

Agenda item 4.a.i National Systems of Innovation

Update on the mapping tool to support the set up and implementation of national systems of innovation

TEC 33 & Joint session of the TEC - CTCN Advisory Board
15 – 17 and 18 September 2026 | Bonn, Germany



United Nations Climate Change
Technology Executive Committee

Dietram Oppelt
TEC member

Update from the activity group

The TEC agreed to develop a **tool to identify country needs for the setup and implementation of national systems of innovation (NSI)**, followed by a mapping of country needs and the development of a **knowledge product on NSI in 2027**.

At **TEC 32**, the TEC:

- Considered progress on the AI-powered NSI tool
- Welcomed the interest of the **European Commission Joint Research Centre (JRC)** in supporting this activity as a lead partner
- Requested the open-ended activity group to develop an annotated outline for the NSI knowledge product for consideration at TEC 33



Current Progress

- Engagement with the Joint Research Centre (JRC) initiated in June, and has resulted in a proposal to:
 - Update the NSI mapping methodology & timelines;
 - Clarify the role of the AI-enabled tool;
 - Update the milestones for delivery of the final product
- Delay in feedback from Parties to engage in the mapping tool



National System of Innovation

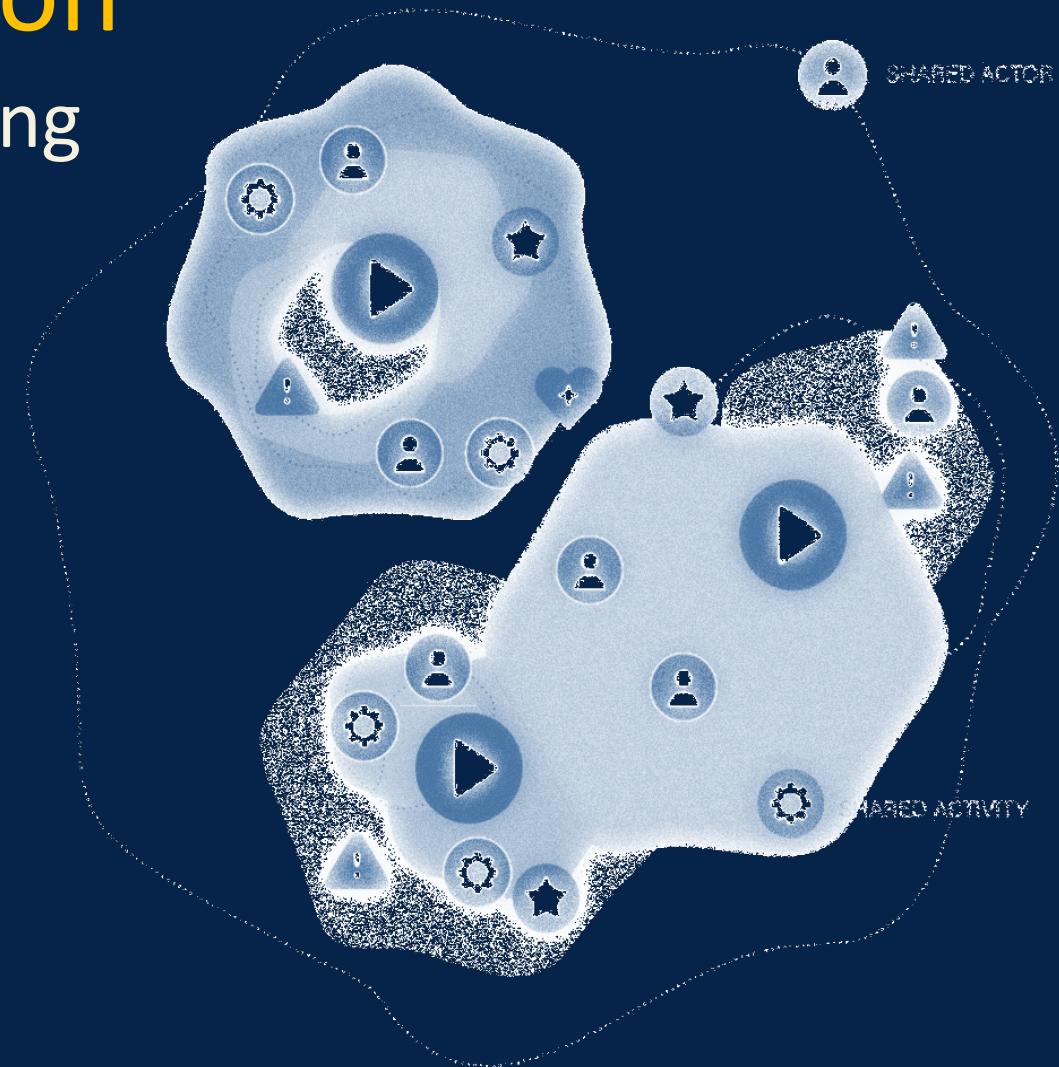
Mapping process, methods and framing

UNFCCC-TEC – European Commission collaboration

Cristian Matti

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Joint Research Centre – European Commission*

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Outline – European Commission contribution

- Approach on NSI mapping process
 - Transformative innovation & Actionable Knowledge
 - Logic flow and Narrative
 - Instrumental role and contribution to AI tool on NSI
 - Timeline UNFCCC-TEC / EC JRC on NSI 2026-2028
 - Framing elements, Methods and Examples
- NSI Mapping - Target countries
 - Geographical diversity, synergies and partnerships

