Financing Adaptation Pathways: Insights from the Pathways2Resilience Project

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Enhancing climate change adaptation in Cyprus: Workshop to support the implementation of the revised National Climate Change Adaptation Strategy and Action Plan

Nicosia 14/10/2025

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200	100	120	150	1,000	500M
RESEARCHERS	PROJECTS	COUNTRIES	CONFERENCES	PUBLICATIONS	MILLION FUNDING

Innovative Systems for the Sustainable Interaction between Nature- Society - Economy

Research and Innovation Centers

- ReSEES Research Laboratory - Athens University of Economics and Business
- Stochastic Modeling and Applications Laboratory - Athens University of Economics and Business
- Sustainable Development Unit - Athena Research Center
- Department of Technology, Management, and Economics - Technical University of Denmark

Innovation Acceleration Hubs

- UN Climate Change Global Innovation Hub
- EIT Climate-KIC
- Brigaid Connect
- MENA Maritime Accelerator
- Black Sea Accelerato

Science - Policy Networks

- Sustainable Development Solutions Network (SDSN)
- SDSN Global Climate Hub
- SDSN Europe
- SDSN Greece
- Water Europe
- Nexus cluster
- Earth-Humanity Coalition (EHC)

Scientific Associations and Academies

- World Council of Environmental and Resource Economists Associations (WCEREA)
- European Association of Environmental and Resource Economists (EAERE)
- World Academy of Art and Science (WAAS)
- Academia Europaea
- European Academy of Sciences and Arts
- InterAcademy Partnership (IAP)
- Academy o Engineering a Technology of Developing W (AETDEW)

Transformations for Systems Sustainability

Climate Neutrality - Resilience

WFEB LULUCF

Oceans Seas

Socio-Economics Financial

Innovation Acceleration

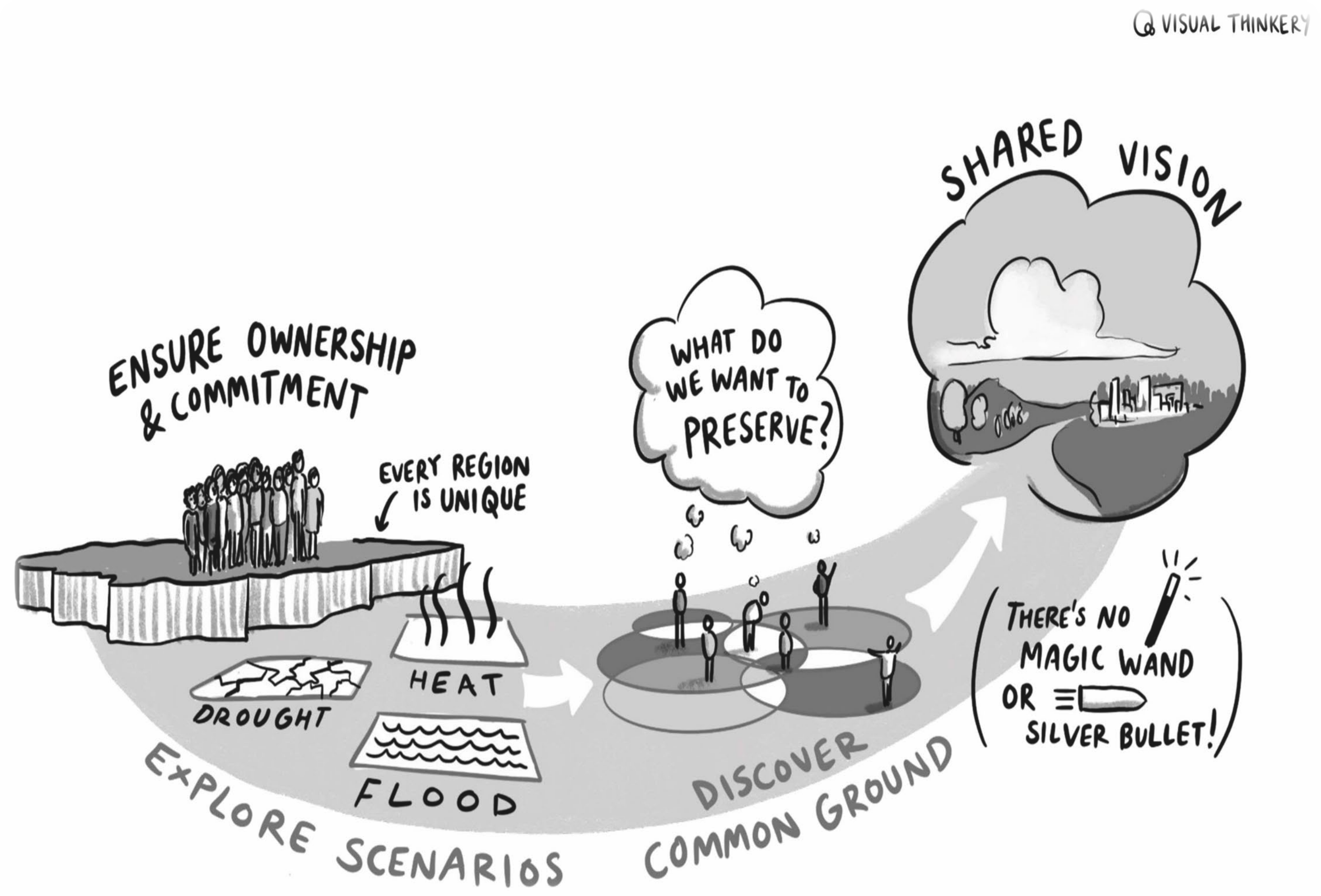
Education Skills

Prof. Phoebe Koundouri
Founder and Scientific Chair

Introduction & P2R Overview

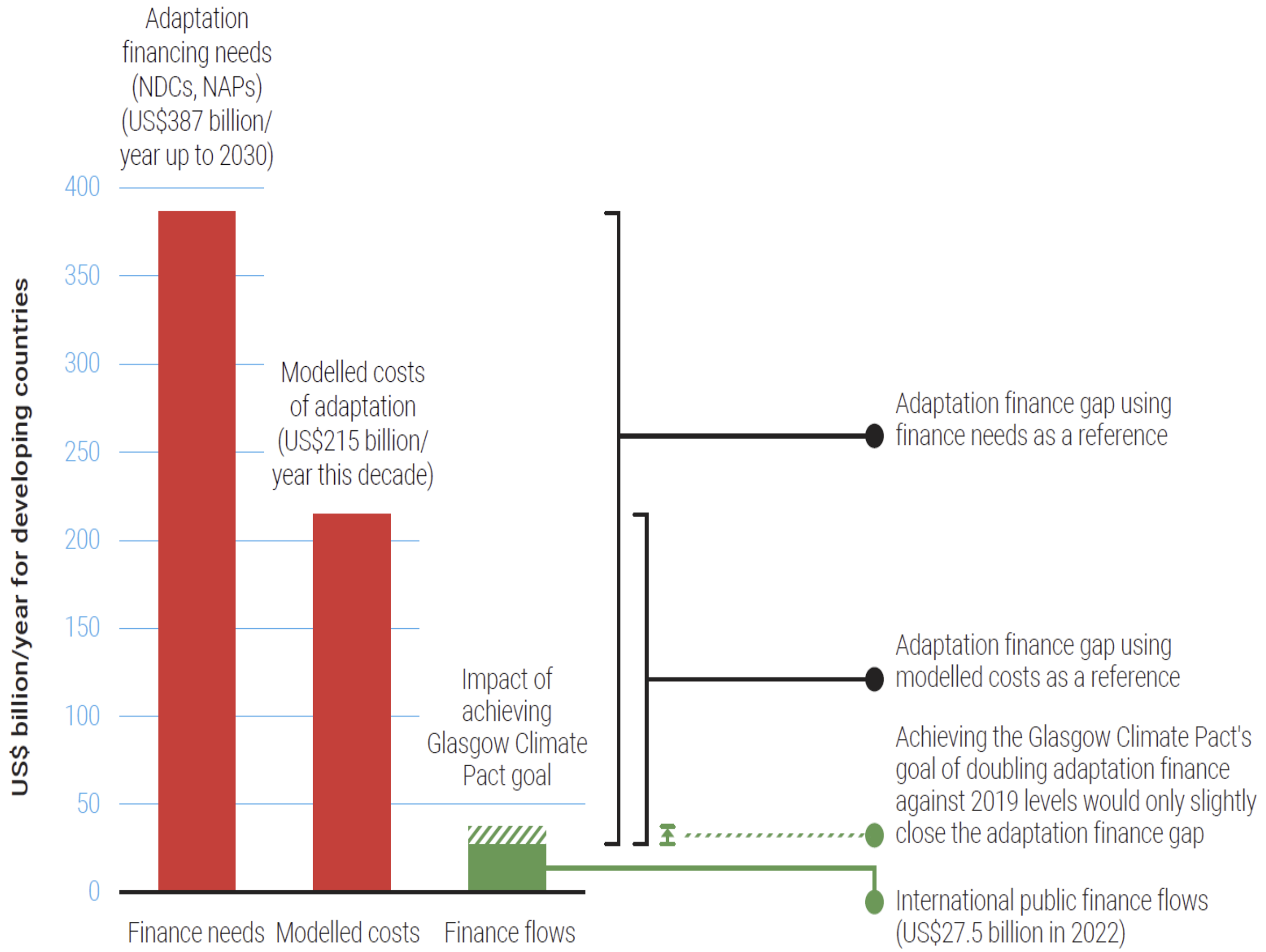
A Shared Vision for Resilience

- Unprecedented effect of **Climate Change**
- Disproportionately felt by **vulnerable** groups & communities
- Need to *jointly decide* on the **common shared vision,** the means to achieve it and the stakeholders to co-shape it



