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JERICO RI
SCIENCE - SERVICES - SUSTAINABILITY

The European Coastal Ocean Observing System

17+

Countries

JERICO comprises 17+ countries

39+

Partners

More than 39 partners are involved in the RI

676+

Platforms

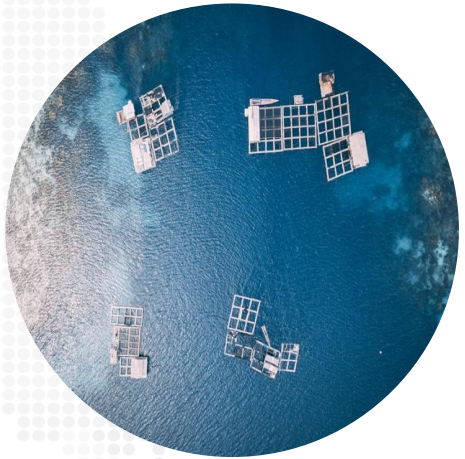
JERICO integrates more than 670 platforms

This project has received funding from the European Commission's Horizon 2020 Research and Innovation programme under grant agreements No 871153 and 951799. Project coordinator: IFREMER, France.

Current Situation

Managing Pressures

Pressure to develop Europe's coastal domains to maximise the blue economy in a sustainable manner are high.



Achieving sustainable development requirements good management at local, national, regional and international levels.

Managing Pressures

Europe's Coastal Seas face unprecedented pressure. Key threats include:

Climate change

Pollution

Over exploitation (fishing, resources etc)

Habitat destruction

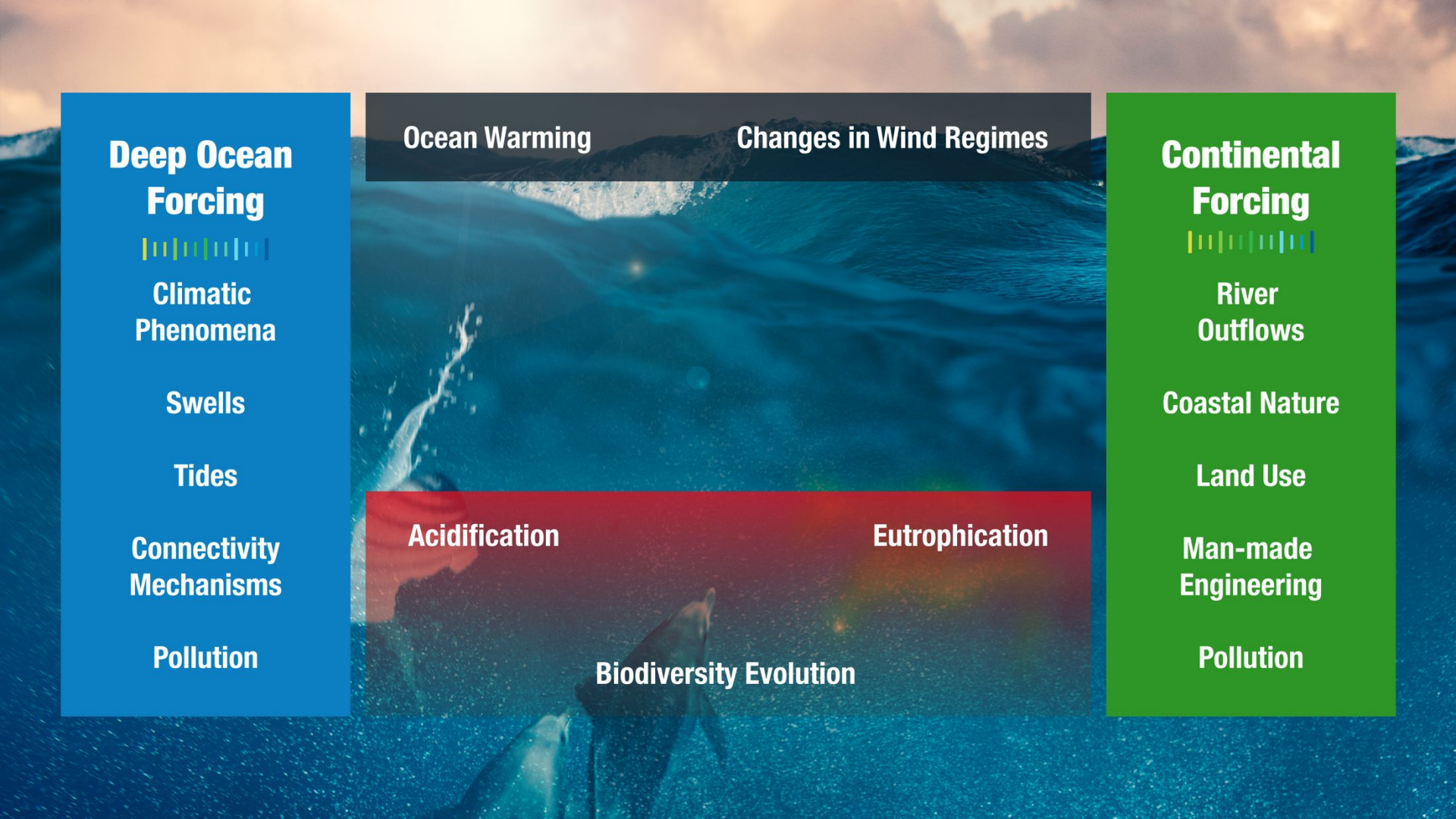
These threats not only harm the environment but also affect:

Human health

Food security

The economy

Regulation


Deep Ocean Forcing
Climatic Phenomena
Swells
Tides
Connectivity Mechanisms
Pollution
Ocean Warming
Changes in Wind Regimes
Acidification
Eutrophication
Biodiversity Evolution
Continental Forcing
River Outflows
Coastal Nature
Land Use
Man-made Engineering
Pollution

Policy Requirements

The need to manage and mitigate against the threats to Europe's coastal domains in a sustainable manner has resulted in a suite of National, European and International policy instruments including:

- **The Marine Strategy Framework Directive**
- **The Water Framework Directive**
- **The Common Fisheries Policy**
- **The Bathing Water Quality Directive**

European member states have an obligation to meets these policy requirements at **local**, **national**, **regional** and **international** levels.

The challenge…

…how hard is it?

Some big challenges

Monitoring the coastal seas is essential for sustainable development and meeting policy requirements, but it also presents a number of challenges, which include:

Vast size, diverse and dynamic area to be monitored

Spatial and temporal variability in physical and chemical parameters

Access to robust data and data products that can inform decisions at local, national and European levels

Data management and storage

Data integration of different sensors, models, formats, units, parameters spatial and temporal scales across and within regions

Some big challenges

Monitoring the coastal seas is essential for sustainable development and meeting policy requirements, but it also presents a number of challenges, which include:

Deployment and maintenance of sensors

Quality assurance of data from sensors and models

The data are large and complex and require experts to interpret or produce products for stakeholders