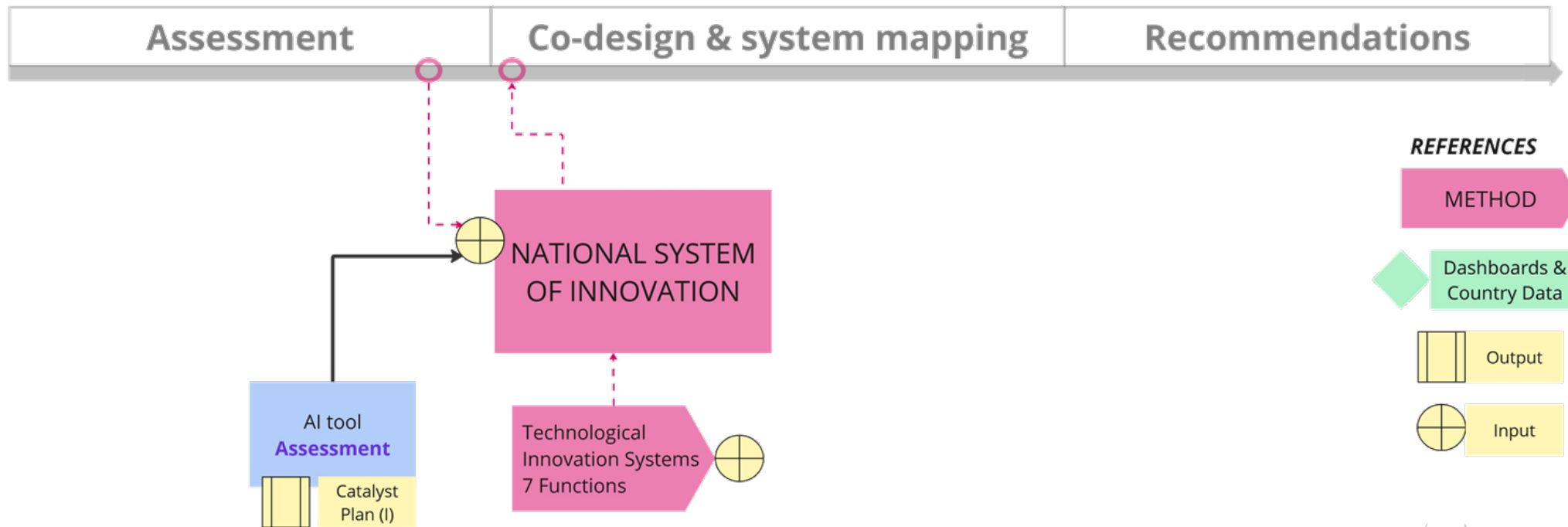


Approach on NSI mapping process - Transformative innovation & Actionable Knowledge

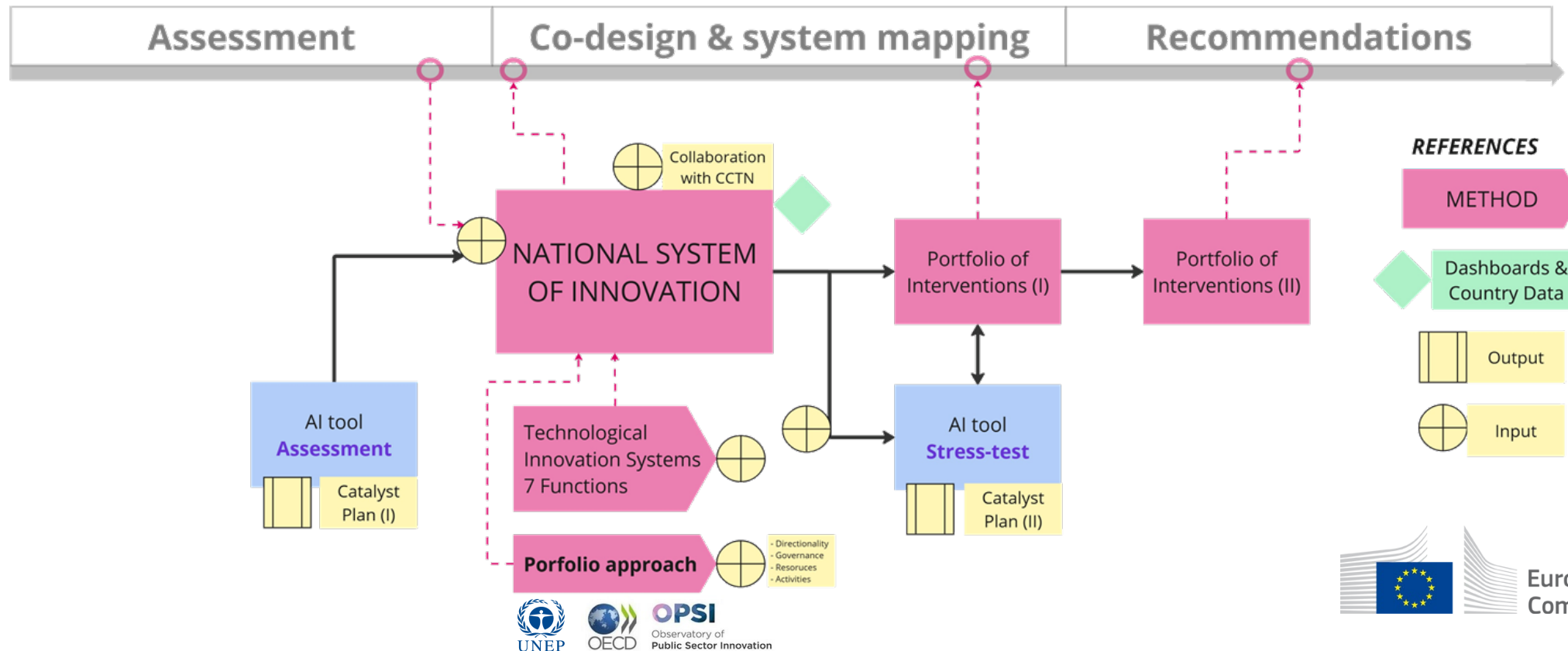
- Integrate multilevel perspective & Anticipation (foresight)
- Instrumental role and contribution to AI tool on NSI
 - Assessment & Stress-testing
- Participatory process & co-creation (#2 workshops)
- Variety of knowledge products
 - Consolidated report and intermediate output aligned with TEC timeline
 - NSI Country maps - Visual narrative -
 - Step-by-Step visual methodology for practitioners (Toolkit)
- Actionable Knowledge (enabling conversations, decision making & planning)



Logic flow and narrative on National System Of Innovation (NSI)



