



Guidance for Building Climate Change Scenarios for Protection Strategies – Results from the MSP4BIO Project

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Expert Dialogue: Climate-Ready Marine Protected Areas: Building Resilience and Supporting Marine Adaptation



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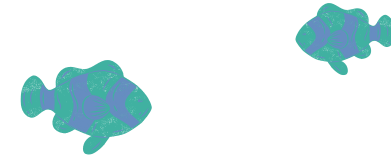


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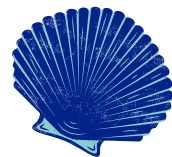


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MSP4BIO: OBJECTIVES



- **SO1. Improve the science base** for the description of EBSAs and, identification of new, restoration, enlargement and management of existing MPAs.
- **SO2. Develop and demonstrate a novel flexible management framework** that integrates ecological and socio- economic dimensions for the prioritization of strategic and spatial conservation-management measures.
- **SO3. Strengthen the role of MSP as an integrative framework** to support the coherent implementation of relevant policies (MSFD, WFD, MSPD, BHD, Common Fisheries Policy (CFP), etc.) as well as the EUBS2030 and the CBD post-2020.
- **SO4. Improved biodiversity and natural capital integration** into public and business decision-making at all levels for the protection and restoration of ecosystems and their services.



BALTIC SEA

Transboundary sea basin

Ecosystem under multiple human-induced pressures

Need for more MPAs designated areas to achieve the regional goal

Need for a coordinated plan for human activities

ATLANTIC 1 – GULF OF CADIZ

Hot spots with special needs for MSP and MPA

Need for improvement of MSP and stronger consideration of sea-land interactions in planning

Human activities threaten MPAs in their vicinity

ATLANTIC 2 – AZORES (Graciosa Island)

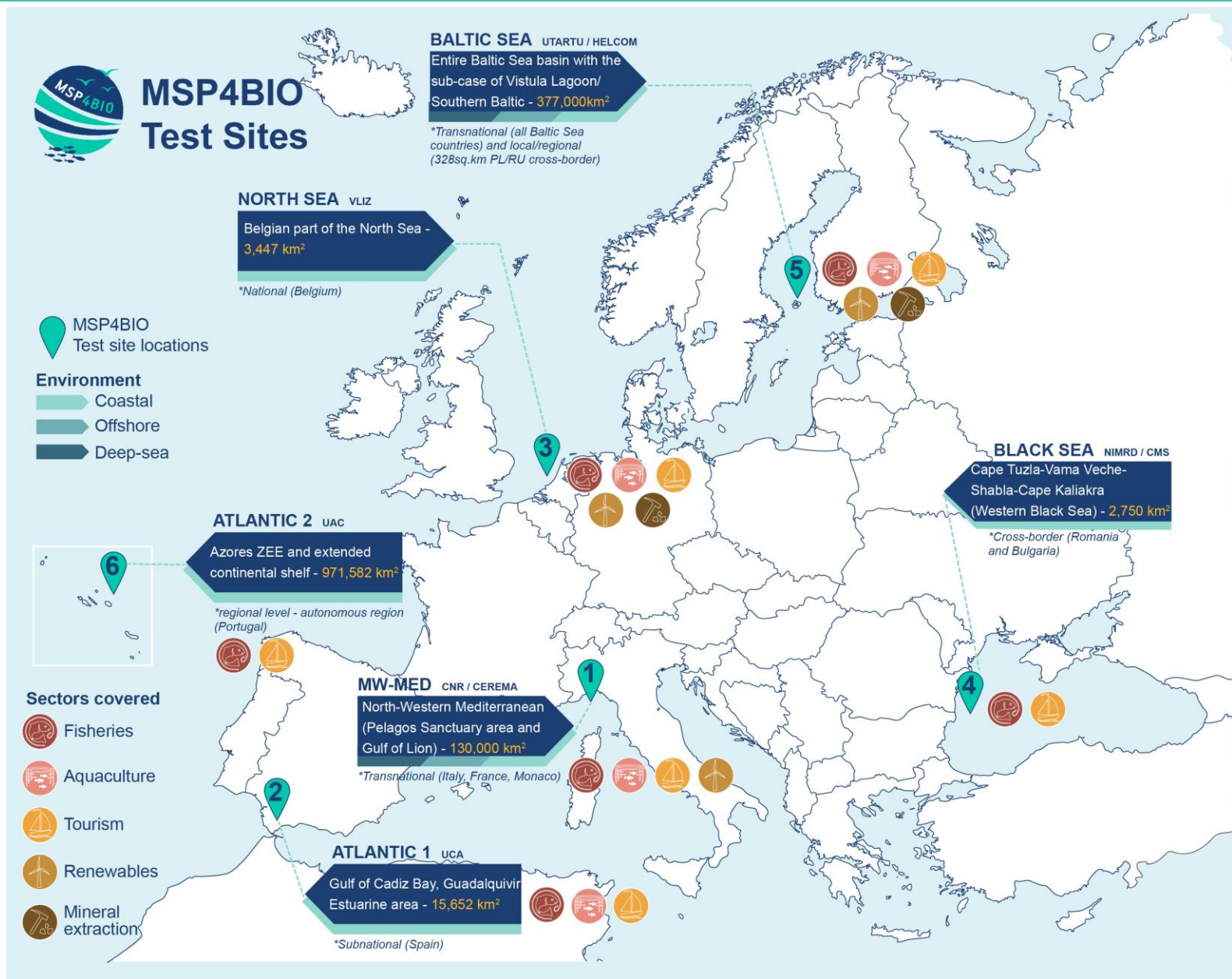
Rich habitat diversity – knowledge gaps in offshore and coastal areas