Context

- Europe at the epicenter of **acute CC Impacts** (EUCRA)
- Estimated **EU adaptation investment needs of €15bn - €64bn / year** until 2030
- Most optimistic estimates reveal a **finance gap of** €7bn– €56bn /yr
- Disproportionate burden on **Public Sources** in times of fiscal pressures



Source: UNEP (2024)

Financing Adaptation is hard(er)

- **Adaptation often doesn't generate direct financial returns**
- Returns are **uncertain** and discounted from deep in the future
- **Adaptation projects can be small-scale.** (small municipalities and communities)
- **Adaptation needs to shift from reactive to anticipatory**
- **Adaptation is context-specific**. coupled with varying solutions and approaches

Pathways2Resilience contributes to implementing the Mission Adaptation’s objectives

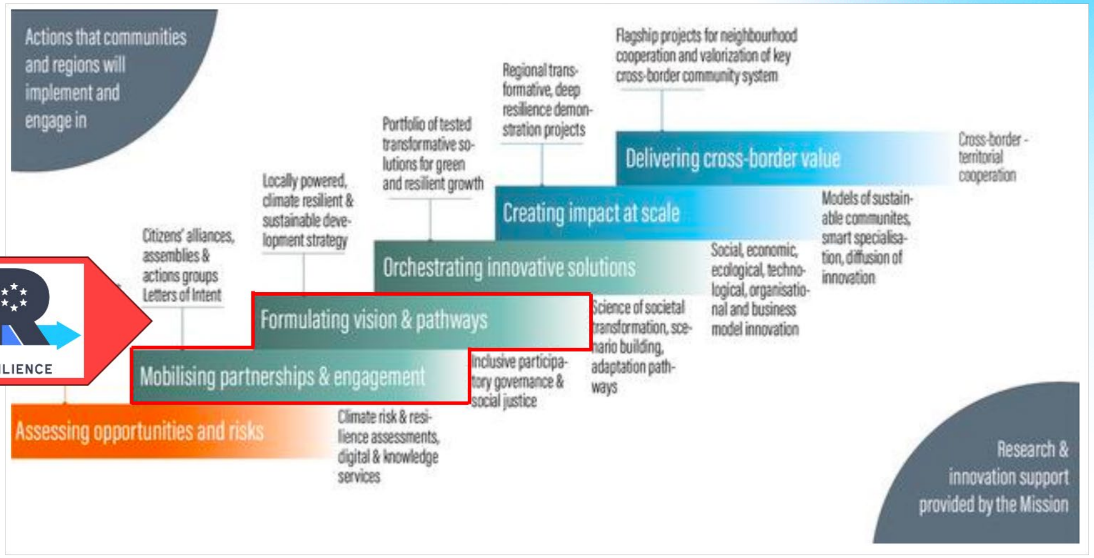
- Its objective is to empower at least 100 European regions and communities to design climate resilience pathways by 2030.
- Total budget: 29,609,362 EUR from which 21M EUR is reserved for funding regional projects through public calls
- Duration: 5 years

Starts M1
Jan 2023

Current = M34
Oct. 2025

Ends M60
Dec 2027

Mission Objectives



Mission Intervention Logic

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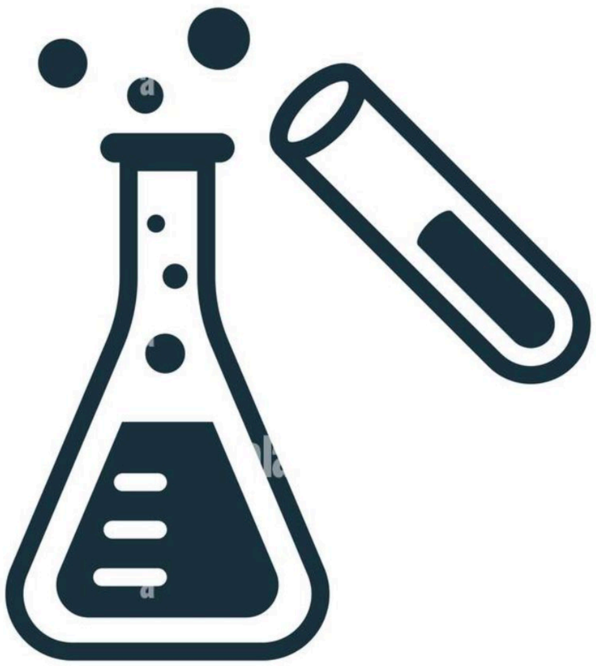
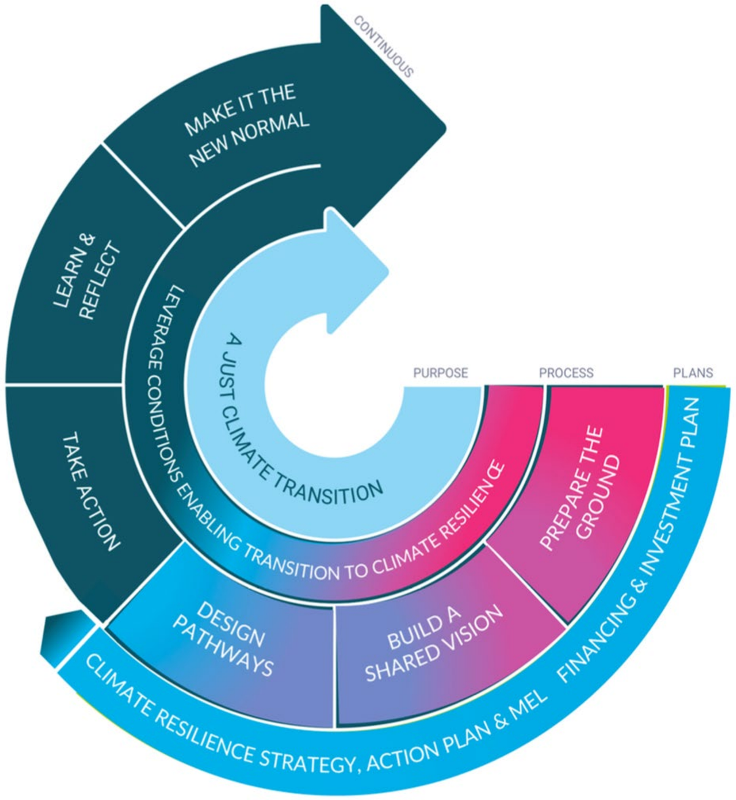
Key features of P2R