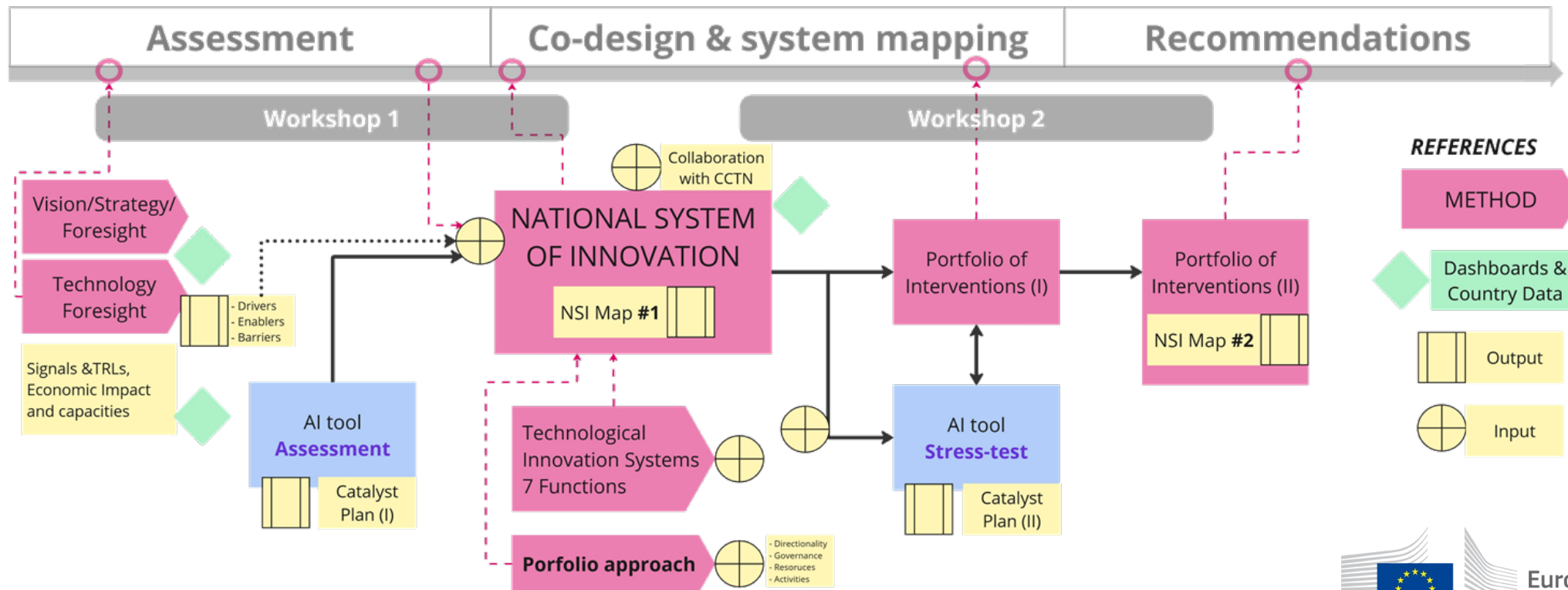
Logic flow and narrative on National System Of Innovation (NSI)



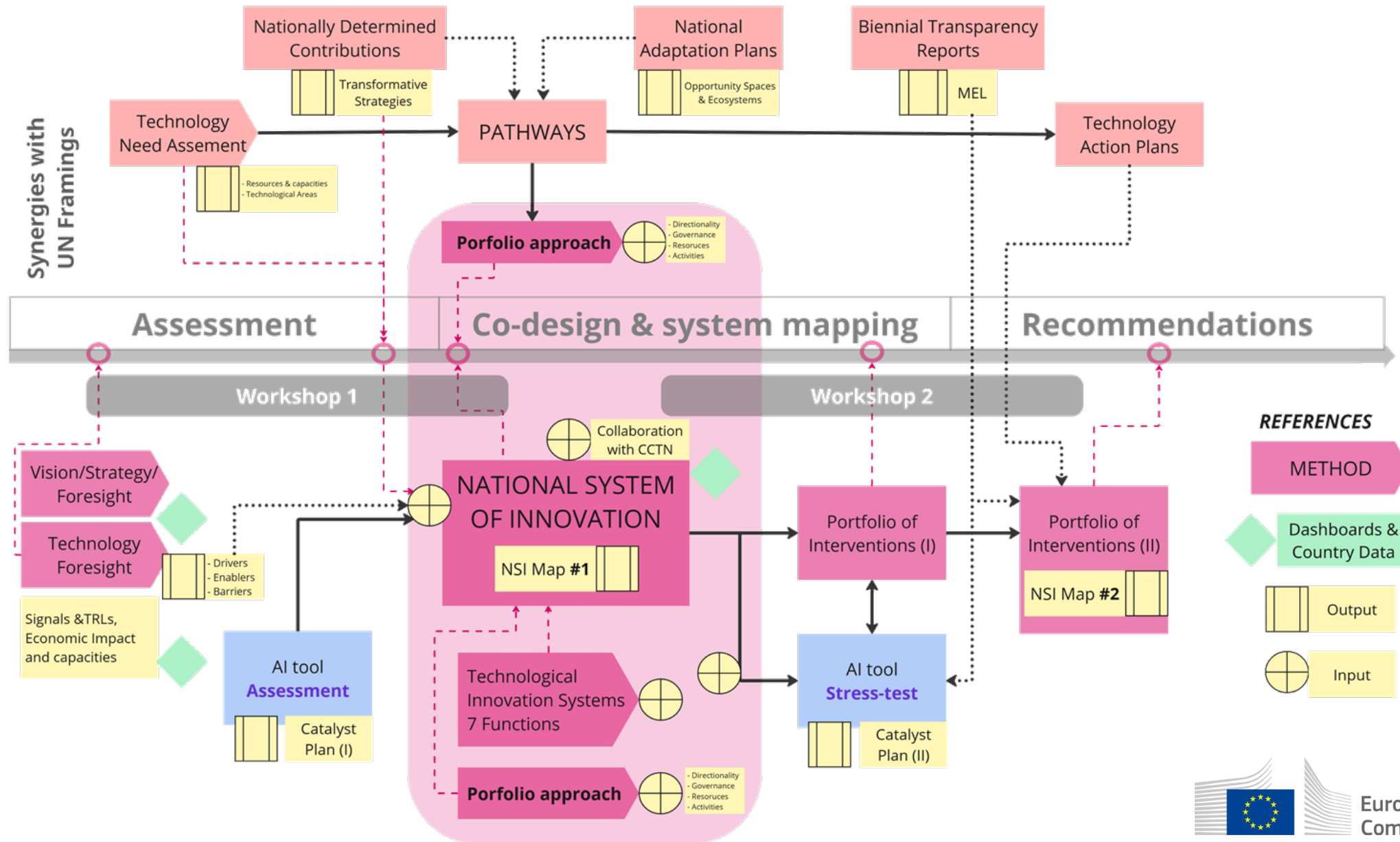
Logic flow and narrative on National System Of Innovation (NSI)

