

OPST- 5: Day 3



Day 1

- **Overview of national system updates, plans and decade involvement**
- Strong support for NR WG
- ToR and Short Strategy for NR WG need to be built to clearly place it in context of ET-OOFS, task teams, DCC ...
- Note: The NR WG may need to meet more frequently than every 6 months:
 - every 6 months, meeting prior to OPST and good interface at OPST ..
 - monthly hourly meetings could be considered? (like OSEVAL ...)
- NOTE: The scope of overall activities, given manpower is daunting...
 - engagement of more people from operational centers (dev and ops groups needed)

Day 2

- Task Team Reports
- Transformative Themes to advance in Decade
- **Multiple Disciplines/programs can contribute to these Transformative Themes**
 - impact focus project themes
 - tools in standardized framework
 - Seamless integration global to inshore
- **Leverage Coordination Infrastructure**
 - Decade Web platforms
 - Decade Collaboration Centers (Maria Hood update)



Time	Description	Meeting chair and presenters	Shared material, comments
5 min	<p>Welcome and Recap of Previous 2 days</p> <p>Intro for ForeSea discussion and Decade</p>	Co-chairs	Brief overview of outcomes and plans for the day
45 min	<p>Advancing the ocean prediction value chain interconnection – organisational setup</p> <p>§ ForeSea Steering Committee introduction</p> <p>§ Decade Collaboration Center</p> <p>§ UN programmes joint advisory panel</p> <p>§ Framework ideas/standards</p> <p>Interdependencies / 2-way knowledge transfers</p>	Co-chairs and ForeSea steering team members	
45 min	<p>Advancing the Science discussion</p> <p>§ ForeSea objectives</p> <p>§ Plan for the implementation of ForeSea objectives</p> <p>§ SynObs status/plans</p> <p>§ Science links with partner programmes</p>	Co-chairs and ForeSea steering team members, as well as Yosuke and Elisabeth	
10 min	Strategy / ToR	Fraser Davidson	
5 min	Next OPST meeting	Do-Seong Byun	
5 min	AOB and meeting close	Co-chairs	

