GESTIONE E PREVENZIONE
DEL RISCHIO COSTIERO
DI UN TERRITORIO
IN EVOLUZIONE

PISA 8 OTTOBRE 2019

Scuola Normale Superiore
Piazza dei Cavalieri
9:00 - 17:30

Il contributo del programma *Copernicus* al monitoraggio e alla gestione del rischio costiero

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CONSORZIO LaMMA

Regione Toscana

La cooperazione al cuore del Mediterraneo

Interreg
UNIONE EUROPEA
MARITTIMO-IT FR-MARITIME
Fondo Europeo di Sviluppo Regionale

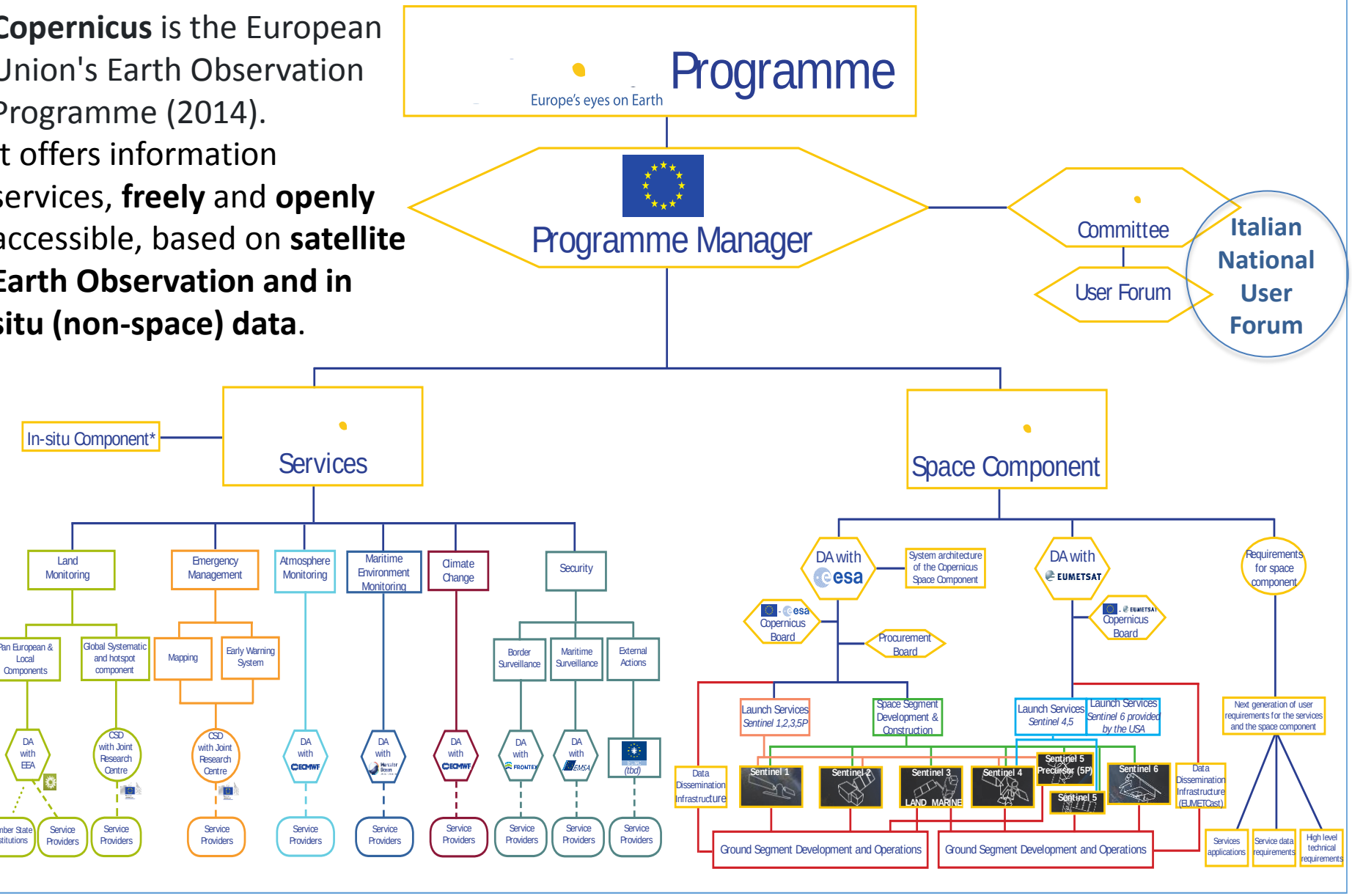
MAREGOT

ISPRA
Istituto Superiore per la Protezione e la Ricerca Ambientale

Sistema Nazionale per la Protezione dell'Ambiente

REGULATION (EU) No 377/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 3 April 2014 establishing the Copernicus Programme

Copernicus is the European Union's Earth Observation Programme (2014).
It offers information services, **freely** and **openly** accessible, based on **satellite Earth Observation and in situ (non-space) data**.