PARTICIPATORY PROCESS – 2 Workshops

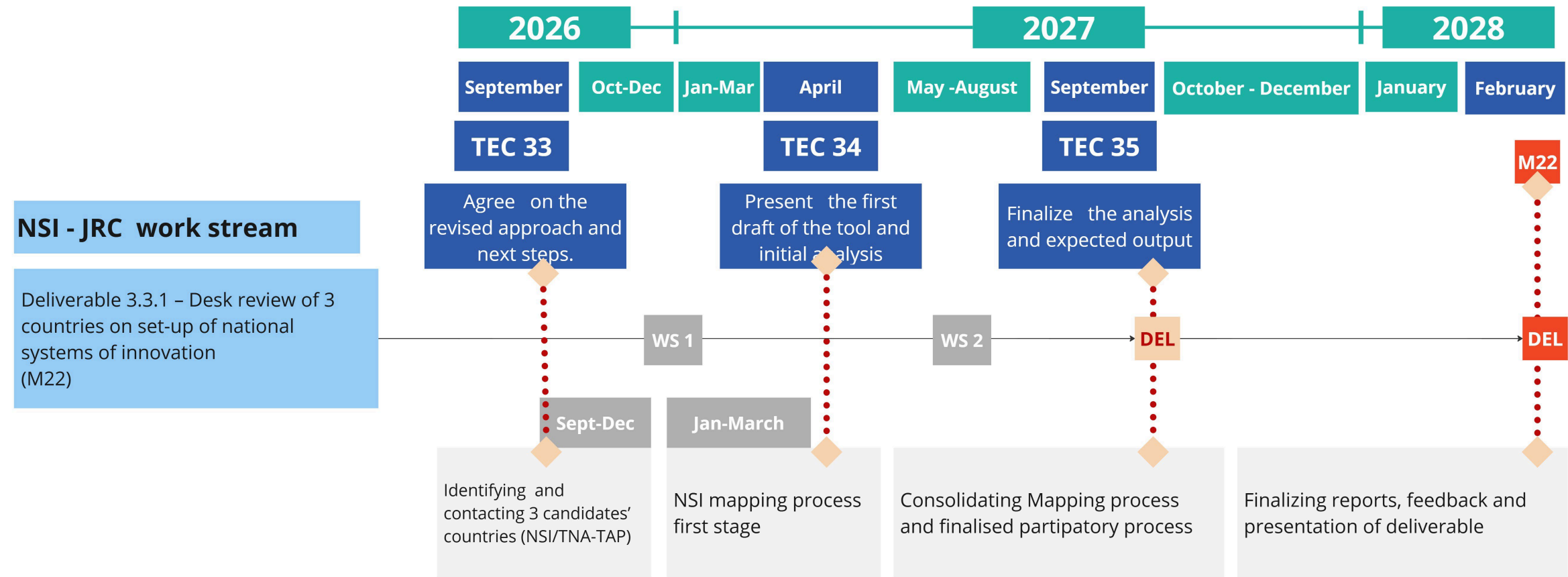
Sensemaking, feedback, co-creation and impact + learning process



Logic flow and narrative on National System Of Innovation (NSI)

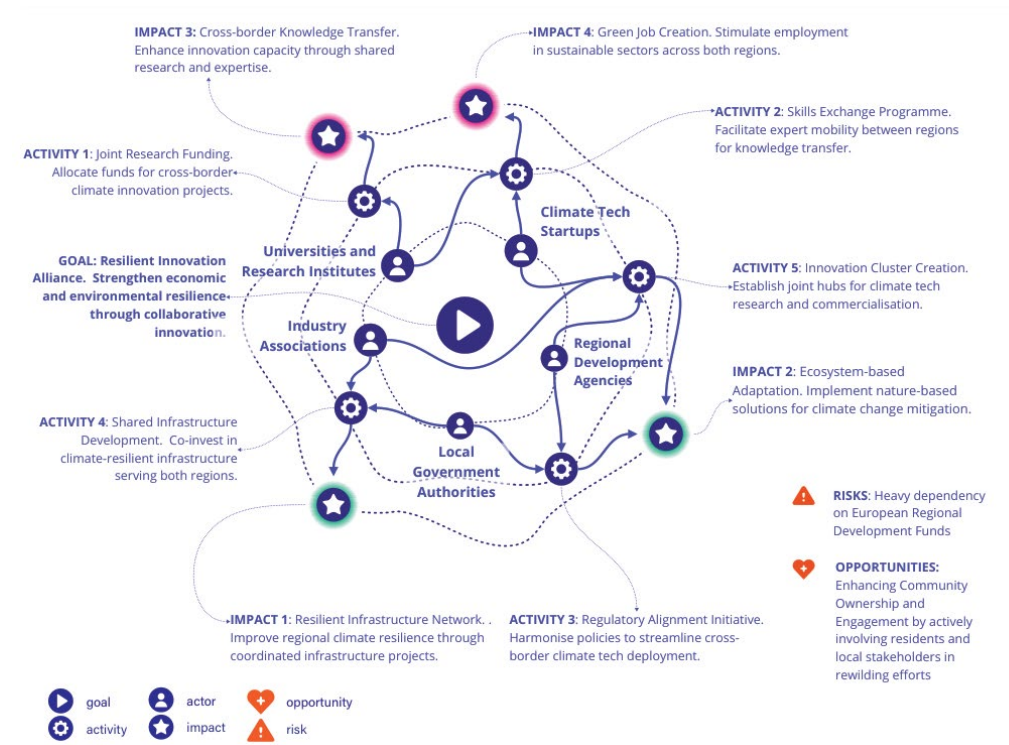


Timeline UNFCCC-TEC & JRC on SNI (2026-2028)



Framing Elements & Methods - NSI **Part I**

Portfolio Approach – Transformative Innovation



Knowledge	Funding & resources	Collective agency
Coordination	Experimentation	Cross-fertilisation
Synergies	Intermediation	Skills & training



Framing Elements & Methods - NSI **Part I**

Portfolio Approach – Transformative Innovation

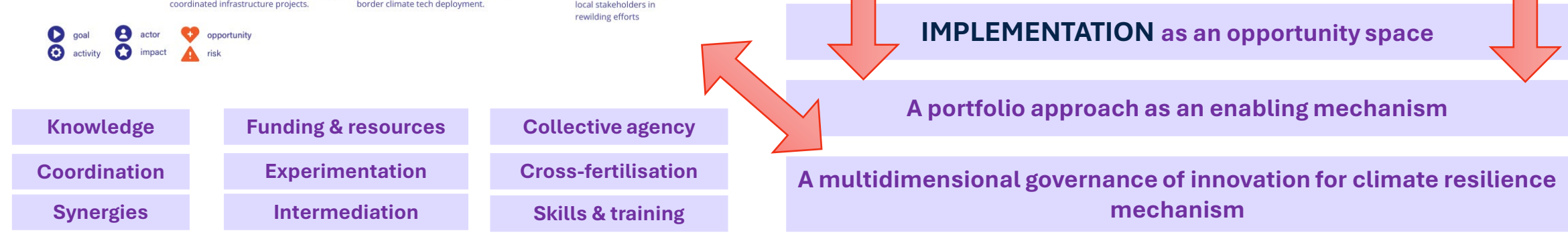


Technology Innovation System - 7 Functions

Table 1. Functions of systems of innovation^a

#	Function	Description
F1	Knowledge development and diffusion	Expansion and intensification of the knowledge base of the innovation system, dissemination of knowledge among actors in the system, creation of new combinations of knowledge
F2	Entrepreneurial experimentation	Designing business models for emergent technologies and knowledge, practices of uncertainty reduction through experimentation with new technologies, applications and strategies
F3	Market formation	Creation of a space or an arena in which goods and services can be exchanged between suppliers and buyers. Includes processes related to definition of demand and choices, positioning (pricing, segmentation) of products, regulation of standards and the rules of exchange
F4	Influence on the direction of search	Processes that influence the direction of research of firms and other actors; that is, which technologies they explore, which problems or solutions they choose to invest in, where they channelize their resources from, etc.
F5	Resource mobilization	Processes by which the system acquires the resources required for innovation, which could be financial and human resources (workforce and capabilities), complementary assets such as infrastructure, etc.
F6	Legitimation	Mechanisms by which an emergent technology, its developers and the TIS in question attain regulative, normative and cognitive legitimacy as viewed by the stakeholders concerned
F7	Development of positive externalities	Creation of system-level utilities (or resources), such as pooled labour markets, complementary technologies and specialized suppliers, which are also available to system actors that did not contribute to building them up