Lack of standardisation of methods and defined best practices

National, regional and international cross-discipline collaboration is required

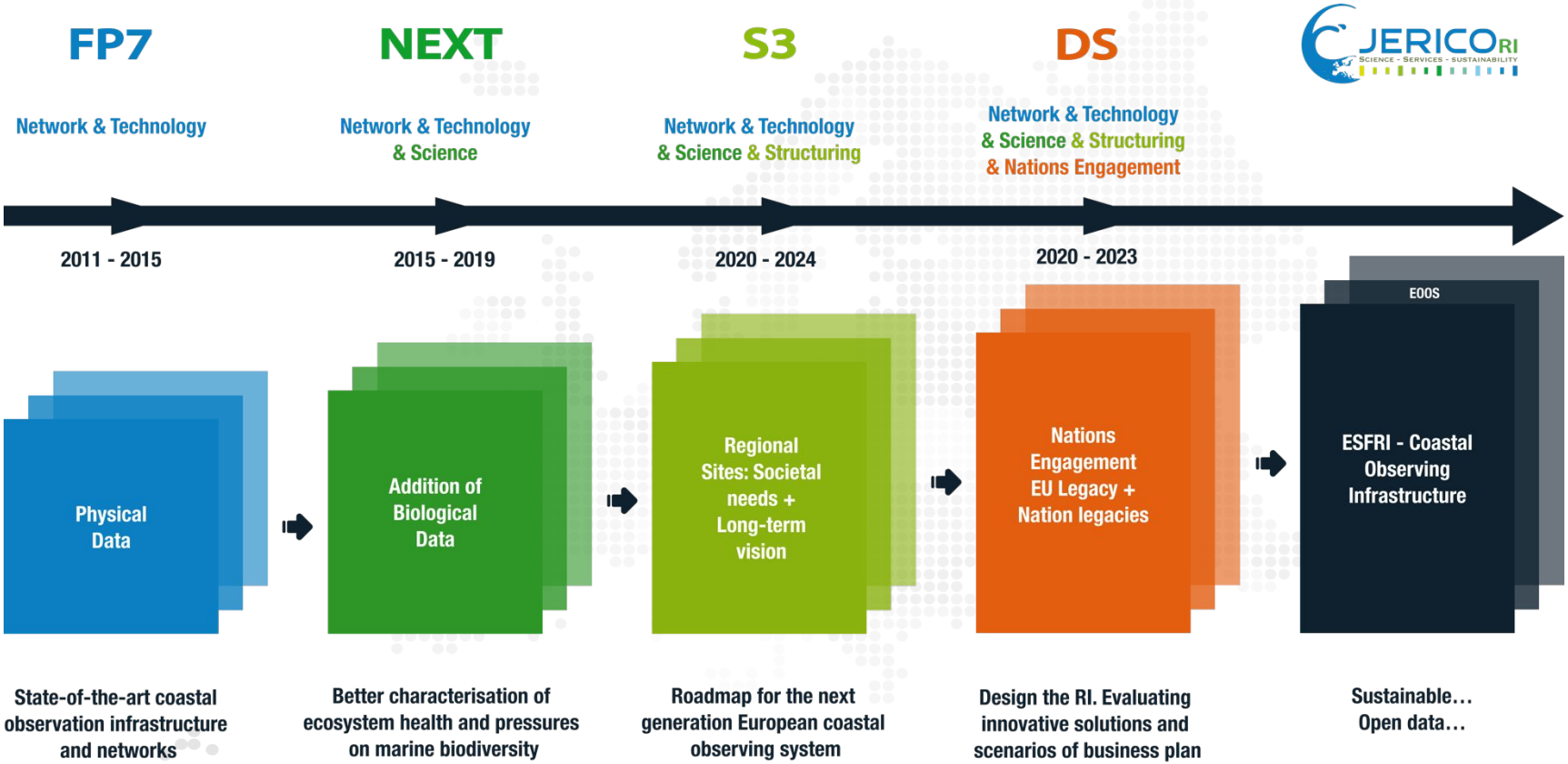
How do we deal with it?

Managing pressures and meeting policy requirements

Managing these threats, achieving sustainable development, and meeting National, European and International policy obligations requires:

- Long-term, sustainable and geographically extensive coastal monitoring
- Complex models capable of forecasting at local and regional scales
- FAIR Access to high-quality and comprehensive data and data products
- Scientific research to better understand complex coastal ecosystems and the impacts of natural and anthropogenic changes at local, national and regional scales
- Capacity building and knowledge transfer
- Excellence in calibration – Best Practices – Standardisation and Harmonisation

Building the Research Infrastructure



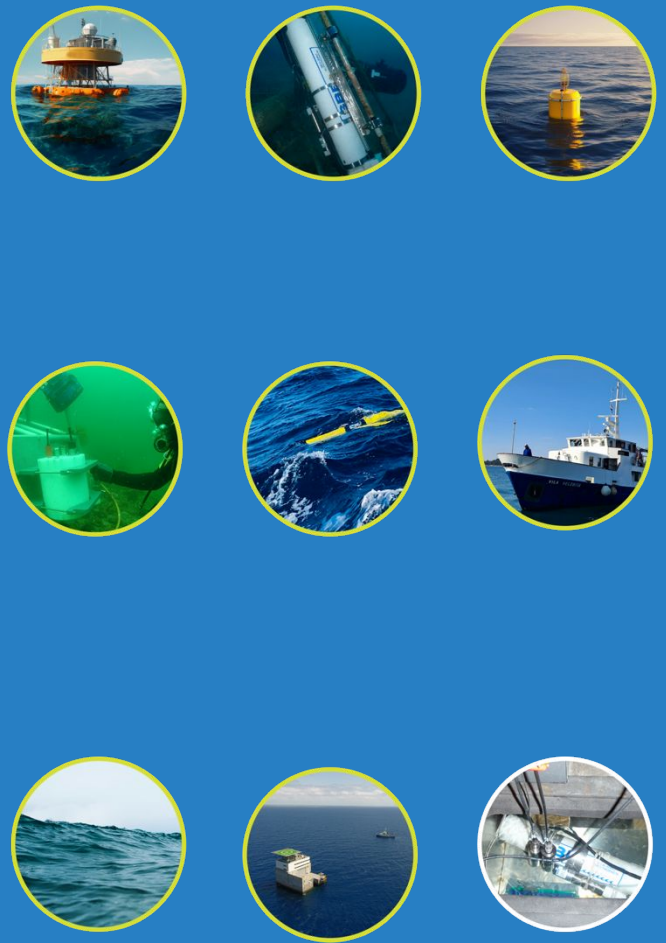
The solution

The JERICO Research Infrastructure

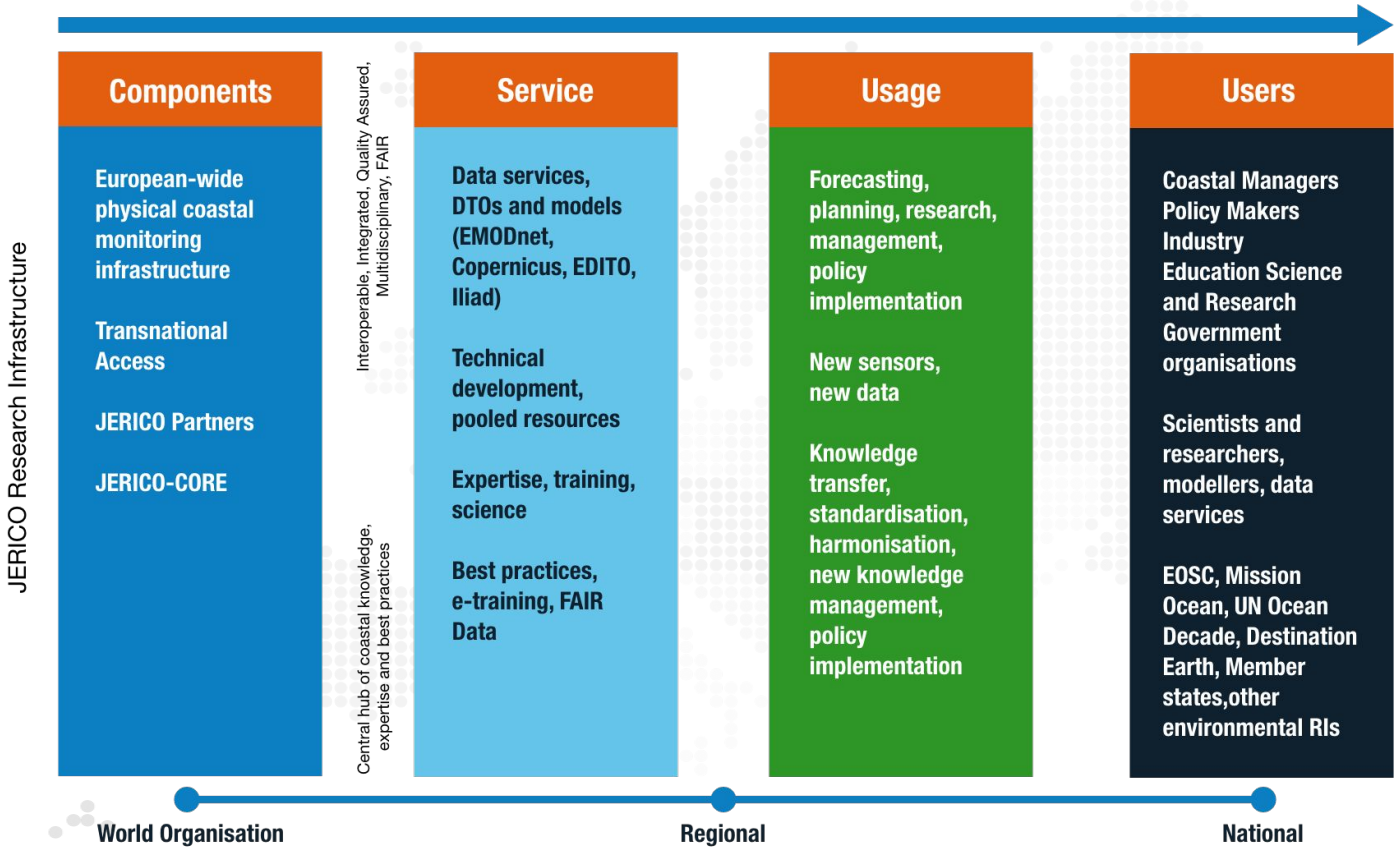
- JERICO-RI is an integrated pan-European multidisciplinary and multi-platform research infrastructure dedicated to a holistic appraisal of coastal marine system changes.

