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ICTA-UAB CONFERENCE 2024

GROWTH VS CLIMATE

Hotel Exe Campus, Universitat Autònoma de Barcelona

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* * 300K

**Coproducing climate services for near-term urban climate adaptation:
supporting resilience to heat in Barcelona**



Climate Services – the paradigm

- Climate services involve the production, translation, transfer, and use of climate knowledge and information in climate-informed decision making and climate-smart policy and planning (Climate Services Partnership)
- Central aspects common to these definitions are the provision of climate information/data/tools that supports user needs through engagement with the users of the services (Bruno Soares and Buontemo, 2019)



Moving from a binary/polarized to inclusive approach

- To transform society we need to shift from the “us” perspective, acknowledging the entanglements and connectedness and our shared reality (O’Brien, 2012)
- Transdisciplinarity and knowledge coproduction
- Coproduction is “a complex meeting place where social **academic traditions** and **practices** converge, overlap, come into conflict, or cooperate” *Bremer and...*

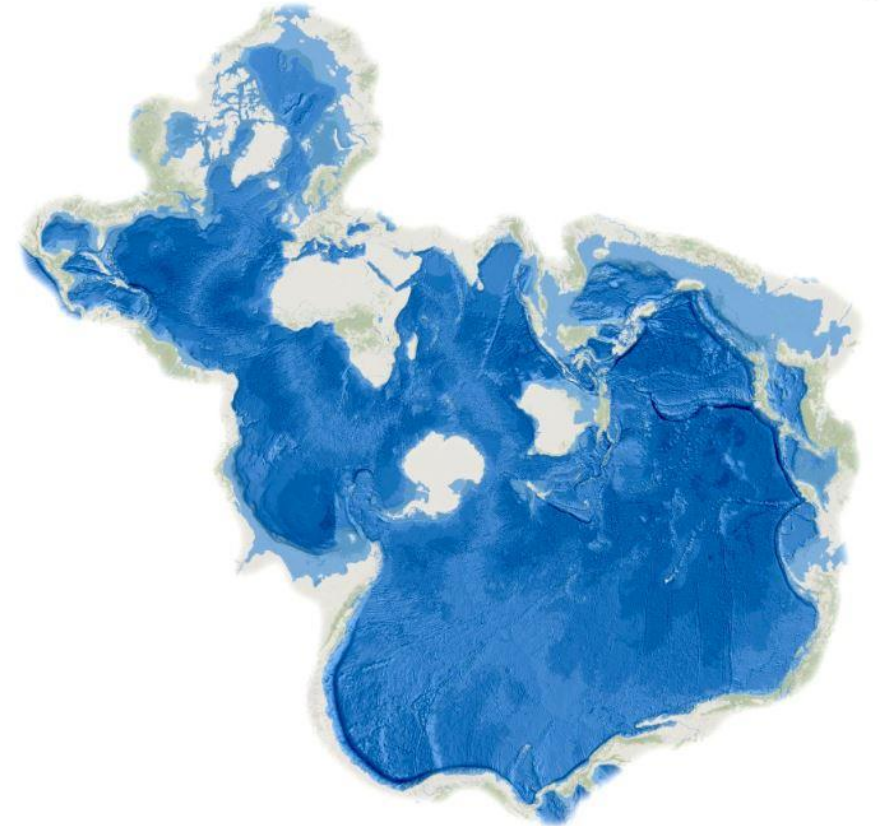
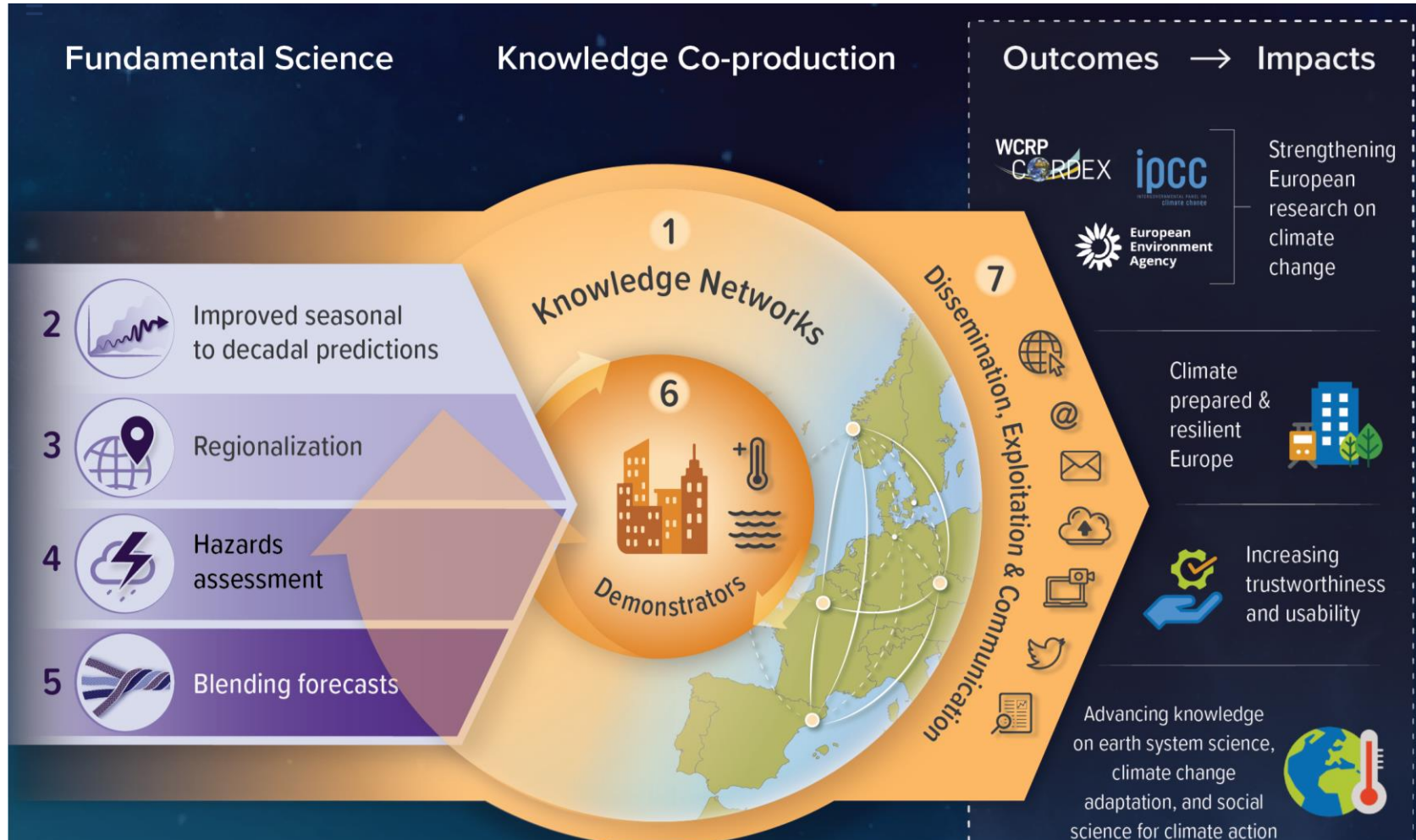