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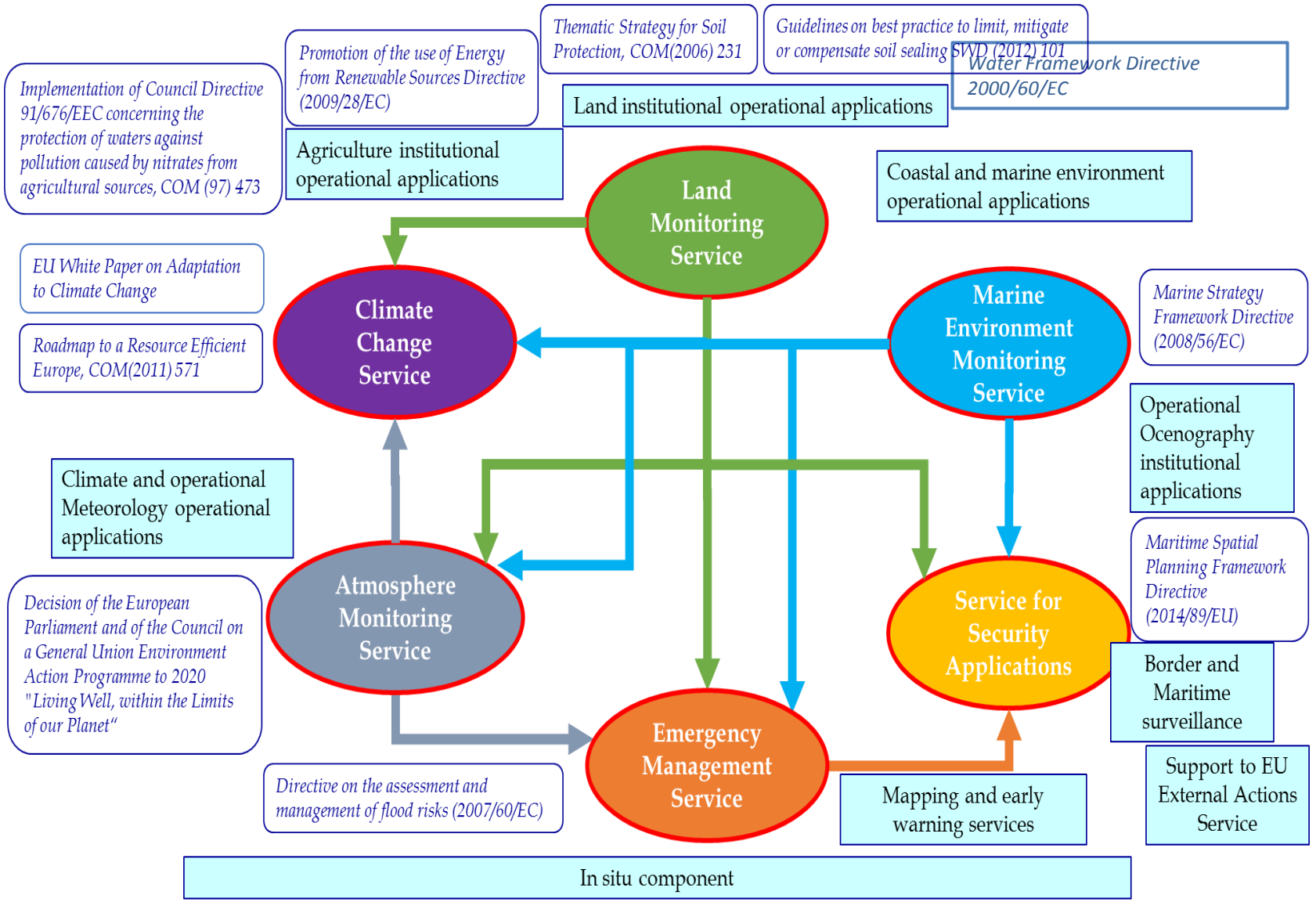
Copernicus has been specifically designed to meet user requirements. The Copernicus services deliver near-real-time data on a global level

DOWNSTREAM SERVICE



The Copernicus programme is now operational and already demonstrates large benefits for intermediate & end-users.

Operational Copernicus programme

Operational DIAS

Downstream: Intermediate users

- Pre-processing
- Analysis
- Access to high and very high resolution imagery
- Value Added Services
- Fusion of EO imagery with other sources of data
- Display

"EO experts"

Non-space community: End users

- Input EO-based products in their activities
- Very specific operational needs

"Non-EO experts"

Data and Information Access Services

Summary

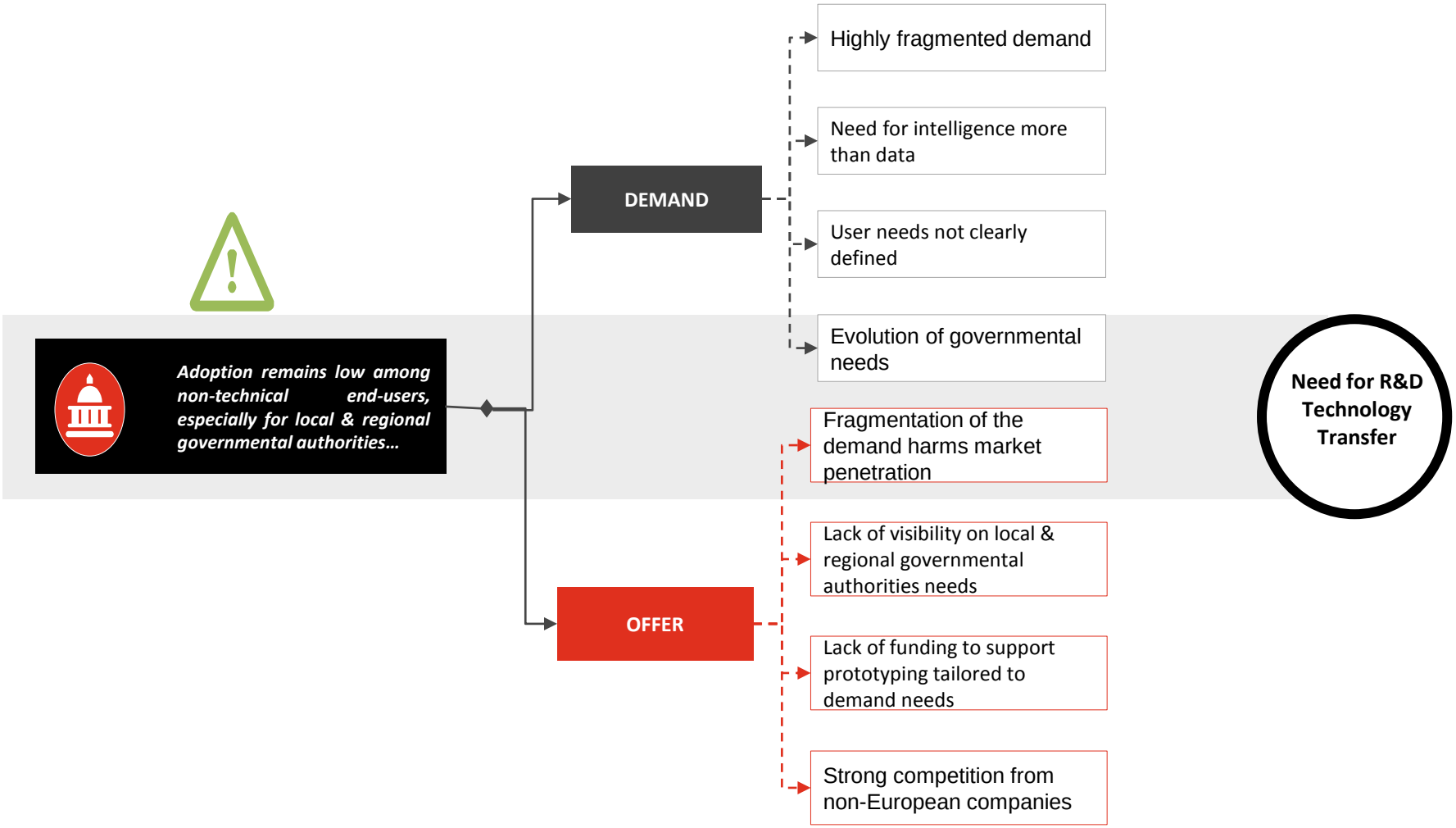
The Copernicus programme, and its 6 core services, is now operational and demonstrates already strong benefits:

- Intermediate users in Europe: EUR 168 M (2018) and EUR 226 M (2020)*
- End-users in Europe: EUR 2 700 M (2018) and EUR 3 500 M (2020)*

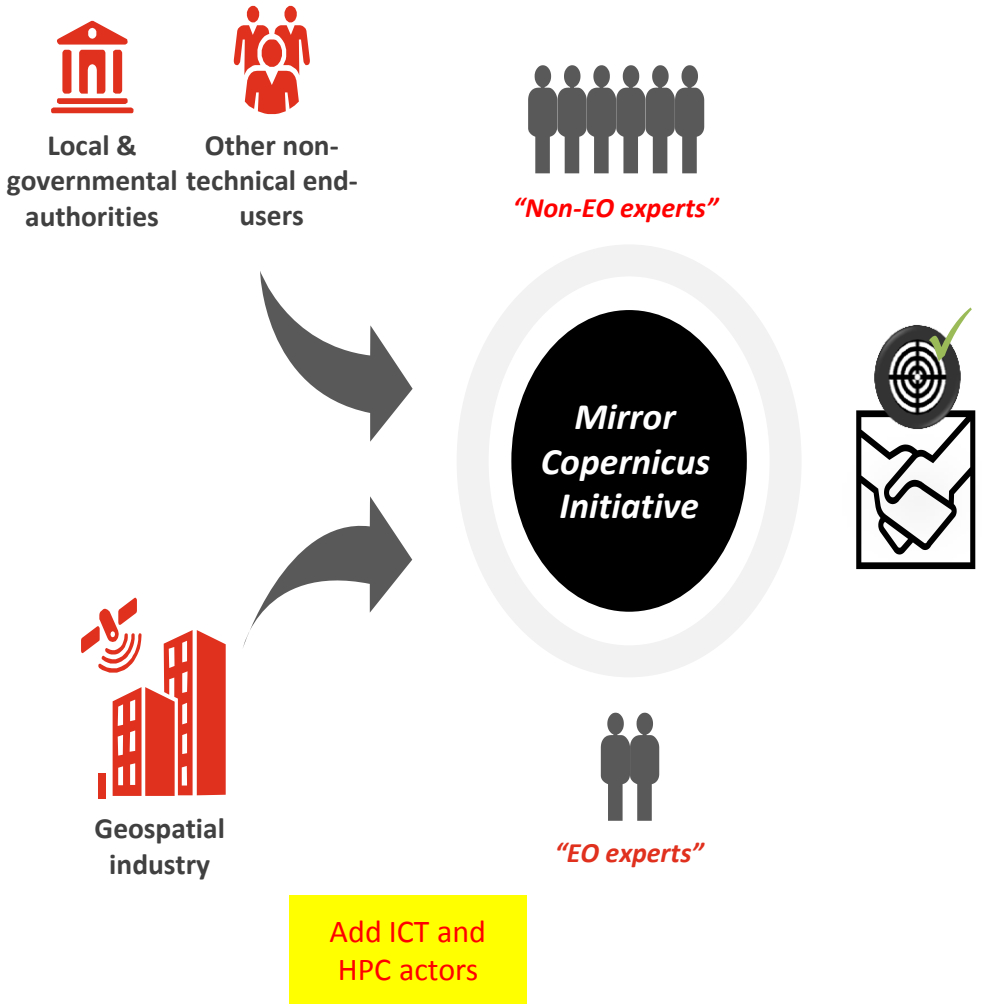
The DIAS initiatives have been developed to support user uptake and Copernicus data & information dissemination to intermediate & end users. The 6 DIAS are operational since June 2018.

*Source: PwC, 2019. Copernicus Market Report. February 2019. Published by the European Commission DG GROW. Brussels, Belgium.

If intermediate & technical end-users' adoption rate has significantly grow, adoption at local & regional governmental authorities remains low



The different National User Forum working tables aim at bringing together non-technical end-user, especially institutional ones, and the geospatial industry and research to build a win-win situation



Summary

The initiative aims at:

1. Providing end-users , first and foremost for institutional organisations, support to decision-making and situational awareness tailored to their operational needs;
2. Hosting and making all data relevant for end-users, including both satellite data and other sources of data, accessible in a user-friendly manner;
3. Offering an open, scalable and interoperable environment facilitating the development of applications;
4. Favouring the access "as a service" of sophisticated information extraction technologies (e.g. Big Data analytics, etc.);
5. Setting up a market place bridging demand and supply of value-added geospatial applications and services (i.e. platform for real time management of exchanges).

The *Mirror Copernicus* Italian Space Economy Strategic Plan (CIPE n. 52, 1/12/2016), for the definition of the Italian space policy:

A national initiative to support the **development of coastal products as downstream services of Copernicus Core Services**.

It is a National action, **based on the Public Private Partnership** mechanisms for Innovation, that integrates a multiregional cooperation program with the priority national lines of intervention.

Atmosphere (CAMS)

Marine (CMEMS)

Land (CLMS)

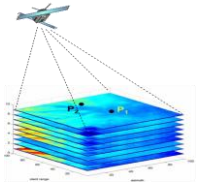
Climate (C3S)

Emergency (EMS)

