



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



Ocean Observing Co-Design

by The Global Ocean Observing System

Supporting the Decade of Ocean Science for Sustainable Development by transforming our ocean observing system assessment and design process.

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IOC



WMO



International
Science Council



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Ocean Observing Co-Design will build a system co-designed with scientific experts in observations and forecasts, and with key user stakeholders.

It will provide fit-for-purpose ocean observing, supplying the information required to manage the ocean we need for the future we want.

— The challenge

We need more information on the ocean to meet challenges such as climate change mitigation and adaptation, improving ocean, coastal and weather prediction, food security, and human health and safety.

For this we need to establish clear priorities for how we invest in ocean observing for the future and better integrate observations and models to produce useful ocean knowledge. This demands a more integrated ocean observing system design. It also requires repeatable processes that satisfy global, regional and local stakeholder needs while developing integrated observing and modelling capabilities.

— The answer

Ocean Observing Co-Design will develop a more user-focused co-design process to evolve a truly fit for purpose, integrated, responsive ocean observing system.

It will include the large range of ocean observing efforts already in place working together more closely and between disciplines, as well as actively involving the modelling, forecast and service communities.

Further, we will build a better design process, as well as structures and tools, to take full advantage of growing in observing and modelling technologies and capabilities easy to benefit society.

Specifically, we will be able to:

- Better track the current state and future variability of the ocean.
- Predict and warn more skillfully.
- Manage ocean resources.
- Empower society to adapt to change.
- Assess the impact of action towards a sustainable ocean.

This will enable the Ocean Decade to achieve its goals and we will have the ocean we need for the future we want.

ff We will have tools in place that allow sponsors to ask key questions about cost and benefit and receive clear answers.

— The benefits

By 2030, Ocean Observing Co-Design will demonstrably advance the maturity and robustness of global ocean observing and forecasting for the benefit of society.

We will have tools in place that allow sponsors to ask key questions about cost and benefit and receive clear answers.

This will enable more effective decision-making on future observing system improvements, including what gaps need to be addressed and which new technologies should be used.

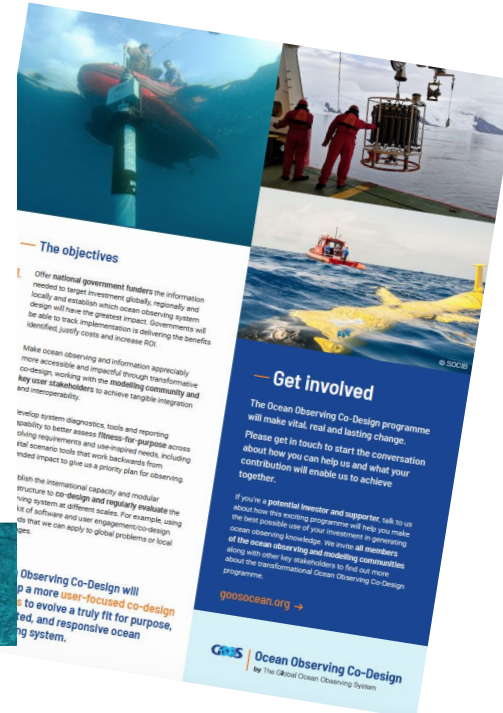
The tools, the processes, and the conversations they stimulate will clearly connect design to value and increase long-term thinking around investment in ocean observations.

All stakeholders will benefit from knowledge, products and services being delivered more effectively.

Specifically, we will be able to:

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— The objectives

Offer national government funders the information needed to target investment globally, regionally and design will have the greatest impact. Governments will be able to track implementation is delivering the benefits identified, justify costs and increase ROI.

Make ocean observing and information appreciably more accessible and impactful through transformative co-design, working with the modelling community and key user stakeholders to achieve tangible integration and interoperability.

Level-up system diagnostics, tools and monitoring capability to better assess fitness-for-purpose across that scenario tools that work backwards from model impact to give us a priority plan for observing.

Build the international capacity and modular structure to co-design and regularly evaluate the fit of software and user engagement/co-design tools that we can apply to global problems or local ones.

Ocean Observing Co-Design will be a more user-focused co-design to evolve a truly fit for purpose, integrated, and responsive ocean observing system.

