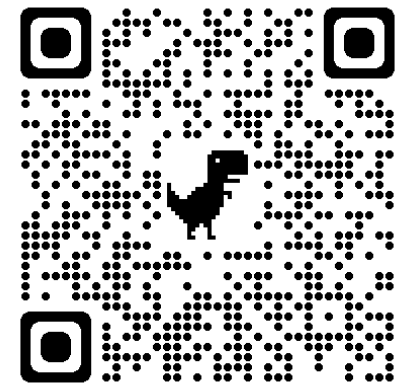# European Commission
Knowledge Centre on Earth Observation

Mark Dowell

European Commission – Joint Research Centre
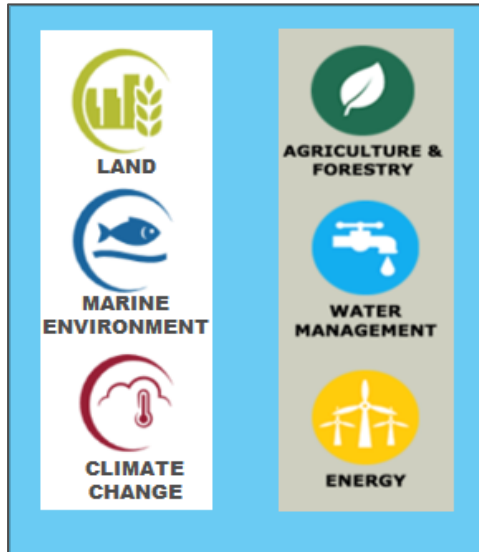
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Learn more here:

HELLENIC REPUBLIC
MINISTRY OF
DEVELOPMENT AND INVESTMENTS | GENERAL SECRETARIAT FOR
RESEARCH AND INNOVATION

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KCEO Focus

15+ DGs

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KCEO

Pillar 1: Policy Uptake & Coherence

LAND

MARINE ENVIRONMENT

CLIMATE CHANGE

AGRICULTURE & FORESTRY

WATER MANAGEMENT

ENERGY

Focused entry point

Pillar 2: Mainstreaming R&I

Inclusiveness & Transparency: Dialogue with external partners; international organisation; society.

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Typology of policy areas in KCEO

28 relevant policy areas identified (in red those with Copernicus Thematic Hub correspondence)

n	Policy area
1	Agriculture
2	Food security
3	Forestry
4	Biodiversity
5	Plant health
6	Soils
7	Raw materials
8	Inland Water
9	Coastal zones
10	Fisheries and aquaculture
11	Marine pollution
12	Marine strategy and Maritime Spatial Planning
13	Climate change mitigation
14	Climate change adaptation

n	Policy area
15	Arctic and polar regions
16	Air quality
17	Environmental compliance
18	Transport
19	Energy
20	Regional and urban policies
21	Health
22	Tourism
23	Cultural and natural heritage
24	Support to natural and man-made disasters
25	International development and cooperation
26	Sustainable Development Goals
27	Migration and Home affairs
28	Defence and Security

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Deep Dive Methodology – Summary of steps