Security

Copernicus Europe's eyes on Earth

National Operational Downstreaming - Mirror Copernicus

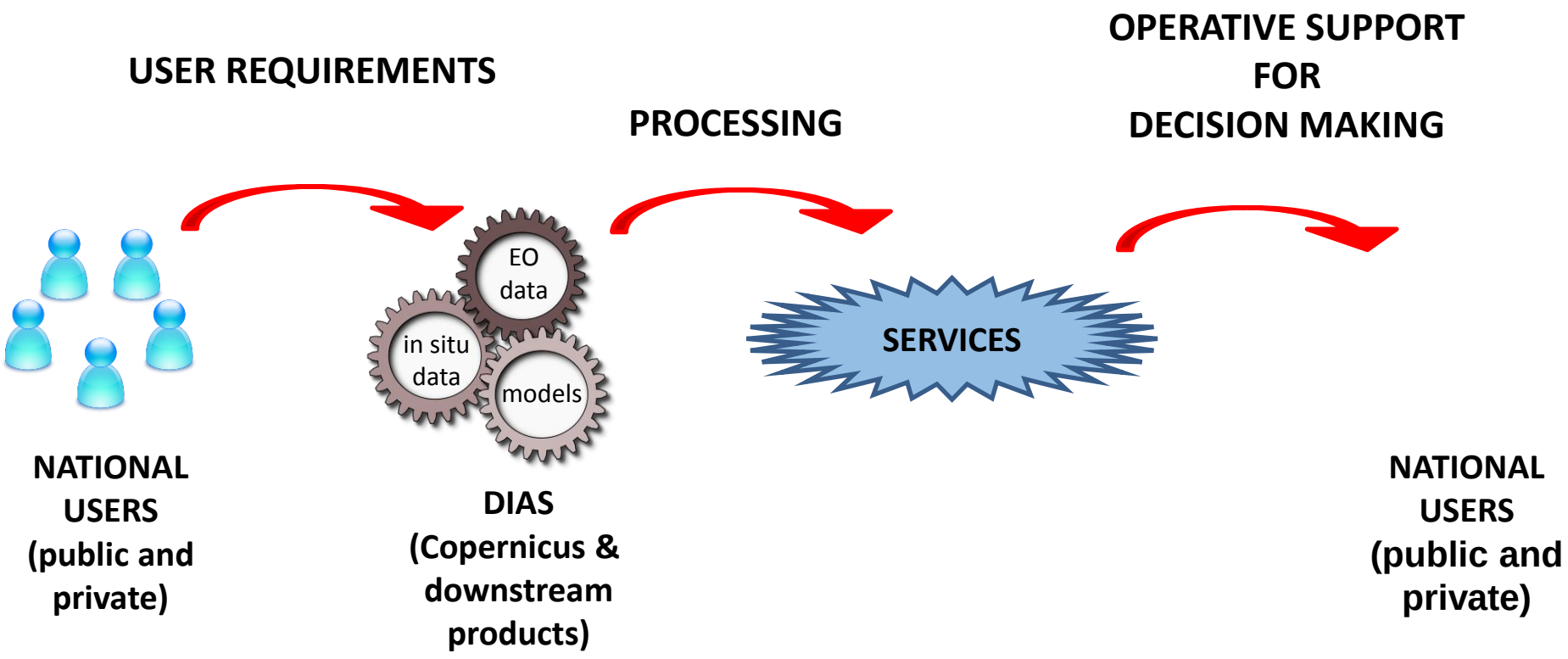


Additional (local) remote and in situ data, high resolution numerical models

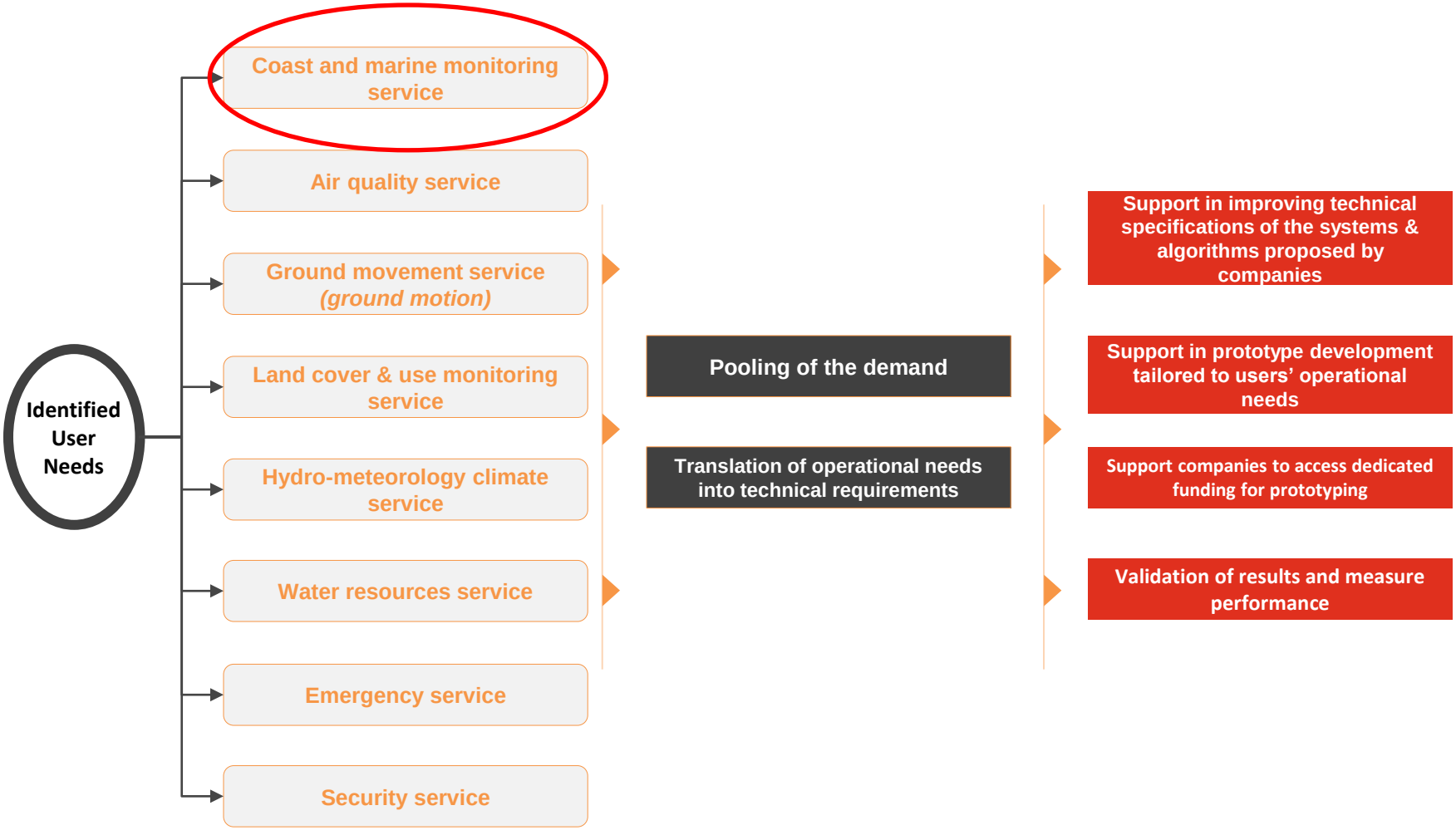
The *Mirror Copernicus* Italian Space Economy Strategic Plan

The aim is the exploitation of integrated added value EO products (satellite, in-situ, modelling) at national scale in order to support, as a first step, institutional users, expression of a qualified demand for innovative enabling infrastructures, products and services.

An interactive approach was made consulting institutional users in the fields of **environmental protection, civil protection and defense** to identify the institutional users needs.