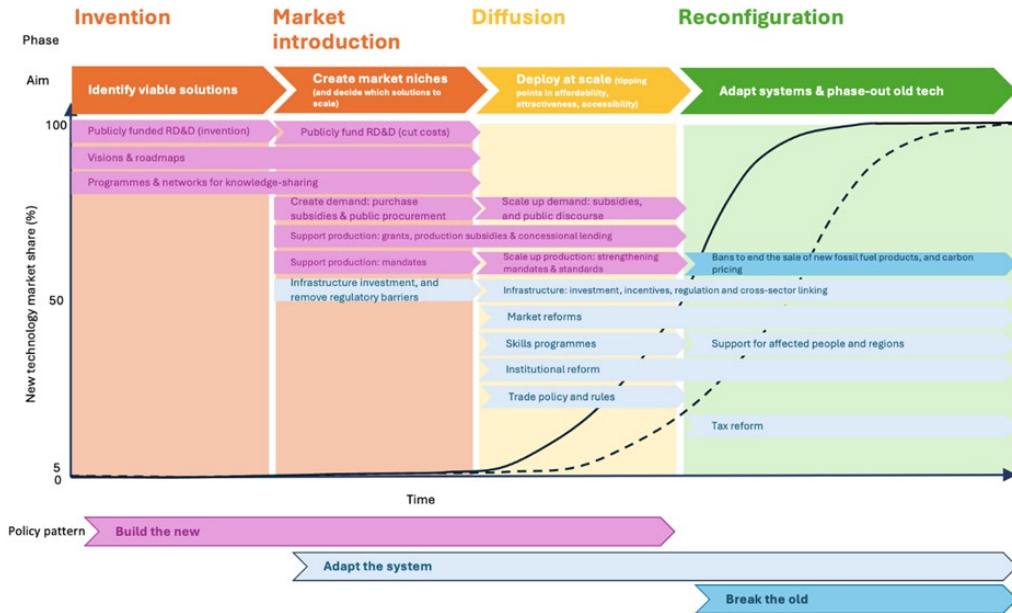
^a Adapted from Bergek, A., Jacobsson, S., Carlsson, B., Lindmark, S., & Rickne, A. (2008). Analyzing the functional dynamics of technological innovation system. *Journal of innovation management*, 37(3), 407–429.



Framing Elements & Methods - NSI **Part II**

Transition Pathways

Phases/Diverse maturity



Instruments

Strategies

Programmes

Investment

Action Plans

Projects

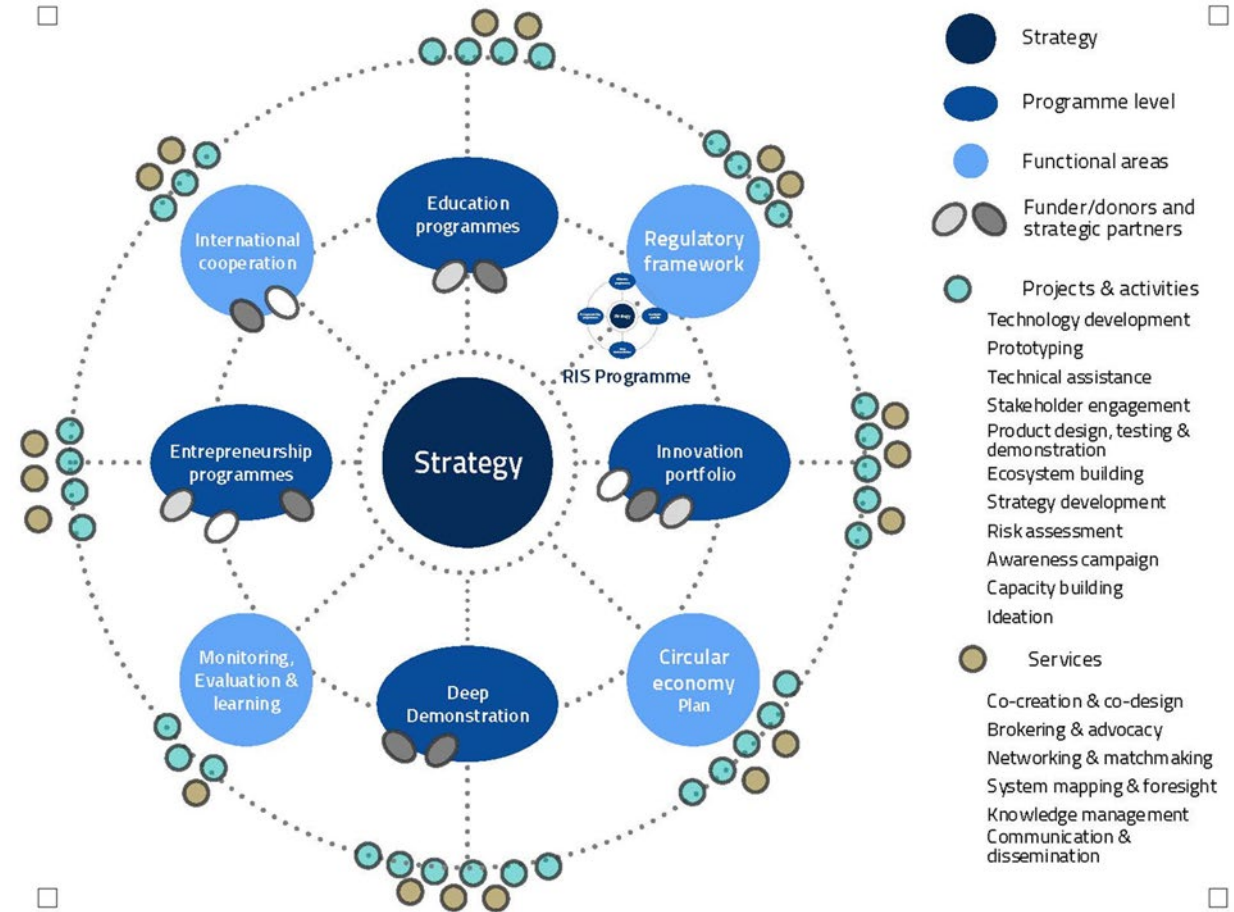
Processes

Intermediation

Services

Portfolio composition

Instruments & governance models



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Example of Tools and Methods - The Navigator