- It is seamlessly bridging existing continental, atmospheric and open ocean RIs, thus filling a key gap in the ESFRI landscape. JERICO-RI establishes the framework upon which coastal marine systems are observed, analysed, understood and forecasted.

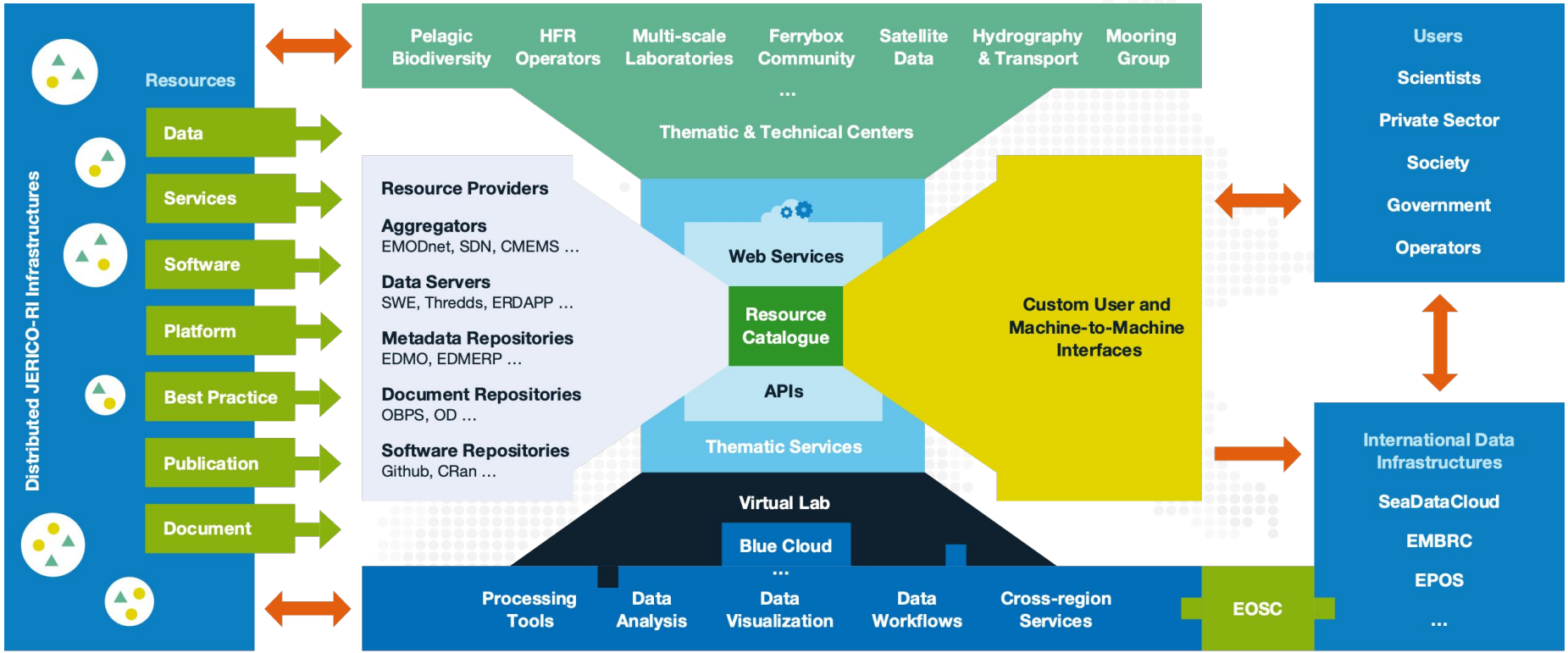
- JERICO-RI enables open-access to state-of-the-art and innovative facilities, resources, FAIR data and fit-for-purpose services, fostering international science collaboration.