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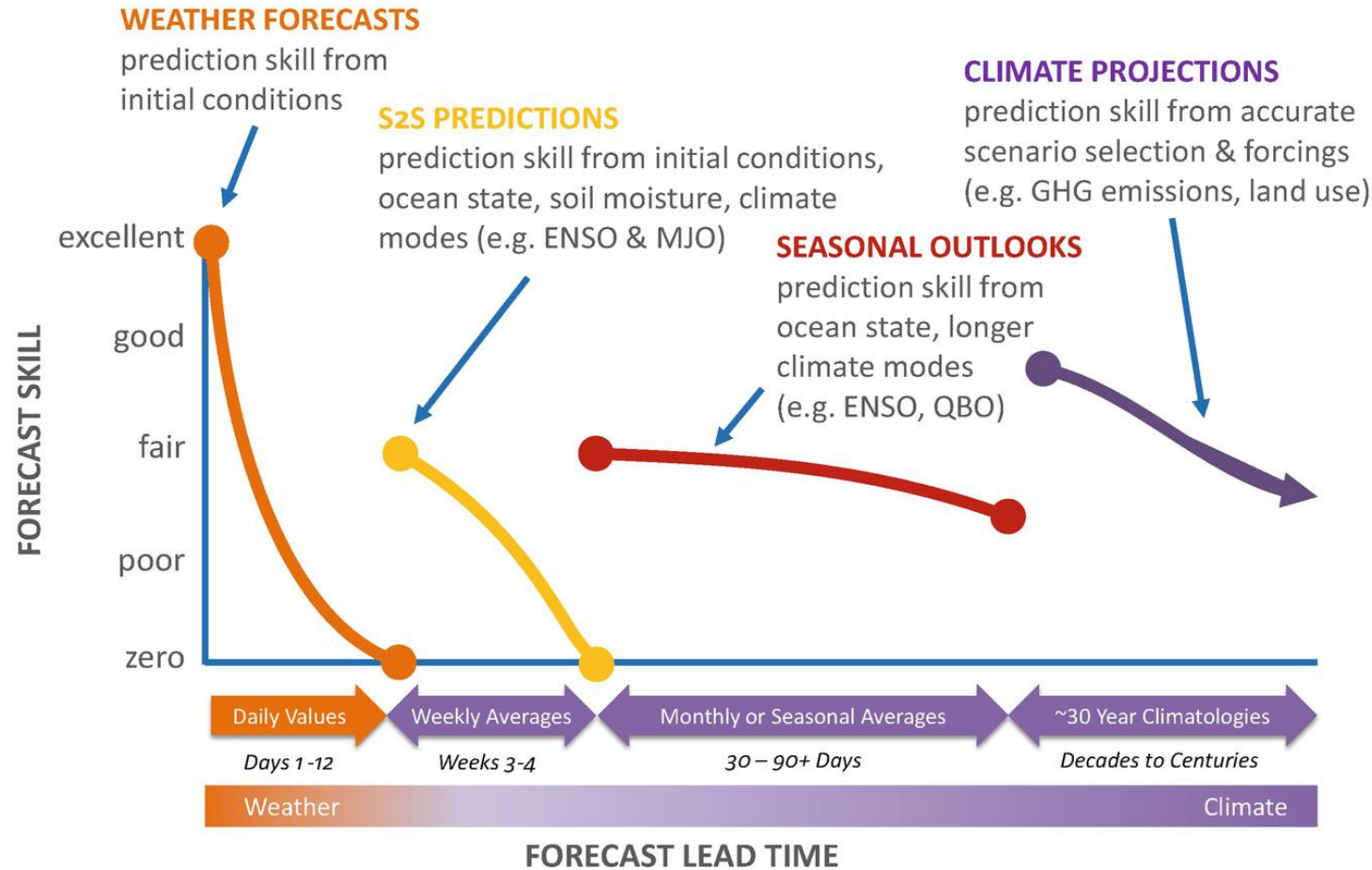