Need for strategies to enlarge MPA network and for “fully protected areas”

No MSP approved yet



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BLACK SEA

Cross-border area: 2 countries

Diversity of marine domains

MPAs Support huge biodiversity and ecosystem services

MPAs fragmented and do not have operational management

NORTH SEA – BELGIAN AREA

Well studied and monitored area

Need for spatial strategy for pelagic biodiversity conservation

Need for geographical biodiversity assessments units

NW-MED

Governance complexity as area is shared between 3 countries

Large spatial scale

Diversity of marine domains

Multiplicity of human activities



MSP4BIO: KEY RESULTS



EU-wide overview of biodiversity data availability

Policy coherence solutions to strengthen MSPs compatibility with the new biodiversity policy requirements

Integrated modular management framework allowing for better integration of biodiversity considerations in MSP, wider participation and adaptations

Ecological Toolkit ensuring better integration of data in decision making (improved DSTs)

Participatory development of integrated **trade-off scenarios**.
Good management practices for blue economy sectors.



MSP4BIO – biodiversity mainstreaming in MSP

ESE - Ecological & Socio-Economic management framework

The ESE framework consists of a **methodological guidance** that shall help **prioritizing marine protection in MSP** through several methodological steps, and integrating social, economic, and ecological considerations.



Main aim:
Identifies users' **management needs through a portfolio of questions** that offers a wide range of **answers**



Users



All users interested in identifying, prioritizing, designating and managing MPAs



Planners



MSP authorities, MPA managers



Decision makers

Available solutions: Practices, Criteria and Indicators, Data, Methods and Tools, concrete examples.



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MSP4BIO – biodiversity mainstreaming in MSP

Knowledge base: data, existing criteria

ESE1 – Ecological Toolkit

Systemic approach to address biodiversity

MPA and MSP Strategic Integration Framework

ESE3 – Trade-offs

Participatory development of integrated trade-offs scenarios & Strategic and Spatial measures for blue economy sectors

ESE2 – Socio-economic and governance criteria

Socio-economic approach

ESE Framework
Ecological-Socio-Economic management framework

Policy solutions



MSP4BIO – contributions to today's discussions:

1. Ecological responses to climate change – Ecological toolkit available

- Addressing some of the knowledge gaps
- Incorporating climate change projections into MPA design and management