— Get involved

The Ocean Observing Co-Design programme will make vital, real and lasting change. Please get in touch to start the conversation about how you can help us and what your contribution will enable us to achieve together.

If you're a potential investor and sponsor, talk to us about how this exciting programme will help you make the most of your investment in promoting the ocean observing and modelling communities along with other key stakeholders to find out more about the transformational Ocean Observing Co-Design programme.

gooscean.org →

GOOS Ocean Observing Co-Design by The Global Ocean Observing System

- Ocean Observing Co-Design will transform our ocean observing system assessment and design process by:
1. developing a more user-focused co-design process to create a fit for purpose, integrated and responsive observing system;
 2. involving existing efforts and new technologies, and modelling, forecast and service communities;
 3. building the process, infrastructure and tools, to inform investment and benefit society.



UPDATE: summary

- Exec / initial planning group met
- Key partners: ECMWF, WCRP, C3S, IODE, MOi, CMEMS, GCOS, MBON, SOCIB, UNEP-WCMC, IOC Marine Policy, IMOS, NOAA, Bio-Eco Panel, WMO, ET-MIE

Decade programmes: DITTO, ForeSea, OASIS, OBON, MarineLife 2030

- Initial 'Exemplar Areas' for project work discussed
- Co-Advisory board [ForeSea /CoastPredict] establishment-in-progress
- Engagement with G7 on review & planning for a Workshop in early 2022
- Link to EuroSea plans for a technical workshop March / April 2022

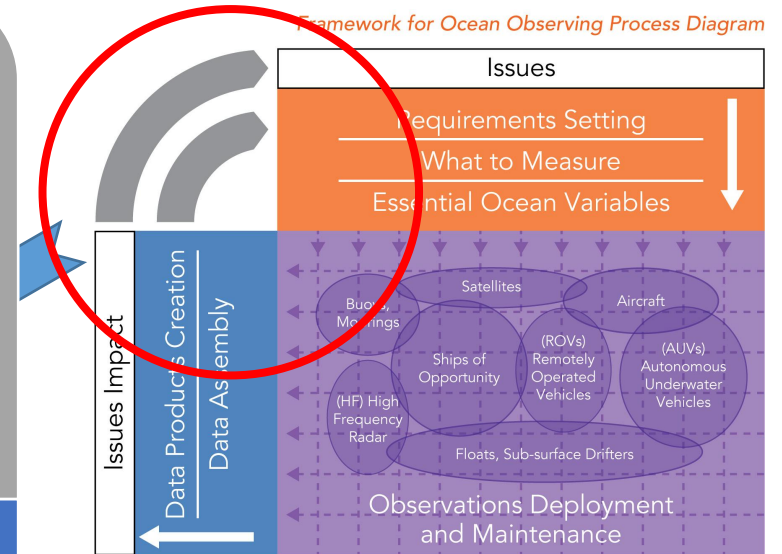
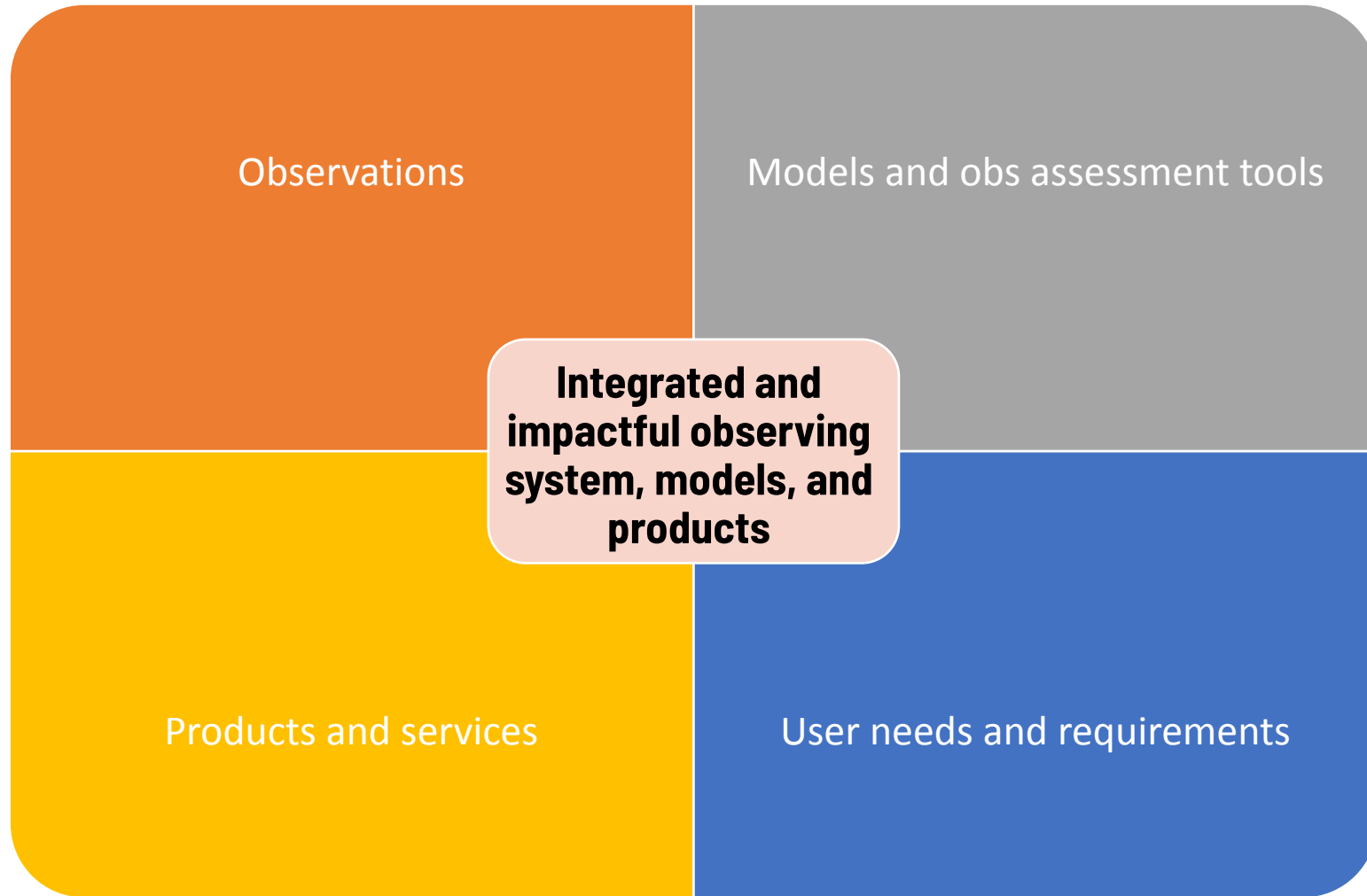