8 thematic reference services have been identified based on large institutional users' needs to facilitate the match between demand and offer

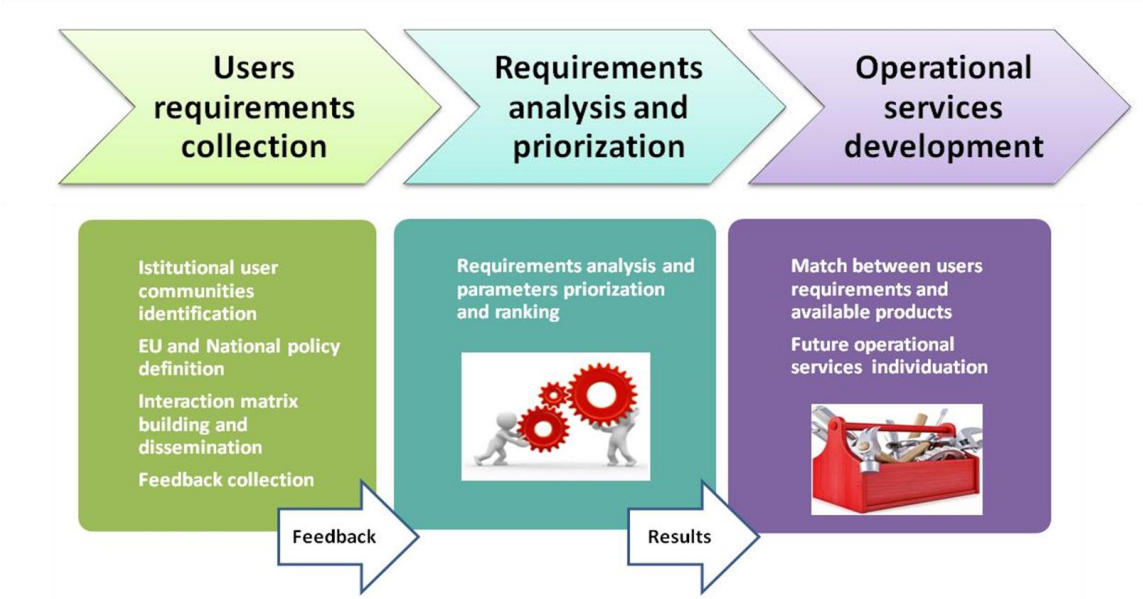


Mirror Copernicus

The Italian user needs survey

A survey was carried consulting institutional users in the fields of environmental protection, civil protection and defense to identify the institutional users needs.

USER REQUIREMENTS ANALYSIS



Legislation framework at EU and National level	User community	Operational Service technical details

EU DIRECTIVES	COPERNICUS		NATIONAL LAW	USER	CONTACT	NEED	OPERATIVE SERVICE	STATE OF THE ART	INPUT DATA	APPLICATION (OUTPUT)	INNOVATIVE REQUIREMENTS			
	COPERNICUS APPLICATION DOMAIN	COPERNICUS CORE SERVICE									SPATIAL RESOLUTION	TEMPORAL RESOLUTION	ACCURACY	COVER

THE SURVEY DETAILS

Agenzia/Ente che ha fornito i requisiti	Struttura dell'Agenzia/Ente coinvolta	Contatto

DIRETTIVE EUROPEE	COPERNICUS		Legge/regolamento nazionale/regionale
	DOMINIO APPLICATIVO COPERNICUS	SERVIZIO CORE COPERNICUS	

Obiettivo	SERVIZIO OPERATIVO	Tempo REALE/ DIFFERITO	Stato dell'Arte	Dati e prodotti a valore aggiunto in INPUT	OUTPUT applicativo	Requisiti minimi (innovativi)			
						Risoluzione spaziale	Risoluzione Temporale	Accuratezza /Livello Processing dato immagine	Copertura servizio

Investimento ad oggi	Stima futuri investimenti	Note

THE SURVEY: INSTITUTIONAL COASTAL USERS

SNPA

TNEC

Guardia costiera - Capitanerie di porto (MIT)