2. Social, cultural and economic dimensions – Trade-off methodology available

- Balancing economic activities (e.g., fisheries, tourism) with conservation objectives in MPAs

3. Policy and governance – Solutions for better policy alignment (ongoing)

- Assessing suitability of regulatory frameworks and policy instruments
- Cross-sectoral coordination and management (e.g., marine and terrestrial planning; biodiversity and climate change policies; transboundary management of MPAs)

4. Technical and operational challenges and opportunities – Database available online

- Data availability and sharing



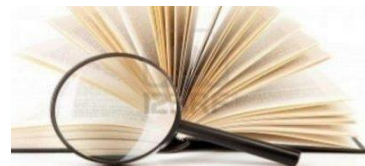
MSP4BIO Guidance

Objectives:

- Make climatic knowledge accessible and provide operational insights to managers and planners to support the development of climate-smart MPAs and networks
- Enlarge it to Marine Spatial Planning

Main outputs:

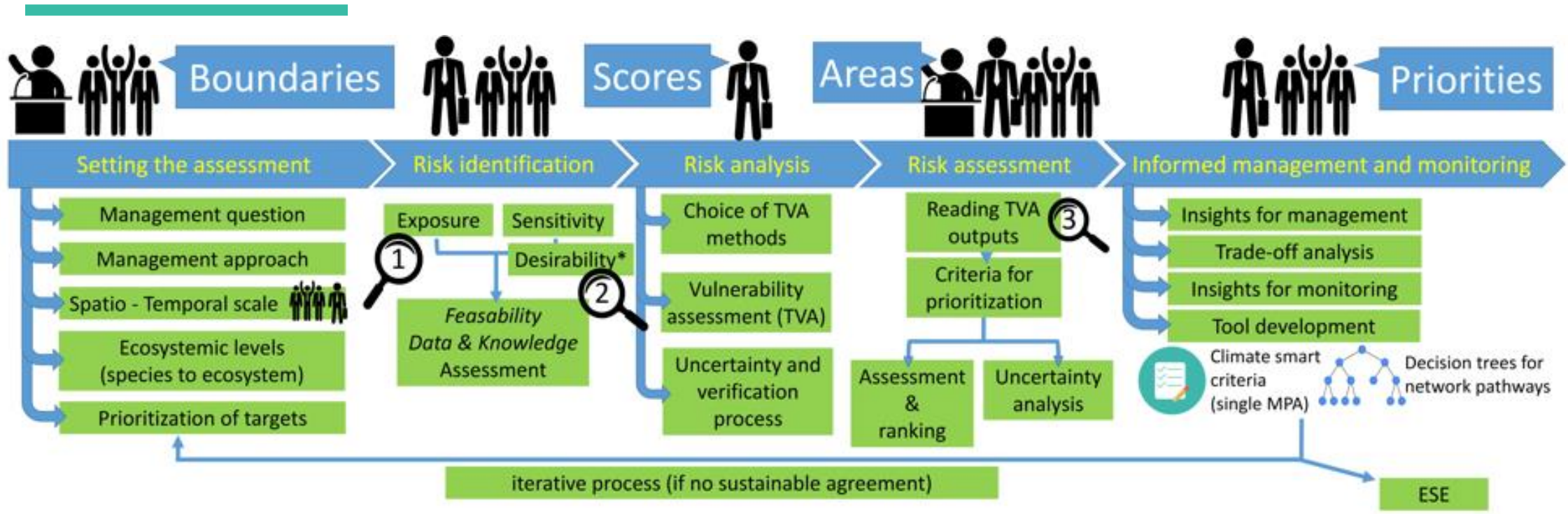
- Synthesis, revision and recontextualization of actual knowledge and criteria, including vocabulary and climate-related methodologies, according to management needs
- Support the development of climate-robust scenarios building
- Propose a flexible framework to be generalized to other areas