Day 3 – Wednesday 8th

December (MS Teams) – 120 min

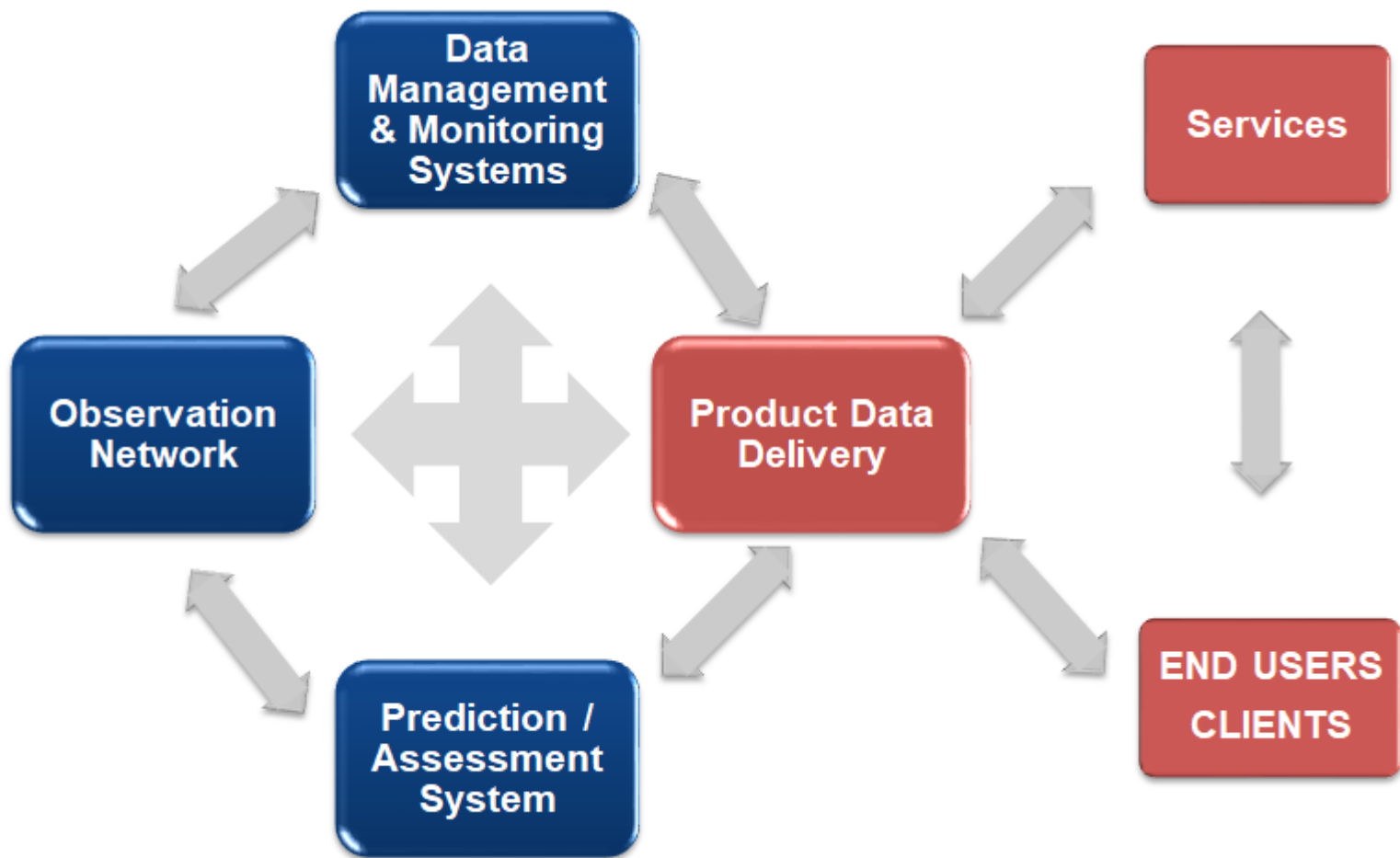


Advancing the ocean prediction value chain interconnection

Organisational setup

- ForeSea Steering Committee introduction
- Decade Collaboration Center
- UN programmes joint advisory panel
- Framework ideas/standards
- Interdependencies / 2-way knowledge transfers