SNPC

MD

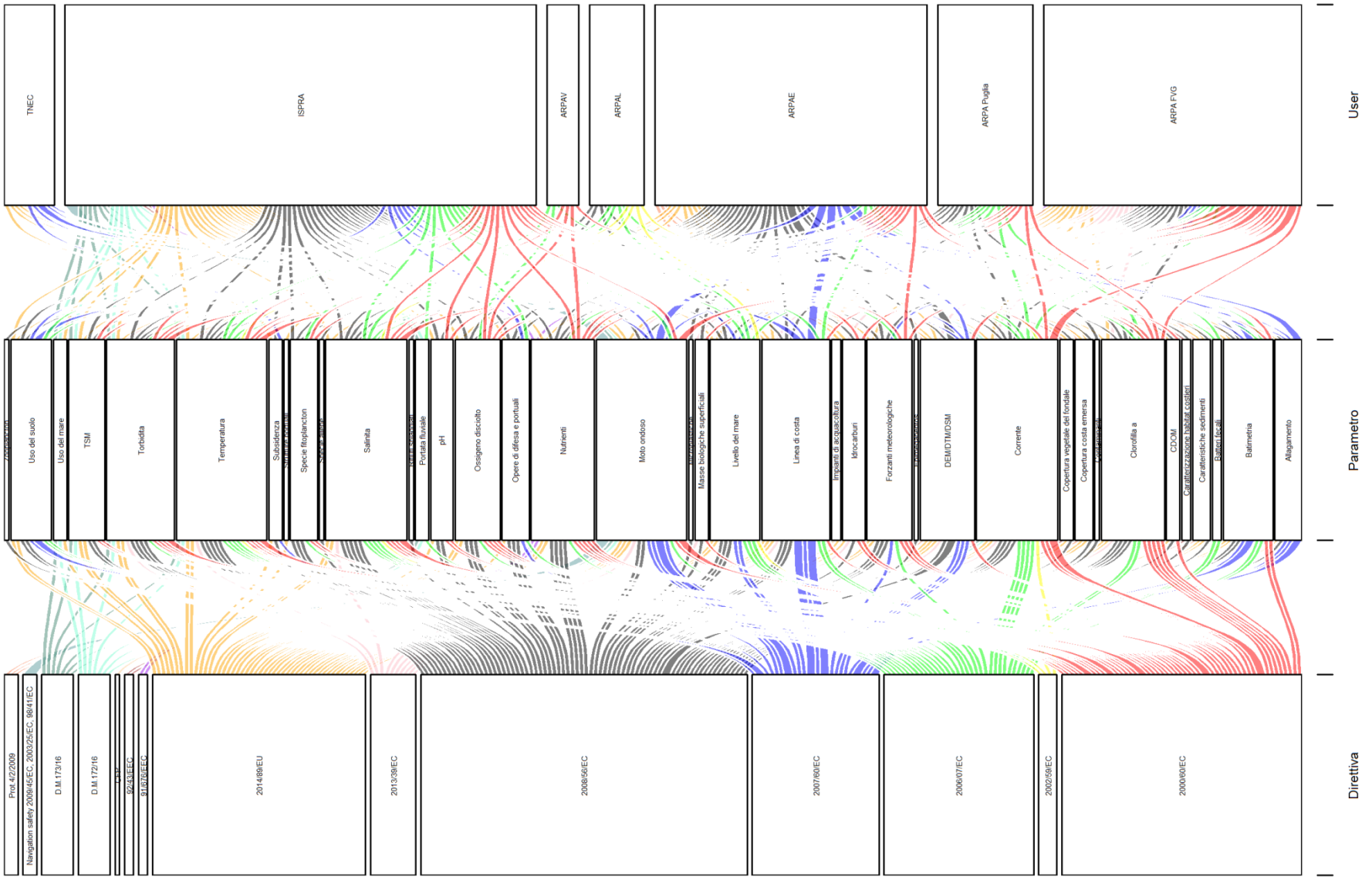
MIPAAF

MIBACT

ISPRA
ARPAe
ARPAL
ARPAV
ARPA Puglia
ARPA FVG

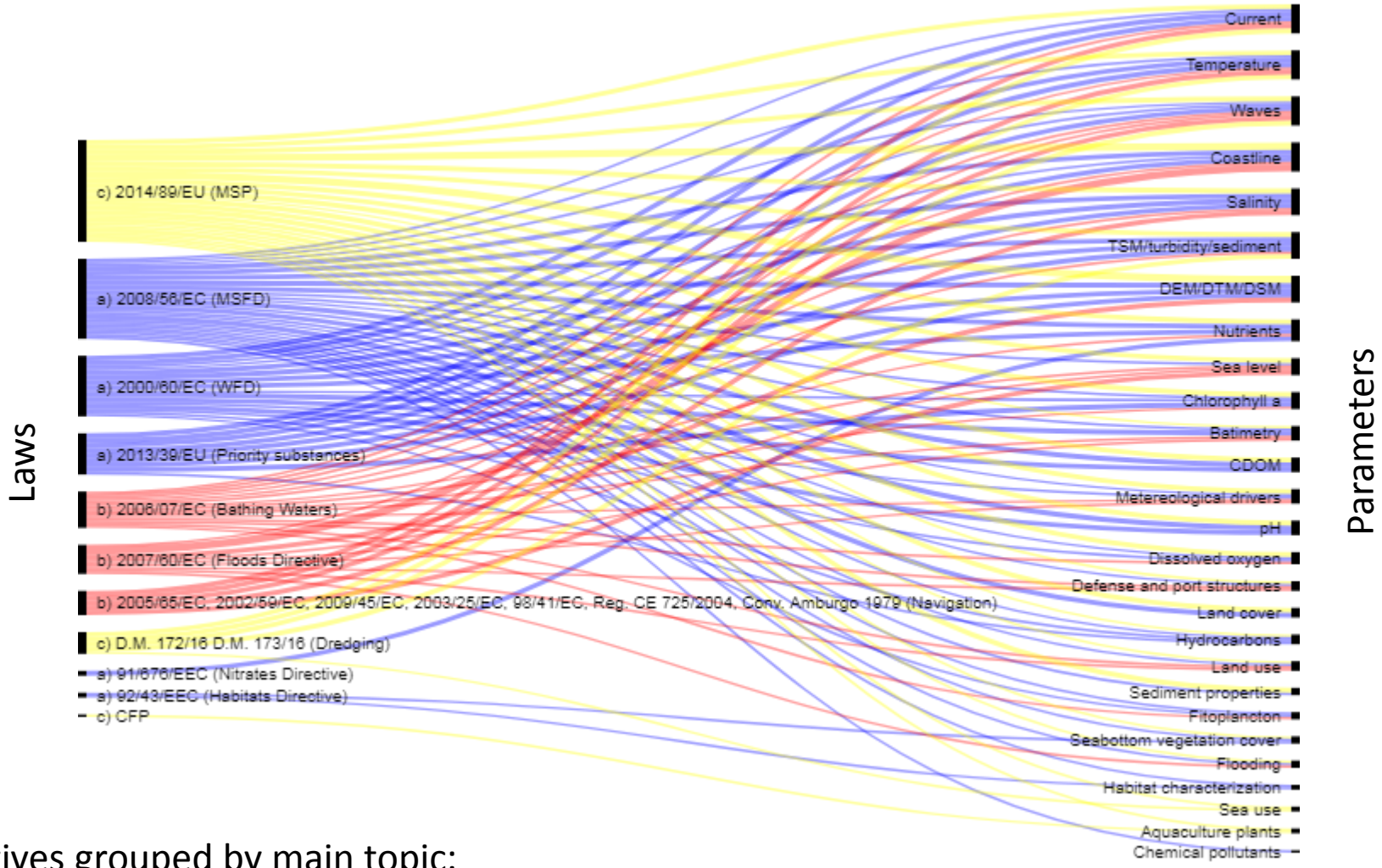
MATTM
Regioni/ARPA:
Emilia-Romagna, Marche, Toscana, Calabria
ADBD: PO, Calabria

Elaborazione dei requisiti per l'utenza costiera: Riferimenti normativi ed esigenze evidenziate