Literature Review
424 articles



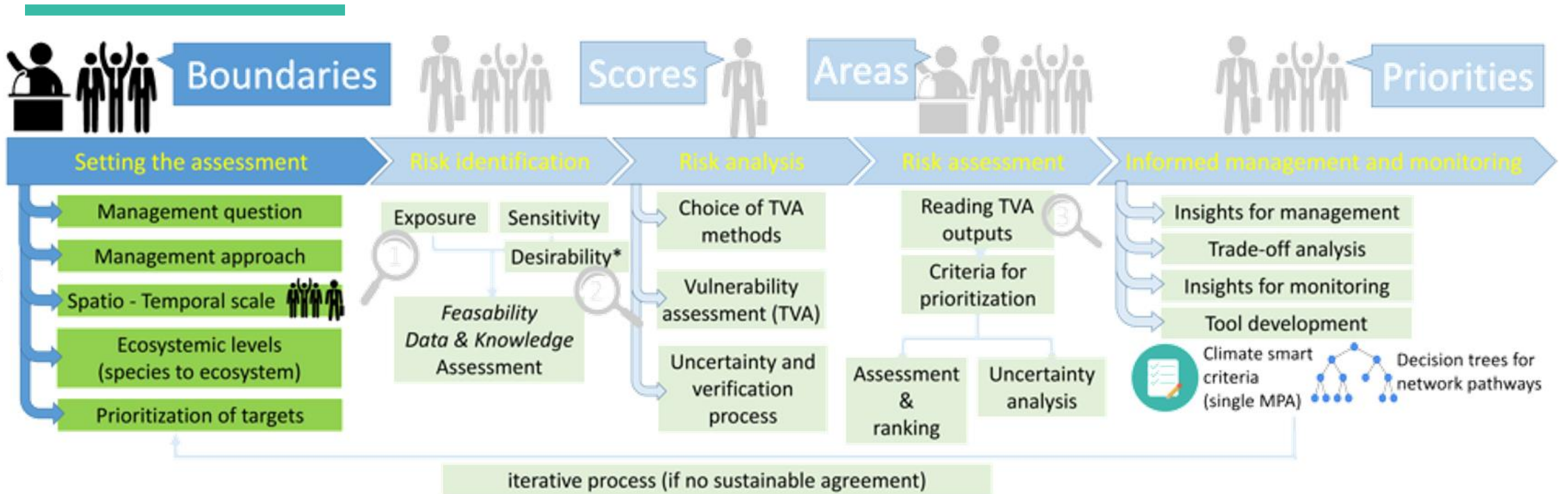
Integrating the Climatic risk into MSP – 5 steps



<https://ese.tools4msp.eu/>

Cambra et al (2024). Guidance for including climate change scenarios in protection and prioritization strategies for Marine Protected Areas development. Deliverable D3.3, under the WP3 of MSP4BIO project (GA n° 101060707)