1. Policy needs assessment

2. Value Chain assessment

3. Translation of needs into quantitative requirements

4. Assessment of fitness for purpose with regards to existing products, services, infrastructure, capacities

5. Gap analysis and recommendations for evolution
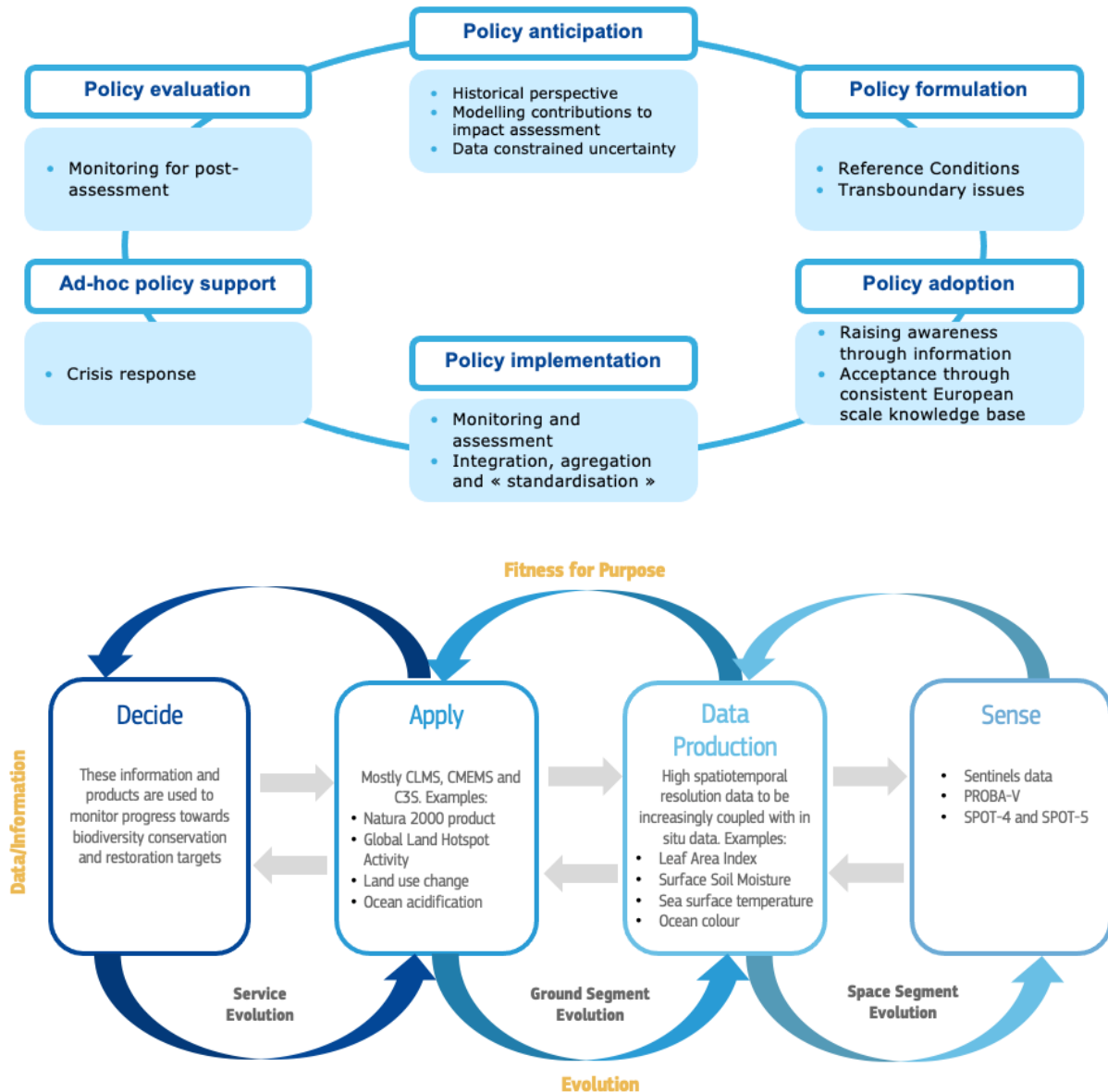
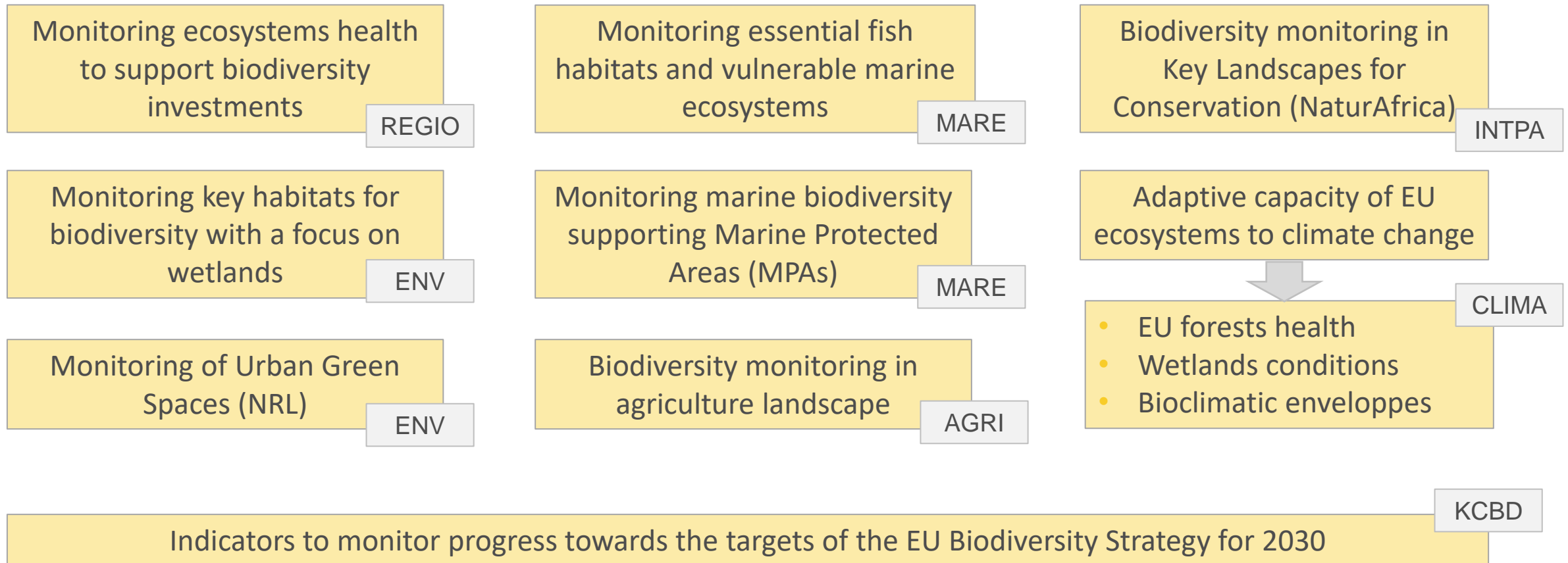# Deep Dive outcome Implementation options
(Mark's initial suggestions)