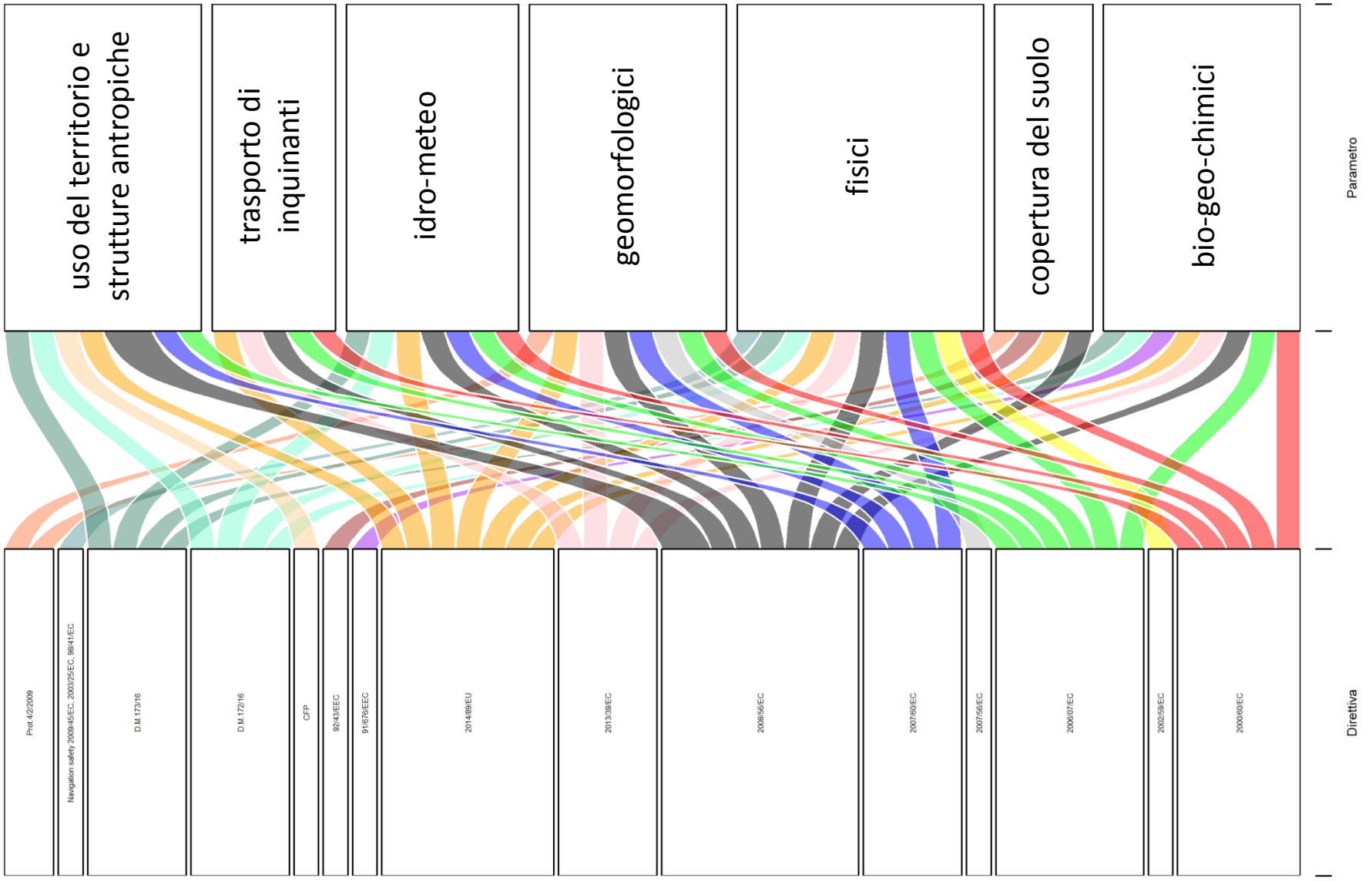
The Italian user needs survey

The analysis of the survey data **shows relations between laws** to be enforced, requested **environmental parameters** and potential **services** producing such parameters.

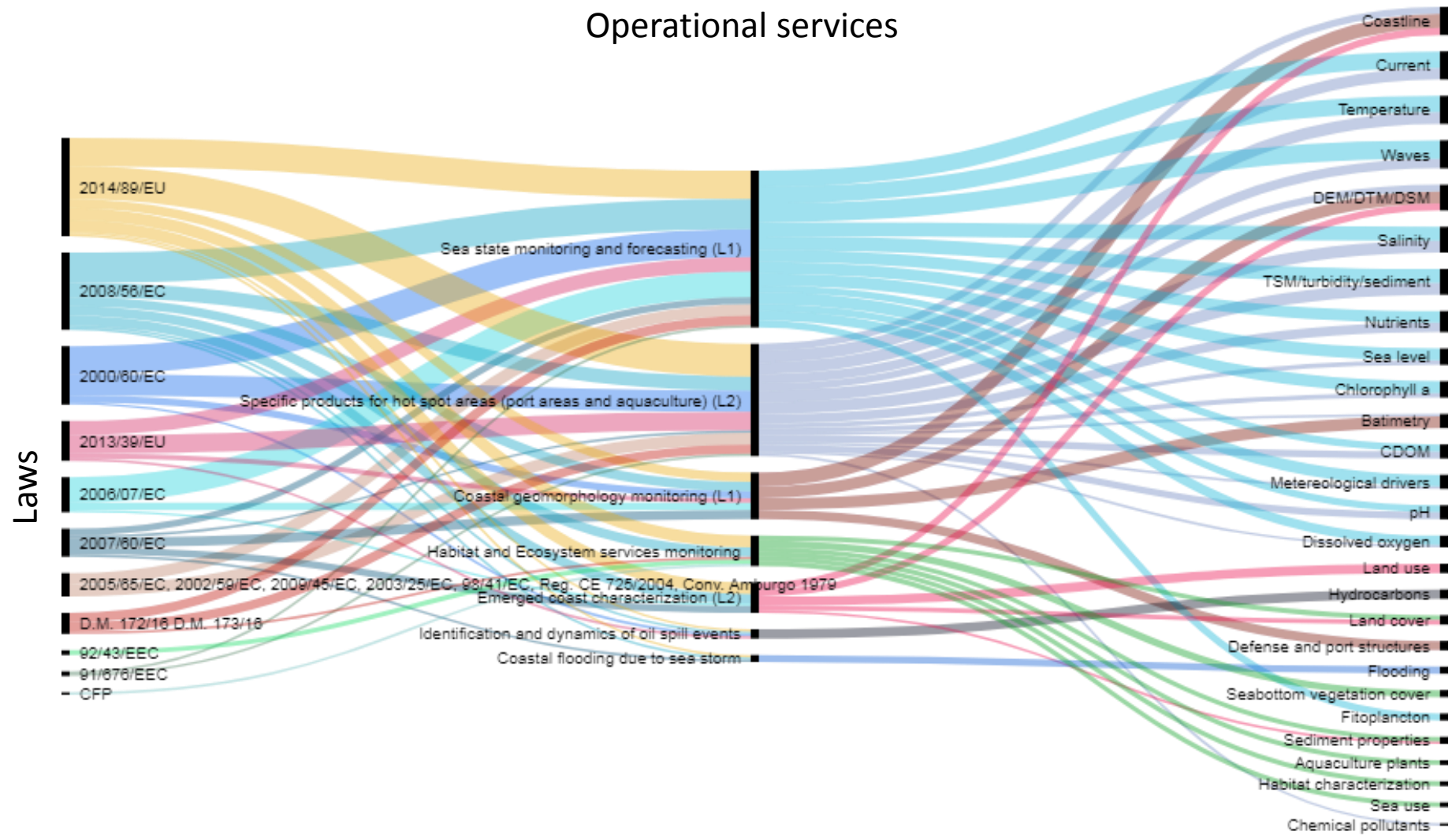


Directives grouped by main topic:
blue= environmental protection; red=risk and human health; yellow= anthropic activities