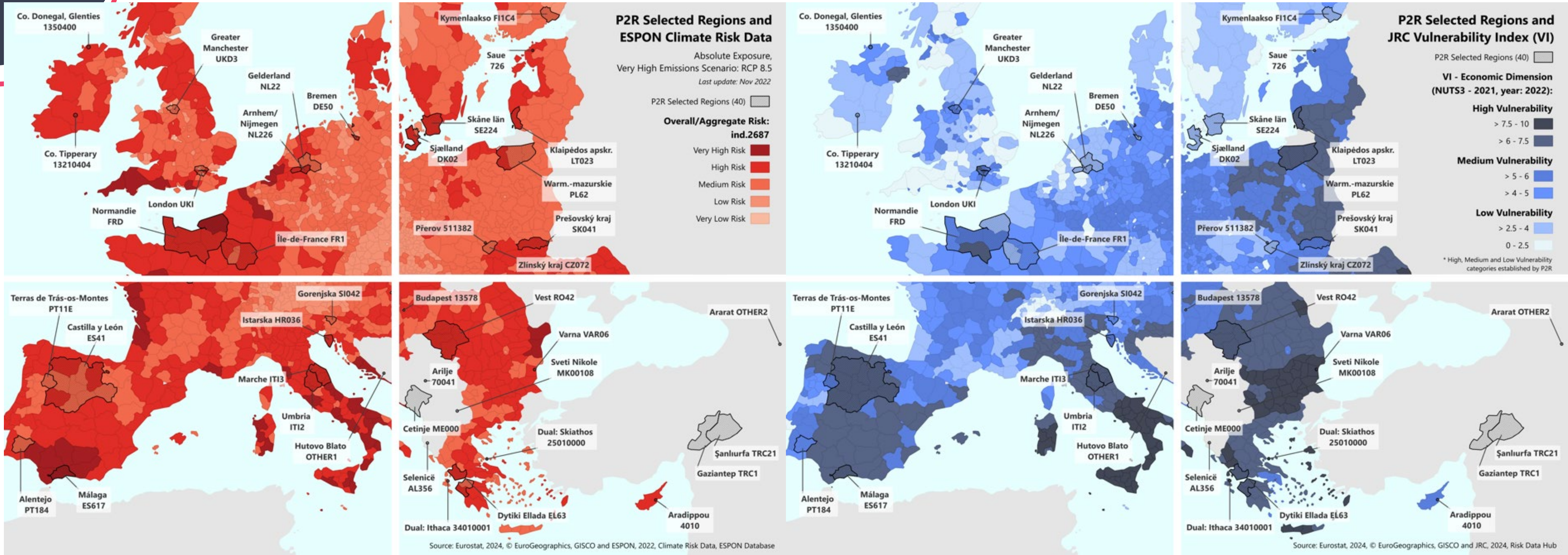
Experiment



Framework

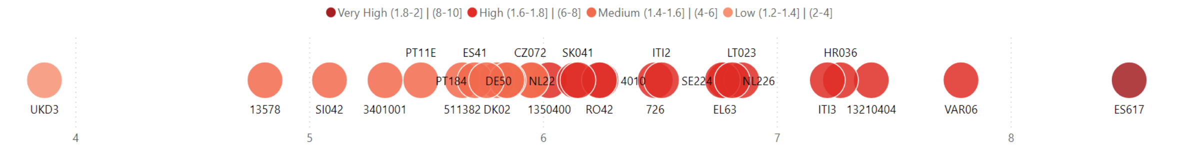
Support Programme

P2R's 1st cohort of 40 regions/cities



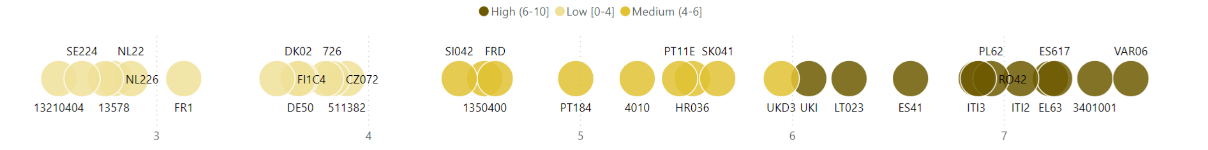
ESPON CLIMATE RISK, ABSOLUTE EXPOSURE, VERY HIGH EMISSION SCENARIO: RCP 8.5

RISK - Overall/Aggregate: ind.2687



JRC Vulnerability Index (VI)

VI - Economic Dimension

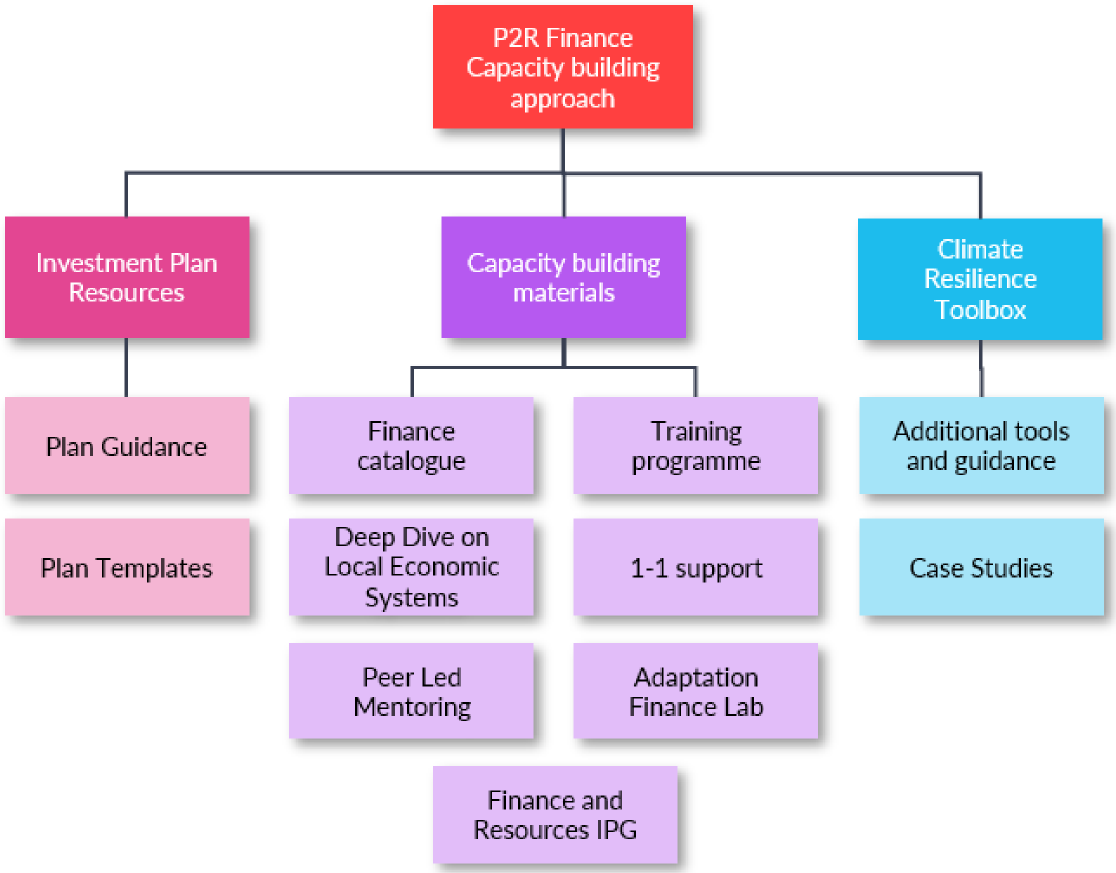


Notes: The original scale of ESPON Climate Risk data is between 1 and 2. In the context of P2R, ESPON data was rescaled with the following formula (x -1)*10, in order to match the scale of JRC and RRJ data. ESPON data was applied to different territorial levels: NUTS3 - original data, NUTS2 - aggregated respective NUTS3 level regions, NUTS1 - not calculated, LAU - NUTS3 level data used. There is no ESPON Climate Risk data for all categories/dimensions/impact chains for region in: Albania (AL0356), North Macedonia (MK00108), Montenegro (ME000), Serbia (70041), Bosnia and Herzegovina (OTHER1), Turkey (TRC1 and TRC21), Armenia (OTHER2), United Kingdom (UKI), France (FR1 and FRD). Other missing data varies for different risk categories/dimensions/impact chains.

Notes: JRC Vulnerability Index data was retrieved from Risk Data Hub API with NUTS classification of 2021 for NUTS3 and NUTS2 level. Year of the data - 2022. Qualitative categories were established by P2R by merging original 6 categories proposed by JRC. JRC data by different territorial level: **NUTS3** - original data, **NUTS2** - original data, **NUTS1** - aggregated respective NUTS2 regions or Country level used if NUTS1 = Country level, **LAU** - NUTS3 level data used. There is no JRC Vulnerability Index data for Albania (AL356), North Macedonia (MK00108), Montenegro (ME000), Serbia (70041), Bosnia and Herzegovina (OTHER1), Turkey (TRC1 and TRC21) and Armenia (OTHER2).

