ECF4CLIM

An innovative hybrid participatory approach to education

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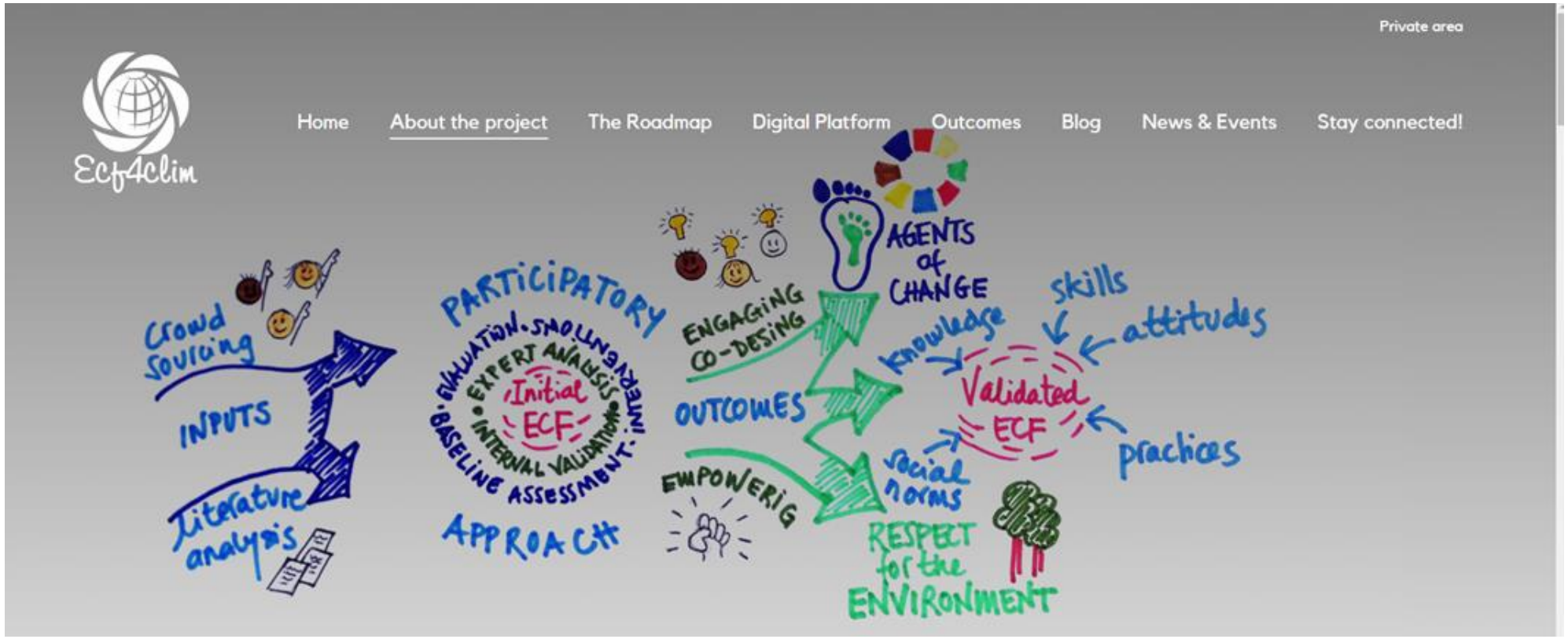
Project overview

→ Main achievements

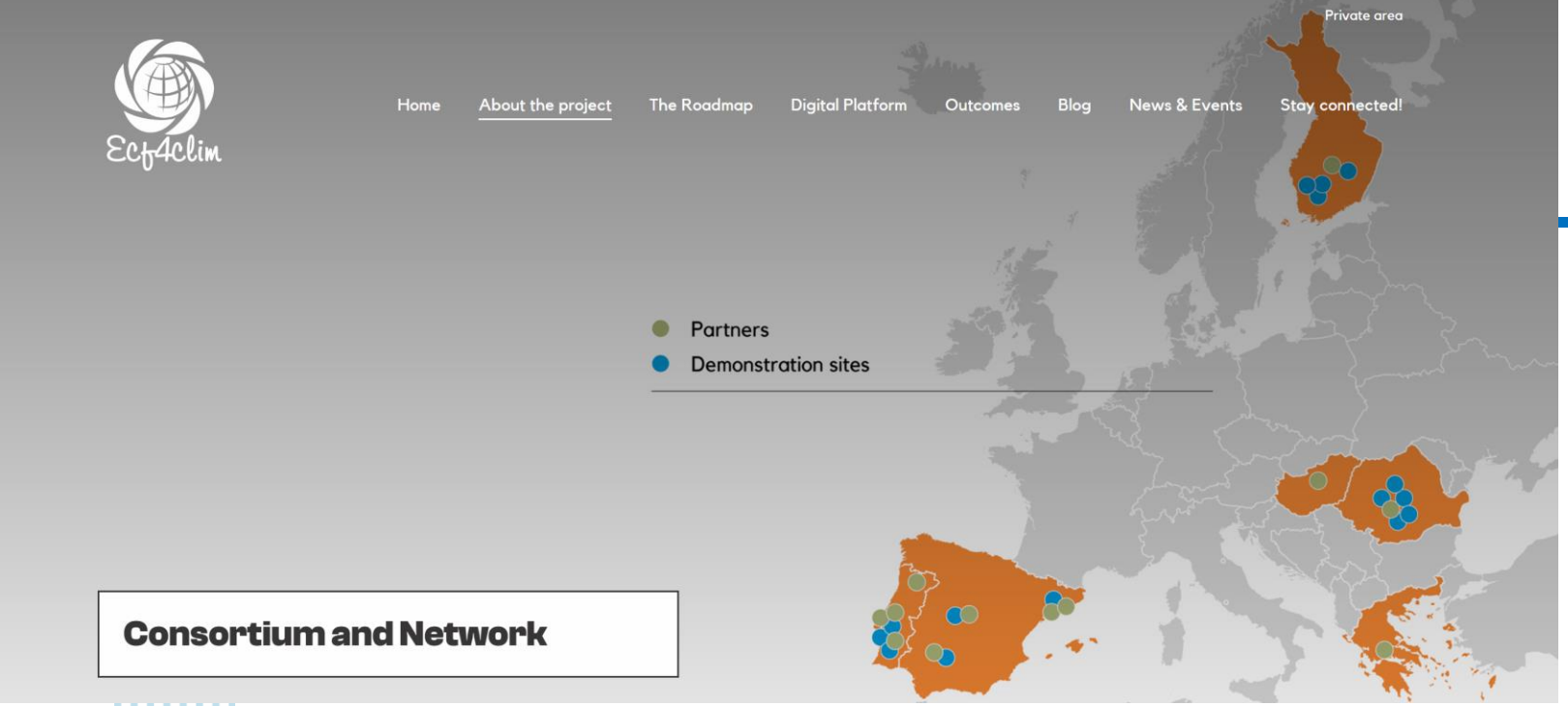
→ Challenges & opportunities



ECF4CLIM objectives

We aim to create a European Competence Framework for transformative change through education

Through a transdisciplinary approach, ECF4CLIM fosters participatory processes in schools and universities to enable sustainable education. Innovative organisational models (sustainability competence teams and committees) are used to design interventions that can be adapted and applied to wider educational communities.