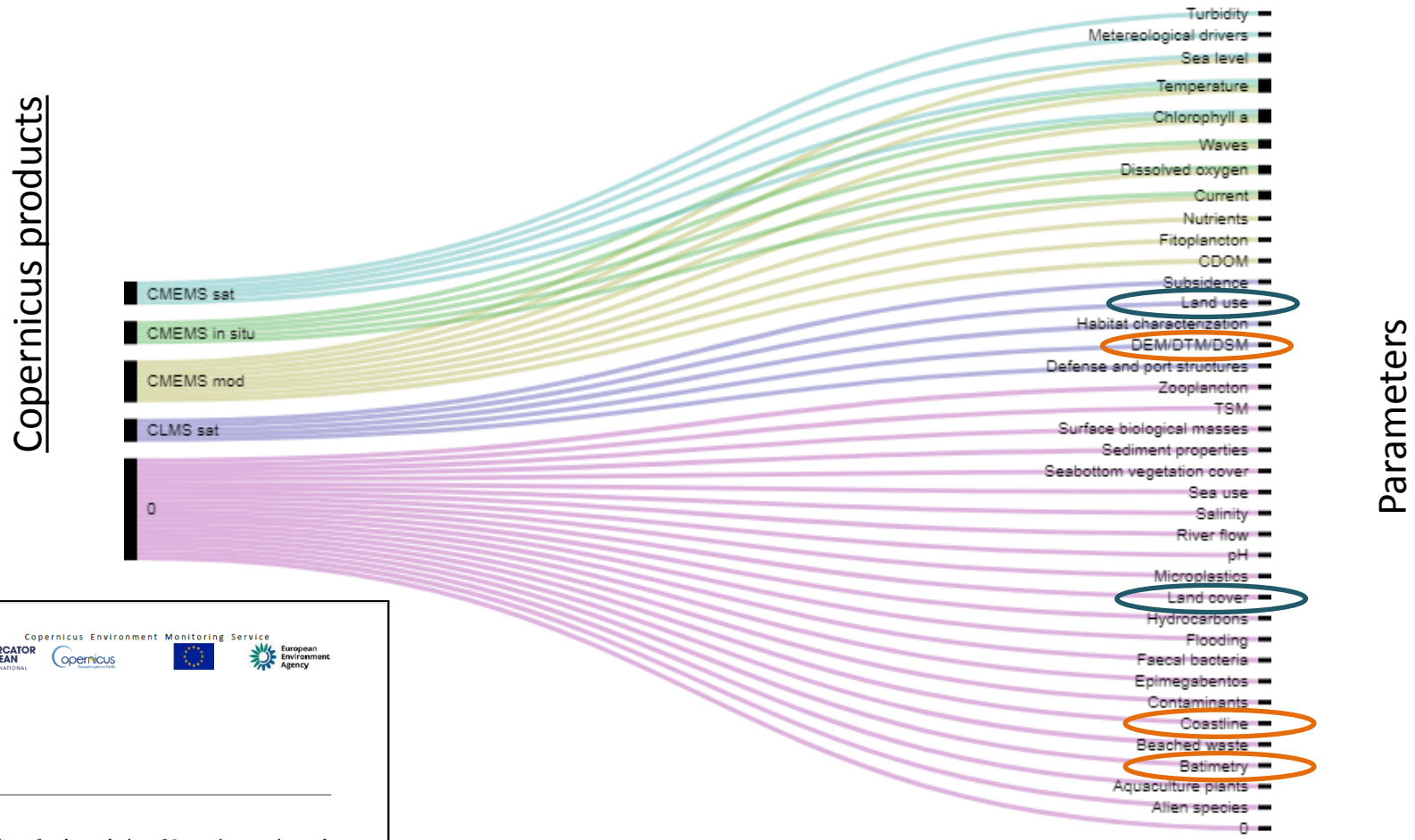
Elaborazione dei requisiti per l'utenza costiera: Riferimenti normativi e tipologie di monitoraggi richiesti

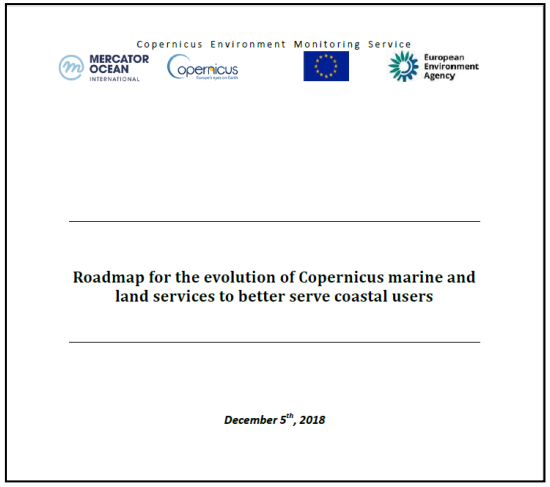


The Italian user needs survey



Copernicus products / user needs




Copernicus Environment Monitoring Service

MERCATOR OCEAN INTERNATIONAL · Copernicus · European Environment Agency

Roadmap for the evolution of Copernicus marine and land services to better serve coastal users

December 5th, 2018

Long term strategy

[…] Copernicus Marine and Land services aim at making the best use of existing and future Copernicus EO observations. This will require a significant evolution of Copernicus Marine and Land core monitoring services and a strengthening of the links with downstream coastal monitoring activities organized both in the public (member states) and private sectors. […]

Elaborazione dei requisiti per l'utenza costiera: criteri per l'elaborazione dei servizi

- Partire dai requisiti di legge (rafforzare e completare i monitoraggi dei parametri richiesti dalle normative)
- Mettere a sistema le parti comuni a più servizi
- Valorizzare l'integrazione di prodotti in-situ da remoto e modellistici
- Inserire solo prodotti consolidati dal punto di vista dell'affidabilità dei risultati e pronti per l'operatività
- Dare importanza prioritaria alla validazione del dato

SERVIZI TEMATICI		BUYERS GROUP	EROGAZIONE SERVIZIO IN REAL TIME MODEL DRIVEN = M SPACE DATA DRIVEN= S		EROGAZIONE SERVIZIO IN TEMPO DIFFERITO MODEL DRIVEN = M SPACE DATA DRIVEN= S		NORMATIVA DI RIFERIMENTO	
			Primo Livello	Secondo Livello	Primo Livello	Secondo Livello	EU	Nazionale
cod	nome							

- **Definizione (obiettivi operativi in relazione ai compiti istituzionali e normativa di riferimento)**
- **Stato dell'arte**
- **Requisiti minimi d'innovatività (requisiti non derogabili)**

Conclusions

- ✓ Needs of strong interaction with the National Institutional services and expert Knowledge
- ✓ Needs for the IN-situ national data
- ✓ Final definition of what is the thresholds value between Core services and Donwstreaming services
- ✓ **Trans border discussion initiative for European Coastal services: The MED7 Initiative (MS: Portugal, Spain, France, Italy, Malta, Greece, Cyprus)**

Thank you!

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Thanks to Antonello Bruschi and ISPRA team.