1. Though Copernicus Evolution

2. Through Copernicus thematic hubs

3. Through other relevant programmes (e.g. DestinE)

4. Needs additional research => Horizon Europe

5. Implementation by DGs themselves, building on Core Services

6. DGs contribution to Core Service resourcing

7. Limited KCEO/JRC prototyping activities

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Overview of use cases analysed

Monitoring ecosystems health to support biodiversity investments

REGIO

Monitoring essential fish habitats and vulnerable marine ecosystems

MARE

Biodiversity monitoring in Key Landscapes for Conservation (NaturAfrica)

INTPA

Monitoring key habitats for biodiversity with a focus on wetlands

ENV

Monitoring marine biodiversity supporting Marine Protected Areas (MPAs)

MARE

Adaptive capacity of EU ecosystems to climate change

CLIMA

Monitoring of Urban Green Spaces (NRL)

ENV

Biodiversity monitoring in agriculture landscape

AGRI

- EU forests health
- Wetlands conditions
- Bioclimatic enveloppes

KCBD

Indicators to monitor progress towards the targets of the EU Biodiversity Strategy for 2030

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Potential EO support to targets of the Biodiversity Strategy 2030

#	RS - Biodiversity Product (*)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Copernicus Product
1	Biological effects of fire disturbance				x													Burnt Area (+NDVI, LAI, FCOVER…)
2	Biological effects of irregular inundation				x													Soil Water Index (+NDVI, LAI, FCOVER…)
3	Leaf Area Index		x		x													Leaf Area Index
4	Land Cover	x	x	x	x			x	x	x	x							Land Cover, CLC
5	Ice Cover habitat	x	x		x													RLIE S1+S2
6	Above ground biomass		x		x													NA
7	Foliar NPK Content						x							x				NA
8	Net primary productivity							x	x									Dry Matter Productivity
9	Gross primary productvity							x	x									Gross Dry Matter Productivity
10	FAPAR		x		x													FAPAR
11	Fraction of vegetation cover							x	x									Fraction of vegetation cover (FCOVER)
12	Plant area index profile		x		x													NA
13	Urban habitat														x			1.Urban Atlas; 2.GHSL
14	Vegetation canopy height	x	x	x	x													NA
15	Habitat structure				x													NA
16	Ecosystem Fragmentation	x			x													Corine Land Cover
17	Ecosystem structural variance	x			x													Corine Land Cover
18	Land surface phenology peak							x	x									Vegetation phenology and productivity suite HR VPP
19	Land surface phenology green-up							x	x									Vegetation phenology and productivity suite HR VPP
20	Land surface phenology senescence							x	x									Vegetation phenology and productivity suite HR VPP
21	Carbon cycle		x		x													NA
22	Chlorophyll content and flux	x		x														Chlorophyll content and flux

(*) RS products prioritized as EO biodiversity metrics in Skidmore et al. (Nature ecol & evol, 2021)

Roadmap layout and options (22-24)

	Q2 22	Q3 22	Q4 22	Q1 23	Q2 23	Q3 23	Q4 23	Q1 24	Q2 24	Q3 24	Q4 24
Deep Dive 1 Biodiversity	■	■	■								
Deep Dive 2 CC Adaptation & Urban			■	■	■						
Deep Dive 3 Compliance Assurance				■	■	■					
Deep Dive 4 Cultural, Natural, World Heritage					■	■	■				
Deep Dive 5 SDGs							■	■	■		
Deep Dive 6 Energy							■	■	■		
Deep Dive 7 Raw Materials									■	■	■
Deep Dive 8 Health									■	■	■

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Key points

1. **User and Policy Driven** - EuroGEO (& GEO) needs & requirements landscape mappping

2. Think about **applications thoughout the policy cycle** – not just implementation

3. Build **tracible** & **sustainble** **value chains** - not only for policy but also to enable a strong downstream service ecosystem

4. **Infrastructure that can be** regionally/locally and thematically **tailored**

5. **Importance of the last mile** – implications for user interace

6. **Interoperable systems addressing "fractal" user requirements**

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Backup

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Science – Policy - Service

e-shape Pilots

EU Policy Themes

Copernicus Services