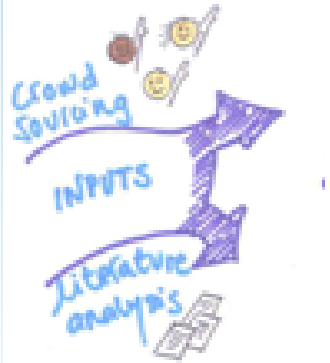
ECF4CLIM: team

- ✓ 10 research partners
- ✓ 6 countries
- ✓ 13 demonstration sites (schools & universities in Finland, Portugal, Romania and Spain)
- ✓ Advisory Board

Partners **Demonstration sites** **Advisory board**

The ECF in context: testing & evaluating
(demonstration sites)

Defining the ECF



The baseline ➡ The interventions ➡ The evaluation

- **Individual** competences
- **Collective** competences
- **Environmental** performance

Validating the ECF

Defining the ECF: the initial roadmap

Our initial proposal (fully bottom-up) and the need to integrate the JRC ECF (Green COMP)

Crowdsourcing Document analysis GreenCOMP

Initial Roadmap

Expert review

https://mappa.fi/en/greencomp-roadmap/

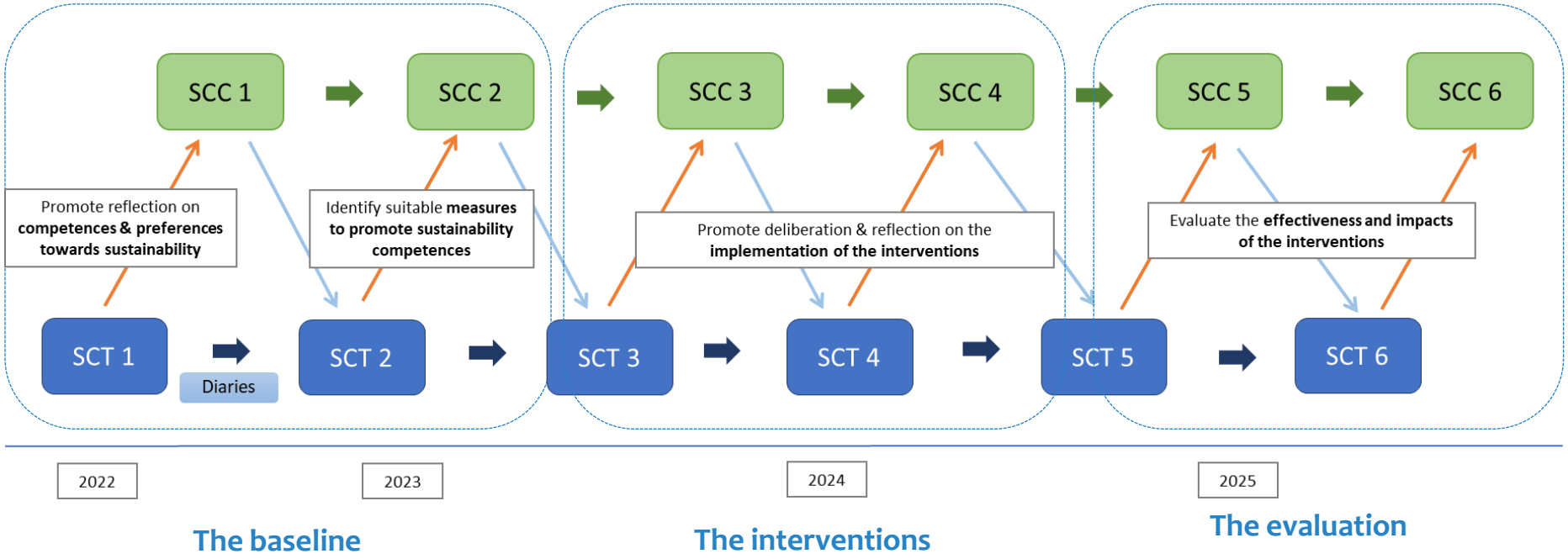
31 worshops: 500 participants
eDelphi: 119 particpants
Expert review: 7 participants

Our hybrid participatory approach in place

→ Innovative organizational models of engagement & action for sustainability

(tailoring STAVE* to the educational community)

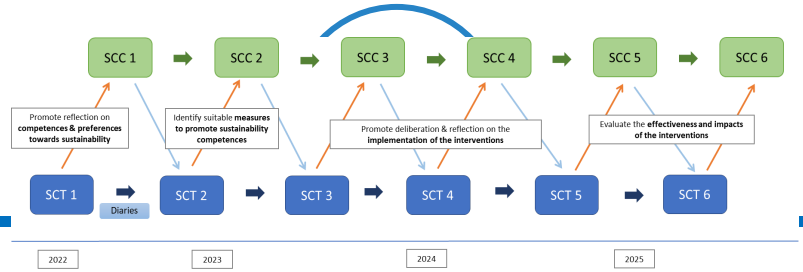
- ✓ **Sustainability Competence Teams:** Students, Teachers, Administrative Staff
- ✓ **Sustainability Competence Committees:** SCT representatives + wider educational community



SCT/SCCs sessions 1-2-3-4
178 meetings
1293 participants

* www.pachelbel.eu

Methodological basis



Participatory action research

→ Self-reflection as a driver for change and transformation. Individuals are not passive subjects but active actors in the research process and in drawing conclusions from what they learn (Kemmis, 2024)

Iteration

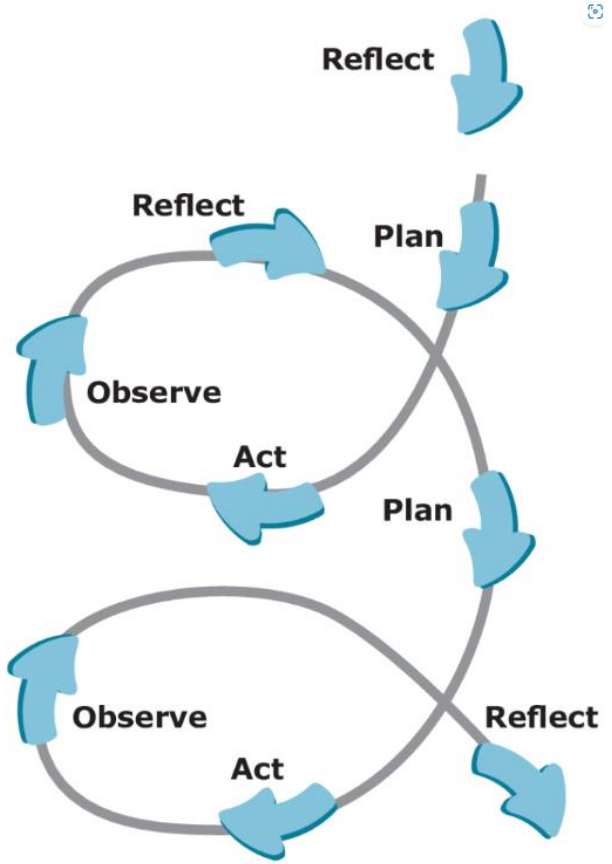
→ Successive interactions within and between different actors contribute to rethink existing knowledge and assumptions (Prades et al, 2017)