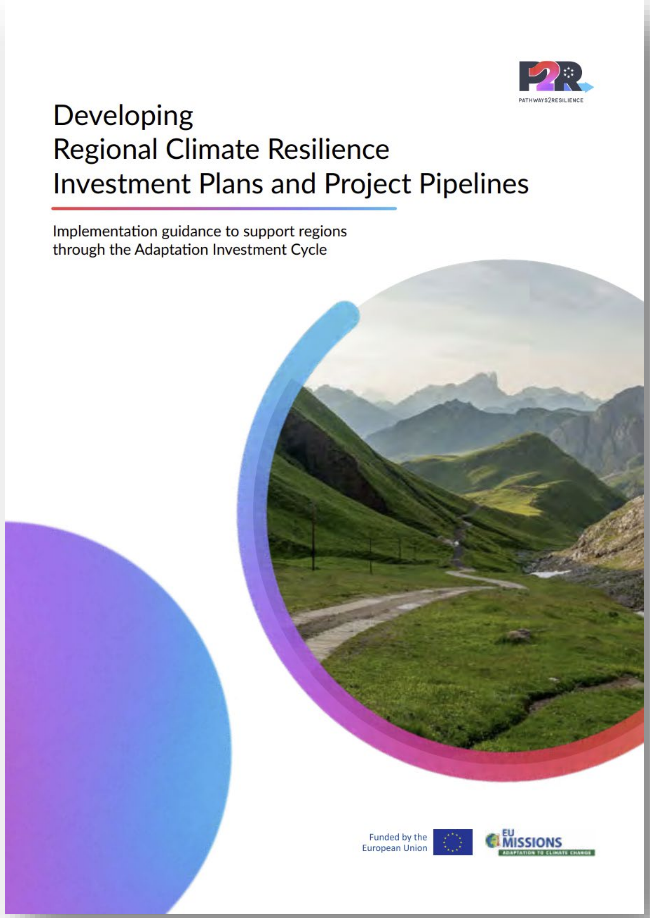
P2R finance capacity building program

- Significant set of **resources, capacity building program and toolbox**
- Range of knowledge-based and experiential learning
- But delivering alongside a full program on adaptation planning => –only to level of 'informed client'
- Some additional finance brokering activity planned between regions and investors / financing institutions.



AIC Guidance– Progress and Next Steps

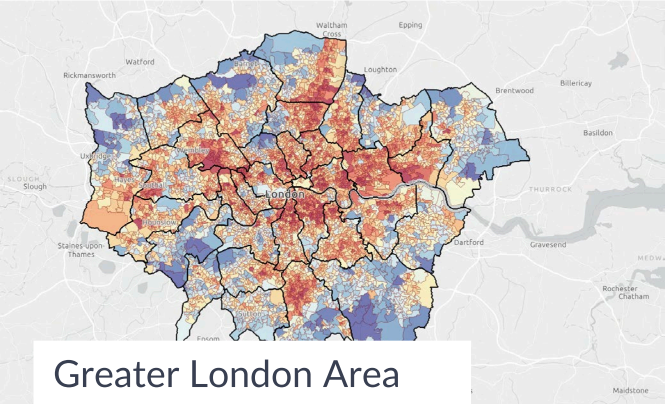
- P2R **AIC Guidance Document** provided to with all Regions in Cohort 1
- Updating the Guidance in response to feedback and reflections from learning sessions and 1-1 support
- **Extending** to cover additional phases (*Bankable projects and MEL*) and enabling conditions for finance.
- Strengthening the integration of the AIC & RRJ in both Guidance documents
- Supported by **templates, examples and training materials**



P2R 1-1 Support (Cohort 1)

- **Tailored, one-to-one support for 4 regions** (five to follow in the second cohort)
- **On the formulation and financing** of adaptation pathways and innovation portfolio.

Marche Region



Greater London Area


Ithaki & Skiathos Islands

One to one dedicated support

Arnhem-Nijmegen Region

Adaptation Finance Innovation Lab

Purpose: To increase regional adaptation finance flows by facilitating the ideation and **development of six innovative public or private sector projects and/or financial instruments** (and their associated business models).

- **Expand Financial Solutions** to bridge the Adaptation Finance Gap in Europe
- Address 8 risks classified as needing “urgent” action by the European Climate Risk Assessment (**EUCRA**)
- Open call (Jan. 2026) to source P2R regional stakeholders and *beyond*

Innovation in this context is: The creation of entirely new instruments or programmes, or the deployment of existing ones for the first time in the context of climate adaptation or for the first time in Europe.

P2R Finance &Resources Deep Dive

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Roadmap following the Adaptation Investment Cycle

Barriers and Challenges for Adaptation Finance

- **Identify key barriers for Regions in securing and leveraging financial resources**
- **Showcase existing & innovative solutions**

Diversification of Financial Sources and Instruments

- **Synthesize information** from diverse catalogues and repositories
- Understand transformations needed to diversify into new financial sources and instruments
- **Leverage Capital HUB and EU mechanisms**

Enabling Frameworks and Plans for Regional Adaptation

- **Embed adaptation finance perspective into regional development planning**
- **Uncover and evaluate regional enablers for scaling up adaptation fina**

Overarching Aim: deliver Policy Insights for EU institutions to tackle key cross-project issues on bridging the Adaptation Finance Gap through the engagement of the Mission Community

P2R Finance mid-way through

39 Regions completing Phase 2 and moving into Pathways
- Baseline Reports under assessment

4 AIC Training Sessions
- 21 in total

320 Hours of 1-1 Support
- Tangible outcomes

Enhanced peer-to-peer learning in 2 IPG weeks
- Finance & Resources + Local Economic Systems

Integration with Mission Objectives
- Finance DD and P2R partners networks

Positive Feedback on AIC and Capacity Building
- >80% satisfied with the sessions

Dissemination of Cohort 1 work
- >220 Applications for Cohort 2

Investment Planning and the P2R Adaptation Investment Cycle

Why Adaptation Investment Plans?

[The] lack of **a funding roadmap** within [National Adaptation] Plans acts as a direct impediment on how to strengthen the enabling environment for Adaptation actions (**OECD, 2024**)

A key barrier to attracting private finance is the "**limited clarity on the government's capital investment gaps** to achieve adaptation goals, and/or on where private investment is needed" (World Bank, 2021)

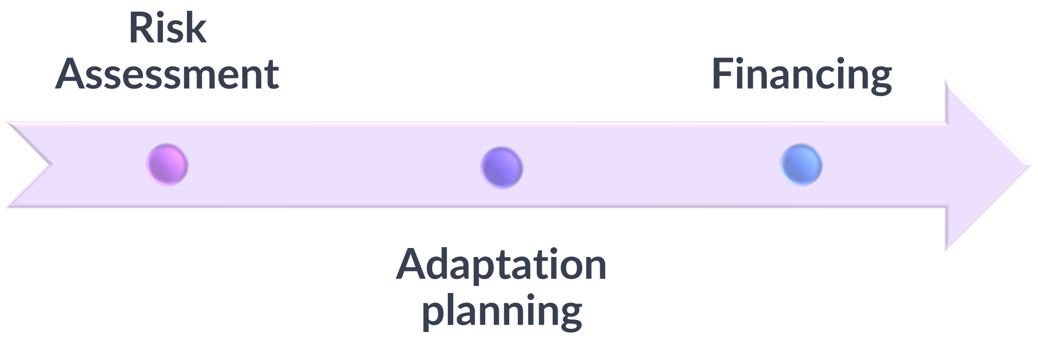
Regional planning for adaptation allows **project developers to mobilize limited resources** that would have otherwise been difficult to mobilize, which in turn stimulates confidence among actors and further creates the sense of shared responsibility and solidarity. (**UNFCCC, 2021**)

In the absence of **concrete policies, budgets, and investment programs** for adaptation, private financiers will not be interested in these types of investments (**World Bank, 2021**)

The finance needs for approximately half of the identified adaptation actions in countries' plans (NDCs and NAPs) **have not been costed** (**UNEP, 2024**)

From ‘finance last’ to ‘finance first’

Typical Approach



Typical approaches have limited focus on economics and finance – relegated to end of process.

P2R is centring **financing and economics considerations as a key consideration** in planning to maximise participation of new actors

Ideal Framework

Adaptation Investment Cycle (AIC)

