IMPETUS 4CHANGE

Co-evaluating urban climate services:

Perspectives from climate scientists, decision makers and boundary agents on what makes "good" services

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BSC Earth Systems Services

Knowledge Integration Team (KIT)

- Engagement & knowledge co-production
- Dissemination
- Operationalisation
- Science communication & outreach
- Policy engagement
- Services evaluation
- User experience & product design

What do we do?

We co-design climate, air quality and health resilience services, while facilitating knowledge exchange and technology transfer of state-of-the-art research at local, national, and international levels.

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Departament de Recerca i Universitats
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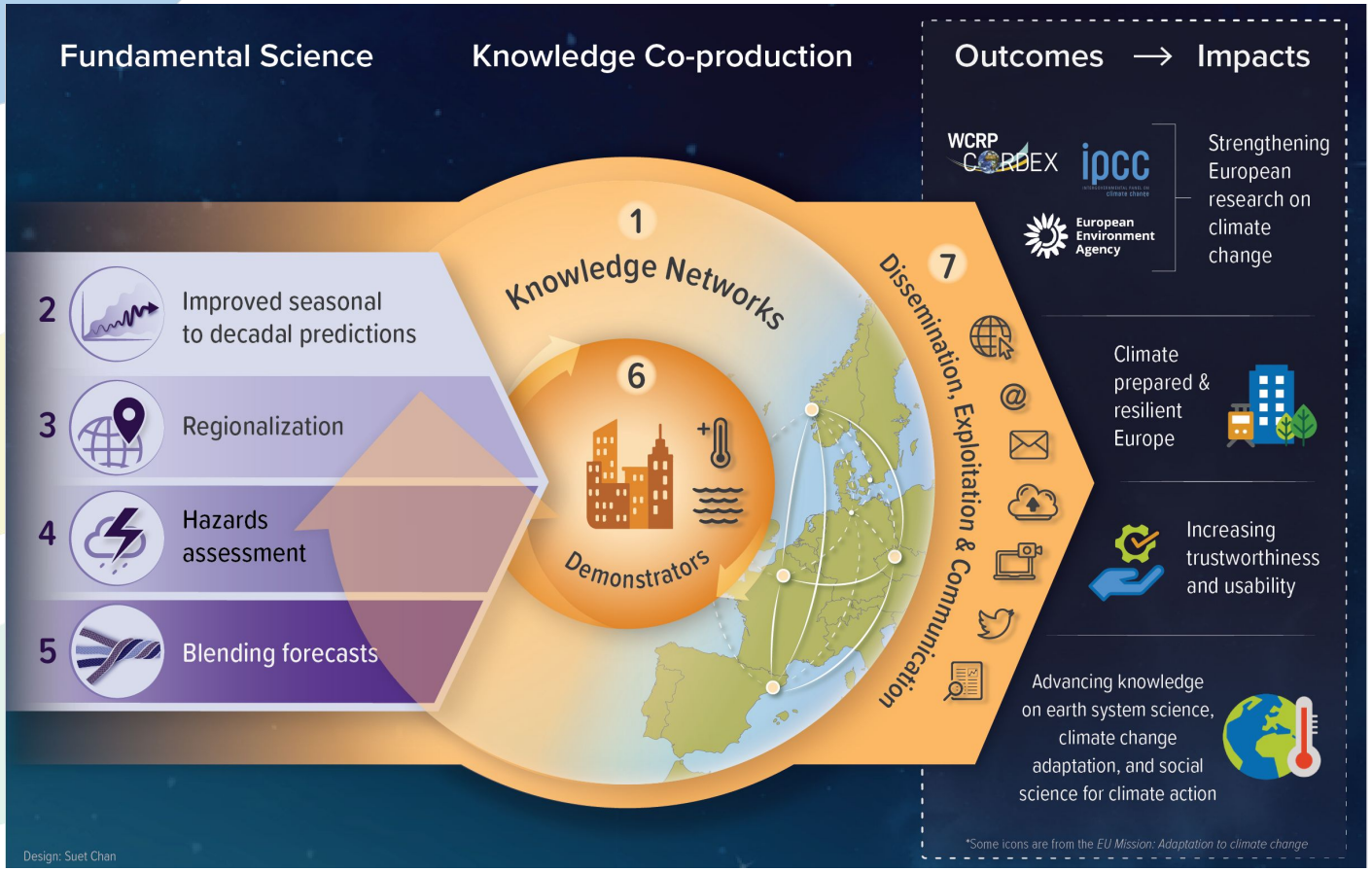
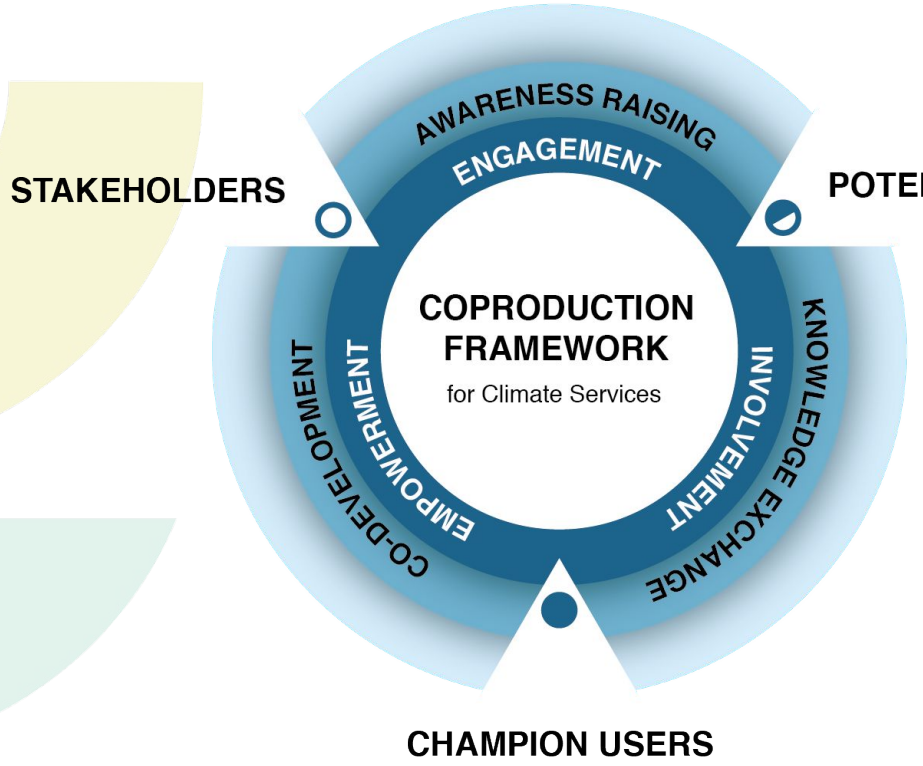
The Impetus4Change Project