Value Chain interconnections

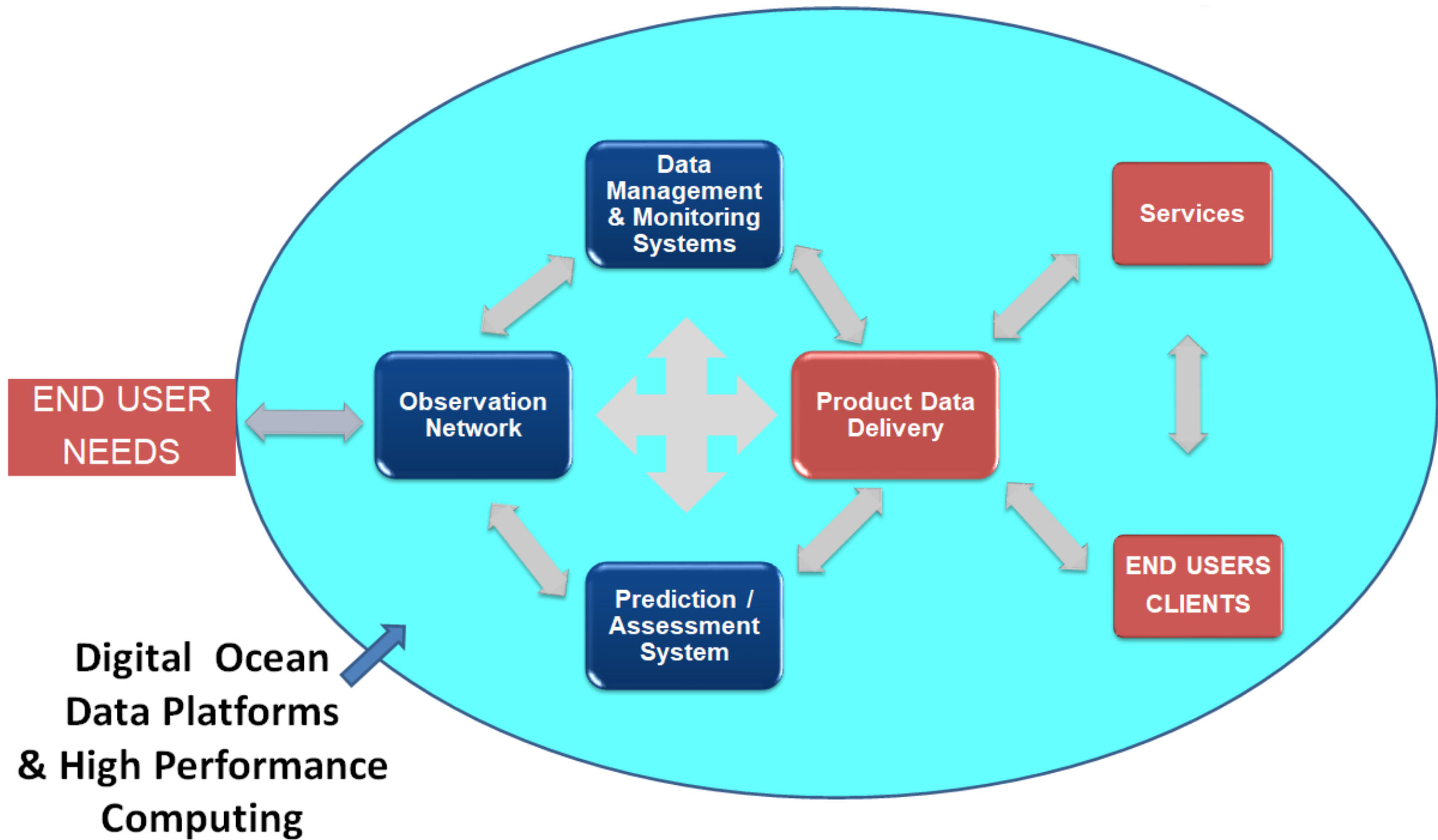


ForeSea has two interdependent goals

Advancing the Science, capacity, efficacy, use and impact of Ocean Prediction Systems

Build a seamless ocean information value chain, from observations to end users, for economic and societal benefit.

* Value Chain definition will be part of a much needed OO lexicon



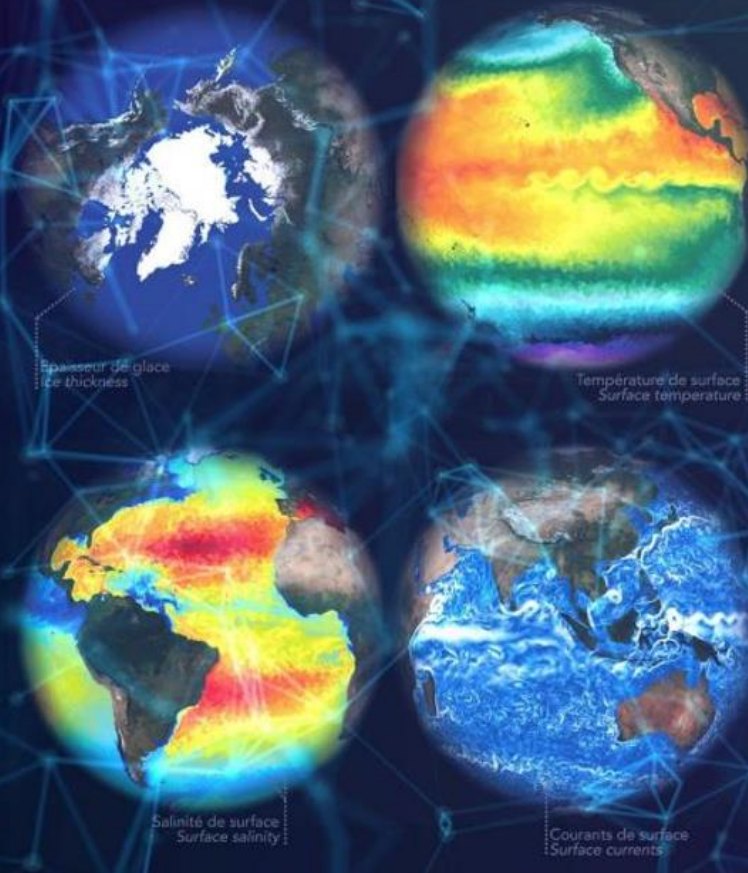
DECADE COLLABORATION CENTER on Ocean Prediction

Maria Hood, Mercator Ocean International



A Decade Collaborative Centre for Ocean Prediction

Mercator Ocean International



Background

- Community Consultation and Roles
- Proposal Process and Timeline

Organizational Structure,
Phased Implementation and
Financing



Community Consultation and Roles

September 27 – Open Community Dialogue

75 participants from 18 countries representing more than 30 programmes and organizations

Predicted / Safe / Accessible

Multiple Stressors on Ecosystems

Sustainable Development of the
Ocean Economy

Ocean-Climate Nexus predictions for
ocean, climate, weather

Multi-hazard early warning services

Ocean Observing System

Digital Representation of the Ocean

Equitable Access to data,
information, knowledge, technology

Agreed DCC-OP Roles:

Collaborative Framework for
Decade Goals

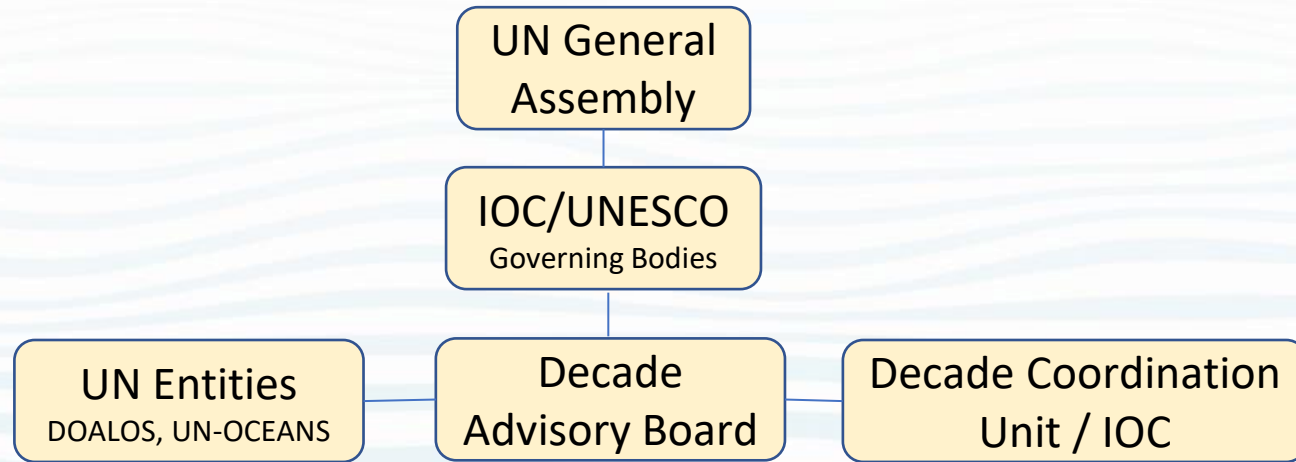
Interoperability & Standards

DTO core platform support

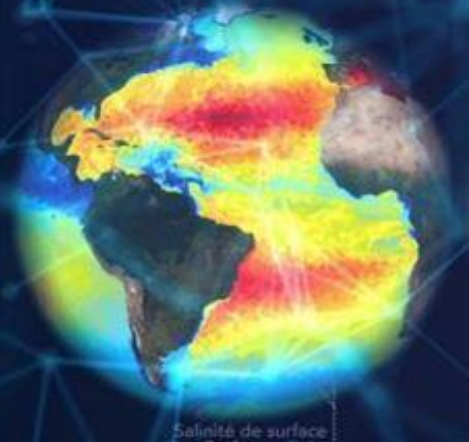
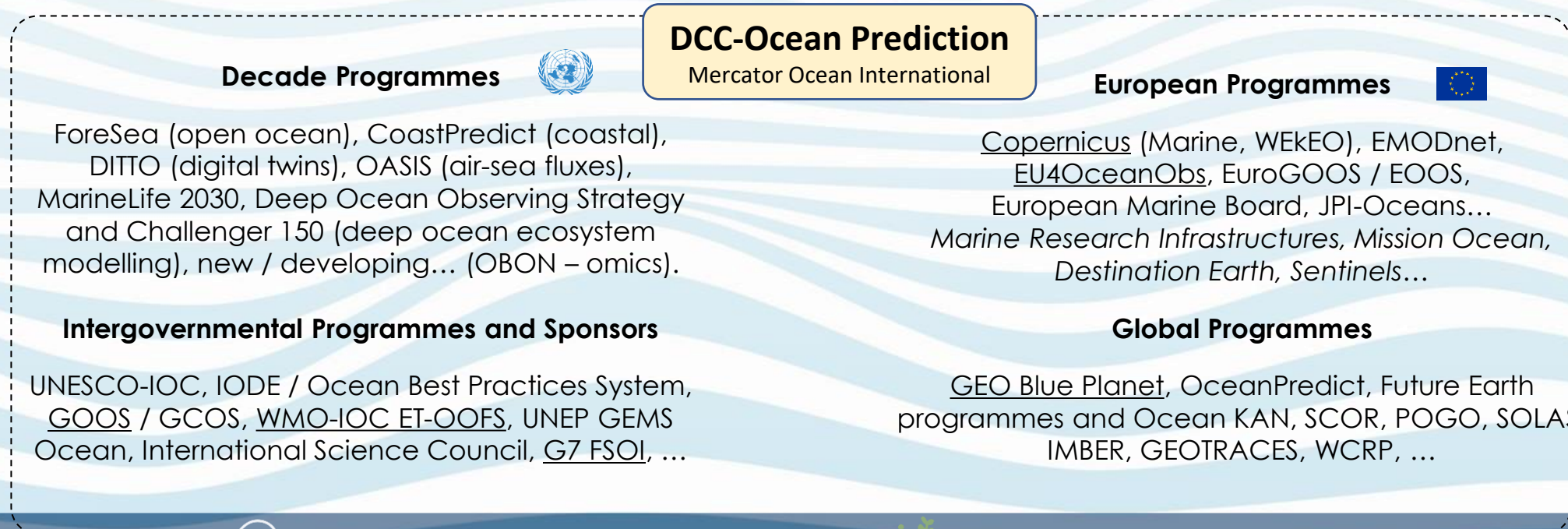
Piloting the Global Ocean
Modelling and Forecasting
System