Integrating the Climatic risk into MSP – 5 steps



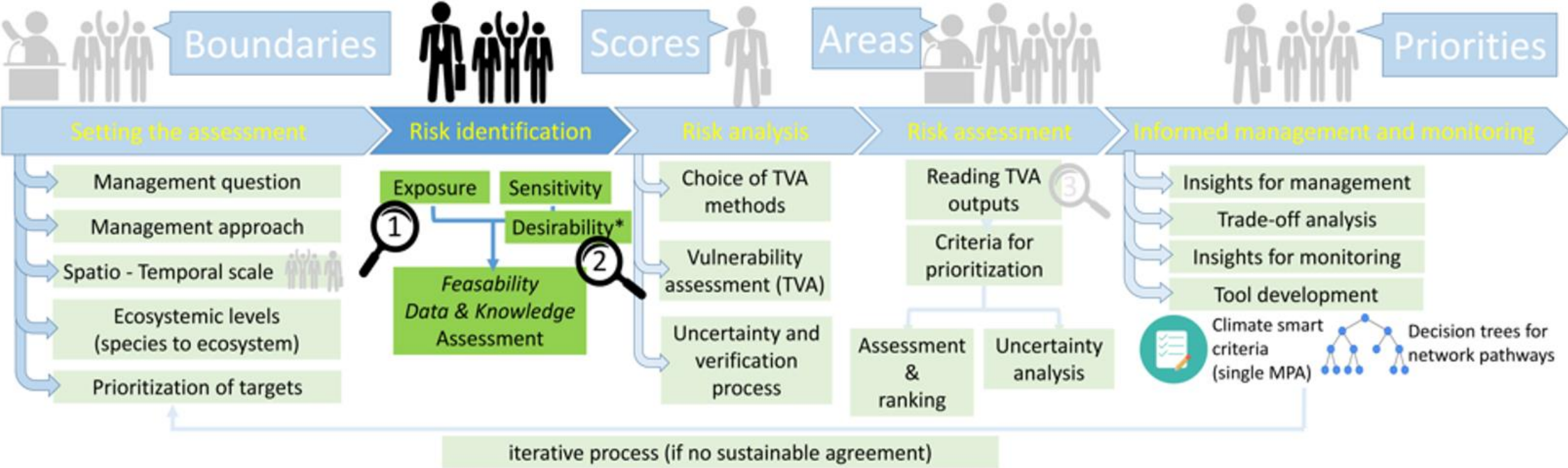
Step 1

Definition of management questions and problem setting

(Climate-smart framing)

Cambra et al (*in prep*).

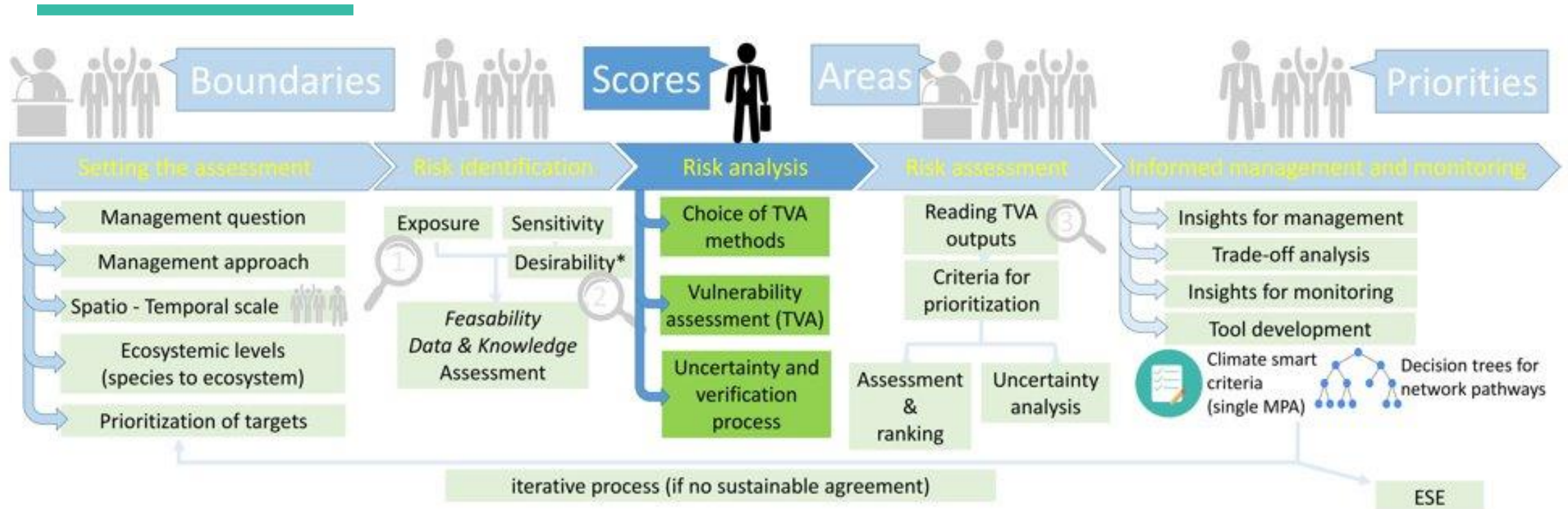
Integrating the Climatic risk into MSP – 5 steps