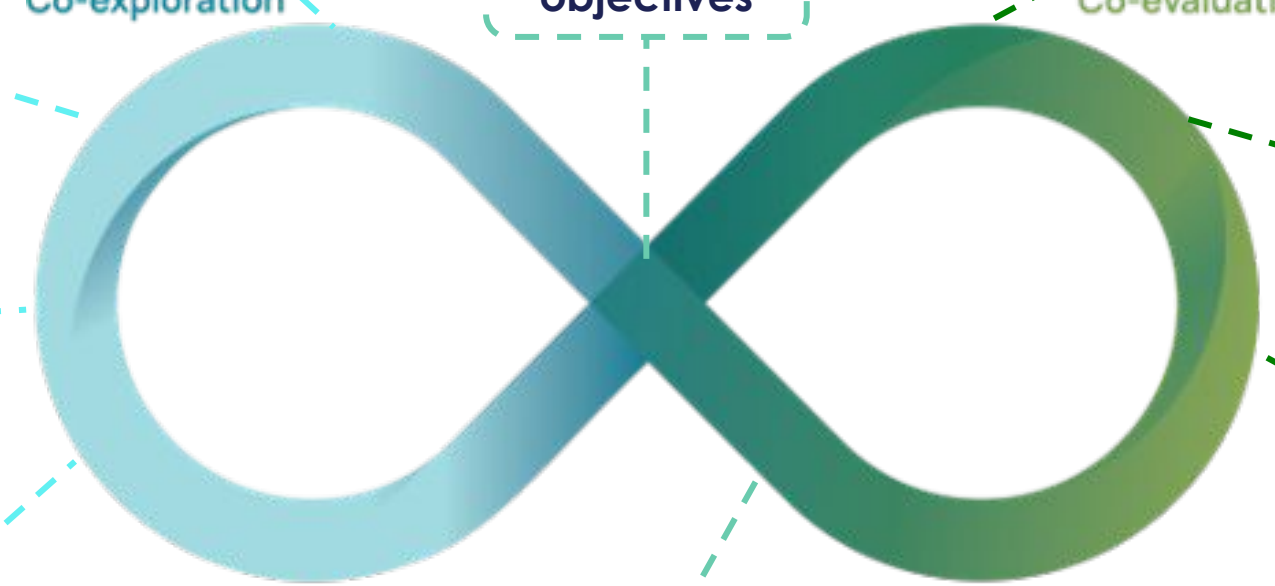
The overall objective of I4C is to improve the quality, accessibility and usability of short-term climate information and climate services at local and regional scales, where the impacts are most intensely felt, to strengthen and support final users in adaptation planning and action.