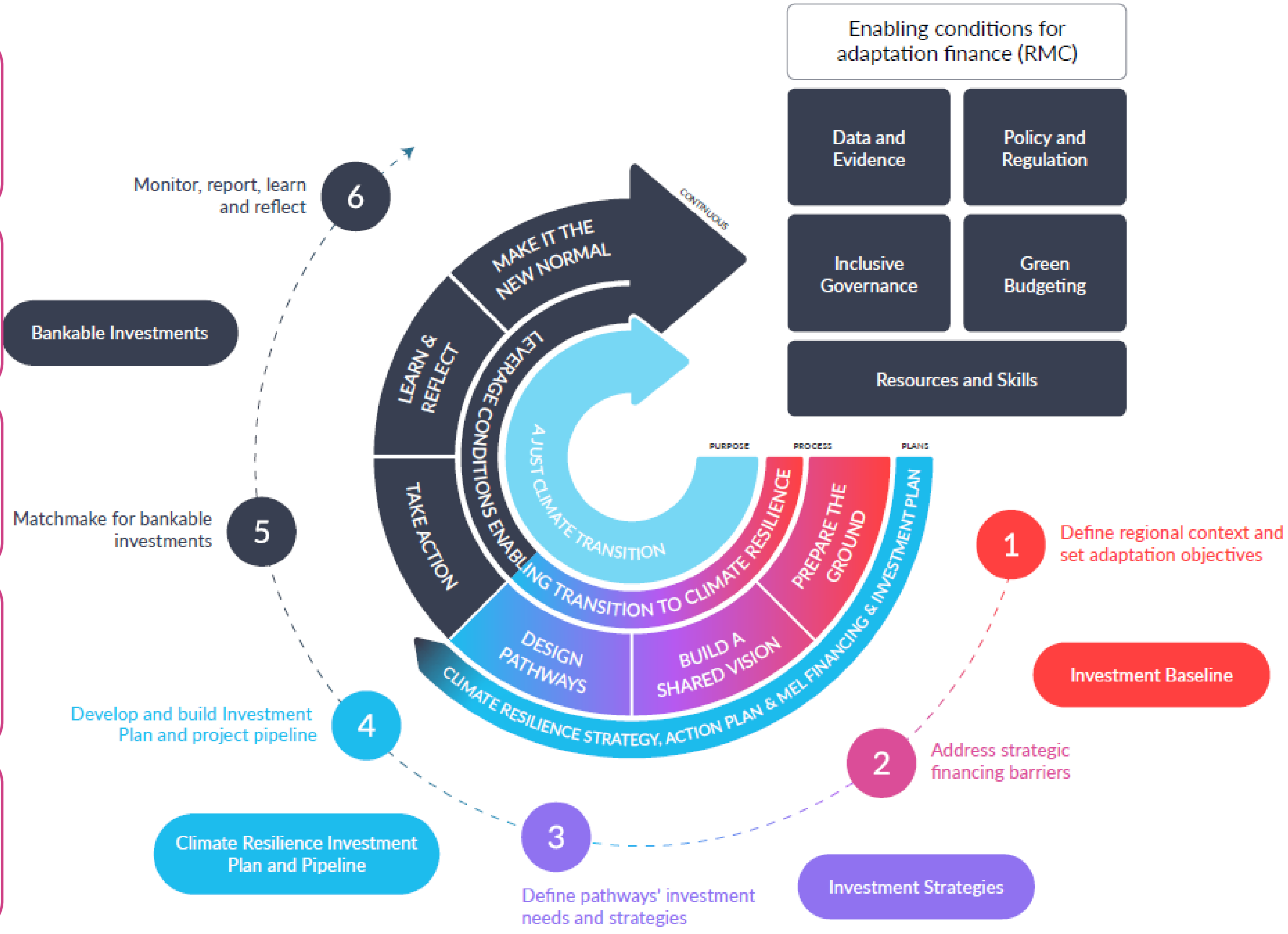
Comprehensive & *flexible* **6-step Process** to support the RRJ

Translates high level visions into **pipelines of bankable projects**

Focus on **addressing barriers** to adaptation finance

Emphasis on financial and economic Rationale from **Step 1**

Traditional adaptation cycle very science based - Economics and finance left until step 4 (assess options).



AIC – A tool for Regions & Cities

Flexibility	Blueprint in principle but encouraging regions to have ***different entry points***
Integration	Acknowledging *existing* **regional financial planning** and providing touch points for adaptation investment
Adaptability	Considering **local contexts, barriers and challenges** in shaping pathways and expanding portfolio of financial solutions
Justice & Equity	Considering **all population groups** and accounting for future costs & costs of inaction from the onset

AIC - Addressing common barriers

Economic & Market	Identifies economic and social benefits of adaptation and encourages the development of an economic rationale
Financial	Encourages the diversification of funding sources and prioritizes *bankability* considerations from early on
Political	Streamlined process acknowledging regional priorities and processes
Behavioral	Co-creates value propositions with all relevant stakeholders
Technological	Embedded in Innovation Agendas + introducing financial innovations
Knowledge & Awareness	Steers regional planners to directly address the systemic financial barriers

Phase 1: Defining the regional context and set adaptation objectives

Task 1.1 Identify the policy and financial context

- **Regional policy priorities** and objectives
- Financial Processes for (Adaptation) Investment
- Indicative budget envelope for Adaptation

Task 1.2: Gather baseline economic and financial evidence

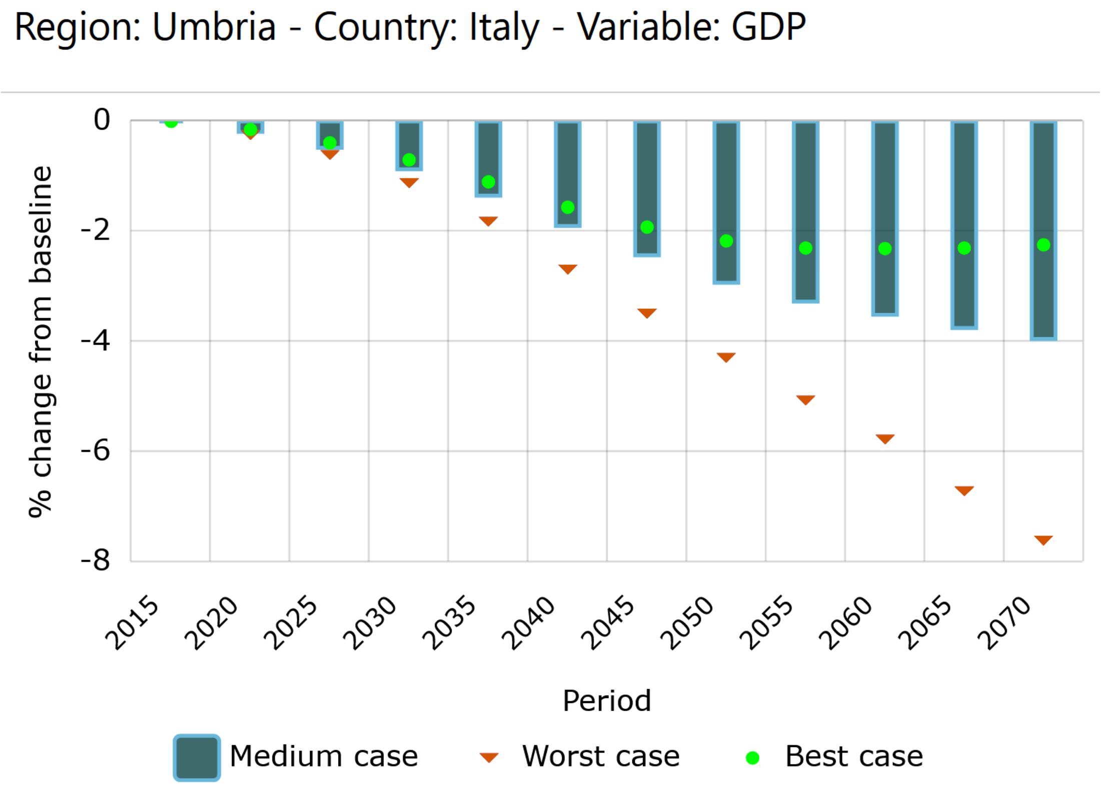
- Historic Costs of past events
- Future cost projections
- Estimate Adaptation Needs

Task 1.3 – Strategy objectives and rationale

- Build the Economic Case for Adaptation Investment
- Communicate Resilience goals and relevance
- Considering Just Resilience

Phase 1 In focus: Projected Costs using COACCH

- Available at **NUTS2 region** level for EU27 and UK.
- Models impacts in **9 sectors** and their subsequent effects on GDP.
- Two key outputs – **Maps or graphs.**
- Shows **% reductions in GDP** at aggregate level, and by different sets of impacts.
- Can be **equated to local GVA, and therefore combined with local, national statistics** or academic studies to estimate monetary impacts.



Phase 2: Addressing strategic financing barriers

Task 2.1 Catalogue existing sources and instruments.

- Map according to purpose, KEC and amount
- Start with flagship projects
- Build a coherent set of Tables

Task 2.2 Identify additional sources and instruments

- Strategic set of *extra resources*
- Use platforms and online tools
- Assess the barriers for expanding adaptation finance portfolio

Task 2.3 Expand financing options

- Propose solutions to Barriers from 2.2
- Consider *low hanging fruit* to mobilize funds
- Action Plan to address barriers (v1)

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Phase 2 In focus: Why is addressing strategic financing barriers important?