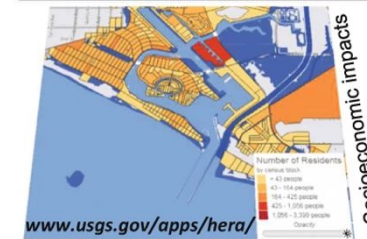
UPDATE: Projects allocated to this Programme [initiating engagement in Dec]

- Ocean Decade Odyssey Ocean Decade Instrument Support Initiative
- Study of recent behavior of Cyclones and Marine Heatwaves
- Integrated Ocean Observing Across the Northwest Atlantic
- COCAS: Coastal Observatory for Climate, CO₂ and Acidification for the Global South society
- Ocean Monitoring and Prediction Network for the Sustainable Development of the Gulf of Mexico and the Caribbean
- Science Monitoring And Reliable Telecommunications [SMART]
- Animal-Borne Ocean Sensors: A decadal vision through new eyes
- OneArgo
- Integrated Ocean Carbon Observing System
- EarthScope-Oceans: 300 MERMAIDS
- GO-SHIP Evolve

Projects around 'exemplar' areas will drive co-design, foster connections, produce answers



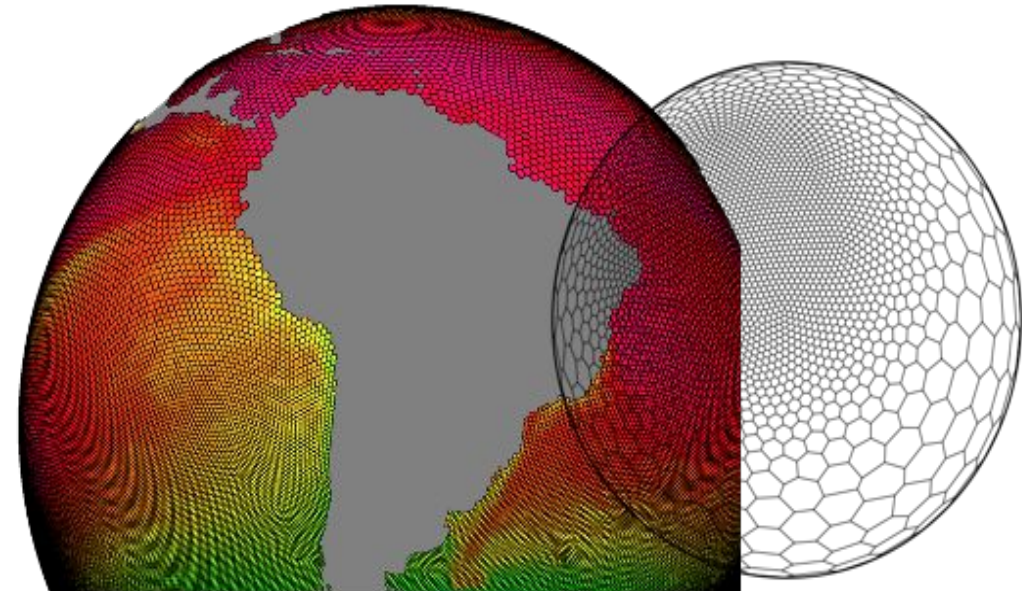
Flood maps



Projects around 'exemplar' use areas

Examples with users

- **Carbon Budgets** - national policy makers, those assessing carbon storage
- **Heatwaves** - national weather services, industry, public
- **Coastal storm surge inundation** - coastal managers, urban planners, coastal industries & communities
- **Marine heatwaves** - aquaculture, fisheries
- **Climate assessment** - UNFCCC
- **Extreme weather events** - coastal communities, local authorities, national governments



Different exemplar areas are more mature than others for service delivery, model and observing maturity - different levels will be addressed

TIMELINE: Phase 1



Identify exemplars

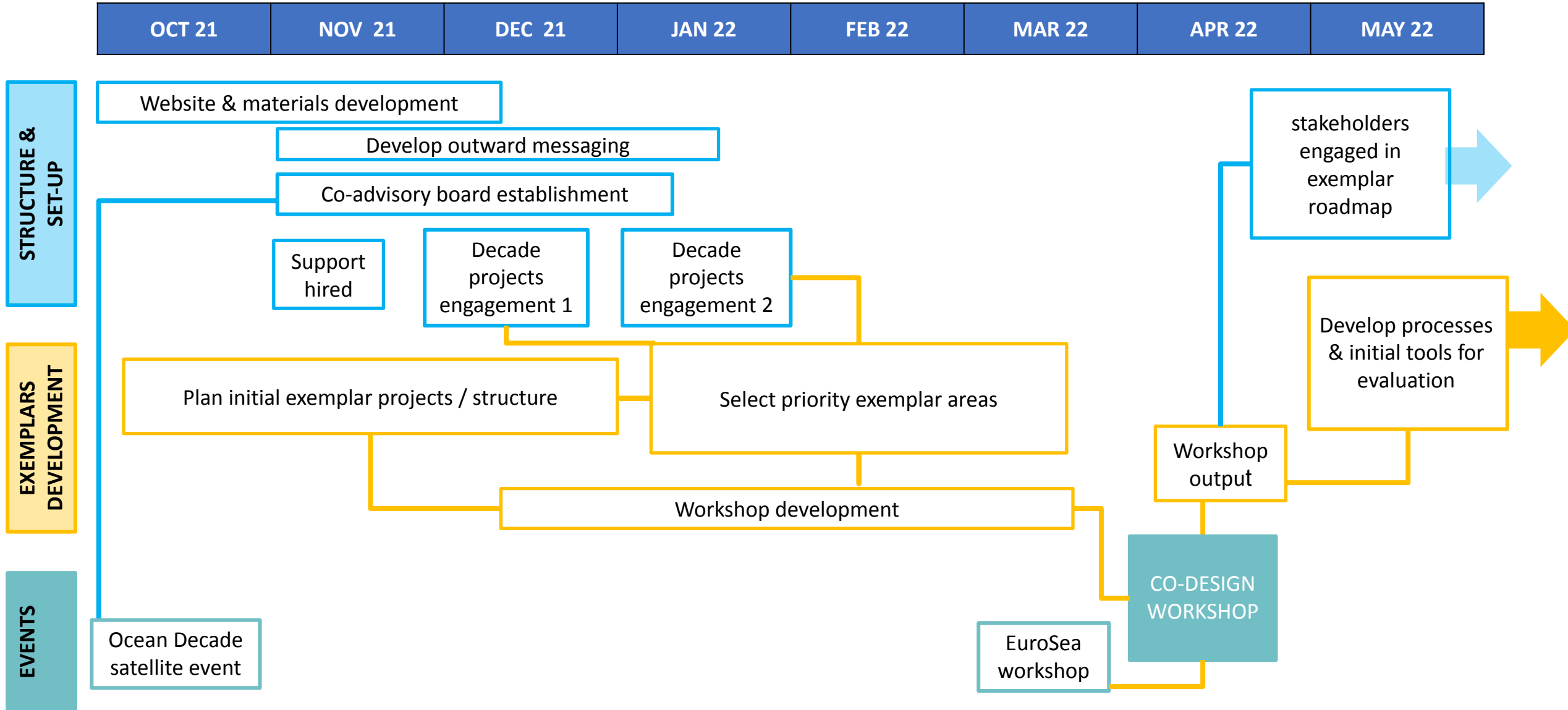
Consult to set priorities & outcomes for exemplars

