

Citizen Science: Empowering & Upskilling Citizens Towards a Climate Neutral and Sustainable Europe

Skills for sustainable, resilient, and socially fair communities



3-11 June 2023

**#EUGreenWeek
PARTNER EVENT**



Agenda

Agenda item	Time
Introduction and welcome <i>Green Deal Projects Support Office</i>	12.00 - 12.05
The climate change & sustainability challenges of our time <i>Alexandre Caldas, UNEP</i>	12.05 – 12.15
Project presentations <ul style="list-style-type: none">• AURORA• I-CHANGE• PSLifestyle• SOCIO-BEE• COMPAIR• ECF4CLIM• GreenSCENT	12.15 – 13.30
Panel Discussion <i>Martin Brocklehurst, ECSA & CSGP</i>	13.30 – 13.55
Summary	13.55 – 14.00



The climate change & sustainability challenges of our time

Alexandre Caldas
United Nations Environment Programme



AURORA: Empowering zero-emission citizens to stop climate change

Martin Brocklehurst
European Citizen Science Association & Citizen
Science Global Partnership



AUR  RA

Watch the video at:

<https://www.youtube.com/watch?v=zcoHcOCEEJI>





Individual Change of Habits Needed for Green European transition

Muhammad Adnan
Transportation Research Institute (IMOB),
Hasselt University



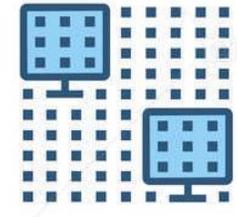
What

MAIN OBJECTIVE

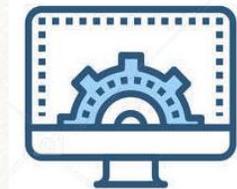
Raise **awareness** of natural hazards and of the impacts of climate change



through **direct collection** of environmental data



with **new and user-friendly tools** (sensors, monitoring devices, simplified models and apps)



GENERAL INFO

- ***I-CHANGE***: Individual Change of HAbits Needed for Green European transition
- Duration: **42 Months** (2021 – 2025)
- EU contribution: **about 5 mil euro**
- Coordination team:
 - - Antonio Parodi (CIMA, Project Coordinator)
 - - Silvana Di Sabatino (UNIBO, Scientific Coordinator)

Who

16
Organizations

12
Countries



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Consiglio Nazionale
delle Ricerche



TEKNOLOGIRÅDET
DANISH BOARD OF TECHNOLOGY



TEL AVIV
אוניברסיטת תל אביב
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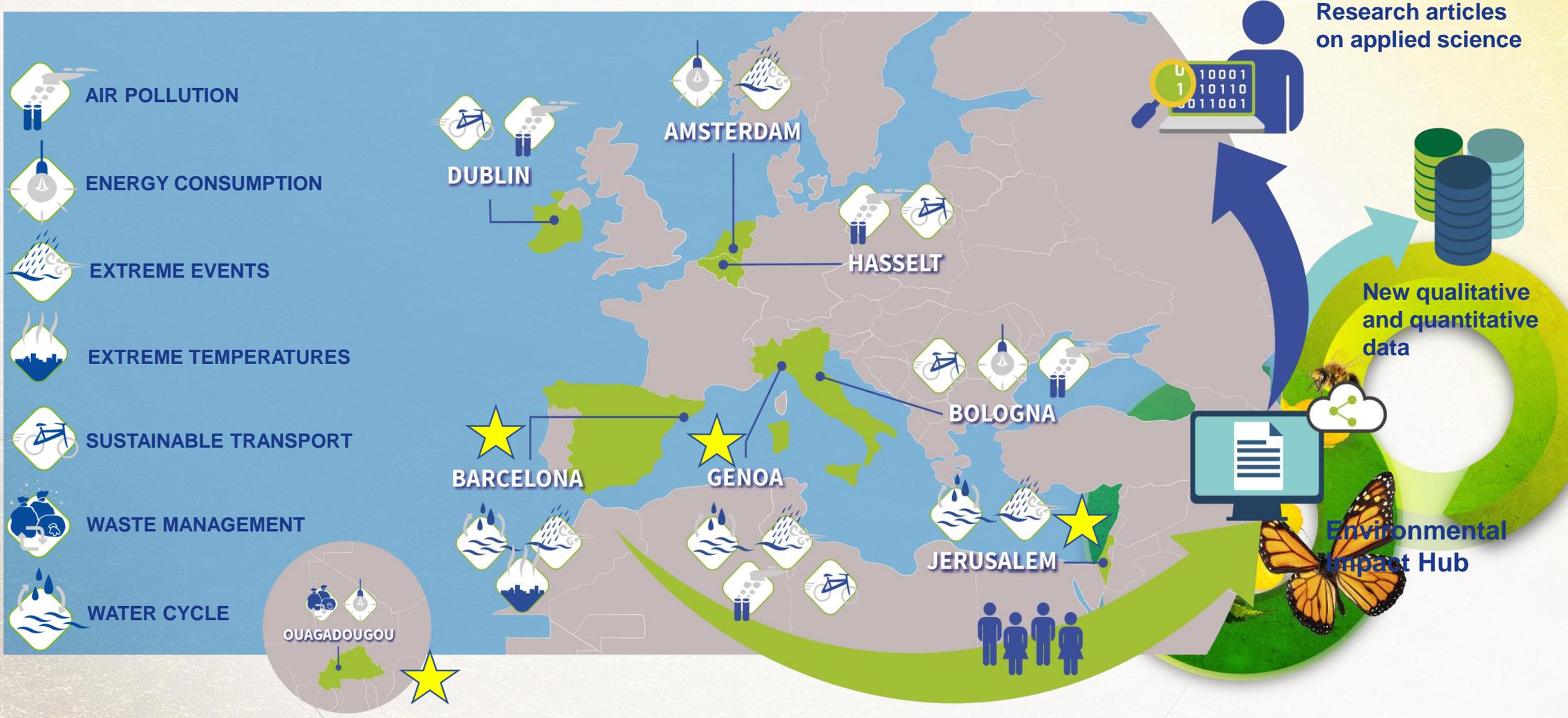
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kajoservices.com