Step 2

Exposure,
anomalies,
velocities
combination

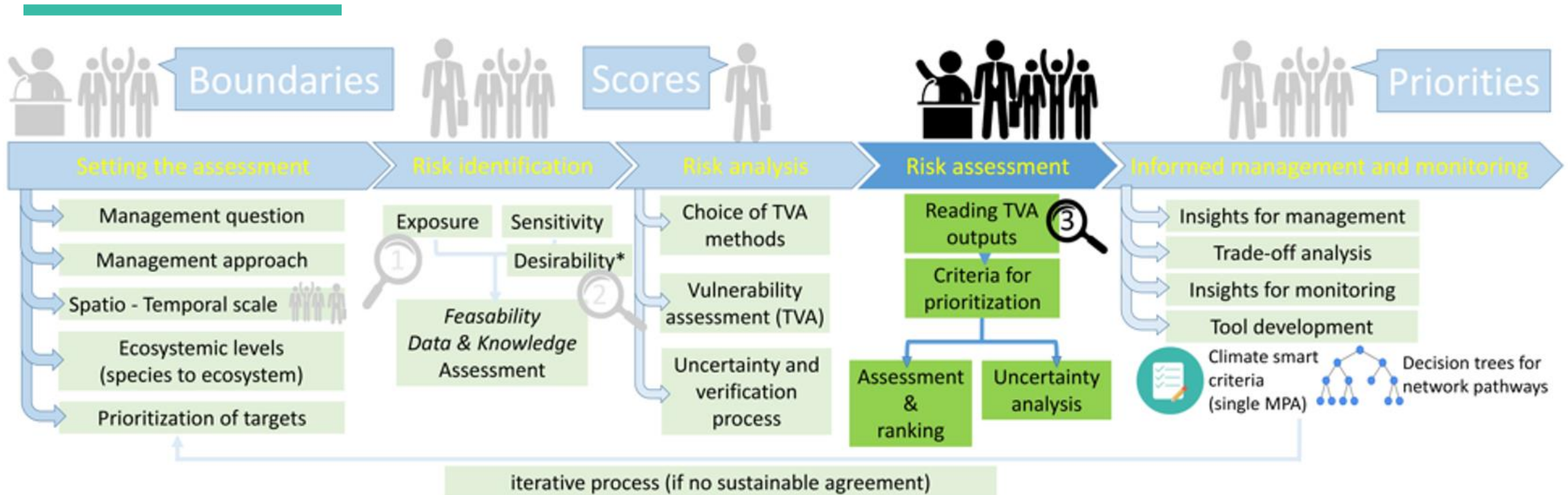
Integrating the Climatic risk into MSP – 5 steps



Step 3

Trait-based
vulnerability
score

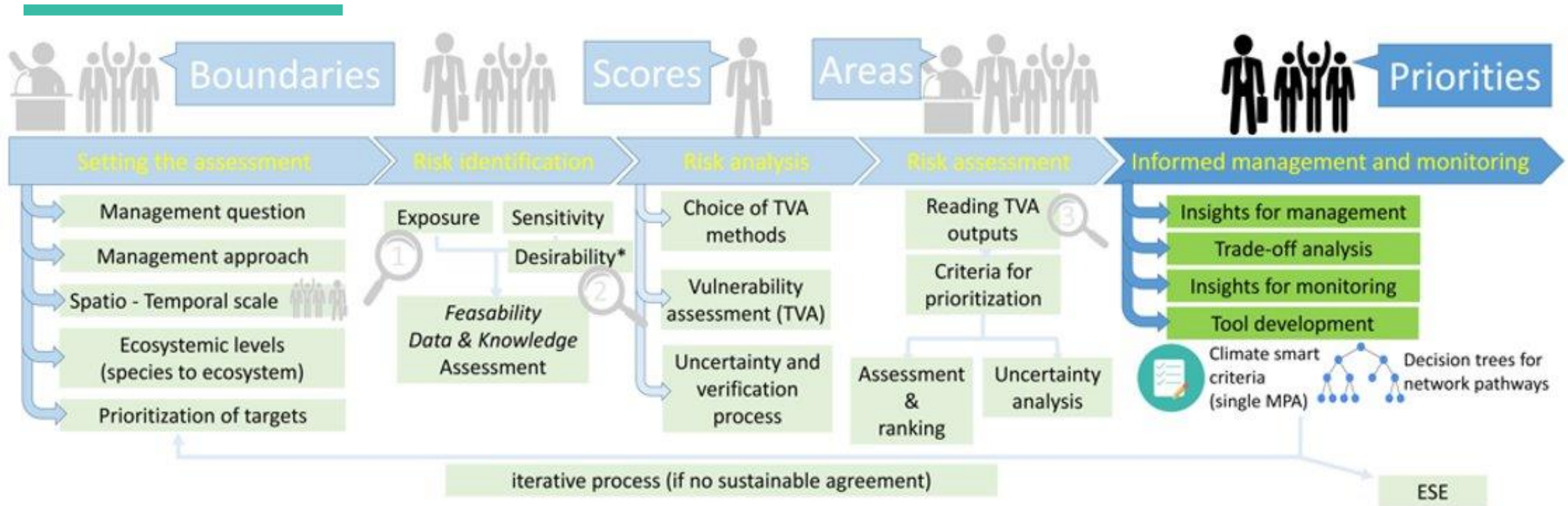
Integrating the Climatic risk into MSP – 5 steps