Opportunity spaces & Innovation portfolios

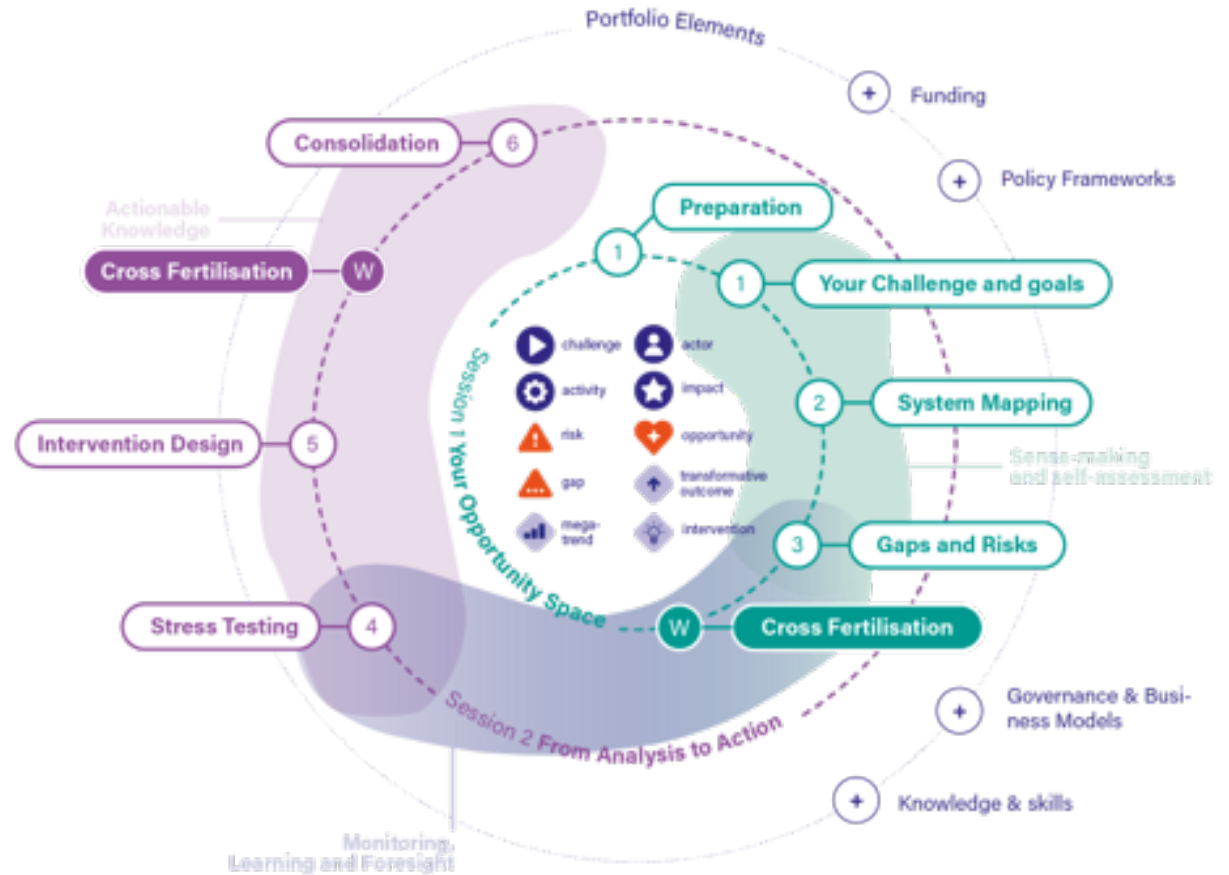
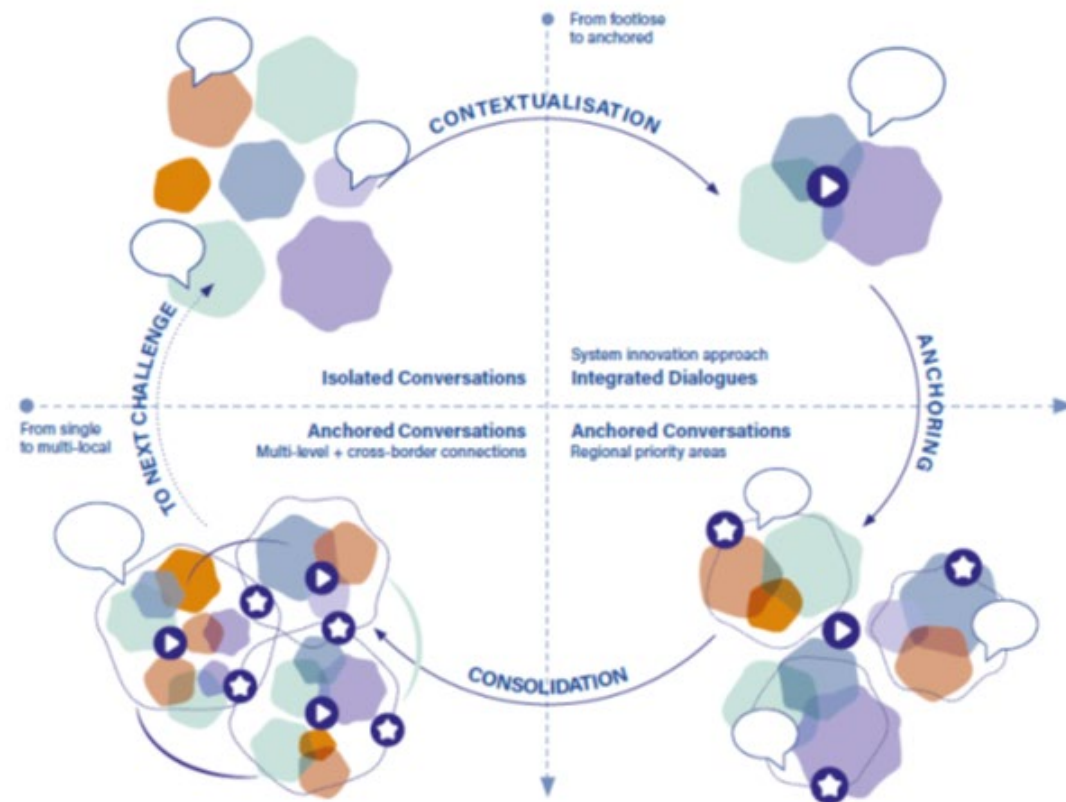