Creativity

→ Creativity supports innovation and problem solving to address complex issues an essential component in sustainability learning (Sandri 2013)

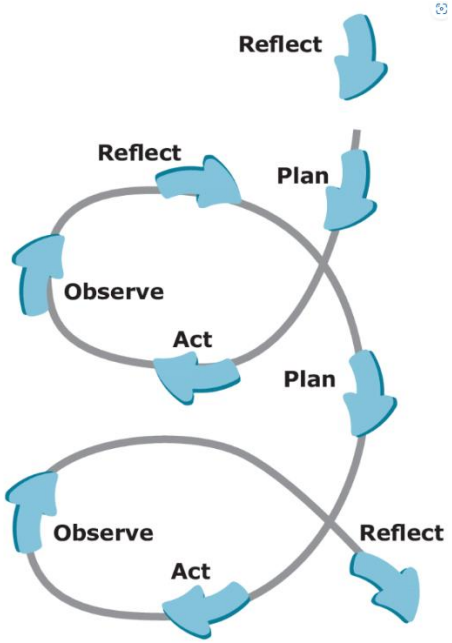
Transdiciplinarity

→ Involving interaction between the academia and the outside world (Ortiz et al, 2020)



The Action Research Planner: Doing Critical Participatory Action Research | SpringerLink

from the basis …



… to the praxis in the educational community

Challenges for data collection & applied transdisciplinary research

Flexibility

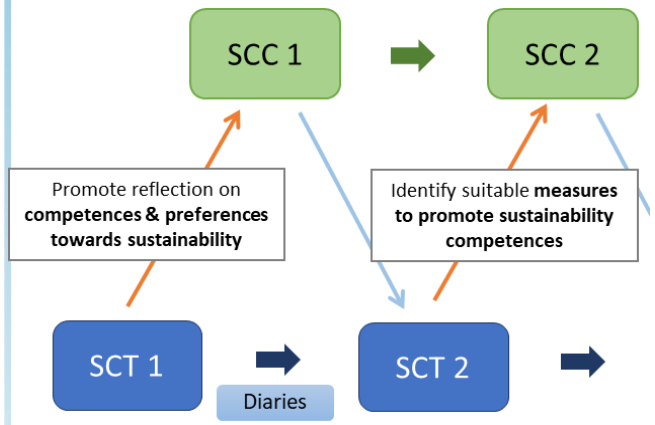
→ Address long-term, transdisciplinary & participatory research (Bergman et al. 2021)

Contextuality

→ Promote transfer and adaptation to other educational contexts

practical and applicable tools that promote thinking and self-reflection on sustainability competences as a first step towards transformational change

Establishing the baseline and co-designing the interventions



SCT/SCCs sessions 1 & 2
83 meetings
838 participants

- Promoting reflection on sustainability competences and preferences towards sustainability: the baseline
- Engaging the educational communities in the co-design of suitable measures to promote sustainability competences

Operationalizing the Roadmap: the baseline

Secondary data analysis and interviews

Short survey

Environmental audits and questionnaires

Methods

Document analysis

Interviews

✓ The baseline of collective competentes

Regulative competences

Written rules (laws, regulations) that stipulate how sustainable development is to be considered and promoted – and by whom.

Normative competences

Norms and values reflected in the organisation's strategies, plans, guidelines, agreements with authorities, etc.

Cultural-cognitive competences

Internalisation of the regulative/normative as taken-for-granted social norms of normal/acceptable behaviours; translation into daily routines, habits, and practices.

- ✓ Clear **tension between regulatory/ normative and cultural-cognitive** competences at all DS
- ✓ Identification of aspects in which **"theory and practice" coincide and diverge**
- ✓ **Similarities** and **differences** between **countries & educational levels**

To be interpreted with caution;

⇒ non-exhaustive document analysis of regulatory and normative competences
⇒ findings only relate to our DS – not to the country or education level
⇒ socio-economic and socio-professional profiles should be borne in mind

✓ The baseline of individual competences

Methods
Short survey
Deliberative workshops

Sample	967
Students	794
Teachers	114
Staff	59

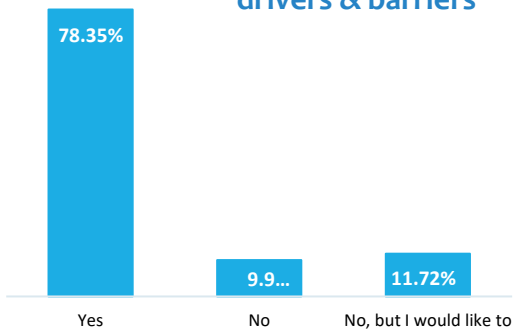
Workshops Sample	327
Students	200
Teachers	78
Staff	49

- ✓ **Preliminary overview of perceptions and expectations** concerning sustainability prior to the interventions
- ✓ **Quantitative findings** suggests **an overall promising starting point** (high self-declared levels of awareness, willingness to act, no significant barriers to action evoked) but the **qualitative evidence reveals a much more complex picture …**

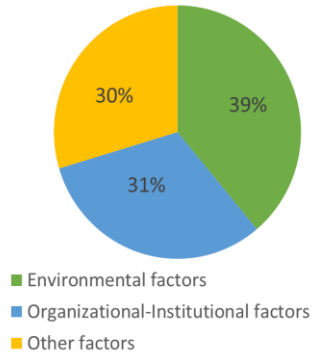
Findings must be interpreted with caution;

⇒ Personal interpretations & social desirability bias
⇒ Non-representatives samples
⇒ Contextual factors (environmental performance & collective competences)