Co-production in four demonstrator cities



Bojovic, D. et al. (2021). Engagement, involvement and empowerment: Three realms of a coproduction framework for climate services. *Global Environmental Change*, *68*

Co-evaluation as a part of co-production



- Establishing high-level goals
- Concretising objectives
- Explaining scientific limits
- Stakeholder mapping
- Understanding decision-making contexts
- Preliminary service iterations
- ❑ Exploring potential methods
- ❑ Defining framework
- ❑ Implementing evaluation
- ❑ Feeding back
- Piloting services

Why co-develop co-evaluation?

The UK's first Climate Change Risk Assessment was seen as a success by many of the physical scientists involved in terms of its scientific accomplishments but a failure by government officials because its findings were not able to meaningfully inform the subsequent National Adaptation Plan (Porter and Clark, 2023) DOI:10.1016/j.envsci.2022.10.018

"Deciding which standards of quality should be deployed in assessing a climate service is then a highly political choice of which characteristics of knowledge or information are most important for supporting climate adaptation" Bremer et al. (2021)
DOI: 10.3389/fclim.2021.627665

Framework is:	Developed	Co-developed
Evaluated	My views My assessment	Our views My assessment
Co-evaluated	My views Our assessment	Our views Our assessment

Generating Ideas

Extracting and synthesizing common pillars

What themes emerge?

Process	Outputs	Outcomes	Impacts
Engagement & Collaboration	Relevance & Usefulness	Application & Use	Ecomonic & Financial Benefits
Inclusivity & Diversity	Accessibility	Enhanced knowledge	Social Benefits
Communication & Understanding	Understandability	Influence on Actions & Decisions	Policy & Regulatory Benefits
Transparency & Reliability	Usability	User Feedback	Positive Feedback
Goal-setting & Relevance	Feasibility	Measurability	Measurability
Feasibility	Reliability		
	Suitability & Adaptability		
	Up-to-date & Timely Scope		

What is important at each stage?

Climate services that:

1. are inclusively co-produced by the actors they will impact
2. foster open and clear communication that develops climate knowledge
3. contribute to real, relevant and impactful adaptation action
4. are reliable, transparent and trusted

Tailoring to the local context

What?

How?

I4C evaluation pillars. Climate services that:	...to evaluate	Co-production process	Outcomes	Impacts
contribute to real, relevant and impactful adaptation action	What...	Identifying enough "mass" to benefit from the outcomes of the project (e.g. VITIGeoss focusses on one small set of wine producers) Be mindful of the timescale of the adaptation measures that the CS can inform. Is it aligned with the CCA measures at different timescales (to avoid miss adaptation) Seek to understand the needs of decision makers during the development (in order to ensure the information in the CS flows to them when it is finalised) Start with an outline of the need and outline of the possible solution tools (not an empty box) and then seek to modify both during the co-production process.	The outcomes should identify who else might benefit from the project Be mindful of the timescale of the adaptation measures that the CS can inform. Is it aligned with the CCA measures at different timescales (to avoid miss adaptation) The CS should provide scientific evidence that supports the "radical" adaptation action we need. Data that visualises scenarios (e.g. Santa Coloma want to know "what could we do differently?") Provides information that is tailored to a real-world challenge	The project results are upscalable beyond the directly involved SHs to all similar SHs (e.g. ensuring that the CS could apply to ALL wine producers not just those involved) Accessibility of the service (e.g. in S2S4E collaboration with private companies meant it could not be used further). But in FocusAfrica, also worked with private sector but negotiated to have the platform open. But, in Africa all info had to go through NHMS...which meant local DMs stopped the flow even though project allowed it! Also need a lasting project, that has legacy, requires resources. The CS should generate next-steps (future questions and needs) - e.g. about what uncertainties to tackle next / in future work. Where relevant, climate services may move from research projects --> operational projects (challenging to understand long-term societal impact for research projects only)
	How...	Purposeful case study selection (with an aim to generalise the results to others) (overlap with Pillar 1 on inclusive co-production?) Synthesise I4C specific outcomes from the heat-health workshop) A good co-production process would mean no surprises in the co-evaluation results! Collect initial outlines of possible needs and solutions as early co-production step.	Consider climate information across timescales How many decisions / decision makers have been influenced by (if) have read / are aware of the work. Do we have a specific solution? Survey/ Interviews can be used for ex post SH evaluation: Was the information used? Was it helpful? Would SHs use it again? Technical evaluation can cross-check with observations	Develop the CS's project "afterlife" during the project How many policies have used (I4C) data to support their decision making. Project legacy: are I4C data outputs still used /planned to be used into the future, and / or are they taken up by higher levels of governance (e.g. in regional health/territorial planning.