8 Living Labs



Sensors and instruments for citizen science

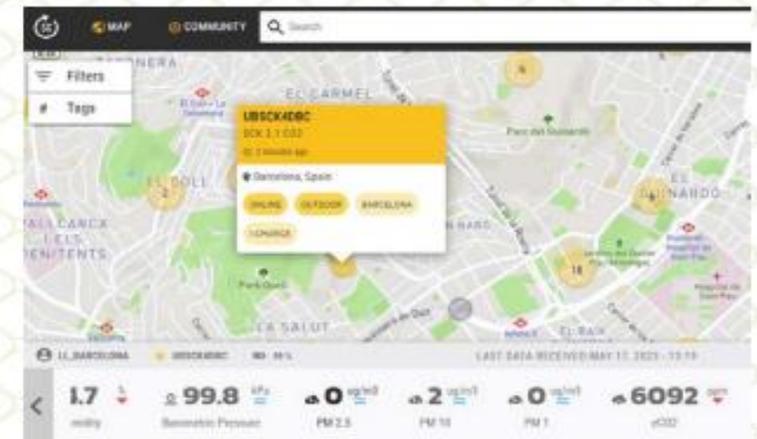
Common sensors used in the different I_CHANGE LL for scientific measures, data collection and citizen engagement activities:

- **MeteoTracker**



<https://meteotracker.com/>

- **Smart Citizen Kits (SCK) and Smart Citizen Stations (SCS)**



<https://smartcitizen.me/>

Sensors and instruments for citizen science

Specific sensors used for scientific measures, data collection and citizen engagement activities at the different LLs:

- Low cost and professional weather stations
- FLOODUP App, Telraam (collecting multi-modal traffic data from home), KoboToolbox, Open Data Kit (ODK) and other Web-apps
- Cargo Bikes
- High-Five project Poles
- Commercial Microwave Links (CML) and Cellular Application
- Other devices