Impetus4Change *(Improving near-term climate predictions for societal transformation)*





Prediction Types, Skill, and Lead Times



Adapted from iri.columbia.edu/news/qa-subseasonal-prediction-project



Coproduction of I4C
Demonstrators cities



The Barcelona Demonstrator

Co-production of services & products for a more resilient society

Co-exploration

Co-evaluation



Knowledge exchange

Co-development

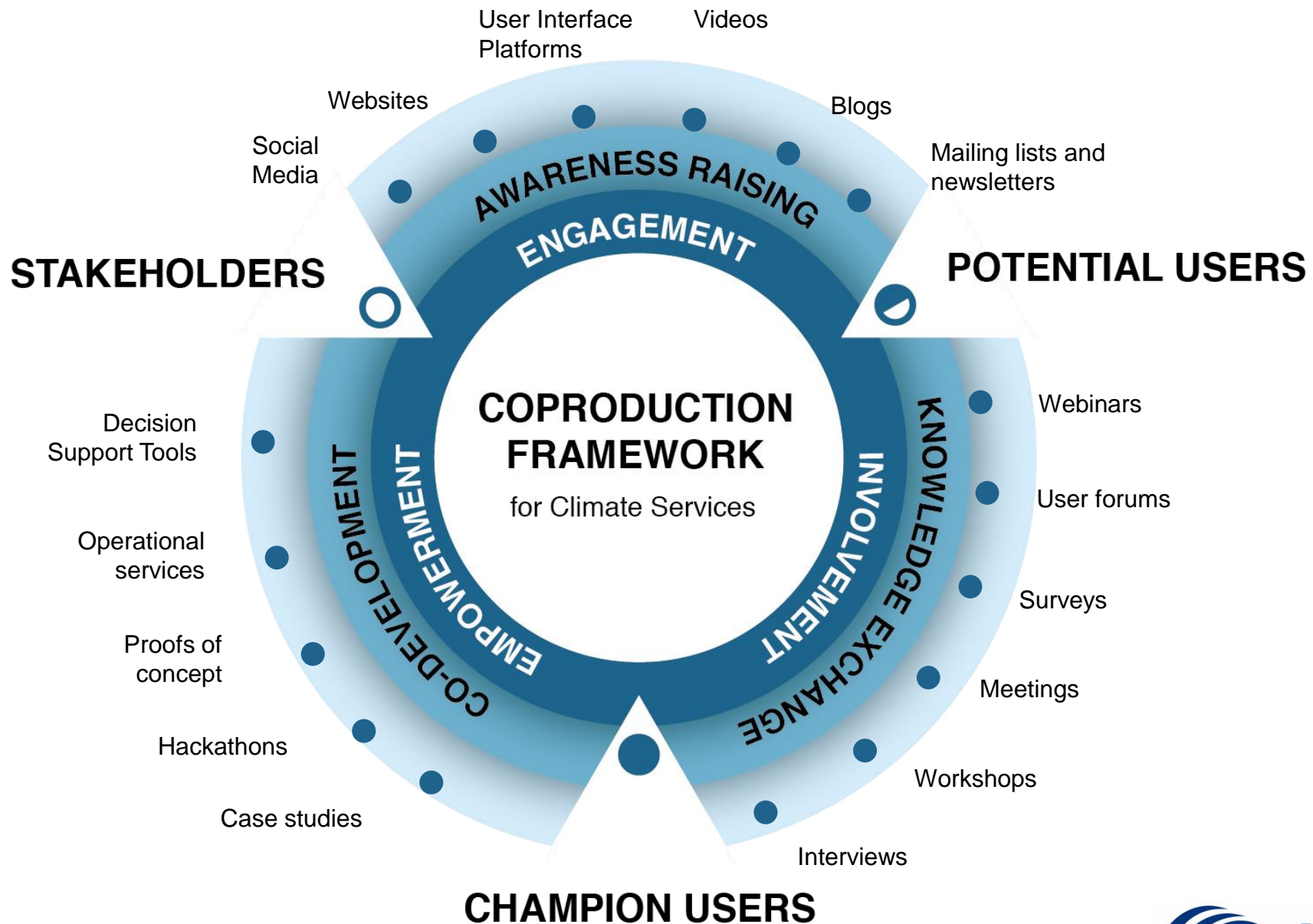




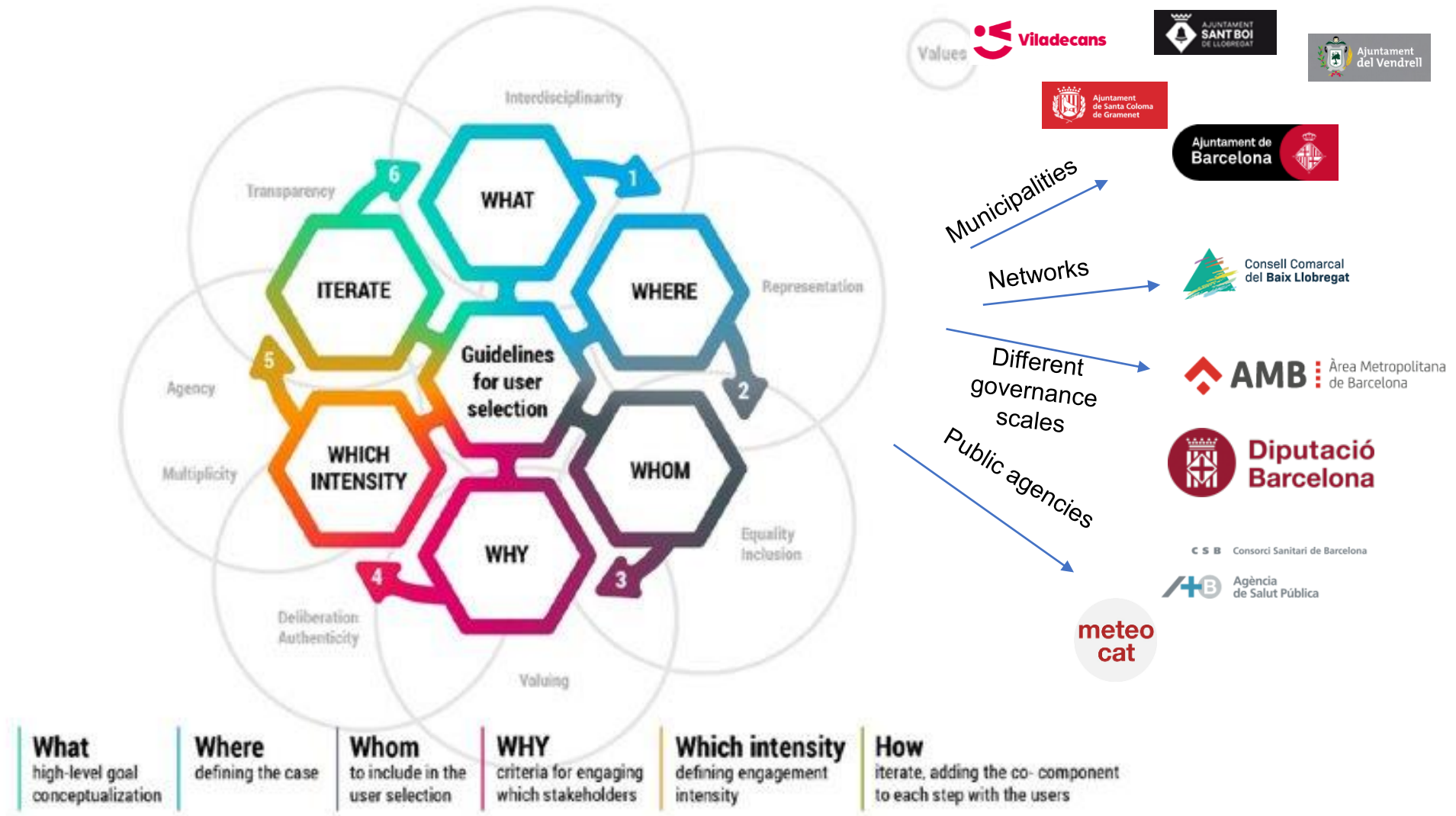
Tools&practices designed to facilitate transdisciplinarity in Impetus4Change:

- 1) The coproduction framework – guiding the activities
- 2) Purposeful and structured stakeholder mapping and user selection
- 3) Co-exploration and co-design of climate service mock-ups in transdisciplinary hackathon-like events
- 4) Iterative development of a catalogue of services
- 5) Co-evaluation framework tailored to local contexts

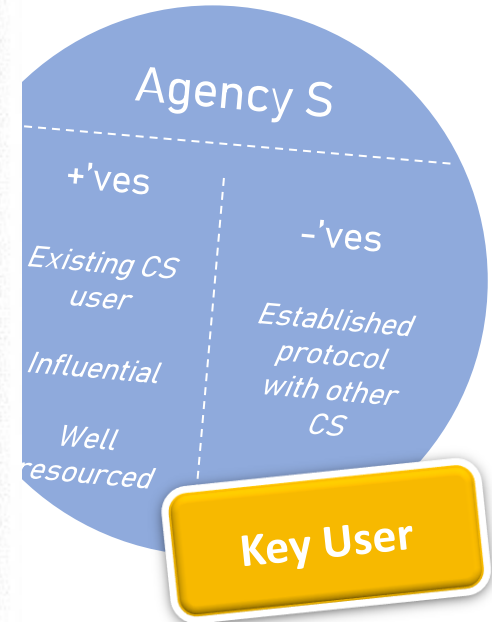
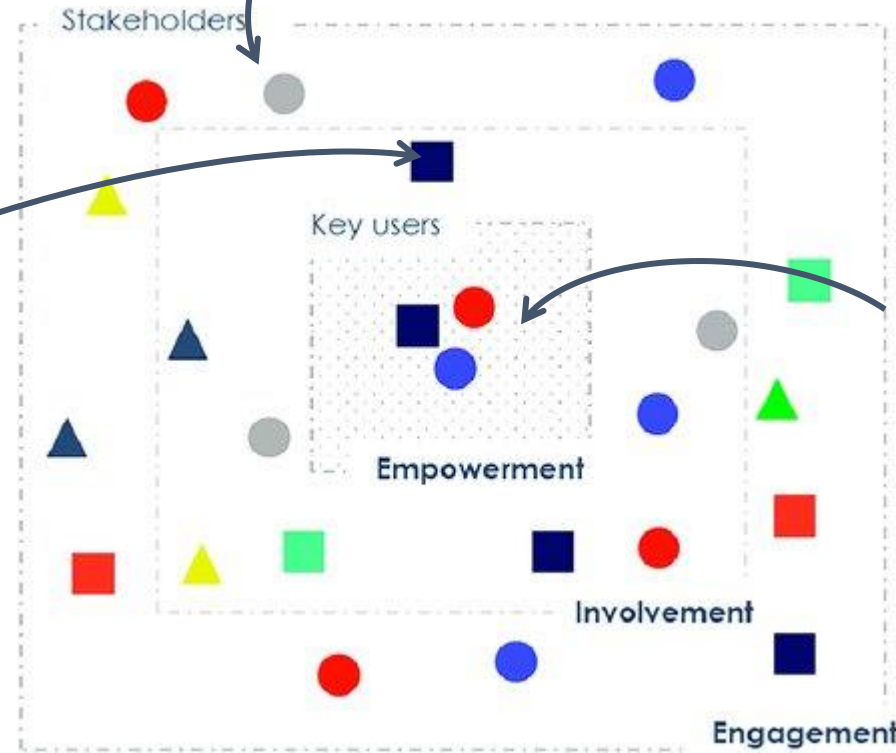
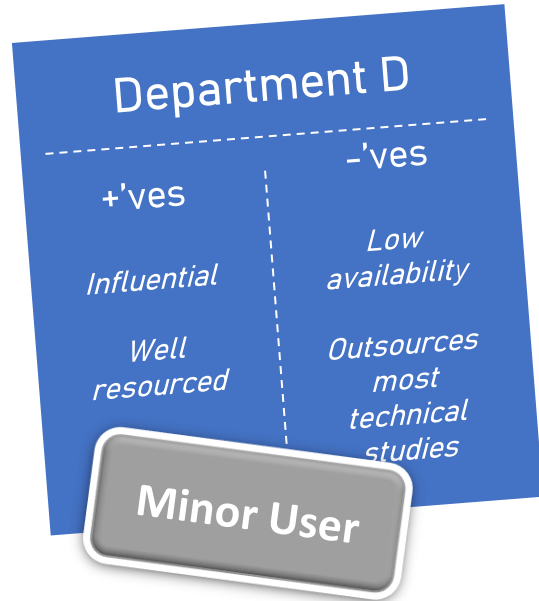
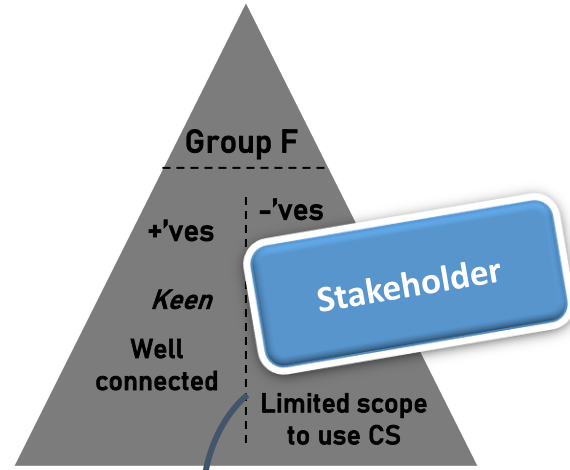
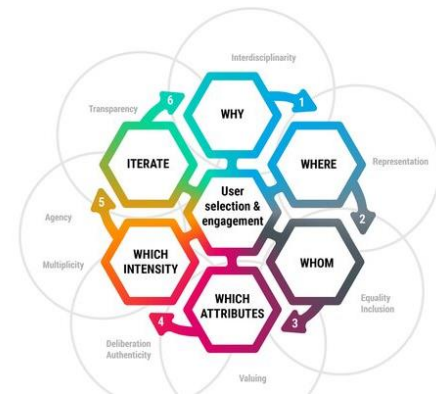




Stakeholder mapping and co-exploration



3 – Whom?
4 – Which attribute?
5 – Which intensity?



Legend

- Policy Maker
- NGO
- Resource Mgmt.
- Govt. Agency
- Citizen Group
- Networks
- ▲ Data Partner
- ▲ Media
- ▲ Other

- Co-production process
- Decision to be supported by a climate service



Co-design in Adaptalabs



Co-creation: Catalogue of services

- Stakeholder engagement
- Diaries of the stakeholder engagement – to learn across the demonstrator cities
- Catalogue of climate services – to transparently link climate science capabilities with real world urban stakeholders' demands



A deeper understanding of heat (1 of 2)

Climate information that provides a more holistic understanding of how urban heat will be affected by the combination of climate change and climate variation.

What could we collaborate on?

Supporting decisions at different timescales, and integrating with impact models (beyond I4C), for example:

- How to prepare for heat (logistics, protocols, early warnings etc.)
- How to intervene to limit heat exposure (urban shading, reflective surfaces etc.)
- Where to go to escape the heat (cooler parts of the city and climate shelters)
- Creating heat-health vulnerability maps
- Using urban (re)design to combat UHI
- Mapping safe(r) spaces (e.g. combining with air pollution)

What can I4C offer?