A Decade Collaborative Centre
for Ocean Prediction

Organizational Structure



A Decade Collaborative Centre
for Ocean Prediction



Proposal Process and Timeline

December - Proposal submission

- *Supported by French National Delegation to UNESCO-IOC*
- *Approved by the Management Board of Mercator and its shareholders from France, Italy, Norway, Spain, and the UK.*

Dec / Jan 2022 - Feasibility study commissioned by UNESCO to collect or clarify any additional information needed to confirm that the proponent can perform the tasks required.

1st Quarter 2022 - Final decision by IOC Executive Secretary.

1st Quarter 2022 - Signature agreement between Mercator and UNESCO.

Phased Implementation

IOC Guidelines: DCC Full-time Staff Commitments

(min. 4 staff / 5-years)

- Centre Coordinator
- Technical Specialist
- Communications / Engagement Specialist
- Administrative Assistant

Year 1 (2022)

1 full-time Coordinator
Part-time Specialist(s),
Comms / Engagement,
and Admin Assistant

Year 2 (2023)

Fully-staffed centre

A Decade Collaborative Centre
for Ocean Prediction

Financing

Estimate for fully-functioning Centre (staff and operating costs) = € 600k / year.

Year 1: France €150k / year; Mercator €150k / year

Year 2: Seeking €300 k / year beginning in 2023

- **High level technical expertise to link**
- **Amplify efforts by individual programs to get funding**
- **DITTO is interested in the overall framework for Digital Ocean, but not the hardware / system...**
 - DCC-OP will look at providing basic platform for a DTO
- **Reducing communication load:**
 - 1st stakeholder is the individual Decade Programmes linked to OP
 - Awareness of what's on the go, of interest
 - DCC wouldn't write the news stories for a program, but would elevate and build on this writing
- **Outreach:**
 - CMEMS model for user service
 - Facilitate reporting, metrics, aggregate them for OP and into each Decade Goal, standardised indicators,..



ForeSea Steering Committee introduction

Current membership

No	First name	Surname	Affiliation		Role
1	Eric	Bayler	NOAA	eric.bayler@noaa.gov	OPAS rep
2	Pierre	De Mey-Frémaux	LEGOS/CNRS	pierre.de-mey@legos.obs-mip.fr	OPST/COSS-TT rep
3	Elizabeth	Remy	MOi	eremy@mercator-ocean.fr	OPST/OS-Eval TT rep
4	Stefano	Ciavatta	PML	avab@pml.ac.uk	OPST/MEAP-TT rep
5	Peter	Oke	CSIRO	peter.oke@csiro.au	External expert
6	Enrique	Alvarez	SOCIB	enrique@puertos.es	ETOOFS lead
7	Frank	Muller-Karger	Univ. of South Florida	carib@usf.edu	Marine Life 2003 Lead
8	Ann-Kristine	Sperrevick	Norwegian Meteorological Institute	ann.k.sperrevik@met.no	ECOP
9	Santha	Akella	NASA	santha.akella@nasa.gov	OPST/CP-TT rep
10	Yosuke	Fujii	MRI-JMA	yfujii@mri-jma.go.jp	OPST/OS-Eval TT rep
11	Afonso	Paiva	Univ. of Rio de Janeiro	afonso@oceanica.ufrj.br	External expert
12	Martin	Visbeck	GEOMAR	mvisbeck@geomar.de	DITTO lead
13	Gregory	Smith	ECCC	gregory.smith2@canada.ca	IV-TT rep
14	Eric	Chassignet	FSU	echassignet@fsu.edu	Co-chair
15	PN	Vinayachandran	Indian Institute of Science	vinay@iisc.ac.in	Co-chair