- Most regions typically rely on **public budgets and EU Funds** for proactive adaptation.
- And many governments are asked for support **when extreme weather hits.**
- As you develop your strategy and action plan, the costs of adaptation typically rise
- But there are many different pressures and calls on public budgets – and they won't be enough on their own.
- There are **many different sources and instruments** that could *theoretically* be used for adaptation

Table 5 *- Q. Which sources of adaptation financing have you used, do you intend to use, do you know or don't you know?*

Sources of adaptation financing	I have used	I intend to use	I know	I don't know
Cohesion Policy Funds (ERDF, Interreg)	48%	26%	14%	11%
LIFE Programme	31%	31%	24%	14%
European Rural Development funds	22%	21%	30%	28%
Horizon Europe	25%	44%	20%	11%
Other EU funds	27%	26%	18%	29%
European Investment Bank financing	9%	12%	32%	47%
Private/commercial banking financing	8%	10%	31%	50%
National funds	62%	19%	11%	8%
Regional funds	52%	17%	12%	19%
Own local funds	56%	14%	10%	20%
Other	7%	12%	12%	69%

Source: European Commission, 2023.

Phase 2 In focus: Catalogue of Sources & Instruments for Adaptation Finance

57 sources:
- Actor Type, Category and Description
- What matters to this source
- Who can this source help finance?

Relevance to Key Community Systems

78 Instruments:
- Instrument Type, Category and Description
- Typical Financing Sizes
- Advantages and drawbacks on this type of instrument

+ 169 Case Studies

Phase 3: Defining investment needs and strategies

Task 3.1 – Longlist adaptation options and assess economic costs and benefits

Inform Cost-Benefit Analysis

Part of a **wider multi-criteria analysis (MCA)**

Build stronger cases for adaptation investment

Task 3.2 - Prioritise and sequence adaptation options into sets of pathways

Classify adaptation options into **short, medium, and long-term actions**

Identify options that make *Economic sense*

***Assess urgency based** (also)* **on timing of Costs & Benefits**

Task 3.3 - Develop Investment Strategies for preferred pathways

High-level approach to **financing** Adaptation Pathways

Who ultimately *pays for & gains from* Adaptation

Revisit potential financial sources & instruments (2.3)

Phase 3 In focus: High-level CBA (Heat Plan)

Adaptation options	Climate Risks	Costs	Benefit	Type of benefit (adaptation benefit / co benefit)	Size of benefit (H/M/L)	Economic and financial viability
Climate proofing of buildings against excessive heat (white roofs)	High temperatures	L	Reduced morbidity	Adaptation	M	Favourable
			Reduced mortality	Adaptation	M	
			Reduced air temperatures	Adaptation	L	
			Reduced energy demand	Co-benefit	L	
			Reduced carbon emissions	Co-benefit	L	
			Improved productivity	Adaptation	L	
Climate proofing of buildings against excessive heat (green roofs)		M	Reduced morbidity	Adaptation	M	Neutral
			Reduced mortality	Adaptation	M	
			Reduced air temperatures	Adaptation	L	
			Reduced energy demand	Co-benefit	M	
			Reduced carbon emissions	Co-benefit	M	
			Improved biodiversity	Co-benefit	L	
			Improved productivity	Adaptation	L	
Heat Health Action Plans		L	Reduced morbidity	Adaptation	H	Favourable
			Reduced mortality	Adaptation	H	
Early Warning System Extension		M	Reduced morbidity	Adaptation	H	Favourable
			Reduced mortality	Adaptation	H	
			Reduced infrastructure disruption and economic losses	Adaptation	H	

Phase 4: Developing and building the Investment Plan and project pipeline

Task 4.1 Build economic and financial case for the action plan

- Economic Appraisal through holistic estimation of (co) Benefits
- Financial Appraisal including KPIs (NPV, BCR, IRR)
- Follow region- and project-based criteria

Task 4.2 Agree financial models for action plan

- Review Action Plan for finance gaps
- Iterative Process with Stakeholders to improve *bankability*
- Enhance and add in the Action Plan or put in Future Project Pipeline

Task 4.3 Decide bankable priorities, future investments and enabling conditions

- Finalise the list of actions to be included in the action plan or pipeline
- Confirmed the action plan fits within the fiscal space of the regional government
- Draw on actions to improve

Phase 4 In focus: CBA for Economic & Financial Appraisal

1. Agree on the objective and identify adaptation options
2. Establish a baseline / business as usual scenario (i.e. without the adaptation action).
3. Identify and aggregate all costs and benefits for each action – draw on work for Investment Strategies in Phase 3 + individual actions.
4. Monetise the costs and benefits - Assign € amounts to each cost and benefit – covering both direct and indirect costs (*present values*)
5. Compare the aggregated costs and benefits of different options using the NPV, BCR and/or IRR.
6. Undertake Sensitivity analysis – test the sensitivity of the result to key changes (e.g. changes in costs, or climate impacts).

Triple Dividend Approach

- Avoided Losses
- Induced Economic Benefits
- Social & Environmental Benefits

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Phase 5: Matchmake for Bankable Investments

5.1 Co-design value proposition and business models

- Develop projects' Business Model
- Identify project beneficiaries and revenue streams
- Evaluate potential Value Capture

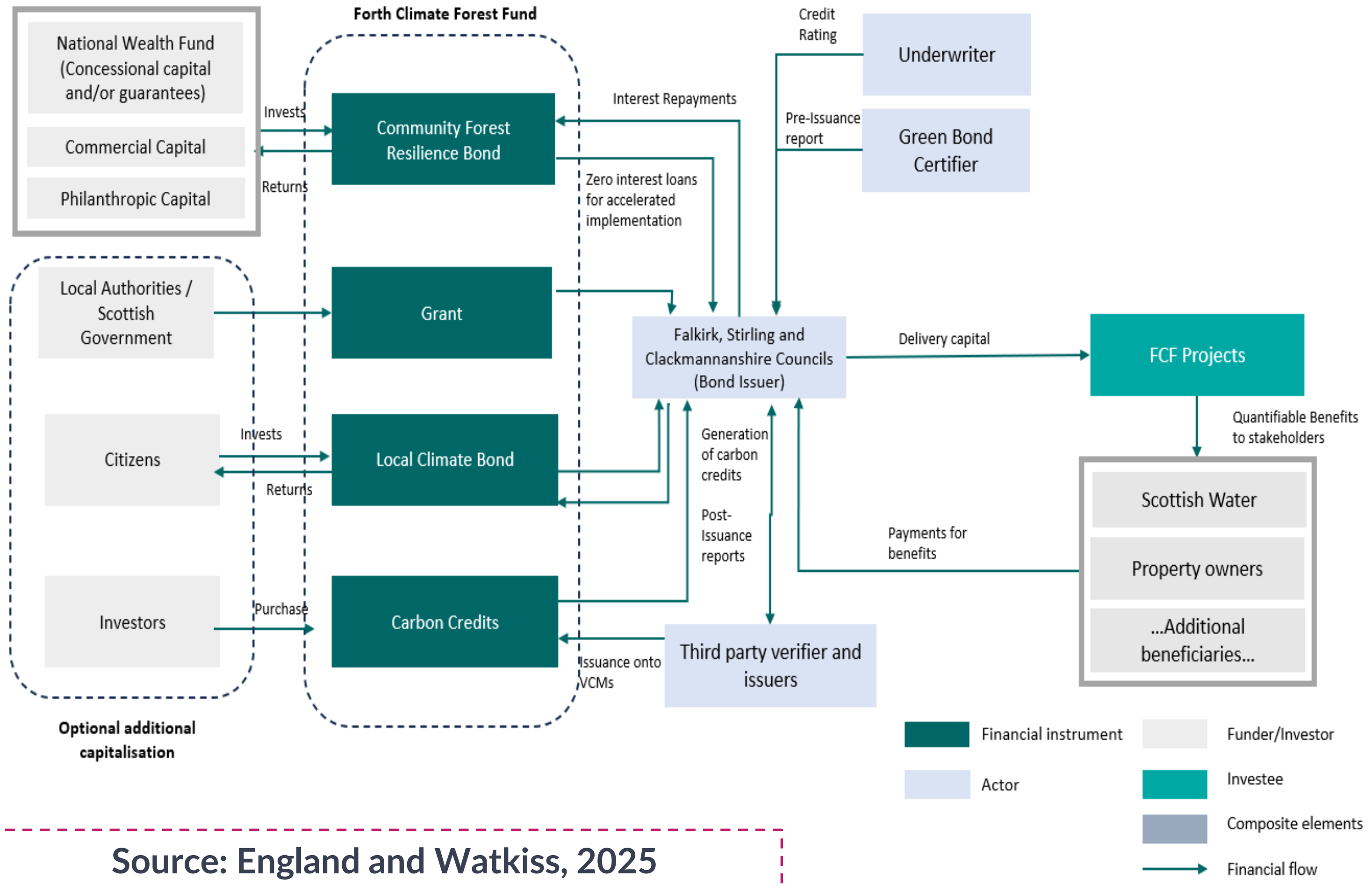
5.2 Undetrake Financial Structuring

- Dedicated financial arrangements between relevant parties
- Use the Business Model (T5.1)
- Financial Structure Diagram