Climate Info Availability & Skill	Historical - Weather	Near-future (weeks - months)	Future (months - years)	Projections (years - decades)
Extreme temperatures	Green	Yellow	Yellow	Yellow
# heatwaves (Day/Night time)	Green	Yellow	Yellow	Yellow
HW severity (intensity / duration)	Green	Yellow	Yellow	Yellow
Thermal comfort	Green	Yellow	Yellow with red question mark	Orange with red question mark

A deeper understanding of heat (2 of 2)

Climate information that provides a more holistic understanding of how urban heat will be affected by the combination of climate change and climate variation.

What do we need from you?

Some examples:

- Important thresholds (e.g. day time / night time temperatures and humidity levels that trigger protocols)
- Implementation dates (e.g. when climate shelters are operational, when time-shifting is permitted, when are streets resurfaced)
- Decision dates when implementation actions are decided (and reviewed)
- Input requirements for impact models

Who is this for?

Collaborators interested in, or responsible, for:

- Urban planning
- Public (environmental) health
- Housing
- Economic activity
- Energy poverty

What else could it lead to/interact with?

Example impact models and complementary data/information:

- High-resolution thermal mapping (e.g. street scale or UHI)
- Scenario testing for resilience interventions (green spaces, climate refugees etc.)
- Identifying at-risk locations (elderly residences, hospitals, schools, low-quality housing, tourist hubs etc.)
- Mortality/morbidity/well-being models

Urban greening: parks, gardens, trees (1 of 2)



Climate information that supports efforts to increase the coverage and resilience of urban green spaces

What could we collaborate on?

Supporting decisions at different timescales, and integrating with impact models (beyond I4C), for example:

- When to plant new trees?
- Where / when are future drought risks?
- How climate-compatible are existing & planned green spaces?
- What are future irrigation requirements?
- How can green spaces contribute to urban cooling / impacted by UHI?
- How will biodiversity be impacted in the future?

What can I4C offer?

Climate Info Availability & Skill	Historical - Weather	Near-future (weeks - months)	Future (months - years)	Projections (years - decades)
Temperatures (max/min/av.)	Green	Yellow	Yellow	Yellow
Dry spells (# & duration)	Green	Yellow	Orange	Orange
Precipitation	Green	Yellow	Orange	Orange
Drought index	Green	Yellow	Yellow	Orange

Forest fires (1 of 2)

Climate information to complement existing forecast systems with advance warning of the likelihood of forest fires and compound hazards (e.g. droughts or heat waves)

What could we collaborate on?

Supporting decisions at different timescales, and integrating with impact models (beyond I4C), for example:

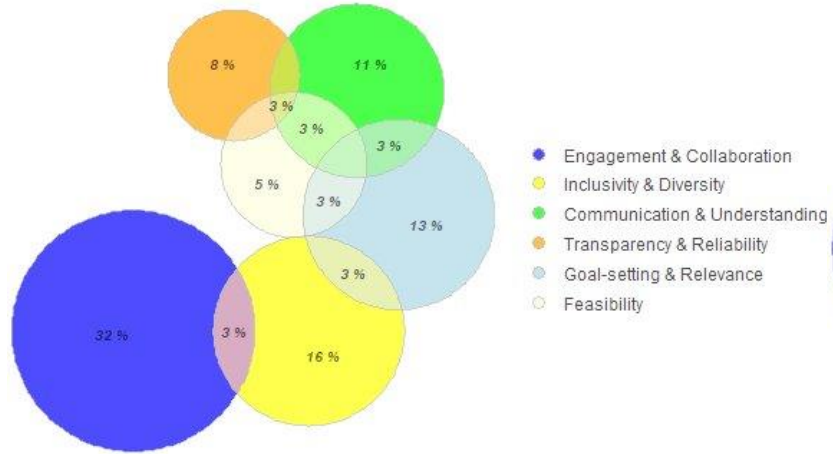
- Early (earlier) warning systems
- Prioritisation interventions to limit exposure to or impact from forest fires
- Impact of forest fires (e.g., if combined with fuel source mapping)
- Likelihood and impact of compound events
- Air pollution impacts

What can I4C offer?