Sustainable behaviour: drivers & barriers

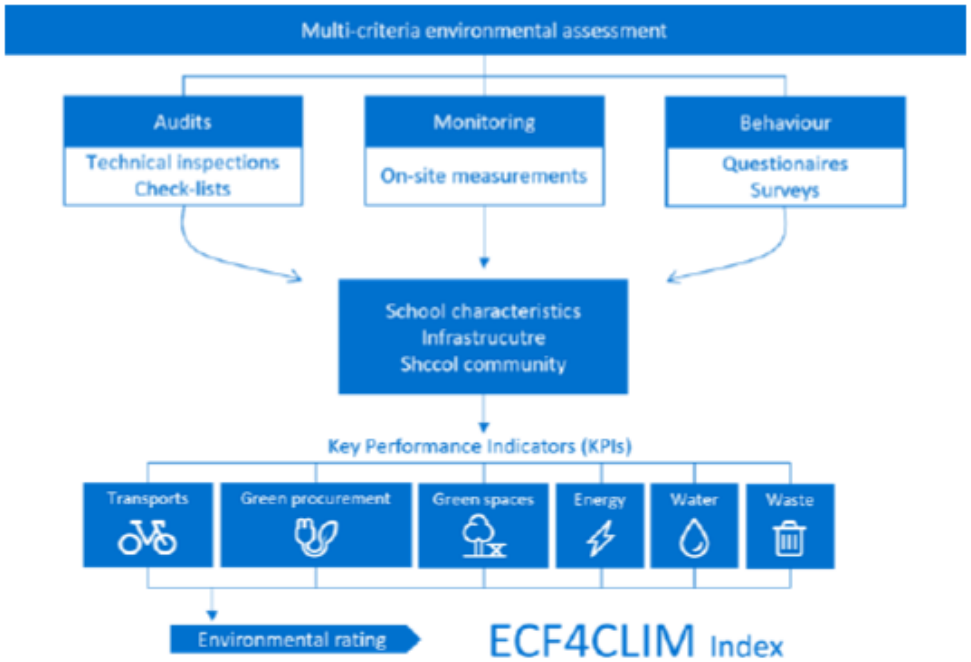


Perceived barriers



✓ The baseline of environmental performance

The ECF4CLIM index



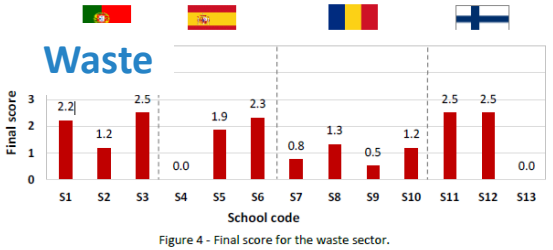


Figure 4 - Final score for the waste sector.

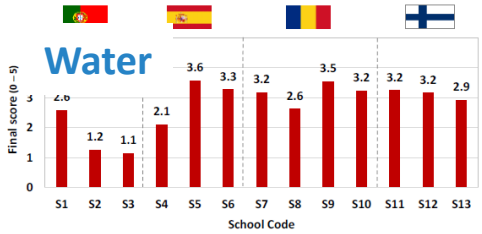


Figure 6 - Water final score (0-5).

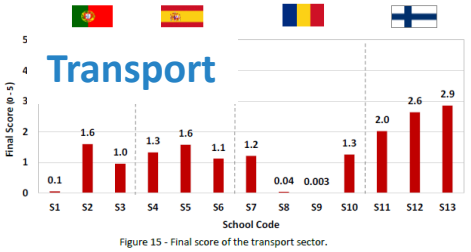


Figure 15 - Final score of the transport sector.

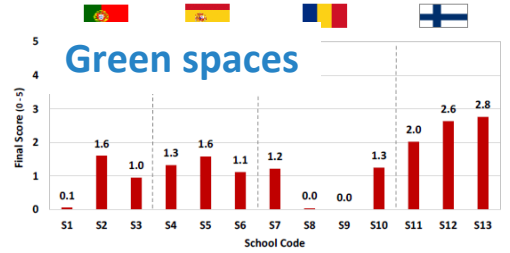


Figure 17 - Final score (0-5) for the green space sector.

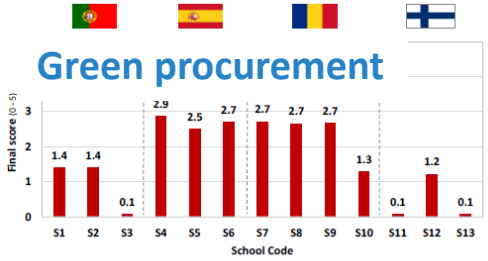


Figure 19 - Final score of the green procurement sector

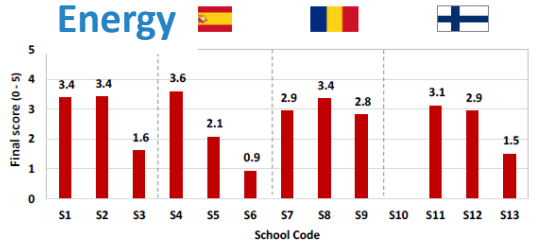


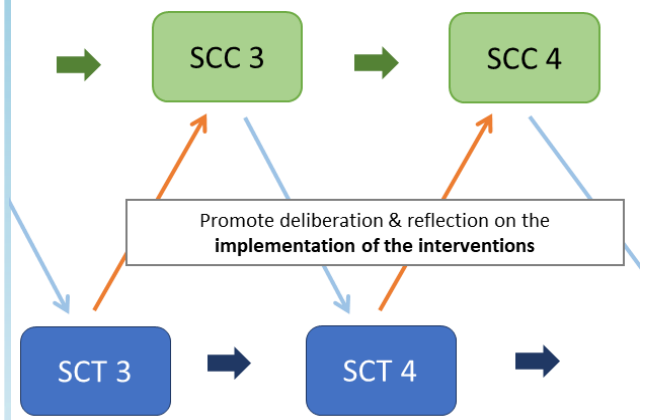
Figure 26 - Final score of the energy sector.

✓ the 159 co-designed measures in Finland, Portugal, Romania and Spain

- ✓ Measures **to change the conditions:** the **environmental performance**
- ✓ Measures **to change the people:** the **individual competences**
- ✓ Measures **to change the system:** the **collective competences**