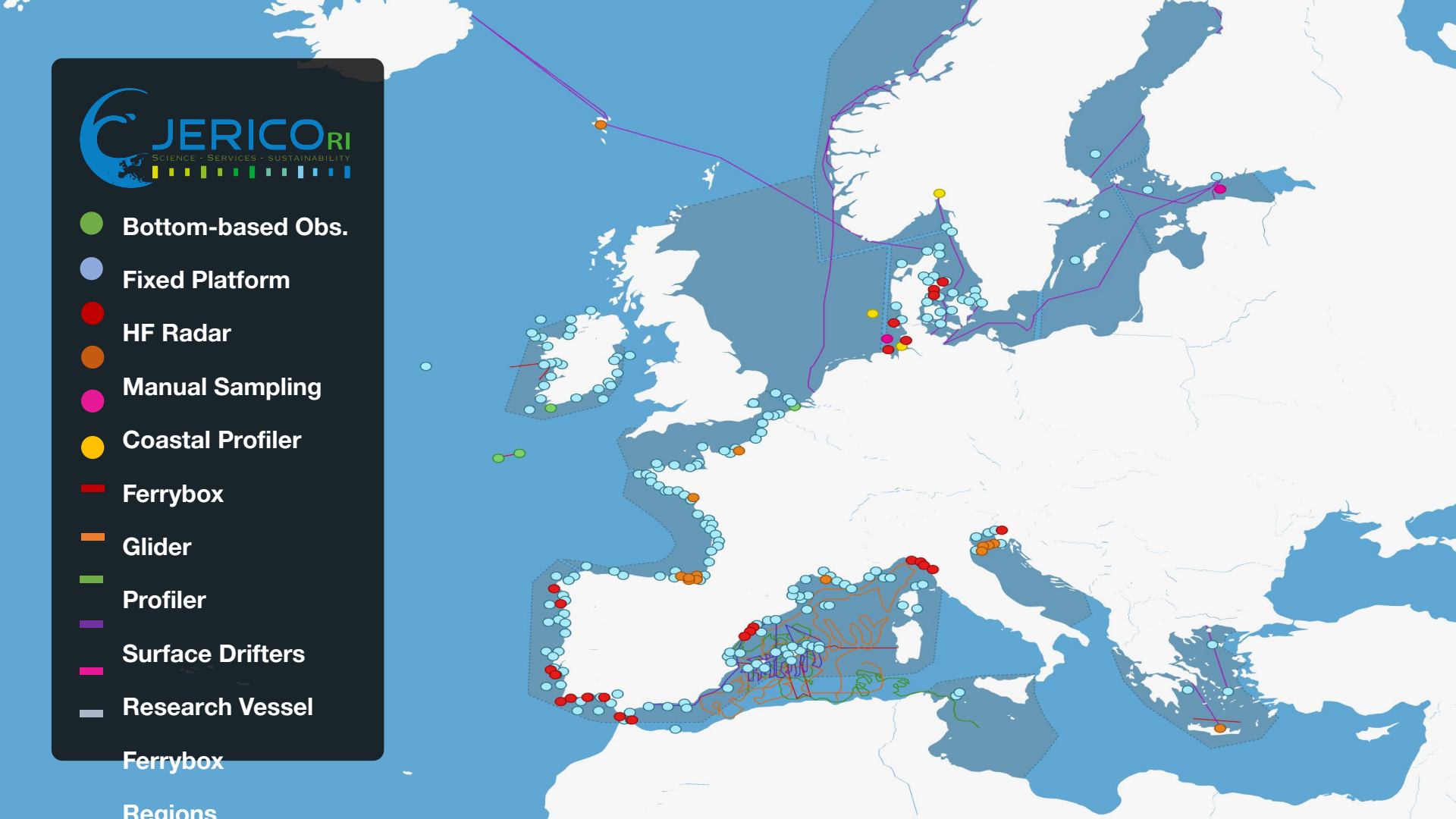


Overview


JERICO Research Infrastructure
Components
European-wide physical coastal monitoring infrastructure
Transnational Access
JERICO Partners
JERICO-CORE
Interoperable, Integrated, Quality Assured, Multidisciplinary, FAIR
Central hub of coastal knowledge, expertise and best practices
Service
Data services, DTOs and models (EMODnet, Copernicus, EDITO, Iliad)
Technical development, pooled resources
Expertise, training, science
Best practices, e-training, FAIR Data
Usage
Forecasting, planning, research, management, policy implementation
New sensors, new data
Knowledge transfer, standardisation, harmonisation, new knowledge management, policy implementation
Users
Coastal Managers
Policy Makers
Industry
Education Science and Research
Government organisations
Scientists and researchers, modellers, data services
EOSC, Mission Ocean, UN Ocean Decade, Destination Earth, Member states,other environmental RIs
World Organisation
Regional
National

Overview


Distributed JERICO-RI Infrastructures
Resources
Data
Services
Software
Platform
Best Practice
Publication
Document
Pelagic Biodiversity
HFR Operators
Multi-scale Laboratories
Ferrybox Community
Satellite Data
Hydrography & Transport
Mooring Group
...
Thematic & Technical Centers
Resource Providers
Aggregators
EMODnet, SDN, CMEMS ...
Data Servers
SWE, Thredds, ERDAPP ...
Metadata Repositories
EDMO, EDMERP ...
Document Repositories
OBPS, OD ...
Software Repositories
Github, CRan ...
Web Services
Resource Catalogue
APIs
Thematic Services
Custom User and Machine-to-Machine Interfaces
Virtual Lab
Blue Cloud
...
Processing Tools
Data Analysis
Data Visualization
Data Workflows
Cross-region Services
EOSC
Users
Scientists
Private Sector
Society
Government
Operators
International Data Infrastructures
SeaDataCloud
EMBRC
EPOS
...


JERICO RI
SCIENCE - SERVICES - SUSTAINABILITY
Bottom-based Obs.
Fixed Platform
HF Radar
Manual Sampling
Coastal Profiler
Ferrybox
Glider
Profiler
Surface Drifters
Research Vessel
Ferrybox
Regions

JERICO as a Solution for Coastal Management and Policy Requirements

- A dedicated coastal science, monitoring and management research infrastructure
- Extensive network of almost 700 platforms monitoring Europe's vast coastline, spanning 19 countries covering 13 regions
- 39 partners made up of scientists, modellers, technicians, and stakeholders who provide a central hub of coastal expertise within individual member states and across Europe.
- Defines best practices, standardisation, quality assurance, and harmonisation of data collection, treatments and products.
- Provides capacity building and knowledge transfer

JERICO as a Solution for Coastal Management and Policy Requirements

- Provides FAIR Access to high-quality data and data products at local, national and European scales
- Provides virtual access to specific datasets and model products
- Provides transnational access to part of its vast infrastructure

Has a clear scientific strategy for:

- Assessing & predicting changes under the influence of global and local drivers
- Assessing the impact of climate change and extreme events
- Unravelling the impacts of natural and anthropogenic changes

JERICO in the National Landscape

JERICO in the European Landscape

JERICO in the European Landscape

- JERICO is the coastal arm of Europe's vast environmental data and services landscape.

Already a long-term provider to EMODnet and Copernicus, it will be a significant contributor to:

- Europe's emerging European Digital Twins of the Ocean (EDITO)
- The innovative digitals twins for end users developed under H2020 Iliad
- The Destination Earth (DestinE) flagship initiative
- EU Mission: Restore our Ocean and Waters

EDITO European Digital Twin Ocean

Iliad

JERICO in the European Landscape

- JERICO will provide coastal components to the European Open Science Cloud (EOSC)
- JERICO-CORE is an endorsed project of the CoastPredict programme under the United Nations Decade of the Ocean
- The services provided by JERICO are available for national partners and stakeholders and continue to support coastal management, policy implementation and sustainable development at National, Regional and International levels.

Summary

The JERICO-RI is an essential tool for:

- Coastal management and sustainable development in Europe
- Providing high-quality marine observations
- Supporting policy frameworks
- Contributing to the blue economy

Its network of observatories and data management tools to enable researchers, policymakers, and stakeholders to make informed decisions and take effective actions to protect Europe's coastal seas.

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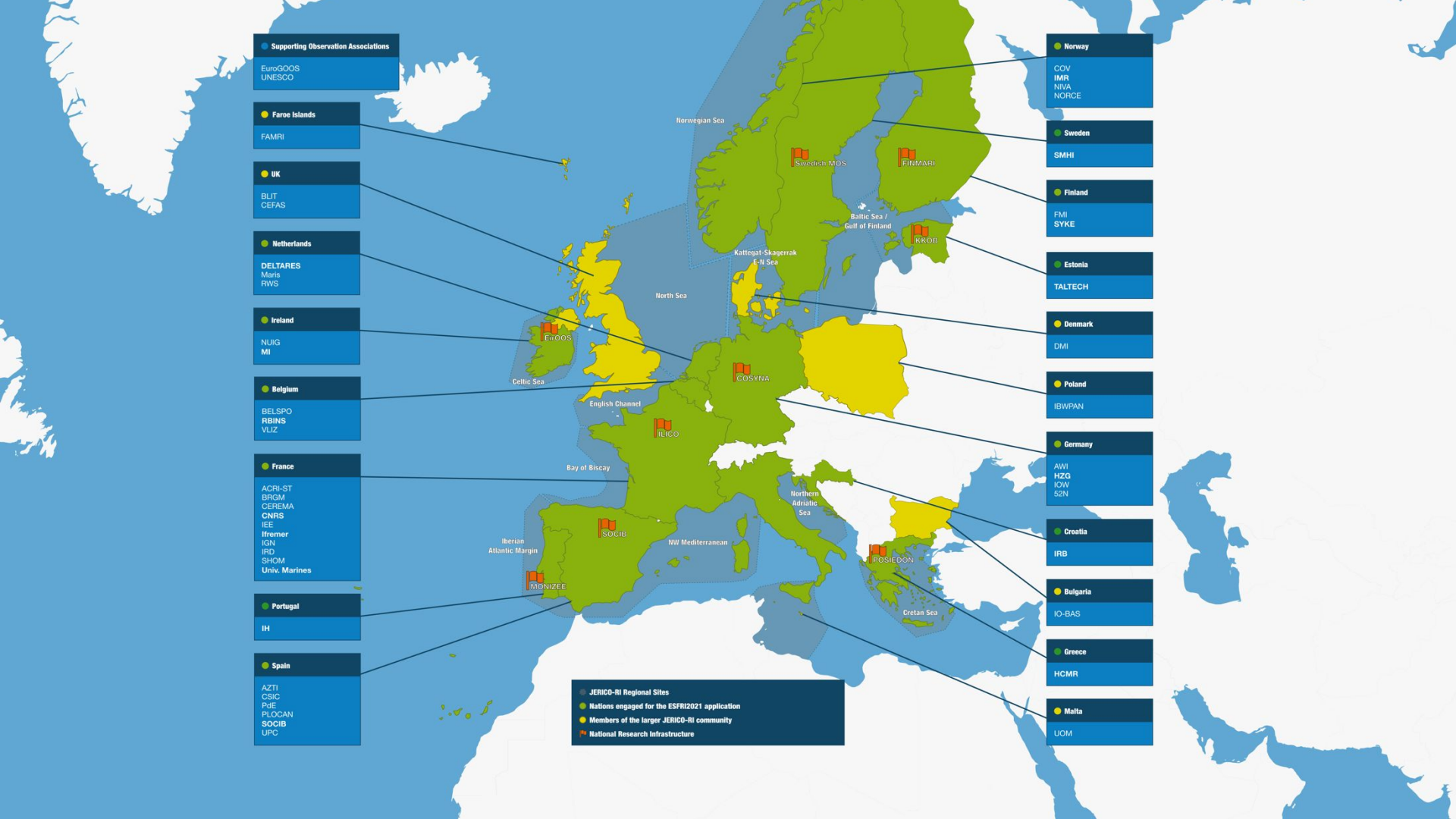