Low cost weather station installed in a school in Barcelona



Amsterdam LL showing a cargo bike with a weather station



Hive-Five project pole with a SCK



Floodup app to upload impacts of meteorological risks

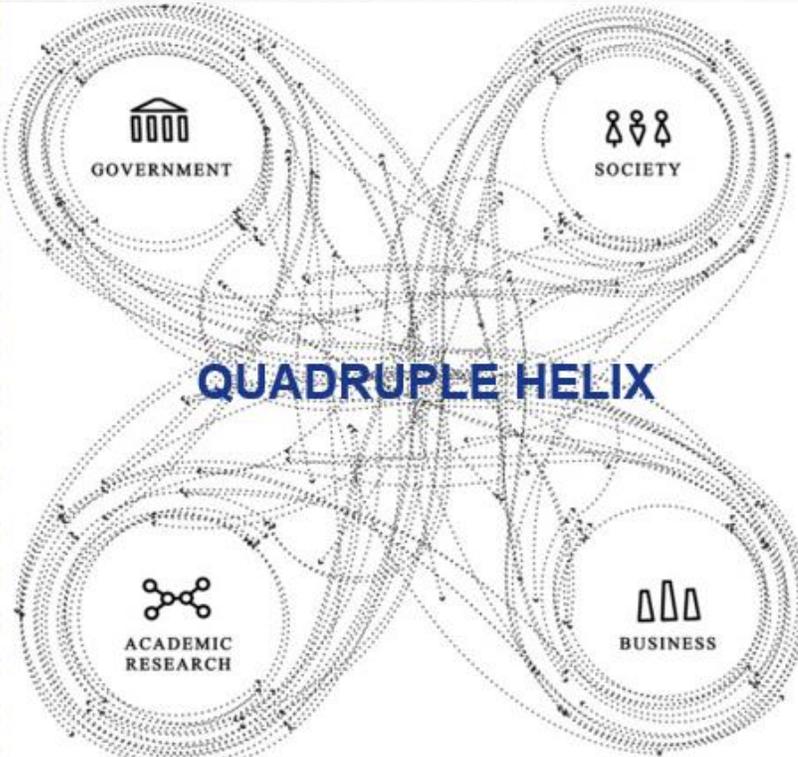
Working with Stakeholders

Stakeholder mapping

- There must be stakeholders from the four groups of the quadruple helix.
- The identification process of stakeholders to be involved needs to consider the stakeholder's interests in the project
- The active participation in the project is key, an efficient way of communication have to be established

Example: Hasselt LL

Hasselt Municipality
Heusden-Zolder Municipality
Beringen Municipality
Flemish Environmental Agency



HAST Katholiek Onderwijs Hasselt
Basis schools Hasselt (4 schools)
Parents Committee of the Zonhoven
centrum School
De Fietsersbond

Hasselt University
UCLL Hogeschool

High-five Project
Cegeka nv



Working with Stakeholders

The first stakeholders' meetings were held in each I-CHANGE LL between May - July 2022. These workshops had the objective of establishing the roadmap for the LLs during the first year of activity



Ouagadougou (West Africa), 29/05/2022



Bologna, 09/06/2022



Hasselt, 13/06/2022



Barcelona, 01/07/2022



Dublin, 10/06/2022



Genoa, 31/05/2022



Jerusalem, 28/06/2022



Amsterdam, 14/06/2022

Citizen Science activities/engagements

1. Communicate the scientific outcomes of the project to the citizens circulating understandable reports via newsletters or multi-stakeholder platforms
2. Identify already existing and established connections with the citizens to engage them
3. Active accounts on the social media (LinkedIn, Twitter, Facebook, etc.) and regular press releases on local and national newspapers. Both for Channels of the project and specific LLs