Conversation approach

Diverse maturity

Mapping tool

Innovation ecosystems



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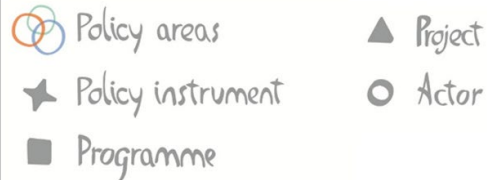
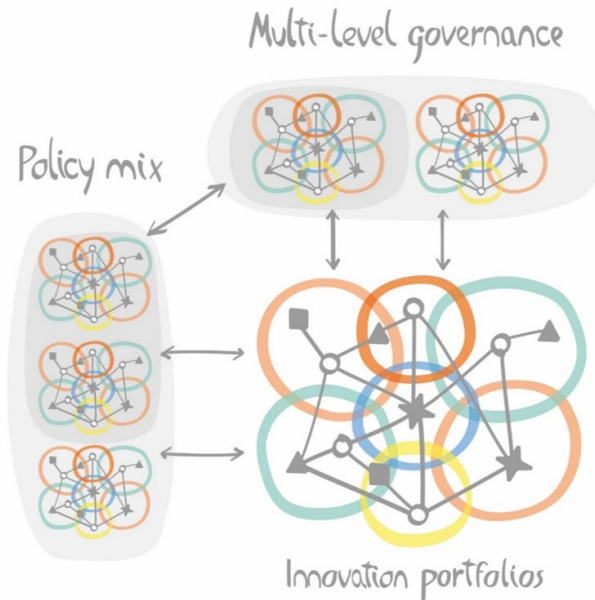


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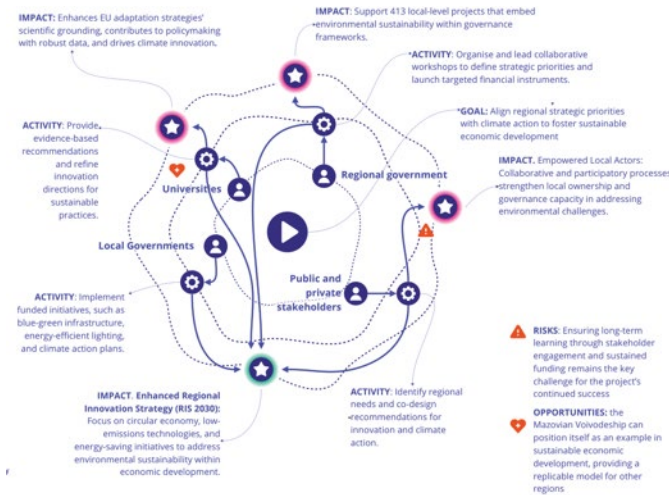
Example of Tools and Methods - The Navigator

Opportunity spaces & Innovation portfolios

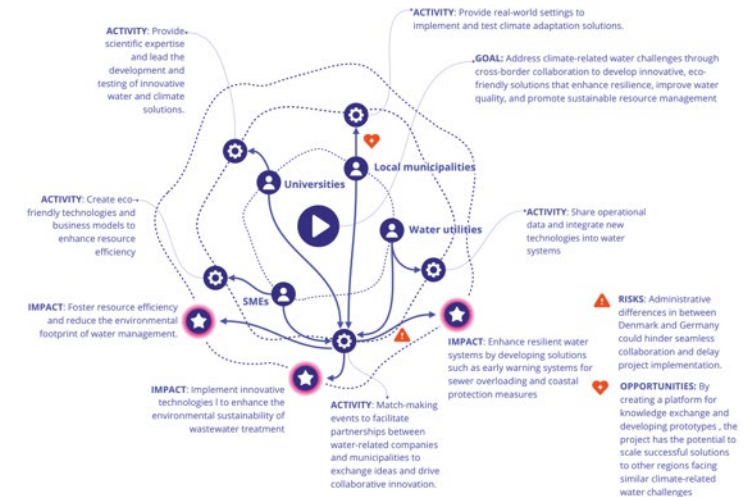
Policy mix, Governance and Portfolio



Priorities & Climate action (Mazovia, Poland)



Cross border Water Management (Denmark)



VISUAL & PRACTITIONER-ORIENTED
oriented Knowledge products

ACTIONABLE KNOWLEDGE
for enabling conversation, decision making and planning



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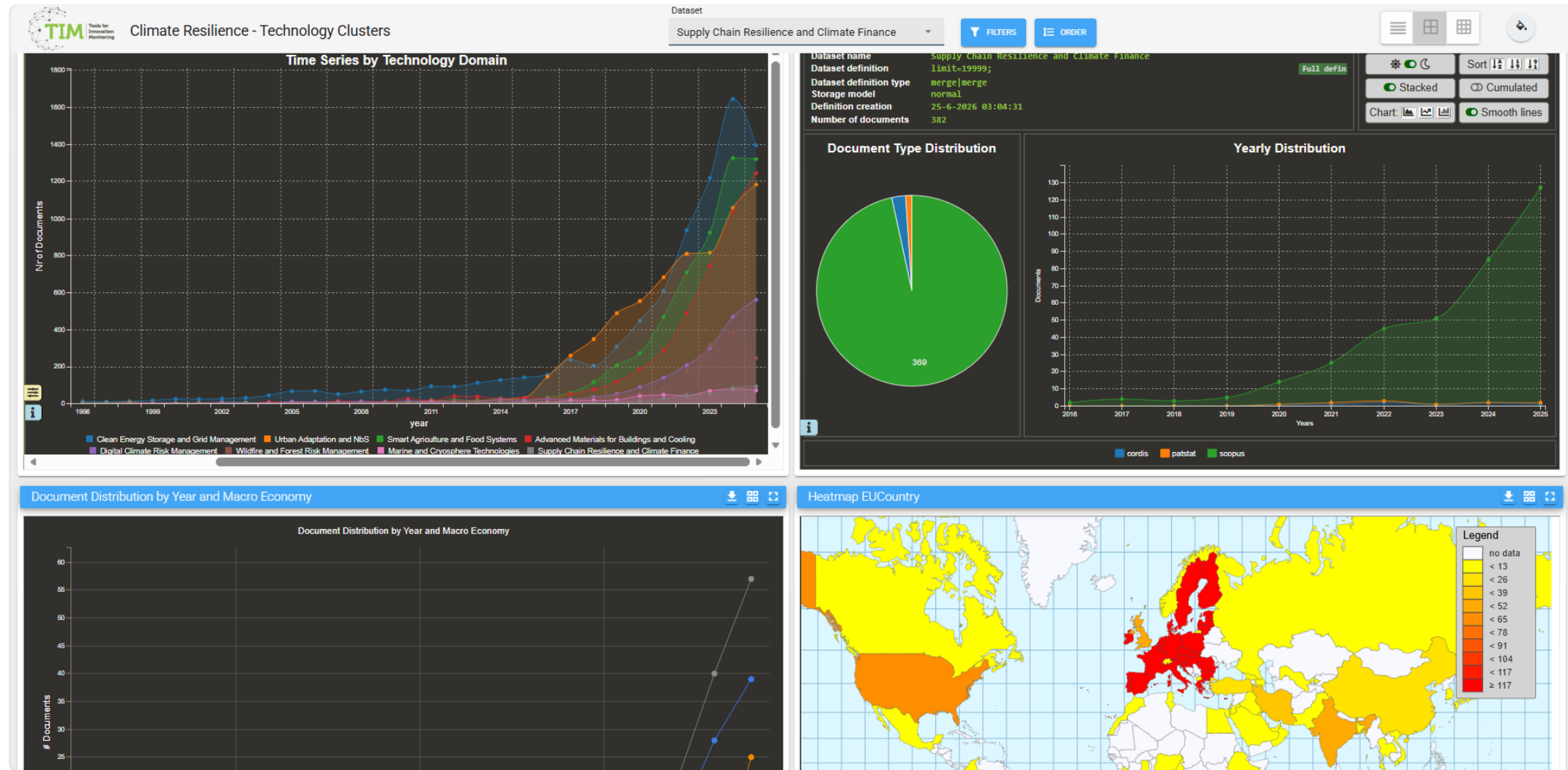
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Example of Tools and Methods - JRC Dashboard - Climate Resilience Technologies