Supporting Observation Associations
EuroGOOS
UNESCO
Faroe Islands
FAMRI
UK
BLIT
CEFAS
Netherlands
DELTARES
Maris
RWS
Ireland
NUIG
MI
Belgium
BELSPO
RBINS
VLIZ
France
ACRI-ST
BRGM
CEREMA
CNRS
IEE
Ifremer
IGN
IRD
SHOM
Univ. Marines
Portugal
IH
Spain
AZTI
CSIC
PdE
PLOCAN
SOCIB
UPC
Norway
COV
IMR
NIVA
NORCE
Sweden
SMHI
Finland
FMI
SYKE
Estonia
TALTECH
Denmark
DMI
Poland
IBWPAN
Germany
AWI
HZG
IOW
52N
Croatia
IRB
Bulgaria
IO-BAS
Greece
HCMR
Malta
UOM
Norwegian Sea
Swedish MOS
FINMARI
Baltic Sea / Gulf of Finland
KKOB
Kattegat-Skagerrak E-N Sea
North Sea
EuroGOOS
COSYNA
Celtic Sea
English Channel
ILICO
Bay of Biscay
Northern Adriatic Sea
SOCIB
Iberian Atlantic Margin
NW Mediterranean
POSEIDON
MONIZEE
Cretan Sea
JERICO-RI Regional Sites
Nations engaged for the ESFRI2021 application
Members of the larger JERICO-RI community
National Research Infrastructure

Towards Internal and External Services

Key (internal) activities:

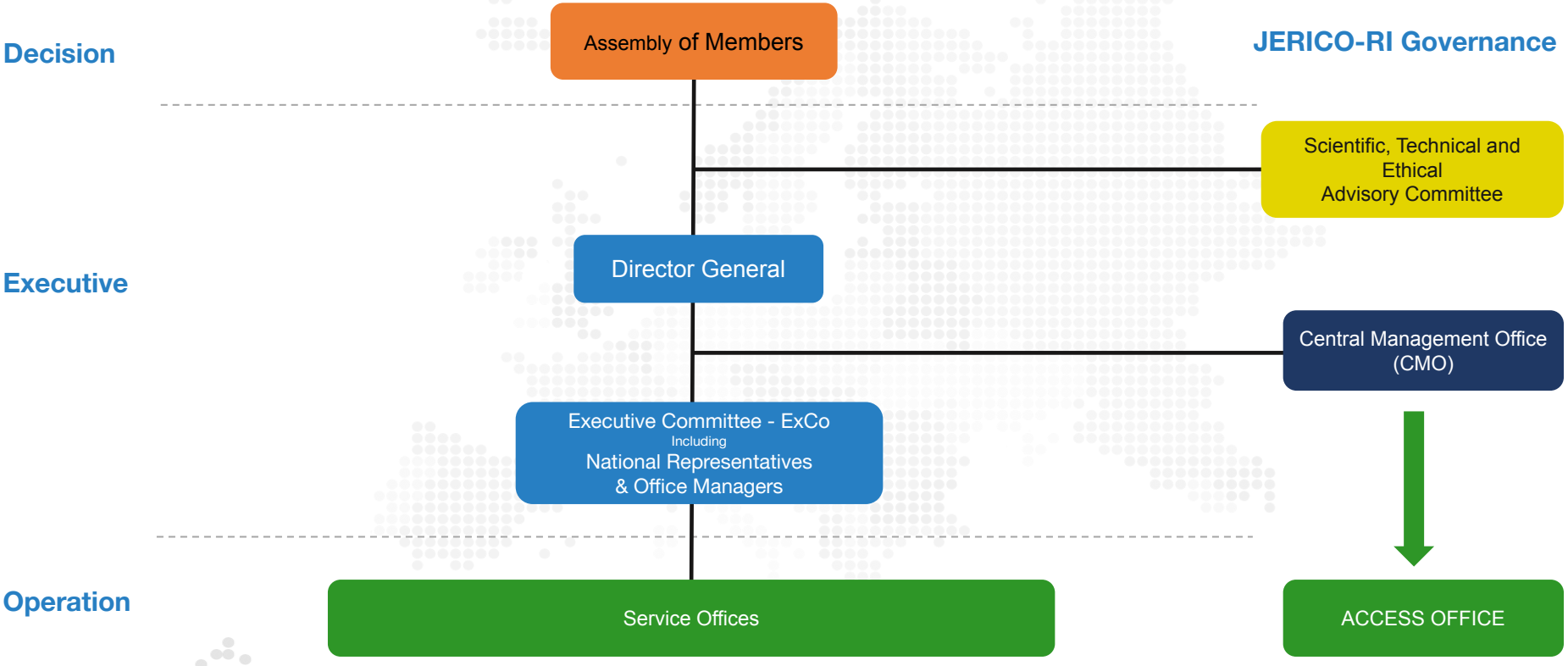
For ensuring that we can provide pan-European services

- Common working method, harmonization, protocols, standards, good practices
- Pan-European coastal observation strategy (science, regionalization)
- Interoperability (e.g. easy data aggregation, etc.)
- New technologies
- Modeling working group

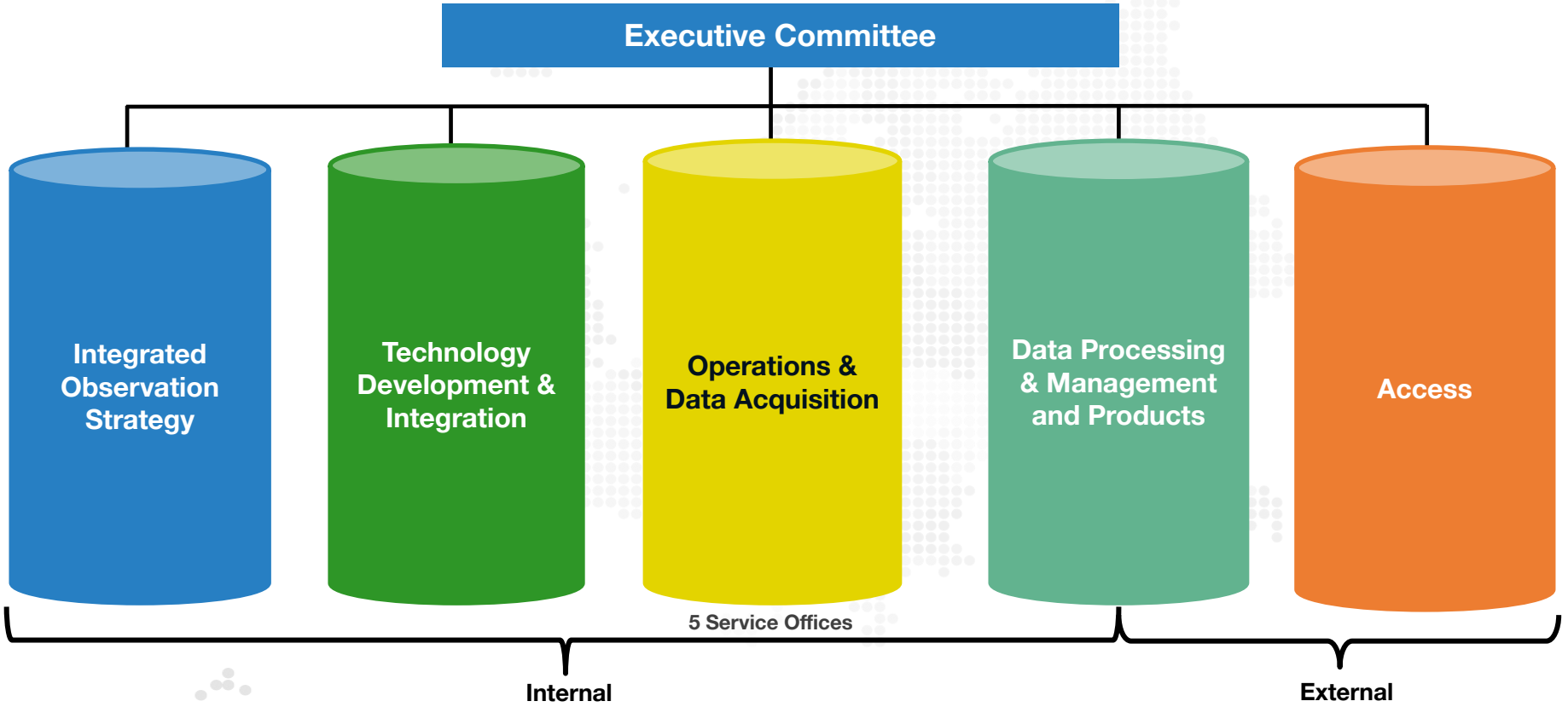
User-targeted services (external), enabled by internal activities:

- Data/Datasets
- Transnational access (51 facilities available)
- Virtual Access (20 VAs available)
- Advanced products supporting the DTO, Copernicus, ESA
- Joint actions with other IRs
- Link to coastal data providers (national level monitoring, industry, citizen science, etc.)
- Promote coastal ecosystem services
- Biodiversity (conservation, restoration)
- Impact of extreme events
- Impact of climate change

Governance Structure

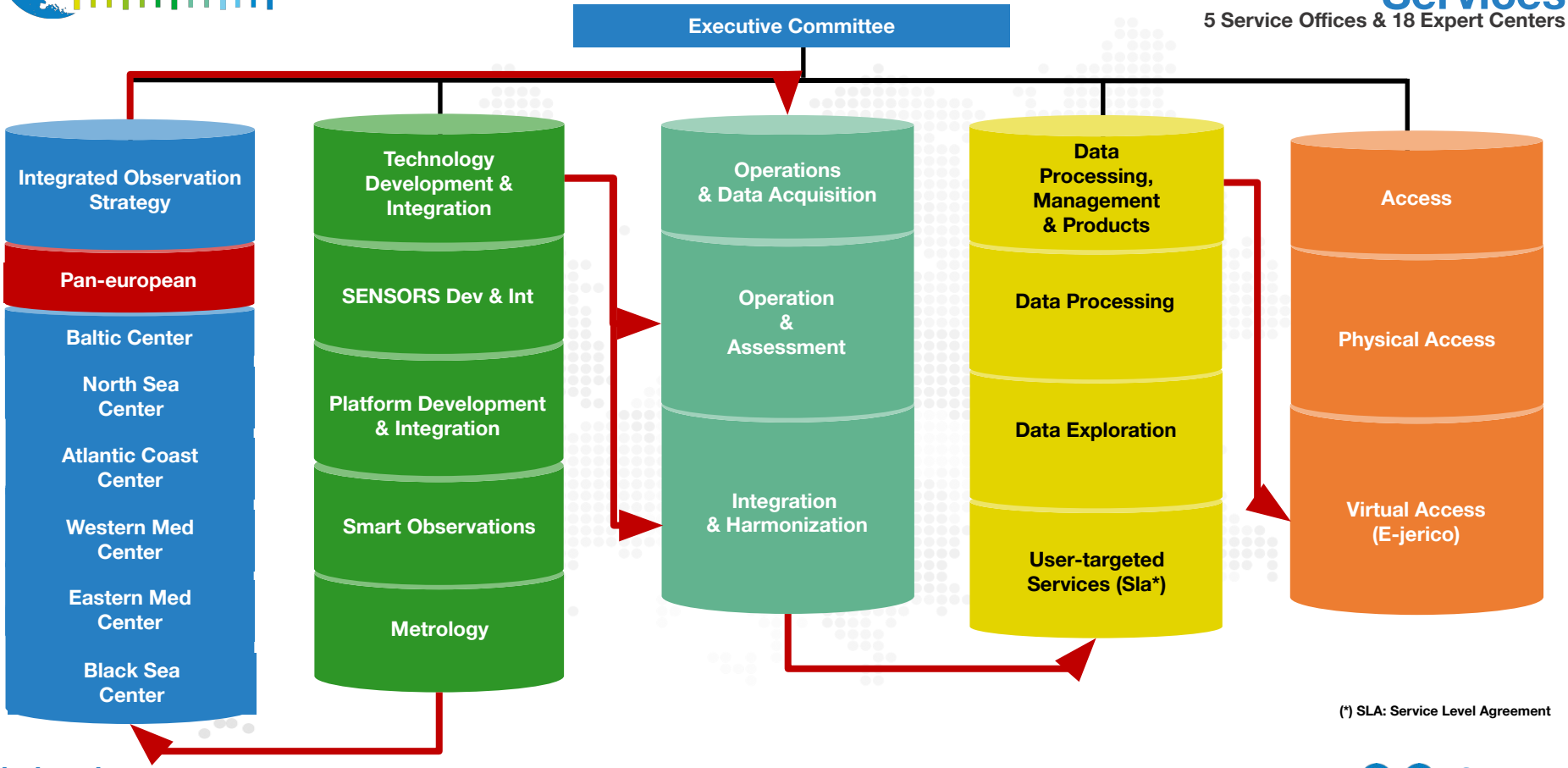


Dynamic Service Management



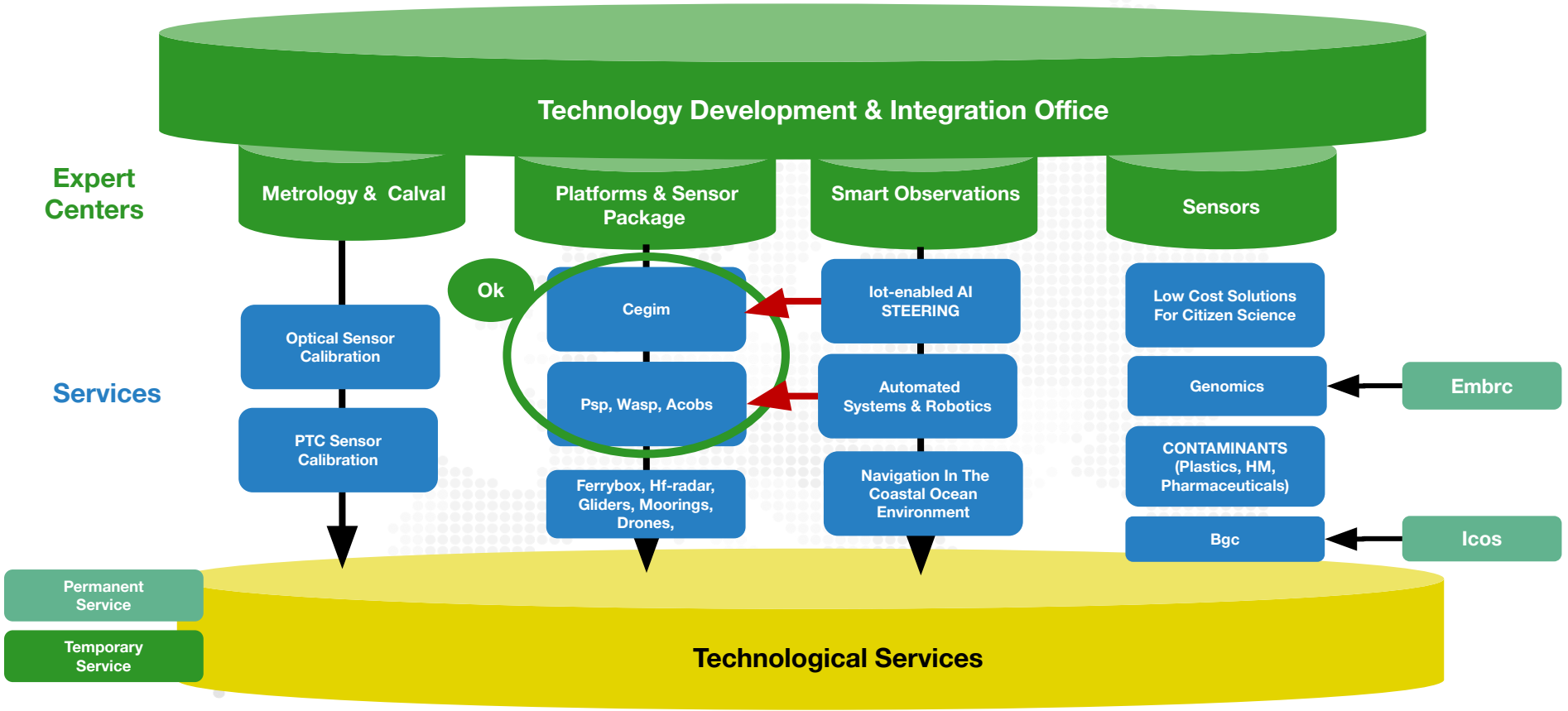
Dynamic Management of Expert Centers and Services