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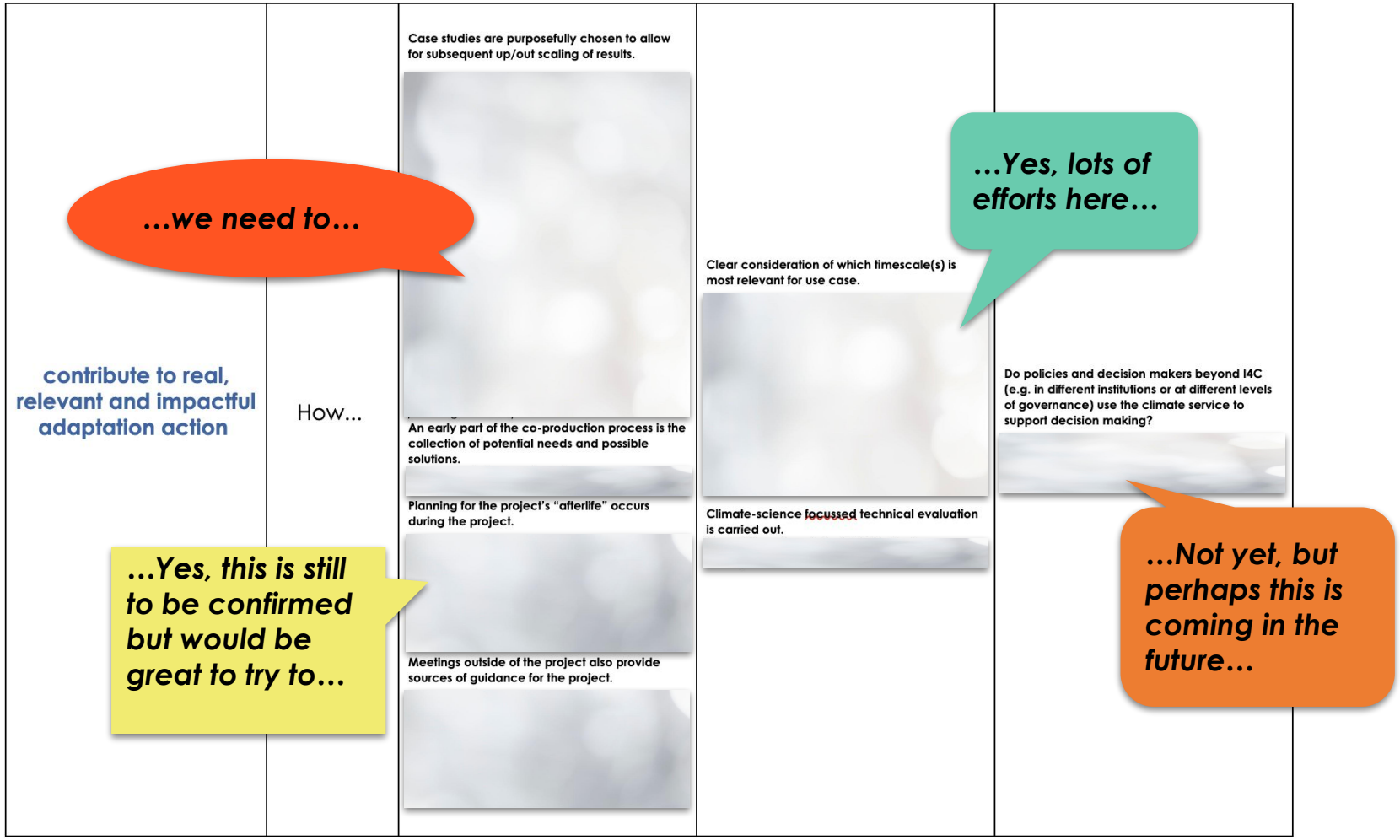
I4C evaluation pillars. Climate services that:	...to evaluate	Co-production process	Outcomes	Impacts
contribute to real, relevant and impactful adaptation action	What...	The co-production process draws in enough SHs to make the tailored project impactful. The co-production process is timed to coincided with adaptation decision making structures. There are efforts to understand SH needs during the development of the climate service. The project starts with a rough outline of what is needed and what can be offered (not an entirely blank page) that is then continually refined throughout the co-production.	The climate service is ready when it is needed, i.e., aligned to adaptation decision making structures (rather than "mis adaptation"). The outputs identify who else may benefit from the service (or a similar service). The climate service provides the scientific support for the "radical" adaptation action needed. Climate information is provided for scenarios that support decision making between choices. The climate service is tailored to a real-world challenge.	The produced service can be upscaled to other similar SHs beyond the project. The project outputs should be freely available beyond the end of the project. Nesting the project inside a longer-term transformation provides legacy.
	How...	Case studies are purposefully chosen to allow for subsequent up/out scaling of results. An early part of the co-production process is the collection of potential needs and possible solutions. Planning for the project's "afterlife" occurs during the project. Meetings outside of the project also provide sources of guidance for the project.	Clear consideration of which timescale(s) is most relevant for use case. Ask SHs which decisions are influenced by the climate service, whether it was useful/would be used again, and how many decision makers are aware of it. Climate-science focussed technical evaluation is carried out.	Do policies and decision makers beyond I4C (e.g. in different institutions or at different levels of governance) use the climate service to support decision making?