Step 4

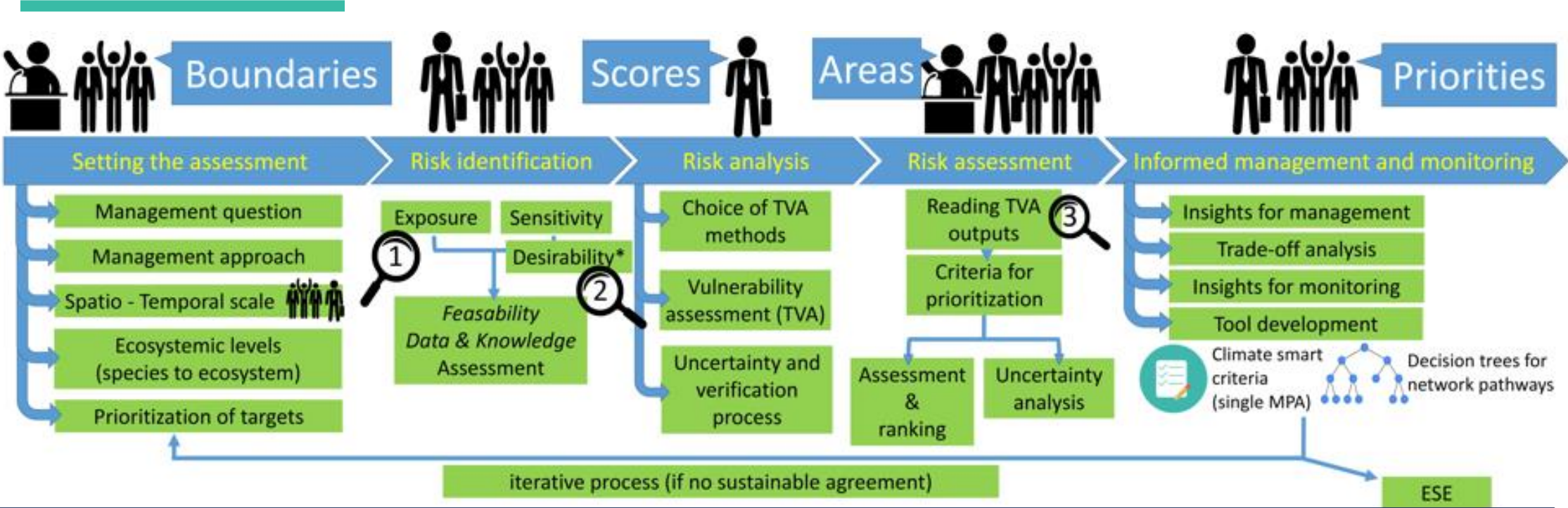
Evaluation of
CC risk and
uncertainty
(Stability)