Monitoring the implementation of the interventions

The interventions

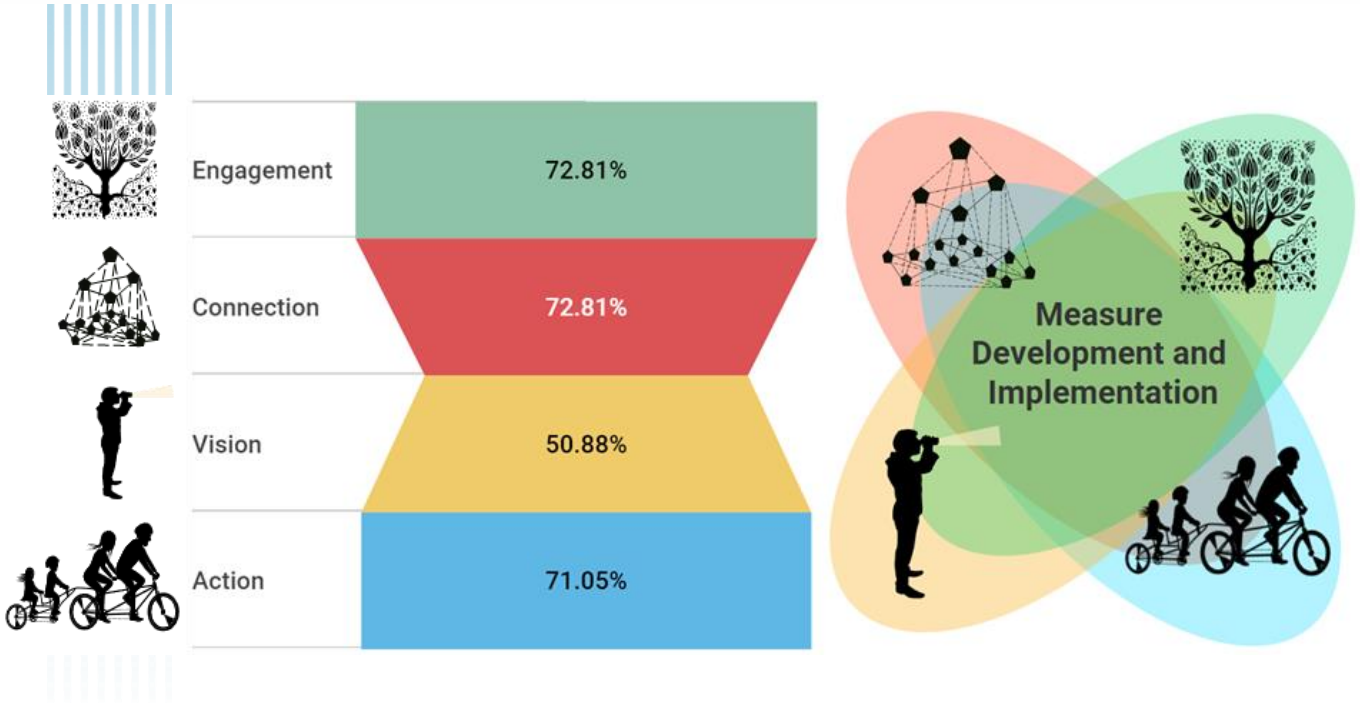


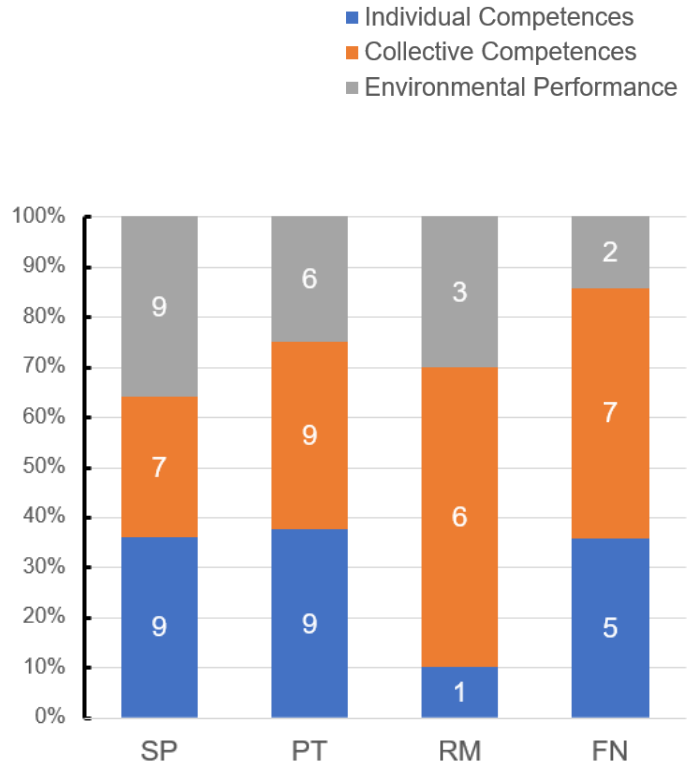
SCT/SCCs sessions 3 & 4
56 meetings
446 participants

- **engage the DS in reflection on whether and how the interventions affect competences** and capabilities to act towards sustainability (SCTs) and **engage the wider educational community in providing suggestions,** modifications or changes on the on-going interventions (SCCs)
- **preliminary identification** of the individual, organisational and structural drivers for and barriers to sustainable behaviours
- stimulate **reflection on the first and second steps of our roadmap**: engagement and connections

Monitoring the the interventions

Environmental performance (N = 73)	Collective competences (N = 52)	Individual competences (N = 34)
– New equipment: 28 – Infrastructure: 27 – Accounting and monitoring: 18	– Pedagogy: 16 – Cooperation: 12 – Curricula: 11 – Culture: 6 – Steering documents: 6 – Research: 1	– Information and awareness: 13 – Learning possibilities: 9 – Field trips: 6 – Events and theme weeks: 4 – Competition and rewards: 2
Co-designed intervention measures by type (total = 159)		





✓ Measures selected for implementation analysis

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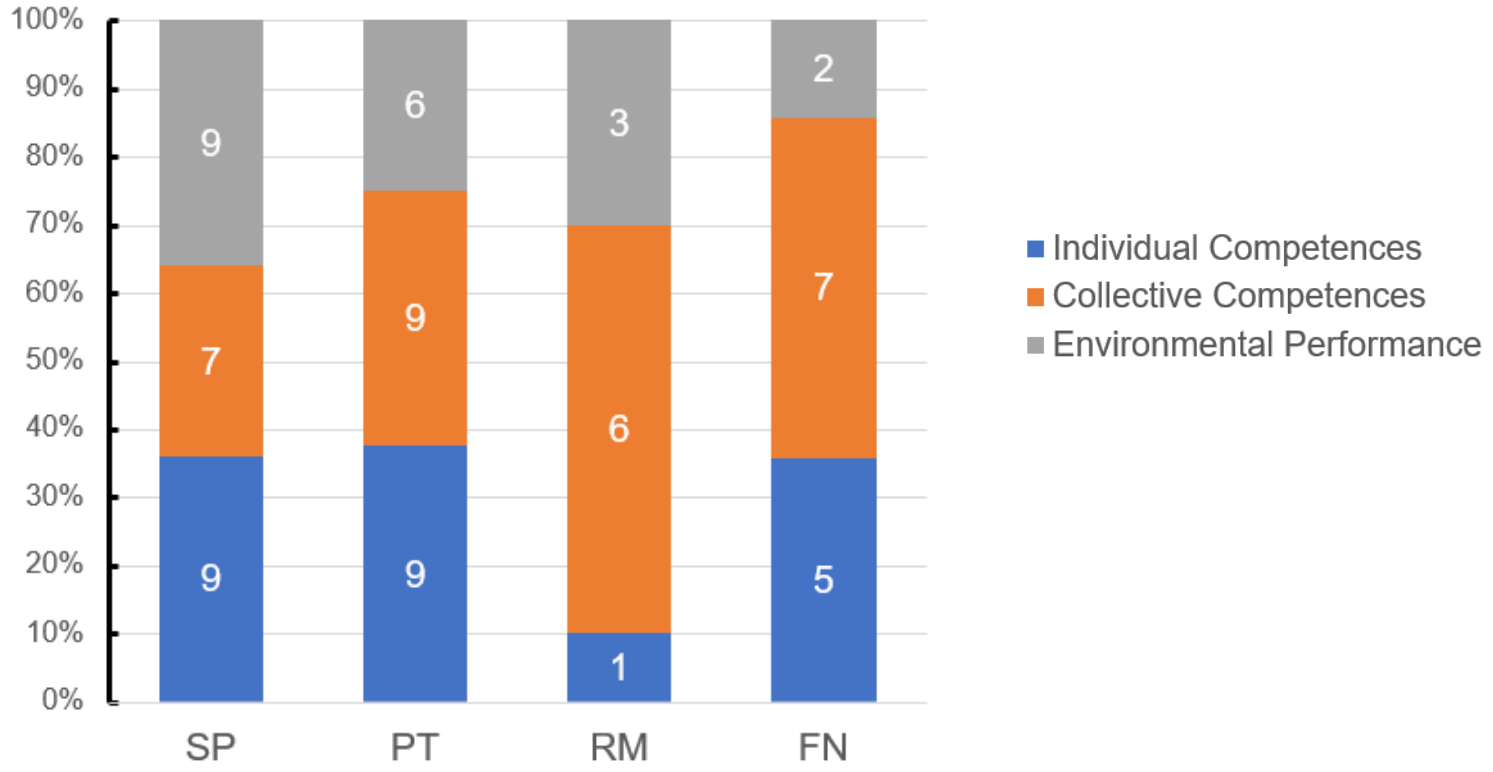
Analysis of measures selected for implementation by country and ECF4CLIM Analytical Framework spheres