5 Service Offices & 18 Expert Centers

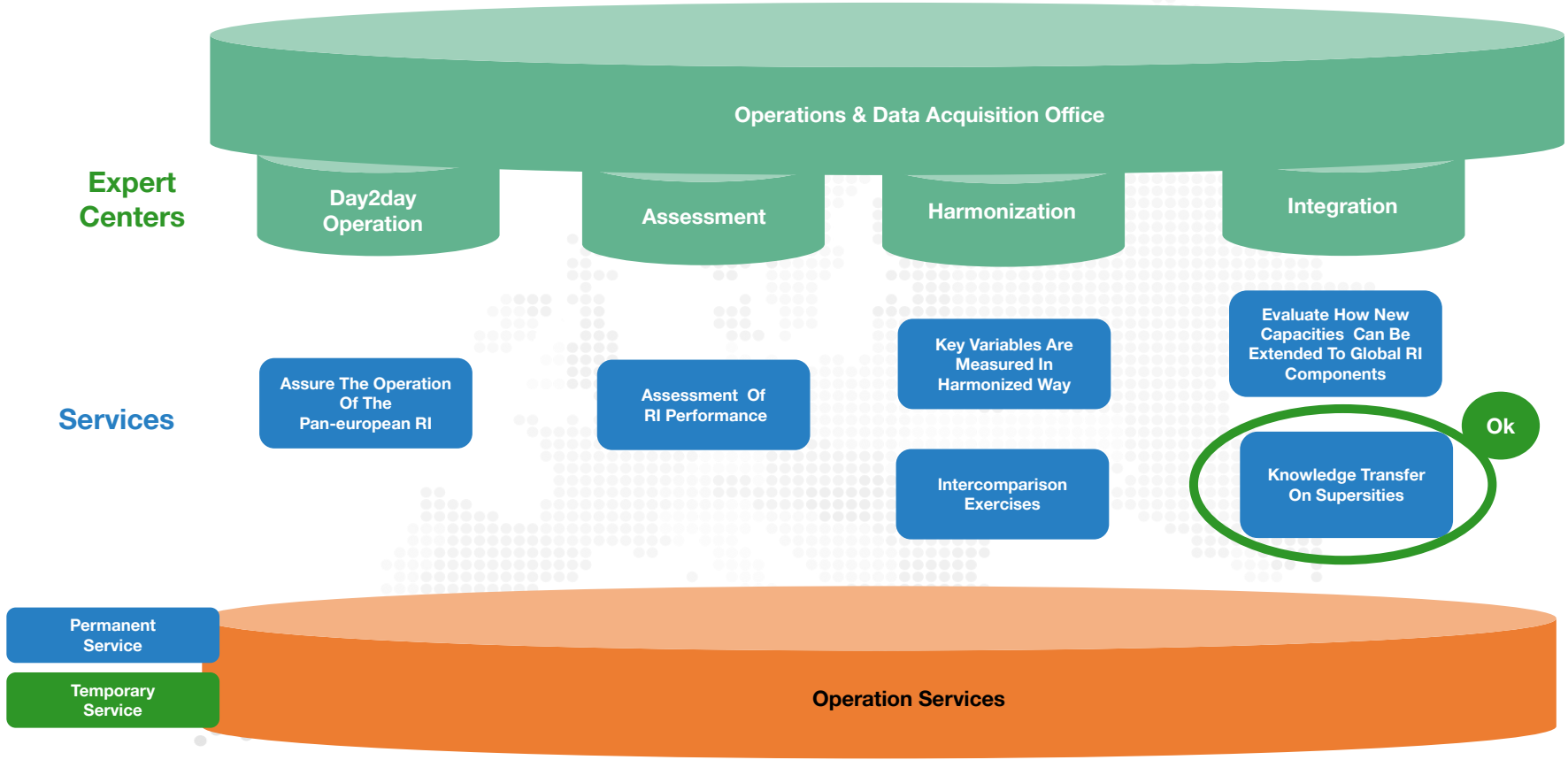


(*) SLA: Service Level Agreement

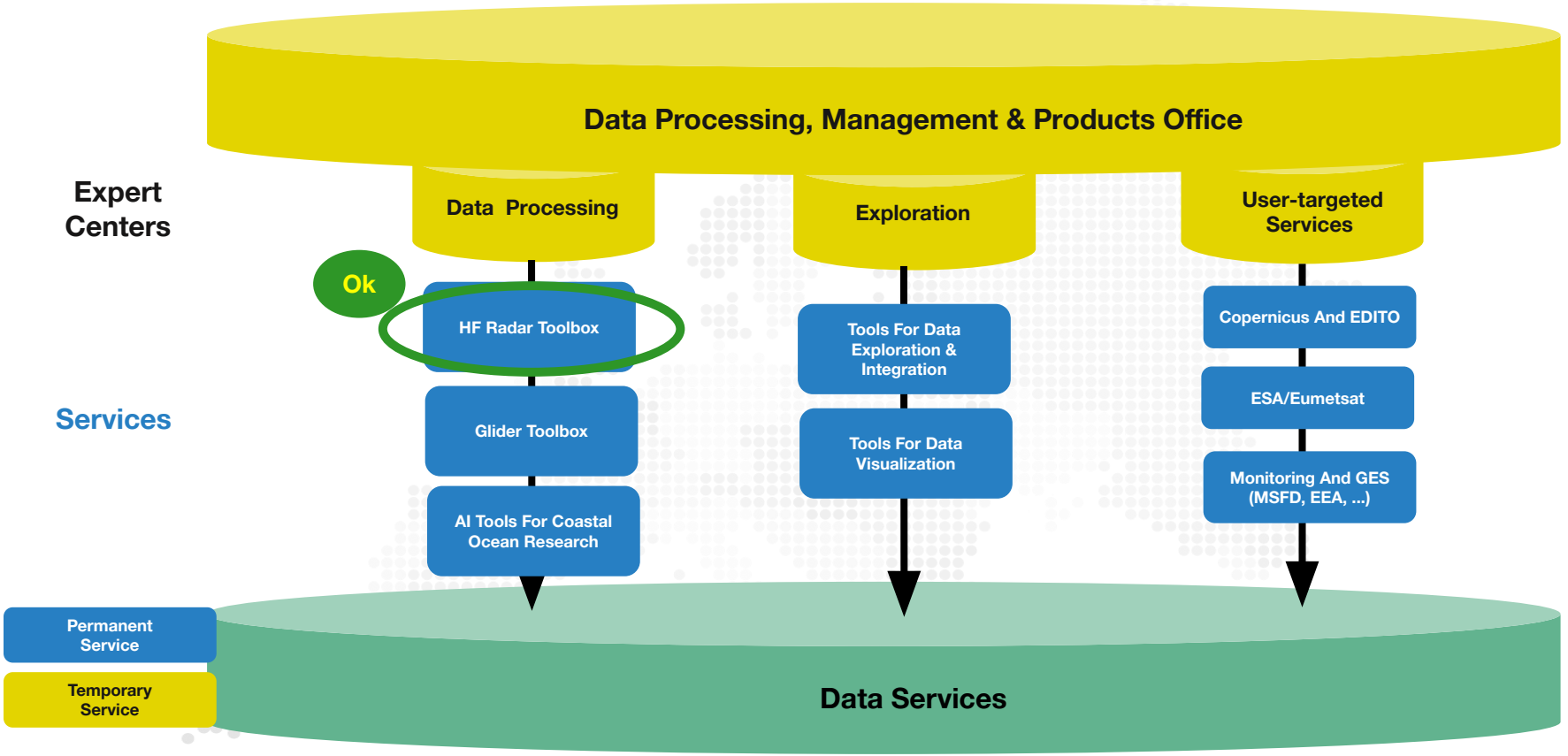
Technological Services



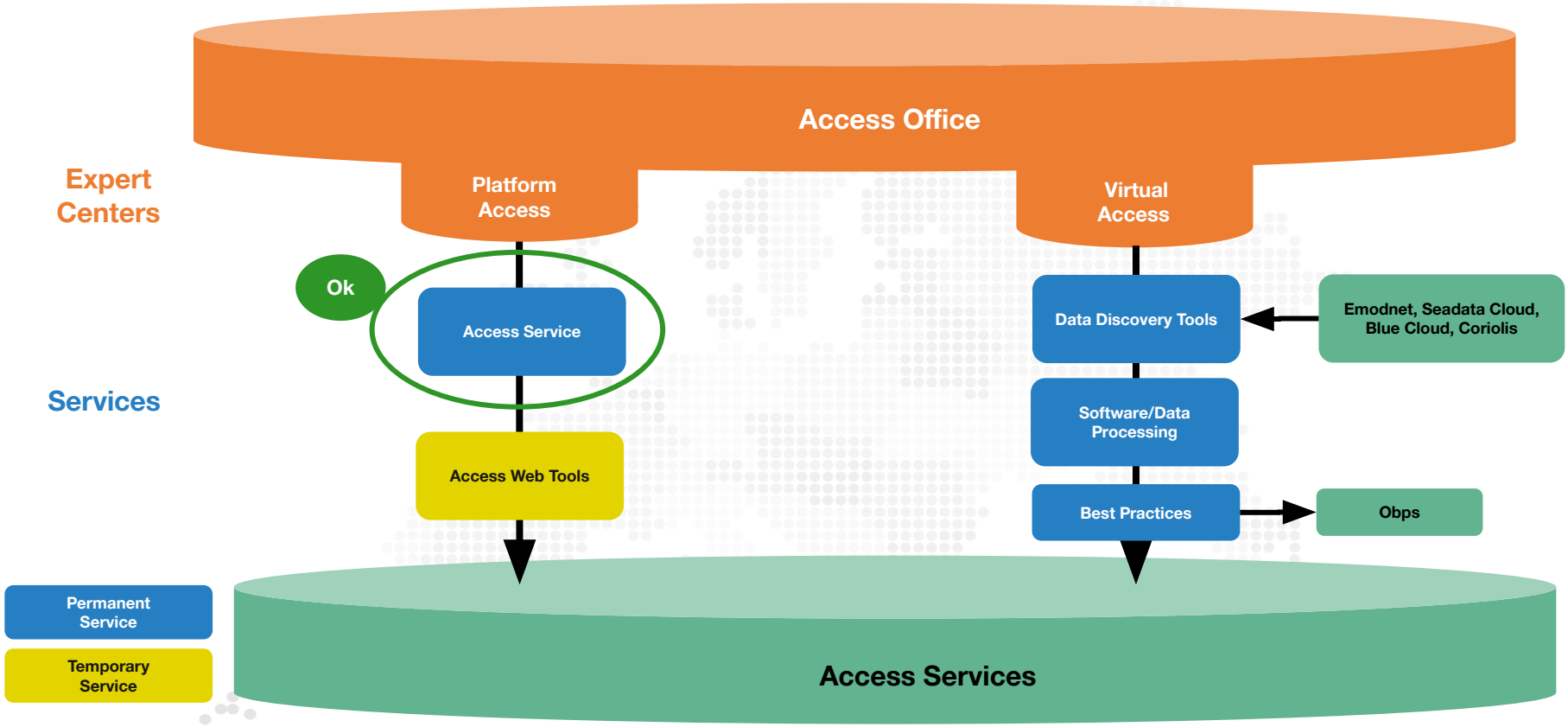
Operations Services



Data Services



Access Services



Ontology

Governance: The system by which an organization makes and implements decisions to achieve its goals.

Assembly of members: One representative from each member state (the national delegate) that may be accompanied by one or more advisors. The national delegate is appointed by the member state.

Scientific, Technical and Ethical Advisory Committee: A collegial body appointed according to specific rules to provide advices to JERICO´s governing bodies. The AC is an independent body. The AC is appointed by the assembly of members following the proposal of the ExCo.

Director General: The legally responsible Head of JERICO-RI appointed by the assembly of members for a fixed period.

Executive Committee: A collegial body including the Nation Infrastructure Representative elected from their national peers, according to specific rules & offices managers, for the operation and management of the JERICO-RI.

Office: Performs the managerial function of planning, organizing, directing and controlling (an office can be distributed or centralized).

Central Management Office: Performs the administrative functions of JERICO-RI (legal, contract, financial accounting, HR, etc).

Ontology

Each Service Office manages different Expert Centres all related to one area of service.

Expert Centre: A group experts responsible for discussion and strategy within some specific key scientific or technological domains, needed for activities and the generation and operation of specific centers. An expert center can be virtual or physical.

Services: Actions and activities carried out for the benefit of targeted users and providing assistance to these users. They can be internal if addressing internal needs of the JERICO-RI or external when addressing JERICO-RI external user needs.

Ontology

The highest level of governance in JERICO_RI will be the **Assembly of Members** who have the ultimate decision making powers of JERICO-RI.

The Assembly of Members will be advised by the **Scientific, Technical and Ethical Advisory Committee** of independent experts.