5.3 Develop commercial structure and delivery plan

- Clear commercial approach for projects
- (i) Delivery and governance, (ii) Procurement strategy, (iii) Legal requirements, (iv) Contracting and risk and (v) Accounting and tax
- External advice encouraged

Phase 5 In focus: Financial Structure Diagram



Source: England and Watkiss, 2025

- Illustrative Example for a **Regional Climate Forest Fund**
- Documents financial flows *into and out of* the project
- Reporting and Delivery arrangements
- Contractual Relationships

Phase 6: Monitor, Report Learn and Reflect

Task 6.1 Monitor and disclose progress on achieving adaptation financing objectives

- **Clear framework to enhance *Transparency & Accountability***
- **Define KPIs for financial flows and procedures for improving Enabling Conditions**
- **Report and disclose process and results**

Task 6.2 Report on privately funded projects in line with financing requirements

- **For Private sources that require reporting (e.g. Green Bonds)**
- **Crucial assurance to financiers** that their investments meet green and sustainable criteria
- **Use renowned industry frameworks-taxonomies**

Task 6.3 Conduct a learning and reflection session on the preparation of the Investment Plan

- Dedicated learning and reflection session after the Plan
- **Engage all relevant Stakeholders**
- **Evaluate the Adaptation Investment Plan (AIP) preparation process for future iterations**

Phase 6 In focus: KPIs for the AIC

Financial Flows

Indicator	Unit of Measurement
Total finance provided and mobilized for investment	€
Total finance provided through equity	€
Total finance provided through debt/leveraging	€
Private finance provided and mobilized for investment	€
Ration of external to internal sources of finance	%
Number of (new) financing sources engaged in the region	Number (and total finance entailed)
Number of financial instruments being deployed or developed	Number (and total finance entailed)

Enabling Conditions

Indicator	Unit of Measurement
Establishment of a multi-stakeholder governance mechanism for the Investment Plan	Yes/No
Number of actions identified and under way to address strategic financing barriers	Number
Integration of adaptation metrics into public investment management (PIM) and public financial management (PFM) systems	Yes/No

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Shifting context 2021-25

Growing significant **climate impacts** on the ground (Valencia, Emilia Romagna)

Private sector pushback in certain quarters about burden of the transition

Reframing of the role of climate resilience within ***economic competitiveness*** (Draghi report, Competitiveness compass)

Wider demands on **EU budgets** (e.g. defence, cost of living).

Increased **scrutiny** and focus on whether the EU's mission logic is translating into real results

P2R Response

Aligning to the new **Technical Assistance** provided through the Mission Platform

Build individual and collective intelligence through **the Investment Plans and pipelines of investments**

Identifying **key barriers to mobilising adaptation investment** and effectiveness of enabling conditions.

Influence **design of the new European Climate Resilience and Risk Management – Integrated Framework (ECRRMIF)**

Policy Recommendations (EU)

Emphasize on the salience of **Economics and Finance** as integral parts of Adaptation Plans integrated in the **EU Guidelines on Member States' adaptation strategies and plans**

Ensure **equitable access for small regions**/municipalities to resilience funding both in National-Regional Partnership Plans and in the *Competitiveness Fund*

Strategize **Financial Literacy** as an enabling condition for bridging the adaptation finance gap

Improve estimates of adaptation **finance needs** and adaptation **finance flows** & *harmonize* reporting

Provide stronger, more **coordinated technical assistance** and capacity building utilizing and integrating outputs from Mission projects

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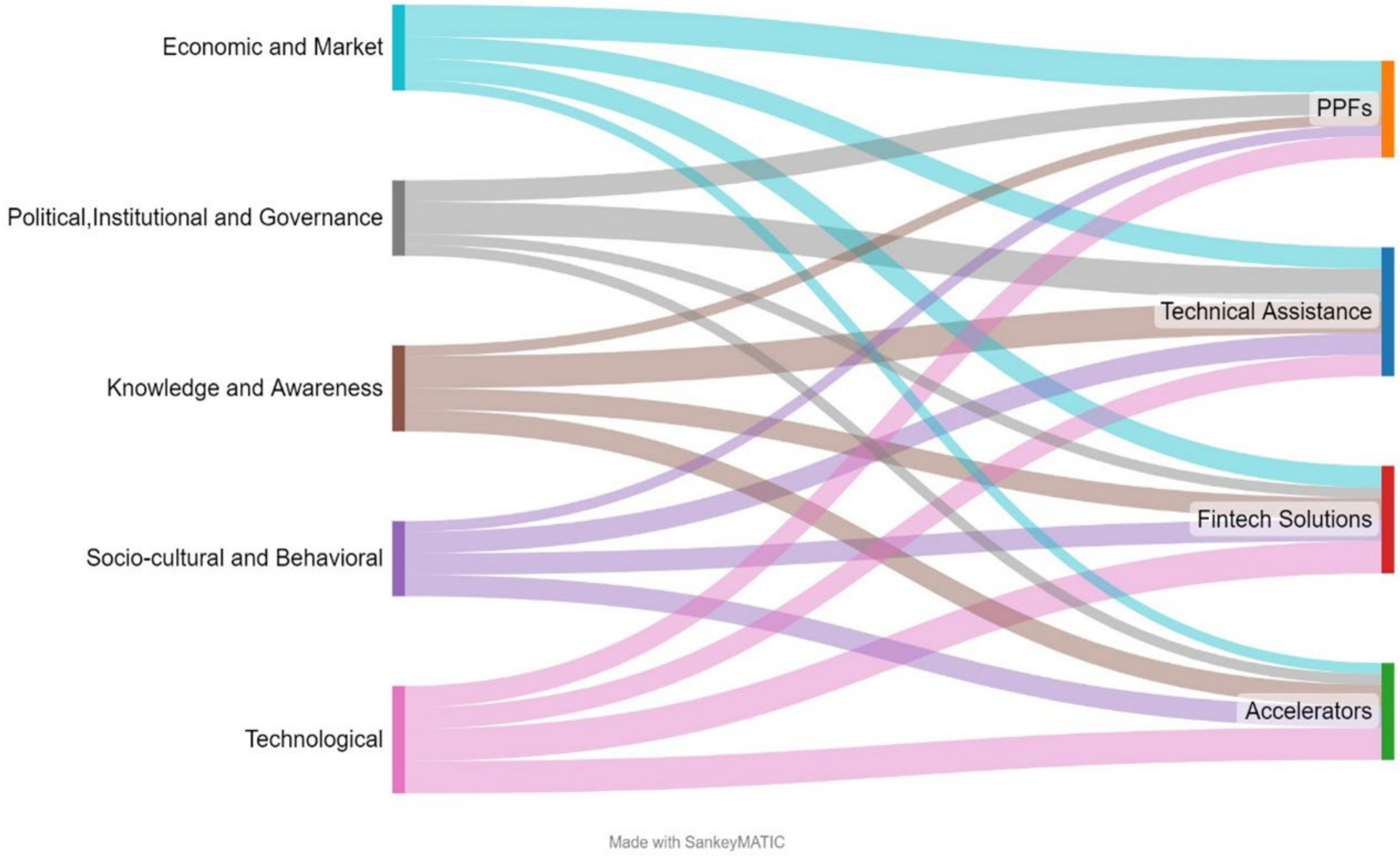
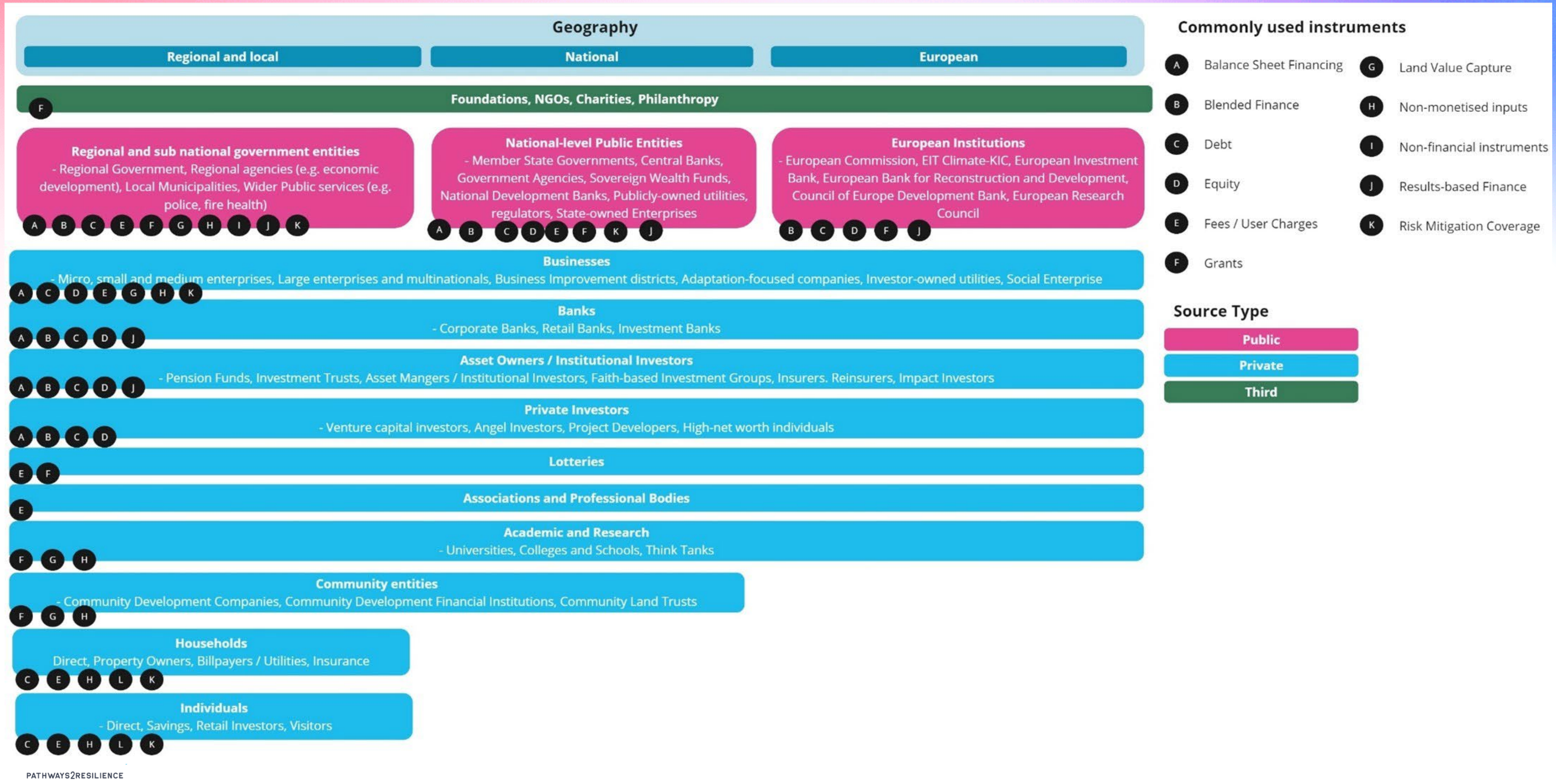
Supporting Material