Implementing & feeding back



Closing remarks & take-home questions

- Perspectives on what makes a good (or bad) climate services vary significantly
- The other Co^2
- Don't wait until the end to begin evaluating
- Keep a diary

- When was the last time someone asked what you thought was important for a good climate service?
- How would you answer that question?
- How would you measure it?
- When?
- What impact might that have on your work?
- When was the last time you asked someone else?

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Thank you for your attention!

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Other I4Cers at EGU

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Abstract

Climate services seek to provide information that enables climate-informed decision making by non-climate scientists. Often, especially where climate services are co-produced, boundary agents (typically social scientists) act between these groups to facilitate the seamless flow of knowledge in both directions and create climate services that are scientifically accurate and apt for building climate resilience. Or at least that is the idealised aspiration.

In practice, developing climate services that are both useful and used involves contending with a wide range of factors beyond the project boundaries, ranging from the current limitations of climate science to societal power (im)balances and to the fitness of purpose of any service to a decision context. Different actors involved in developing and using climate services view them in different ways and hold different preferences on what constitutes a successful climate service. Thus, creating criteria to evaluate a climate service has an inherent subjectivity and designing a holistic evaluation framework requires drawing out these perspectives and preferences from decision-makers, climate scientists and boundary agents, and then bringing them together.

Impetus4Change (I4C, https://impetus4change.eu/) is a Horizon Europe project joining 18 institutions from 8 countries that aims to improve the quality and usability of near-term climate information in cities and regions. Throughout the entirety of the project we are simultaneously co-producing climate services in four Demonstrator cities: Barcelona, Bergen, Paris, and Prague. This involves three stages: co-exploring the problems, solutions and realities that decision makers face; co-designing mock-ups of climate services and then co-developing these through Adaptalabs (highly interactive, transdisciplinary hackathons). The entire process is co-evaluated to capture lessons learned and combine these with detailed analysis of climate adaptation knowledge networks to explore the services' replicability.

This presentation will cover the steps taken to generate tailored frameworks for evaluating urban climate services, including the generation of ideas from 60 participants of the first Adaptalab, the synthesis of pillars of the framework, and the tailoring of these pillars to each of the four Demonstrator cities. Using the Barcelona case study as an example, we show that actor perspectives on what is important vary not just in terms of what to assess, but also when. We conclude with examples of how we might evaluate different aspects of the co-production process, its outputs and its outcomes and our experiences operationalising the framework.