The **Director General** will report to the **Assembly of Members** on the strategic, scientific, legal, financial and operational aspects of JERICO-RI.

The Director General will be supported in these activities by the **JERICO-RI Central Management Office** which performs the administrative functions of JERICO-RI (legal & contract, financial accounting, HR services, etc)

The Executive Committee will be responsible for the operation and management of JERICO-RI and report to the **Director General**.

The Executive Committee will also be supported by the **Central Management Office**.

Ontology

The operations and management of JERICO-RI that the **Executive Committee** are responsible for are the **Offices providing the JERICO-RI Services**.

The **Executive Committee** has the power to establish or discontinue an **Office** subject to the agreement of the **Assembly of Members**.

The **Executive Committee** will be composed of one **“Head of Country”** delegate appointed by each **Member State** and one delegate elected from **each Office**.

Ontology

Each **Services Office** will consist of one or more **Expert Centres**.

Each Services **Office** has the power to establish or discontinue an **Expert Centre** under its control subject to the agreement of the **Executive Committee**.

Each **Office** will elect one delegate to the **Executive Committee** from amongst its membership to represent the Office's interests.

Each **Expert Centre** will provide one or more **Services**.

Each **Expert Centre** has the power to establish or discontinue a **Service** subject to the agreement of the relevant **Office**.

Ontology

Reminder: Ultimately JERICO-RI will be governed at the highest level by the **Member States** that have joined JERICO-RI.

The **governance system** that each **Member States** adopts internally **is a matter for each individual Member State**.

1. Each **Member State** appoints a **national delegate** to the **Assembly of Members**.
2. It is proposed that each **Member State** appoints one **"Head of Country"** delegate as its country's representative to the **JERICO-RI Executive Committee**.
3. It is proposed that each **Member State** also appoints at least one **delegate** to each **Office**.