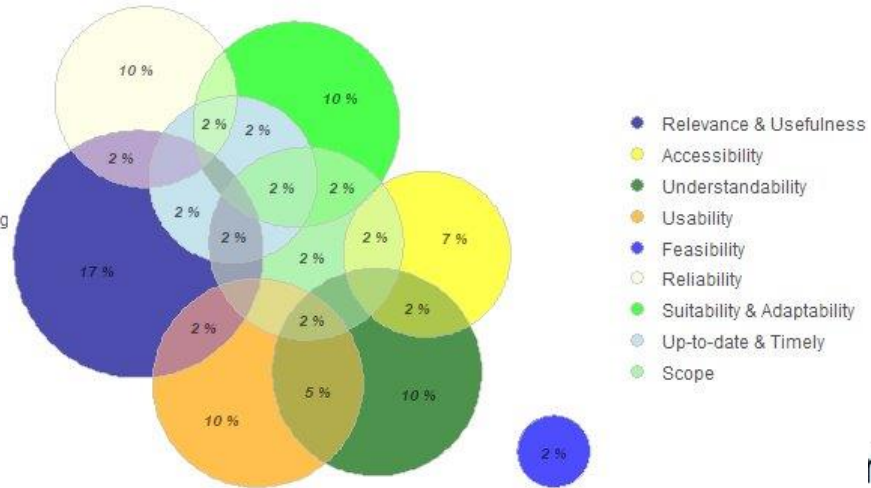
Climate Info Availability & Skill	Historical	Near-future (weeks to months)	Future (months to years)	Projections (decades)
Fire weather index			NA?	NA?
Drought			?	?
Dry days / dry spells				
Temperature / Heat Waves				



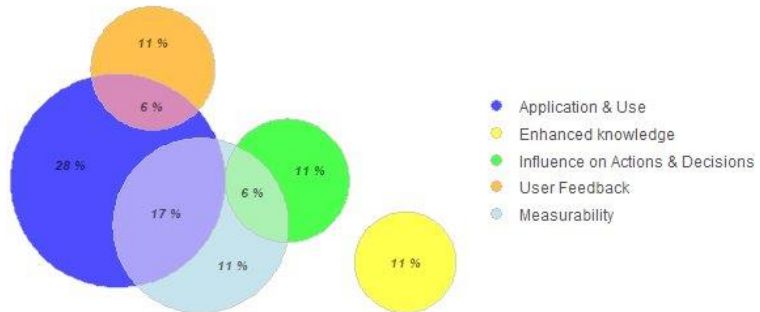
Process Main Criteria



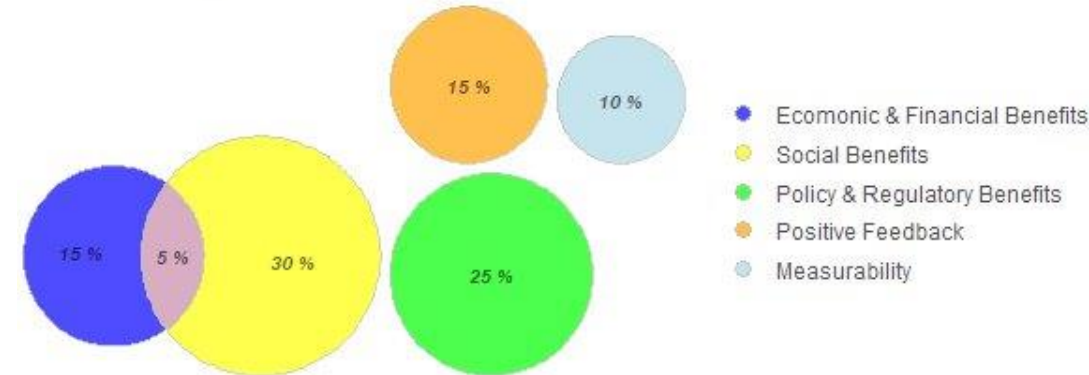
Output Main Criteria



Outcome Main Criteria



ria





Conclusions

- Genuine interdisciplinary collaboration is prerequisite for transdisciplinarity
 - Coproduction processes should start with the problem co-exploration
 - Careful stakeholder mapping and engagement addresses the “usual suspect” and “mini-me” phenomena in climate services
 - Climate services can include a range of tailored information, services and new knowledge
- The coproduction processes in each demonstrator have progressed in different ways, building on the prior strength of the network and the mutual support between different scientific and practitioner disciplines.



“One of the most profound aspects of climate change, and environmental change in general, is that more people are beginning to consciously perceive themselves to be part of a larger system. When we perceive of ourselves as entangled quantum systems and recognize consciousness and free will as inherent within our being, we can choose to relate differently to ourselves, each other, the environment, and the future. Yet an equitable and thriving world will not just “happen”...we may need a different way of “being in action”, including a different understanding of individual and collective agency.”

Karen O’Brien: You matter more than you think, p. 86

By Beth Moon





<https://www.growthvsclimate2024.org>

300.000 Km/s
trescientosmil

impetus4change.eu

 @I4C_eu



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