Classification of measures selected by country and ECF4CLIM Analytical Framework spheres

✓ Measures selected for implementation analysis

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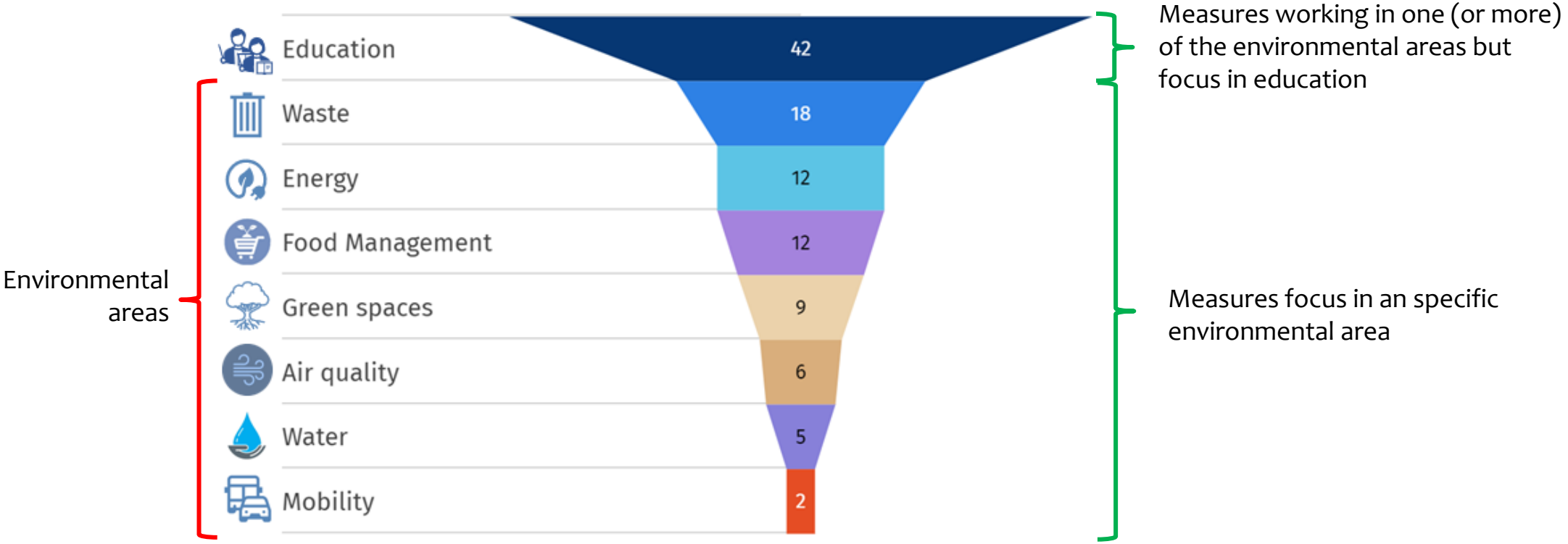
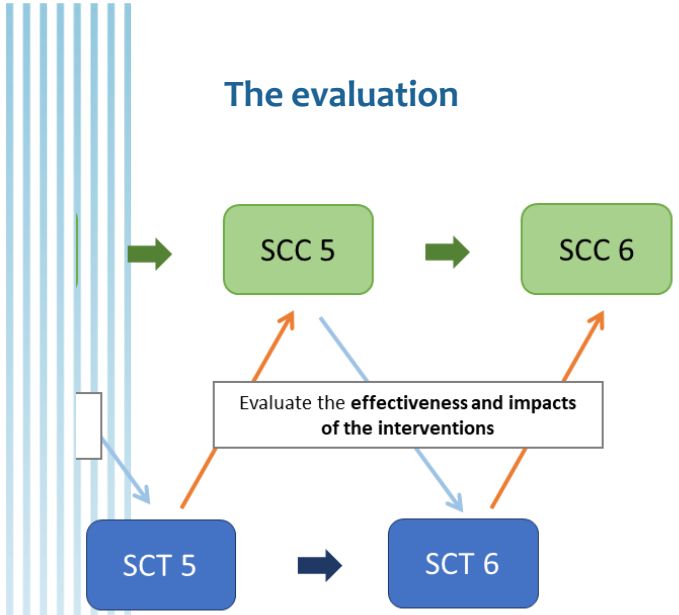
Analysis of measures selected for implementation by main topic



Classification of measures selected by main topic

Participatory evaluation



→ The evaluation helps to identify and describe the **current state of individual and collective competences and environmental performance**, and **explore relationships between an intervention and its outcomes**

→ The evaluation encompasses also the **broader institutional factors** that condition the success of the interventions, thus identifying the **obstacles, reasons for success and failure**, laying the basis for the design of **effective and context-sensitive solutions**.

→ The evaluation of the interventions provides the **basis for an evaluation of ECF4CLIM as a whole.**

The 4 Areas of the Digital Platform

Crowdsourcing processes

Through online discussions we collect data from different types of communities to have their voice heard in the process.