Co-design projects for implementation with partners

Source investment and project alignment

Develop processes & initial tools to evaluate the status of the observing system to meet users' needs.
Testing & best practice development.

TIMELINE SHORT-TERM





Co-Design Workshop

- Evaluate lessons learned from previous observing system reviews and evaluations to guide development of exemplars.
- Agree on potential priority exemplars based on observing system gaps, risks, policy priorities and feasibility.
- *What does success look like?:* Develop what constitutes actionable outcomes for all investors (incl. partners) from a successful co-design project.
- Identify capability (projects, infrastructure, resources) required to support development of initial exemplars.
- Identify gaps and questions to be addressed.





OPPORTUNITIES

- G7 longer term support in aligning national initiatives? ([G7 FSOI Framework](#))
- Positive response to the exemplar area approach and engagement with key partners in the modelling community
- Resource and linked engagement from WMO
- Difference in value chain readiness for delivery should be part of what we assess, provides more information on design of a system
- Projects are allocated, how do we work with them?
- Better leverage the Decade funding mechanisms





CHALLENGES

- Exemplars are new and complex projects to develop: **steady** progress needed to develop to a fundable stage and importantly **align with existing activities**
- Engagement with Bio-Eco panel so this voice is heard for defining exemplars: outside OSSEs, **qualitative** approach, **different tools** needed
- Considerable uncertainty about funding mechanisms, a lot of noise in the system
- Same people are required in numerous places: challenge of this **new level of collaboration/coordination**

ACTION: Reach out to partners one-to-one to develop engagement, especially Bio-Eco Panel and WMO

ACTION: Ask SC to engage and think about how GOOS can leverage its contacts to provide lift to the initial exemplar projects





COMMENTS AGREED ACROSS THE THREE PROGRAMMES:

- Thanks to the Ocean Decade Team for the increased visibility and catalysing discussions/strategising across government, science, NGOs and industry.
- GOOS should advance its communication to diverse communities, focusing on policy makers and research institutions of the Members States.
- GOOS should ensure that Decade programmes are integrated (good effort thus far!).
- GOOS should clarify how the Decade programmes will be implemented within the GOOS structure.
- There is a lack of implementation resources for the GOOS Programmes and projects (in contrast to the resourced Ocean Decade office)
 - Programmes / projects need to receive implementation support (and resources to coordinate planning).
 - Although project level is perhaps an easier route for investment, the Programmes put them into a framework for societal impact, to deliver new standards and benefit multiple users/projects.
 - Proposed GOOS UN Decade Programmes are important and fundable entities within the Ocean Decade, GOOS AND the Decade need to work on raising their funding profile.