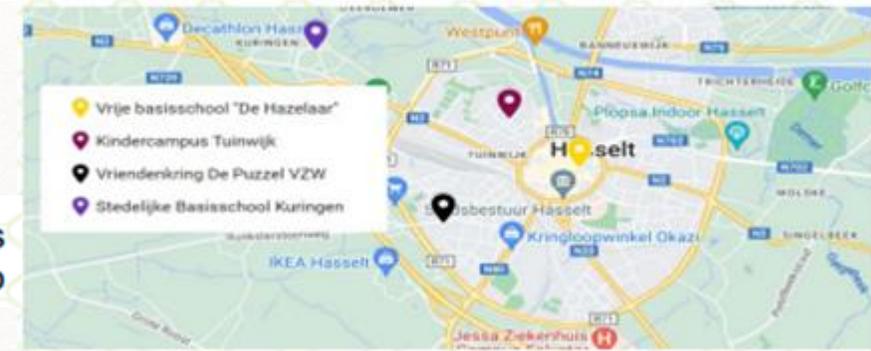
Citizen Science activities/engagements

4. Participation at science festivals and other specific events organized in the local context.



5. Periodic workshops (training, capacity building, Knowledge sharing etc.)

Localization of the different schools involved in the Hasselt Living Lab



6. Synergies with other projects and foundations

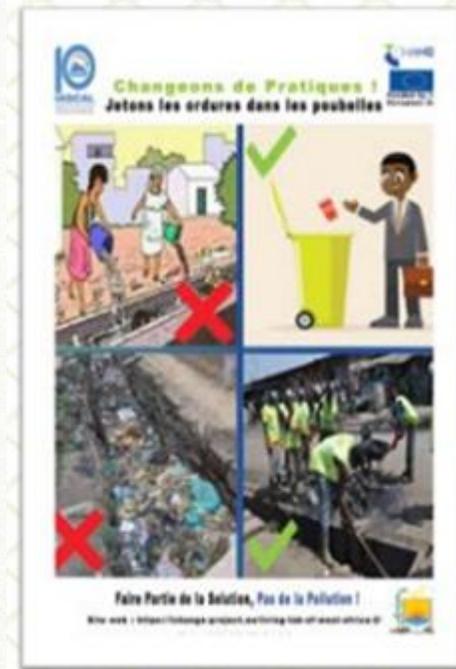


Citizen Science activities/engagements

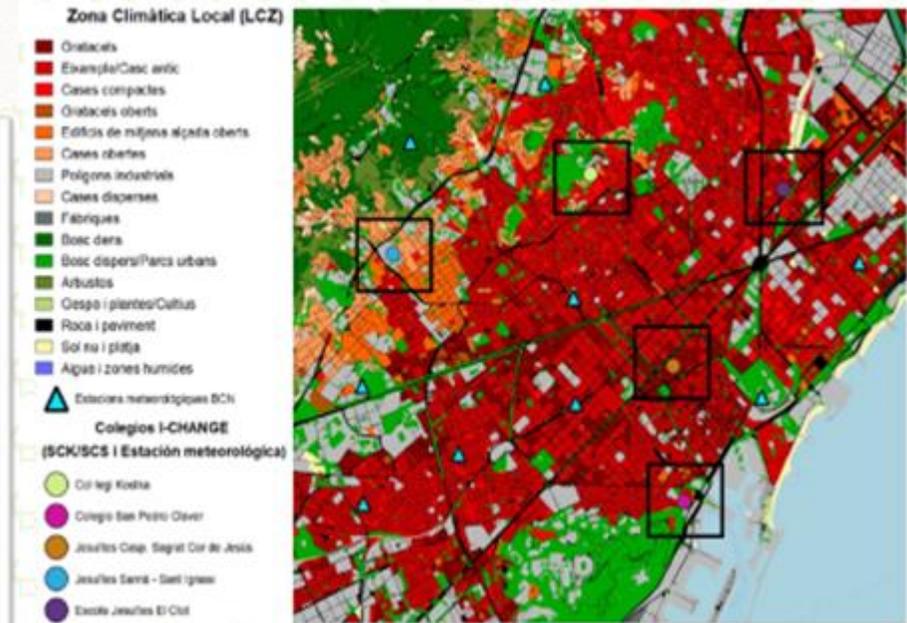
7. Installing weather stations at homes, schools or other public facilities.

8. Sort, collect and recycle waste

9. Engaging steering teams in schools, to create commissions and involve the families



Local climate zones of Barcelona with the schools where SCKs and MT were installed



Citizen Science activities/engagements

10. Serious games with citizens or neighborhoods.

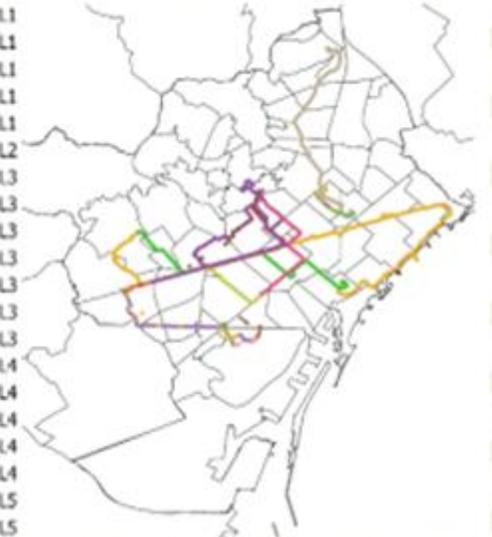


11. Collection of damages and impacts due to heavy participation and floods

12. Campaigns of data collection with specific training to interpret it feedback after analysis (bike paths with MeteoTrackers, sensors on boats, conventional and non-conventional data comparisons,...)