Barriers & Solutions for Adaptation Finance



- High level Mapping of Barriers to Solutions
- Evolving into a portfolio of solutions catering to regional Adaptation needs

P2R Sources Catalogue



P2R Instruments Catalogue

AFIL – Lab cycle

Introduction to the Lab

Lab Members socialise the purpose and value proposition for the Lab with regions and other key stakeholders.

Lab Members deliver an introductory webinar on the selection process, and the expected commitments from applicants, as well as guidance on how to develop an idea and structure the proposal.

Open call for proposals

Candidates submit their applications via an online form.

Regions are encouraged to promote the call to local stakeholders if they themselves do not intend to apply.

Application assessment

The Lab Members conduct a preliminary review of the submissions to assess whether they meet the Lab's eligibility criteria and expectations and compile a shortlist for the Steering Committee.

The Steering Committee makes the final decision on which ideas should be put forward for incubation in the Lab.

Kick-off and incubation

Applicants are notified of the outcome.

Kick-off begins with successful applicants, followed by 13 months of incubation activities in the Lab.

Wrap-up

The last month is spent in review.

Each Lab Participant prepares a brief report summarising their lessons learnt and outlining their next steps, following a workshop delivered by the Lab Members.

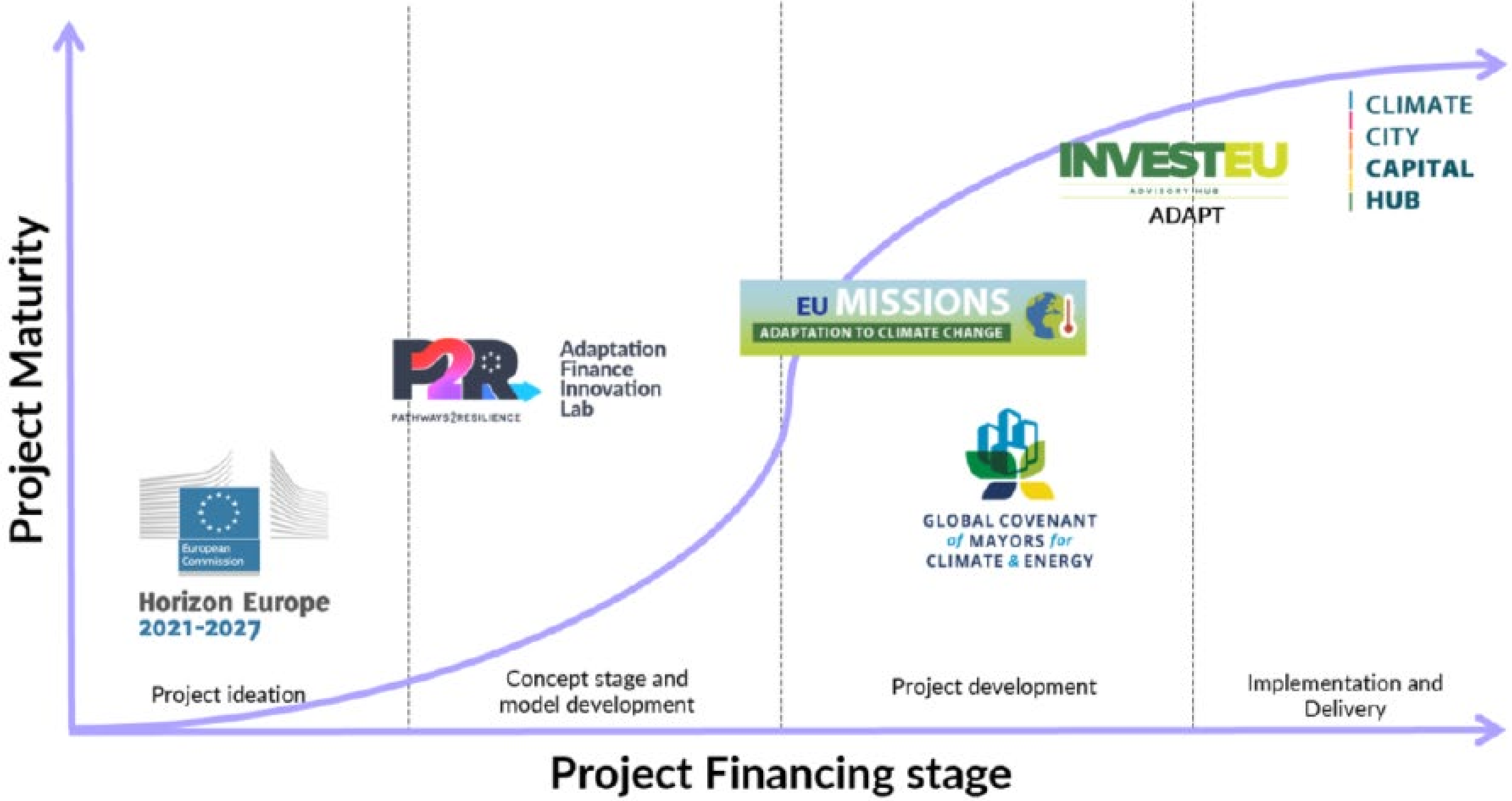
Next steps

Lab Participants' suggestions for improvement are compiled and integrated into a Progress Report, both embedding lessons learnt from this incubation and outlining recommendations for the future of the Lab beyond P2R.

2025	January - March 2026	April – May 2026	June 2026 – June 2027	July 2027	July – October 2027

- 2025 — Stage 1: Call preparation and demand stimulation
- January - March 2026, April – May 2026 — Stage 2: Applications and selection process
- June 2026 – June 2027 — Stage 3: Lab delivery
- July 2027, July – October 2027 — Stage 4: Monitoring, Reflection, Evaluation and Learning

AFIL – The Lab in the broader landscape of finance innovation support for adaptation in Europe



P2R IPGs

Pathways2Resilience **Innovation Practice Groups (IPGs)** are **learning and knowledge-sharing groups, guided by regional challenges and needs**, that review and refine new ideas, plans, and solutions.

Key Objectives

- Connect regions with sources of knowledge and expertise
- Create communities of innovative adaptation practitioners across Europe
- Provide additional knowledge exchange opportunities