1st ForeSea Steering Committee meeting, Nov 19th

Meeting agenda

- 1) Opening remarks
- 2) ForeSea Steering Committee members
 - a. Brief introduction (name and function)
 - b. What is the perception of your ForeSea role in the Ocean Decade?
- 3) What should ForeSea focus on for the next two years?
 - a. Science versus Framework
 - b. Role/ToR of the UN Decade programme Co-advisory committee
- 4) Terminology clarifications (e.g.Digital Twin Ocean, ..)
- 5) ForeSea projects - best way to proceed
- 6) Next steps



Discussion: main comments from Nov 19th meeting

- Consideration to accept GOOS as the ocean information value-chain framework
- Improving connectivity between partners and partner institutions to achieve common aims, and helping each other work together
- Planning for aligning the operational oceanography effort by making systems interoperable and sharing access to data, models and products (including ocean source/code sharing)
- Consideration to create a quality assurance system for reanalysis
- Consideration to encourage project submission to explicitly underpinning the ForeSea programme priorities (as on fact sheet)
- Including best practice as an important aspect for ForeSea and unifying this for modelling and forecasting groups
- Concern about how marine ecosystems is mentioned as part of the Earth system, rather than as ocean (update on fact sheet)
- Requirement to learn more about the Decade supporting structure and their different platforms, centres and communities
- Develop plans for reaching out to our partners on all sides of the value-chain (observing system, services and end users)



ForeSea fact sheet



Develop with UNESCO to contribute to a series of fact sheets for endorsed Decade Programmes

Lead Institution

OceanPredict

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echassignet@fsu.edu
P.N. Vinayachandran
vinay@iisc.ac.in

KEY PARTNERS

- Ocean Observing Co-Design
- CoastPredict

DECADE CHALLENGES ADDRESSED

CHALLENGE 7: Expand the Global Ocean Observing System

CHALLENGE 8: Create a digital representation of the Ocean

CHALLENGE 9: Skills, knowledge and technology for all

OCEAN BASINS

North Atlantic	Indian
South Atlantic	Arctic
North Pacific	Southern
South Pacific	



Summary

ForeSea's vision is for strong international coordination and community building of an ocean prediction capacity for the future. The overarching goals are to (1) improve the science, capacity, efficacy, use and impact of ocean prediction systems and (2) build a seamless ocean information value chain, from observations to end users, for economic and societal benefit. These transformative goals aim to make ocean prediction science more impactful and relevant to the global community.

Duration: 01/06/2021 - 31/05/2030

Priority Activities (first 2 years)

- Development of the foundations for a global ocean information delivery system that provides timely information for marine decisions supporting human and environmental safety, and an efficient and sustainable blue economy.
- Integration of ocean forecasting/prediction efforts with other affiliated efforts and other components of the operational oceanography value chain.
- Development of improved assessments and prediction of the ocean system (i.e., physics, biology, ice, waves - including reliable uncertainty estimates) and its impact on the forecasts of other earth system components (i.e., atmosphere and land).
- Implementation of coordinated capacity building and education/training across all elements of the operational oceanography value chain.
- Improvement of ocean modeling capacity (numerical algorithms, parameterizations, resolution, etc.).

"Assembly of a collaborative framework under the UN Ocean Decade for the Operational Oceanography value chain will ensure sustained steady expansion of societal and blue economic benefit from ocean observations and prediction systems."

Fraser Davidson, Manager of Dynamic Hydrographic Products with Fisheries and Oceans - CANADA



- Co-advisory board for Ocean Decade programmes CoastPredict, Ocean Observing Co-Design, and ForeSea due to strong connections.
- Benefits:
 - Programmes will seek many elements of common advice
 - Similar and often the same people
 - Time efficiency for the advisors
 - Coherent advice
 - Increased ability in structuring the future overall framework
- Goal for hybrid advisory board:
 - Advising, reflection on core program activities
 - Advising the Decade Collaboration Center



Proposed structure:

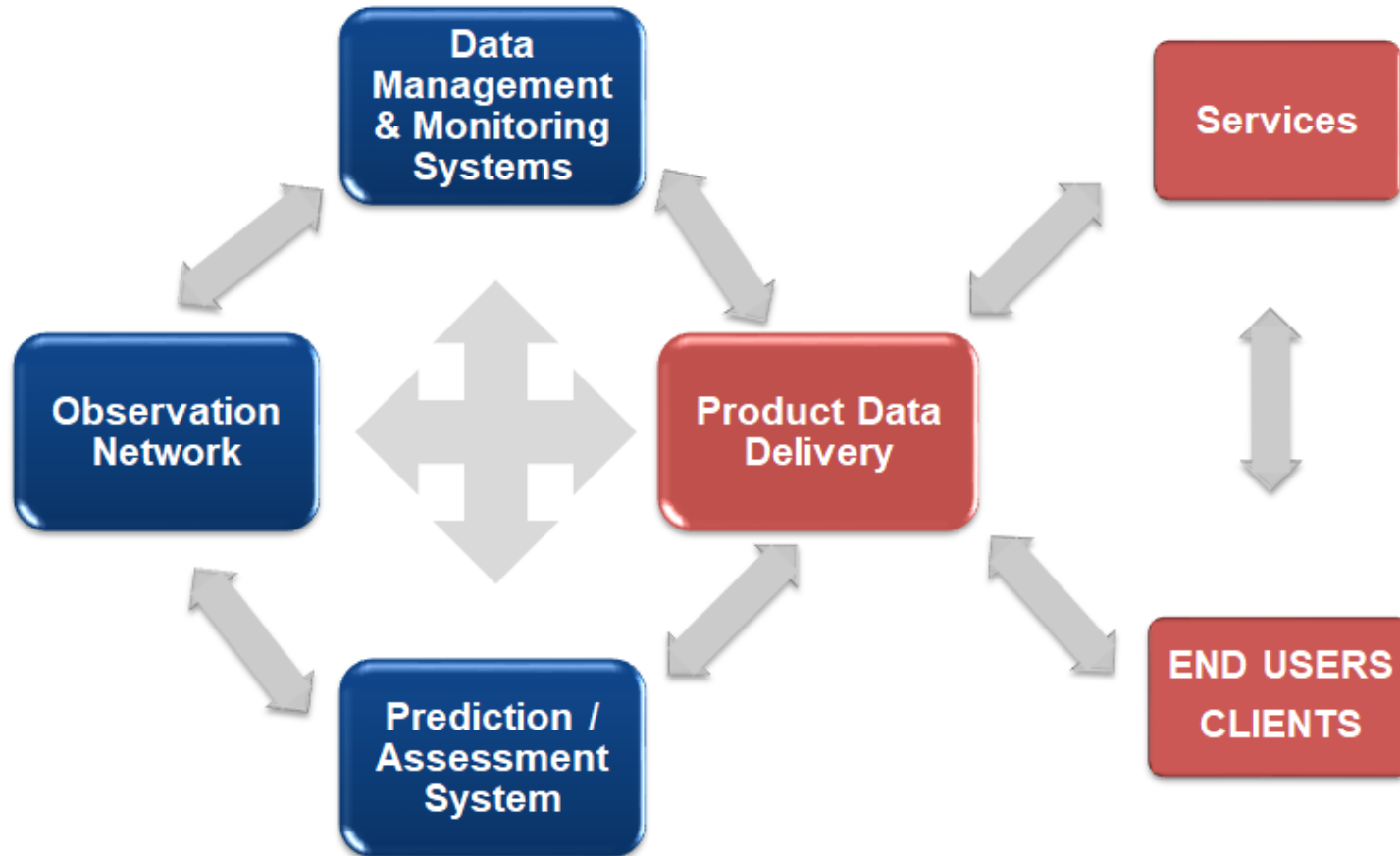
- Combined meeting of advisory group w/ separate sessions for Program specific and relevant input requests
- Start with 3 core programmes: Ocean Observing Co-Design, ForeSea and CoastPredict w/ potential future expansion

Next steps:

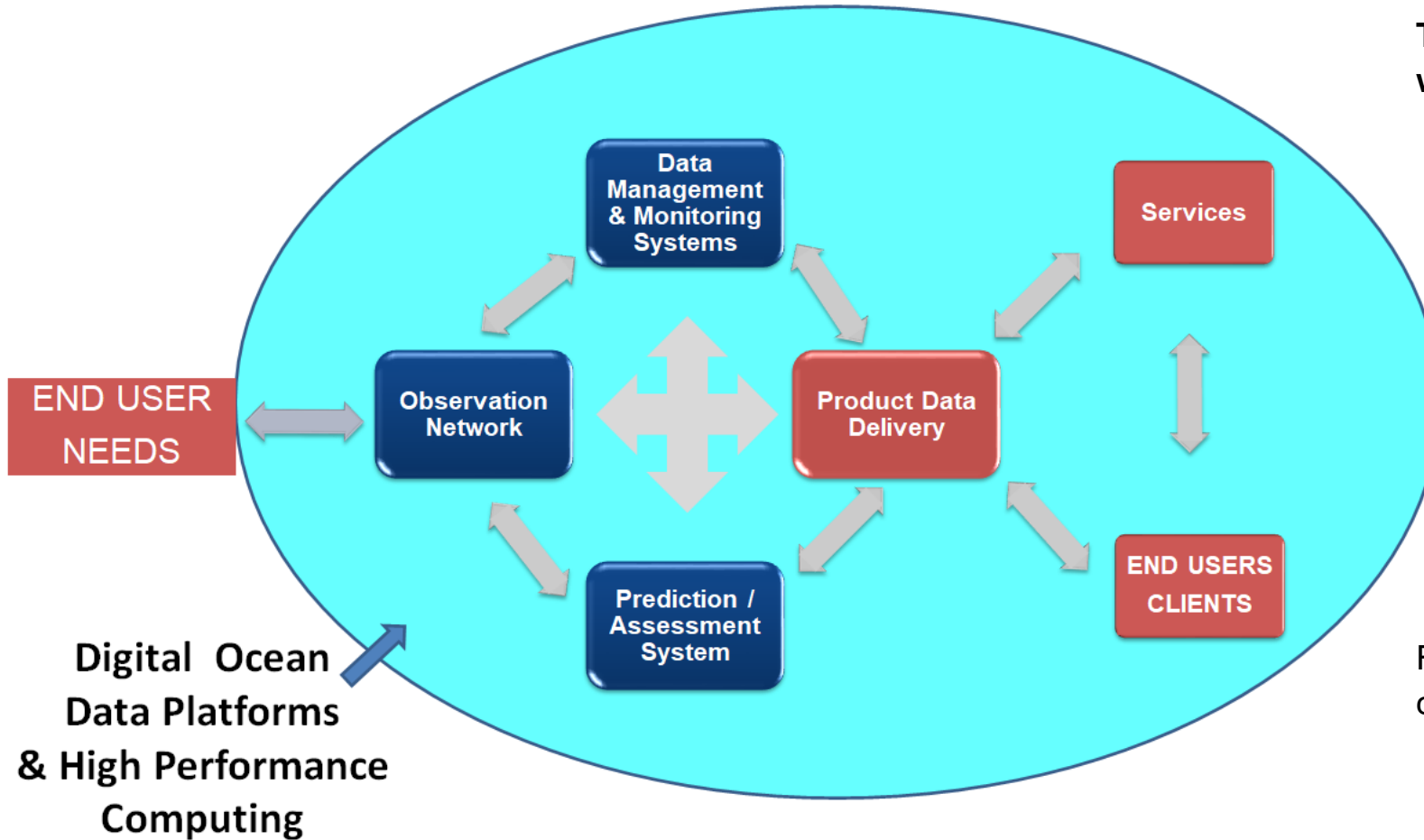
- Determine advisory board membership
- Determine first call
- Identify the ask of the advisory group

Advisory Board Membership		
Coast Predict		ForeSea
Bahurel, Pierre		Bahurel, Pierre
Di Giacomo, Paul		Di Giacomo, Paul
Aucan, Jerome		Entel, Mikhail
Bayler, Eric		Gaboury, Isabelle
Belov, Sergey		Jean, Michel
Benveniste, Jerome		Kumar, Srinivas
Breuch-Moritz Monika		
Calewaert, Jan-Bart		Fischer, Albert
De Bruin, Taco		Pinardi, Nadia
Deloney, Laurent		
Di Lorenzo, Emanuele		
Kurapov Alexander		
Lips, Inga		
Tanhua, Toste		
Valauri-Orton, Alexis		
Valdez, Luis		
Vinayachandran, P. N.		

Setting up a Framework for the Ocean Information Value Chain



- **What are the interconnections we need between value chain components**
 - Who is producing what?
 - Who needs what information and knowledge?
 - Who can provide information and knowledge?
 - What systems will facilitate knowledge and product access?
- **Research side, a strong supporting example is SYNOBS**
 - linking observation network and prediction system for the benefit of both
 - additional projects linking components of value chain would be good
- **Structurally to enable information flow and product access we need** —> next slide



To enable information flow and product access we need:

- a Digital Ocean Data Platform
- a suite of best practices that describe the activities that link the vari
- where feasible standardized data/product formats that enable access
 - example: dynamic E-Navigation charts (surface currents, sea surface height) have very detailed HDF5 formats
 - Standardised model output: enables easy conversion to E-NAV format. One group's code can server everyone for a similar need

ForeSeas goals for building an information value chain ... line up well with DCC agreed purpose:

- **Collaborative Framework for Decade Goals**
- **Interoperability & Standards**
- **DTO core platform support**
- **Piloting the Global Ocean Modelling and Forecasting System**