Integrating the Climatic risk into MSP – 5 steps



Step 5
Climate-smart
potential of
MPA design within
MSP

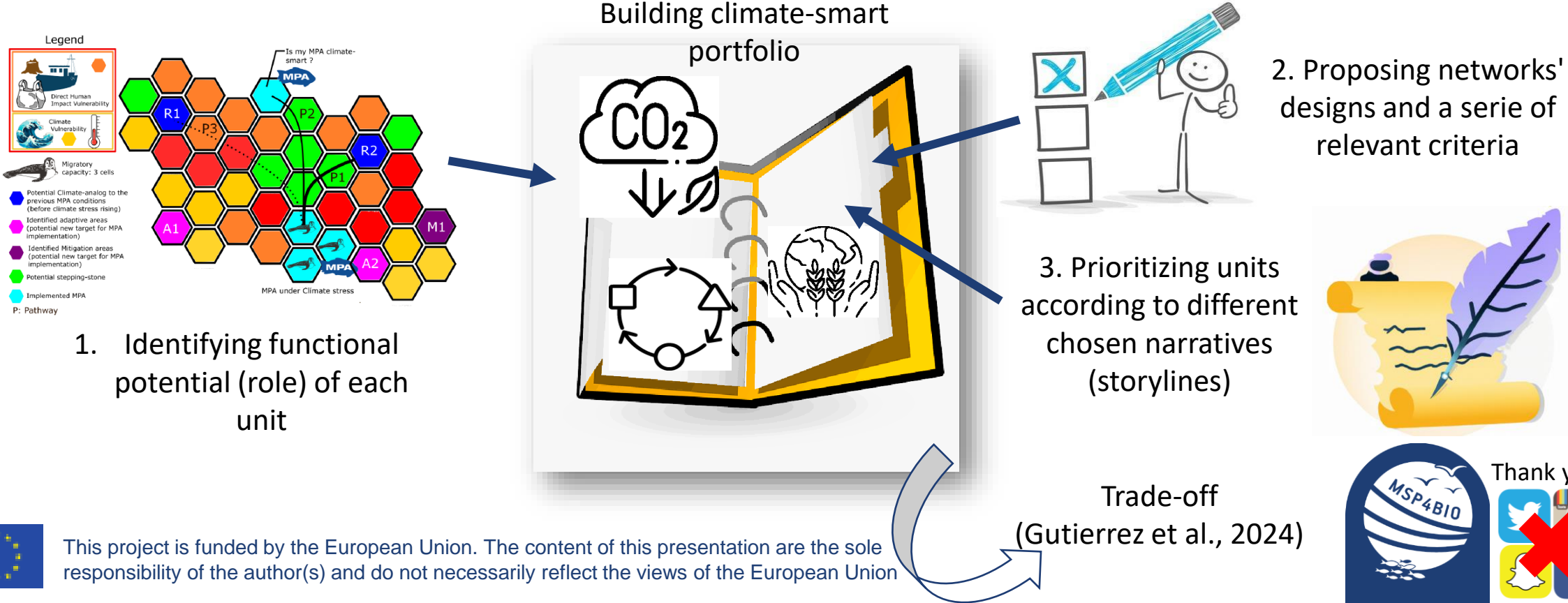
Integrating the Climatic risk into MSP – 5 steps



<p>Step 1</p> <p>Definition of management questions and problem setting (Climate-smart framing)</p>	<p>Step 2</p> <p>Exposure, anomalies, velocities combination</p>	<p>Step 3</p> <p>Trait-based vulnerability score</p>	<p>Step 4</p> <p>Evaluation of CC risk and uncertainty (Stability)</p>	<p>Step 5</p> <p>Climate-smart potential of MPA design within MSP</p>
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Informed management and monitoring

1. How MPAs can be designed to be resilient to future climate impacts, like warming oceans and acidification ("climate-smart MPA")?
2. How MPAs can play a role in supporting adaptation to climate-related changes along coast and marine environments?



**Thank you for your
attention!**

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