The aim of crowdsourcing is to find out the barriers and possibilities in sustainability education at schools and universities, and outline what kind of tools educators and other stakeholders have for promoting sustainability competences. We will collect **data from different types of communities to have their voice heard in the process.**

More info

Tools for Environmental Assessment

It gives access to a set of user-friendly tools for educational communities and citizens: the **Environmental footprint calculator**, the **retrofitting toolkits 1 & 2**, and the **Sustainability Interventions Evaluation.**

More info

Monitoring & Data Tools

The IoT Ecosystem functions as a data aggregator, collecting information, including energy consumption and temperatures, from various schools and universities participating in the ECF4CLIM project. **The tool provides dynamic calculation and visual analytics over key performance indicator (KPI) measurements** and helps the educational community to test different interventions aimed to improve the KPIs.

More info

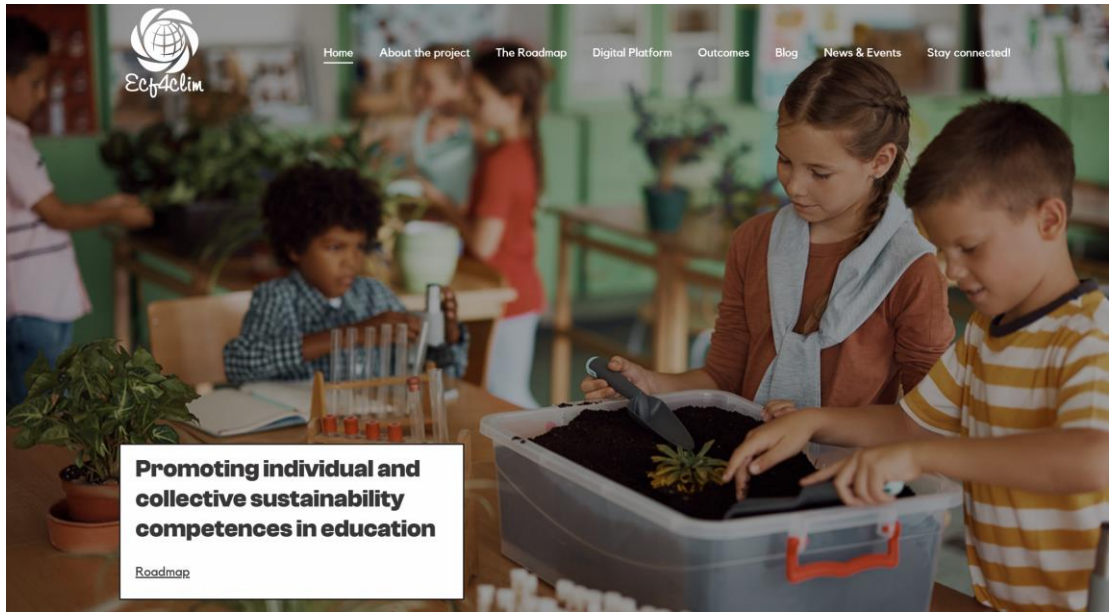
Learning Space

It gives access to educational resources designed to improve citizens' awareness, learning and capacity for climate actions and sustainability.

These educational materials are divided into **materials for students, for teachers** and **games**.

More info

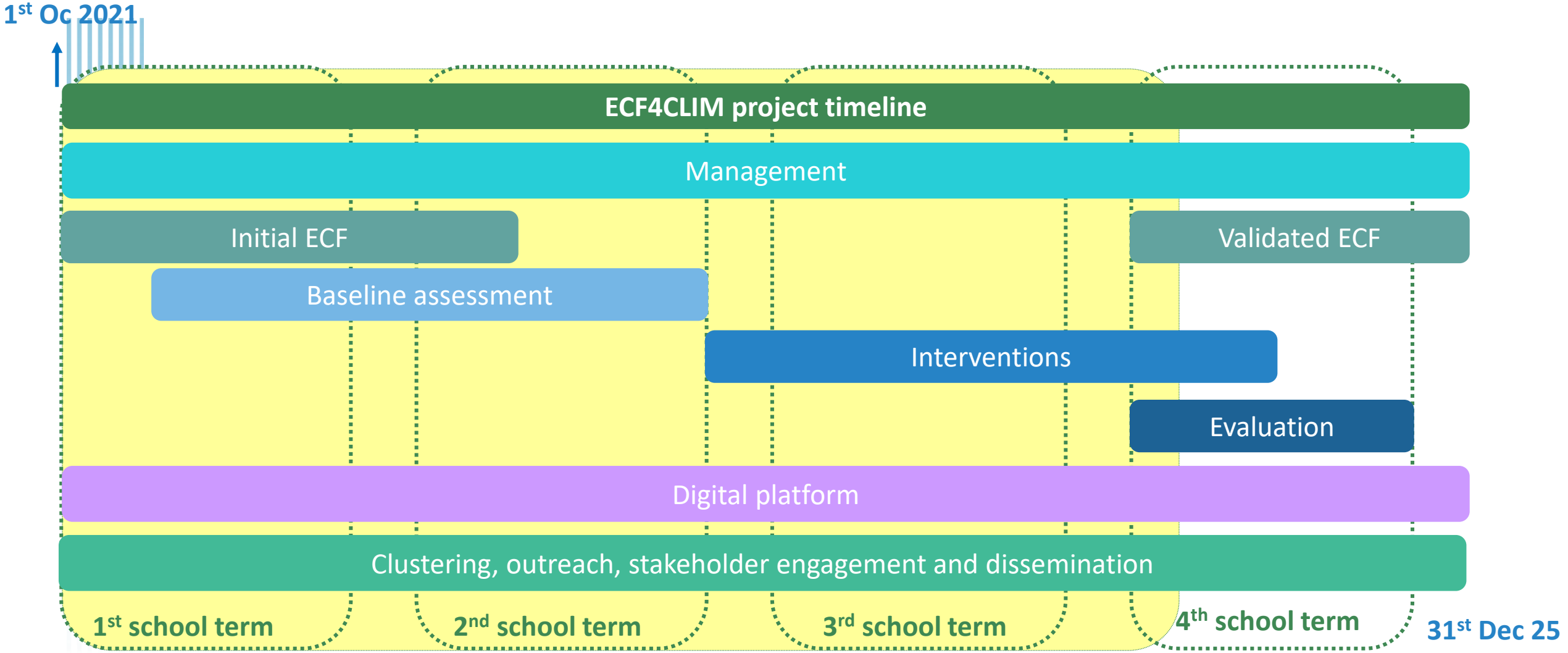
Our digital platform & our Web



https://ecf4clim.eu/

on. December 2024

ECF4CLIM timeline

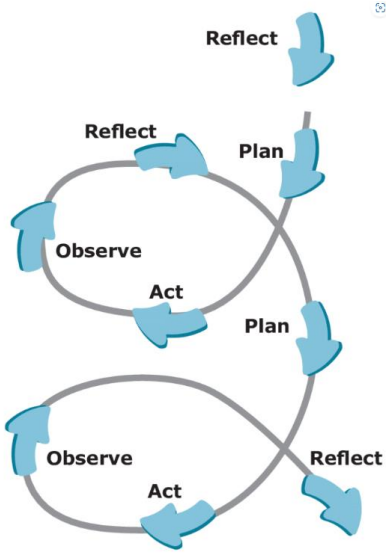


Challenges & opportunities

Of participatory action research in educational settings

- Substantial time & resource limitations at the DS (different across DS)
- Changes in participants (not similar across DS)
- Need to adapt the methodological designs to the educational dynamics
- Flexibility in the application of the methods an impacts on the nature of the evidence we are generating

- Significant levels of satisfaction with the collaborative work (feedback from participants)
- Adaptive and iteratively constructed methodological strategy throughout the project:
  - → Cross-country dialogues to encourage collective reflection (e.g. GA)
  - → Sensitivity to the context (e.g. mitigating measures to fit the school calendar)
  - → New methodological insights
  - → Fine-tuning of evaluation strategy



Kemmis et al (2003). The Action Research Planner.