Evidence informing policy process

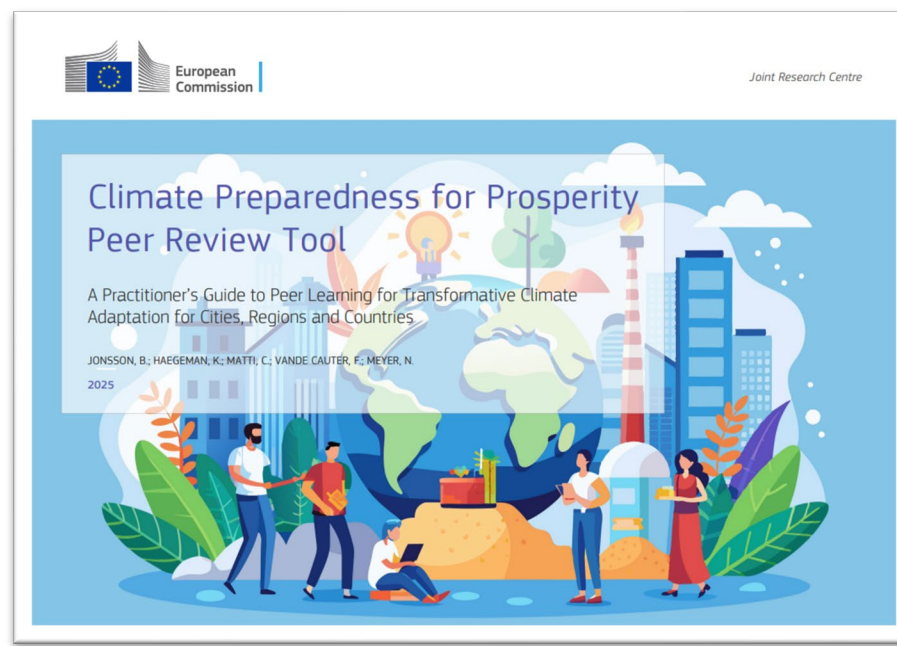
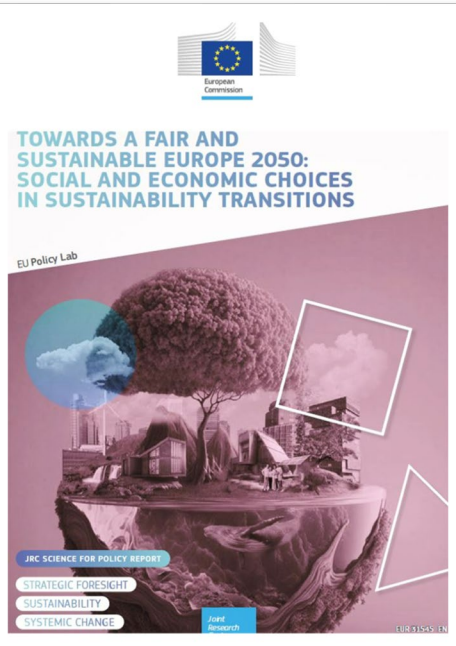
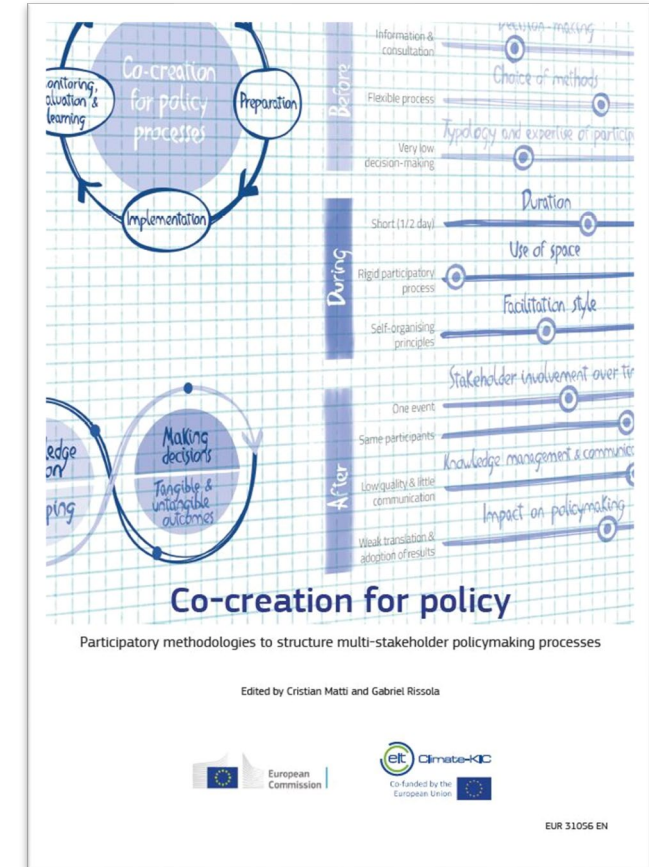


Target countries - geographical diversity and partnerships

- Geographical diversity (preliminary suggestions)
 - Latin America: Chile & Uruguay
 - Africa: South Africa
 - East Europe: Western Balkans, North Macedonia, Montenegro
 - Peer to Peer learning (TBD) with leading countries: Japan & India
- Partnerships and synergies
 - Existing MoU-partnerships (Chile, Uruguay, South Africa, WB)
 - EU-CELAC working ground on Climate & Transitions
 - South Africa annual forum



EC JRC Tools and Methods – Science, Co-creation and Design for policy



NEW
**FORESIGHT
TOOLKIT**
Nov 2026

Thank you

Find out more



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Thank you



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