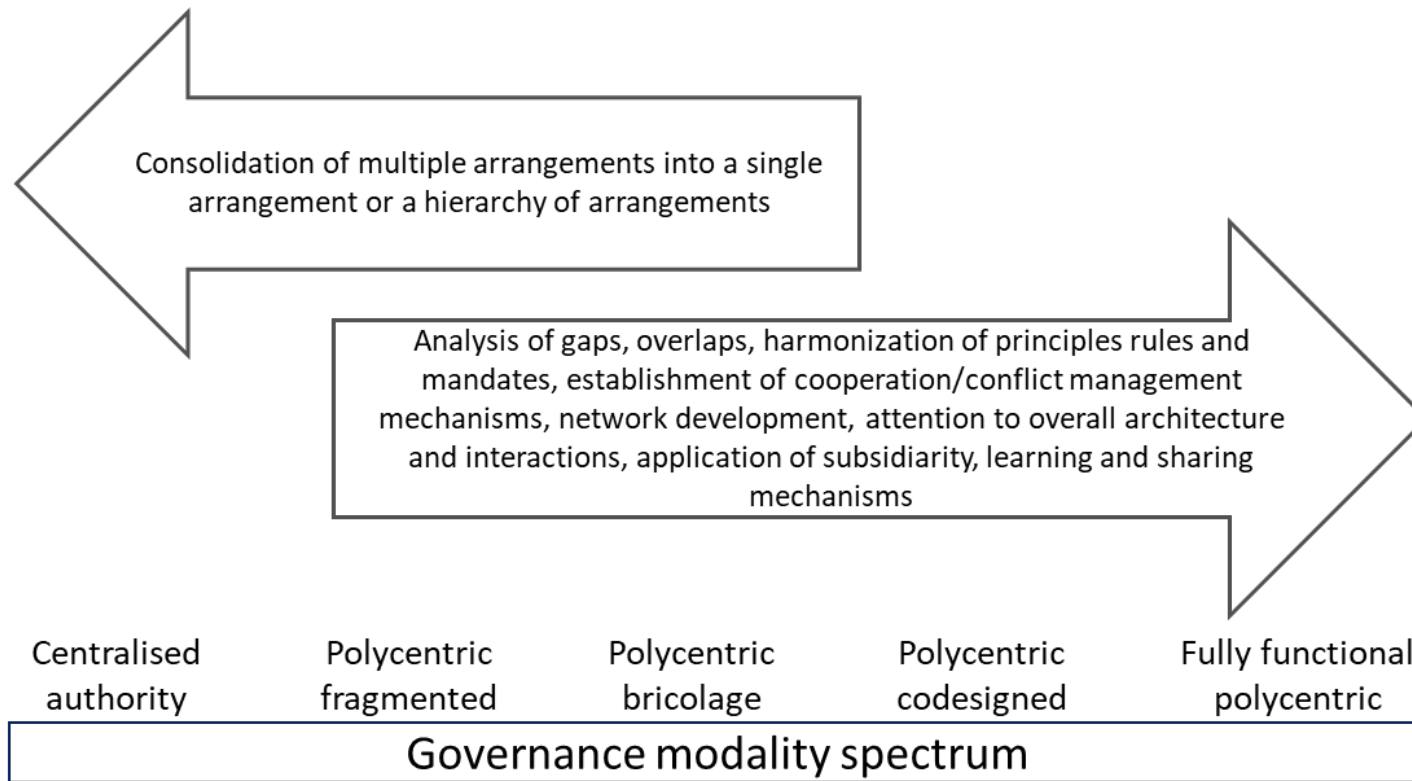
Cons

- Inefficiency (duplication of effort)
- Gaps in coverage
- Unpredictable

Pros

- Multiple mechanisms for mutual monitoring, learning, and adaptation
- Subsidiarity, in which problems can be addressed at the most relevant and capable scale;
- Decentralised decision-making facilitates the input from relevant stakeholders
- Resilience due to redundancy

Polycentric conceptual model: improving functionality



- Attending to overall architecture and interactions
- Harmonizing principles rules and mandates
- Analysing gaps, overlaps
- Establishing cooperation/conflict management mechanisms
- Network development
- Applying subsidiarity
- Strengthening learning and sharing mechanisms

Collective impact conceptual model

The Five Conditions of Collective Impact

Common Agenda	All participants have a shared vision for change including a common understanding of the problem and a joint approach to solving it through agreed upon actions.
Shared Measurement	Collecting data and measuring results consistently across all participants ensures efforts remain aligned and participants hold each other accountable.
Mutually Reinforcing Activities	Participant activities must be differentiated while still being coordinated through a mutually reinforcing plan of action.
Continuous Communication	Consistent and open communication is needed across the many players to build trust, assure mutual objectives, and create common motivation.
Backbone Support	Creating and managing collective impact requires a separate organization(s) with staff and a specific set of skills to serve as the backbone for the entire initiative and coordinate participating organizations and agencies.

Revolution or evolution?



Governance: next steps



- **Mapping the players**
 - Both the ‘collective impact’ and ‘polycentric’ governance frameworks suggest a mapping exercise as a first step
- Building to common vision, mission, and strategy
- Identifying differentiated roles, common measures of success

UN Ocean Decade Vision & Mission

“

Vision

The science we need for the ocean we want

Mission

Transformative ocean science solutions for sustainable development, connecting people and our ocean.



Ocean Decade Challenges

Describe the most immediate and pressing priorities for the Decade.



Understand and map land and sea-based sources of **pollutants and contaminants** and their potential impacts on human health and ocean ecosystems, and develop solutions to mitigate or remove them.



Understand the effects of multiple stressors on ocean ecosystems, and develop **solutions to protect, monitor, manage and restore ecosystems and their biodiversity** under changing environmental conditions, including climate.



Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean to contribute to **sustainably feeding the world's population** under changing environmental and social conditions.



Generate knowledge, support innovation, and develop solutions to contribute to **equitable and sustainable development of the ocean economy** under changing environmental and social conditions.



Enhance understanding of the **ocean-climate nexus** and use this **understanding** to generate solutions to mitigate, adapt and build resilience to the effects of climate change, and to improve services including improved predictions and forecasts for weather, climate, and the ocean.



Expand **multi-hazard warning systems** for all biological, geophysical, and weather and climate related ocean hazards, and mainstream community preparedness and resilience.



Ensure a sustainable **ocean observing system** that delivers timely data and information accessible to all users on the state of the ocean across all ocean basins.



Develop a comprehensive **digital representation of the ocean**, including a dynamic ocean map, through multi-stakeholder collaboration that provides free and open access to explore, discover, and visualize past, current, and future ocean conditions.



Ensure comprehensive **capacity development and equitable access to data, information, knowledge and technology** across all aspects of ocean science and for all stakeholders regardless of geography, gender, culture, or age.



Ensure that the multiple values of the ocean for human wellbeing, culture, and sustainable development are recognised and widely understood, and **identify and overcome barriers to the behaviour change** that is required for a step change in humanity's relationship with the ocean.

Thank you