Challenges & opportunities

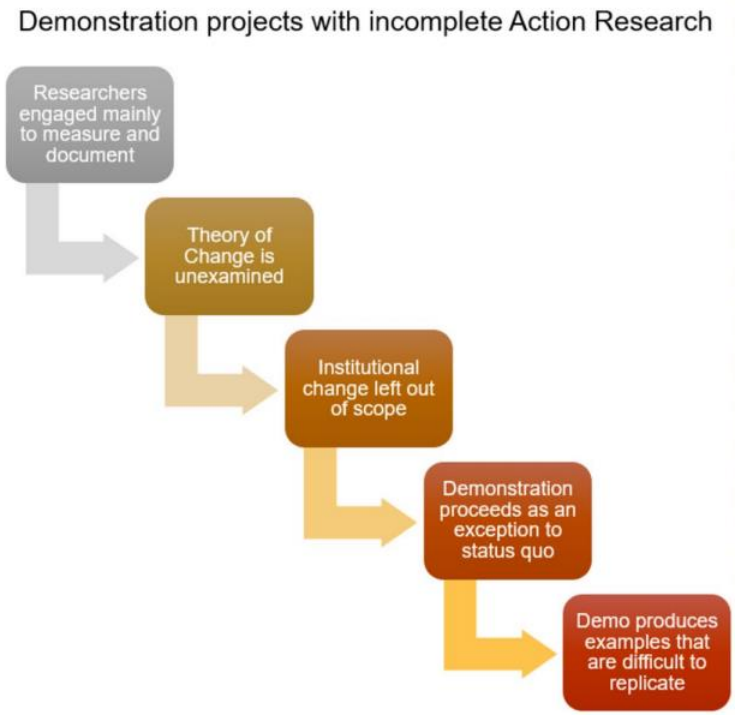
Of inter and transdisciplinary research

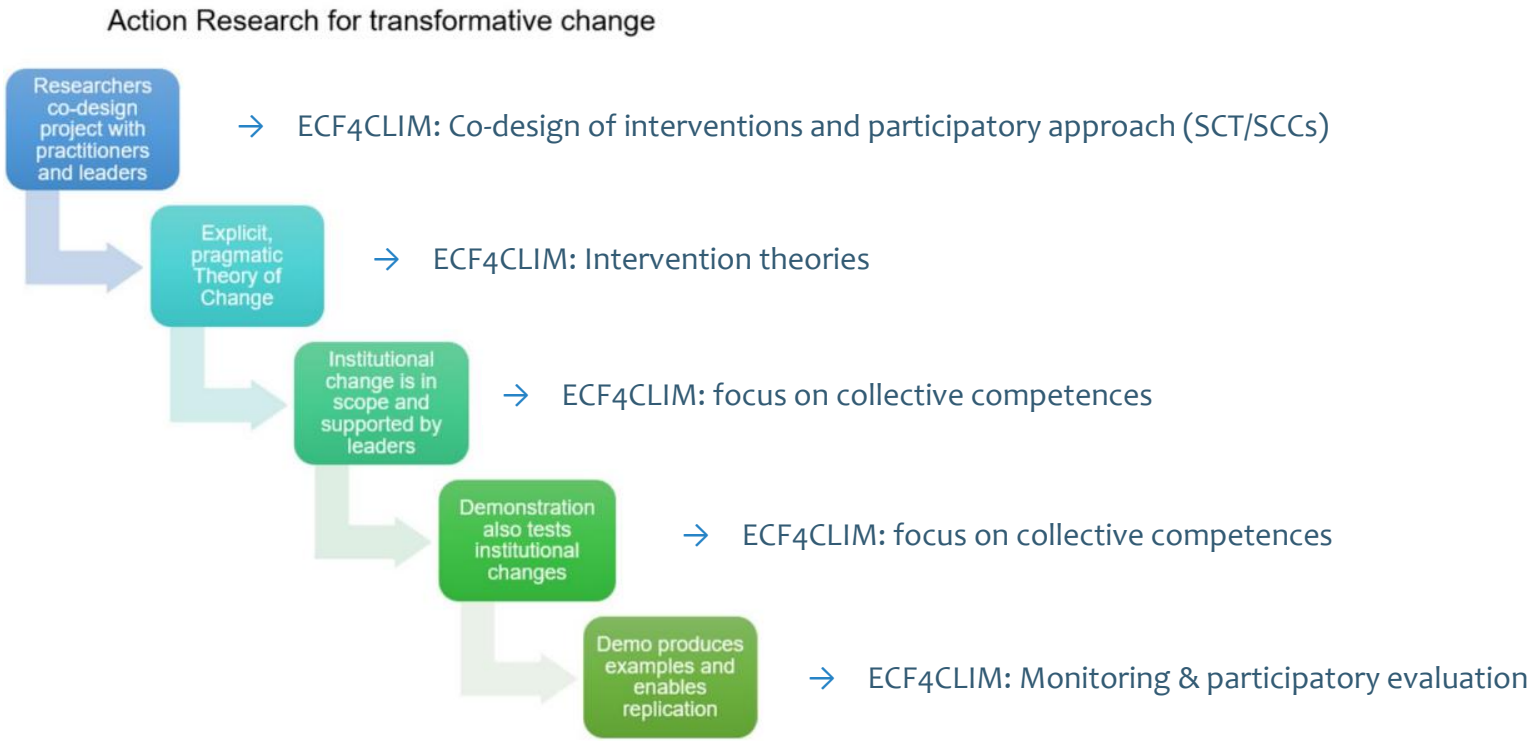
- Lack of skills and tradition in interdisciplinary research
- Risk of running in parallel: each expert doing its own work

- Our transdisciplinary strategy:
  - Mitigation measures to generate time and space for transdisciplinary dialogues: creative activities at GA with DS and AB, multidisciplinary dialogues & webinar, publications strategies …
  - Opportunities to gather meaningful empirical evidence on transdisciplinary work in EU funded projects (i.e., interviews with EU coordinators)

Challenges & opportunities

Of sustainability and scaling up of project results





Croeser et al (2024) *Sustainability Science*, 19(2), 665-670.

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