- 15T07_09_14_BLL1
- 14T10_35_41_BLL1
- 14T10_24_16_BLL1
- 14T11_07_50_BLL1
- 15T13_24_41_BLL1
- 13T22_23_16_BLL2
- 14T09_03_02_BLL3
- 14T13_26_14_BLL3
- 15T09_16_32_BLL3
- 15T15_46_34_BLL3
- 15T16_05_24_BLL3
- 15T11_54_35_BLL3
- 15T22_27_22_BLL3
- 14T10_58_58_BLL4
- 14T11_25_10_BLL4
- 14T11_35_35_BLL4
- 14T18_07_06_BLL4
- 14T18_25_13_BLL4
- 15T18_53_57_BLL5
- 15T19_42_46_BLL5



To Take Home

- 8 Living Labs are working with the aim of improving the habits of citizens for a Green Transition.

- Each LL has an individual local implementation plan

- ✓ Challenges
- ✓ Objectives
- ✓ Schedules
- ✓ Stakeholders

- ✓ Implementation risks/barriers
- ✓ Engagement procedures
- ✓ low-cost sensors
- ✓ Impact indicators

- ✓ Continuity plan
- ✓ Workshop results
- ✓ Feedback methods
- ✓ Dissemination plans

- The experience of I-CHANGE can provide a basis for current or future research focusing on climate change topics using citizen science approach



Find out more

Website: <https://ichange-project.eu/>

Twitter: @ICHANGE_EU

LinkedIn: @ichange-eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101037193.

*The content in this leaflet reflects the author's views.
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PS Lifestyle **Co-creating a positive and sustainable lifestyle tool with and for European citizens**

8th June 2023

Dushyant Manchandia, Specialist (Sustainable Consumption and Climate change), Finnish Innovation Fund Sitra



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101037342.

pslifestyle.eu

Introducing ^{PS}Lifestyle

- ▶ **PSLifestyle** or Co-creating a **Positive and Sustainable Lifestyle** tool with and for European citizens
- ▶ **In response to** H2020 Green Deal Call Topic 10.3 – “Enabling citizens to act on climate change, for sustainable development and environmental protection through education, citizen science, observation initiatives, and civic engagement” (H2020-LC-GD-2020)
- ▶ **Subtopic 2** “Enabling citizens to act on climate change and for sustainable development through better monitoring and observing of the environment and their environmental impacts”
- ▶ **Timeline** – October 2021 – March 2025 (42 months)
- ▶ **Communications channels**
Twitter: @PSLifestyle_EU #PSLifestyleEU
LinkedIn: PSLifestyle Project
Website: pslifestyle.eu

Partners

- ▶ Finnish Innovation Fund Sitra (Finland)
- ▶ Solita Oy (Finland)
- ▶ Center for Sustainable Consumption and Production (Germany)
- ▶ Hot or Cool (Germany)
- ▶ ICLEI European Secretariat (Germany)
- ▶ EuroHealthNet (Belgium)
- ▶ Let’s Do It Foundation (Estonia)
- ▶ Rohetiiger (Estonia)
- ▶ DECO (Portugal)
- ▶ Circular Change (Slovenia)
- ▶ Municipality of Ljubljana (Slovenia)
- ▶ Fondazione Sviluppo Sostenibile (Italy)
- ▶ GreenApes (Italy)
- ▶ Athena Research Center (Greece)
- ▶ Ekpizo (Greece)
- ▶ Zeytince (Turkey)

Objectives

- 1 Build an innovative **behaviour change and citizen science application** - the PSLifestyle application - that **enables European citizens to participate** in generating personal sustainability data, while learning about personalised sustainable lifestyle choices.
- 2 **Run eight local multi-stakeholder citizen science pilots** that contribute to and promote the PSLifestyle application development, as well as the suggested sustainable living patterns that emerge through the data generated by citizens engaging with the application
- 3 To **create and make available the PSDataSet** with relevant data blocks on major lifestyle areas, to **enable further research and policy design** beyond the project
- 4 Build awareness to **support and empower European citizens to act and to adopt lasting behavioural patterns for sustainable and healthy lifestyles**

Key approaches

COM-B model



European citizens deserve easier ways of understanding their climate impact and their **C**apability, **O**pportunity **M**otivation - **B**ehaviour

Co-creating insight



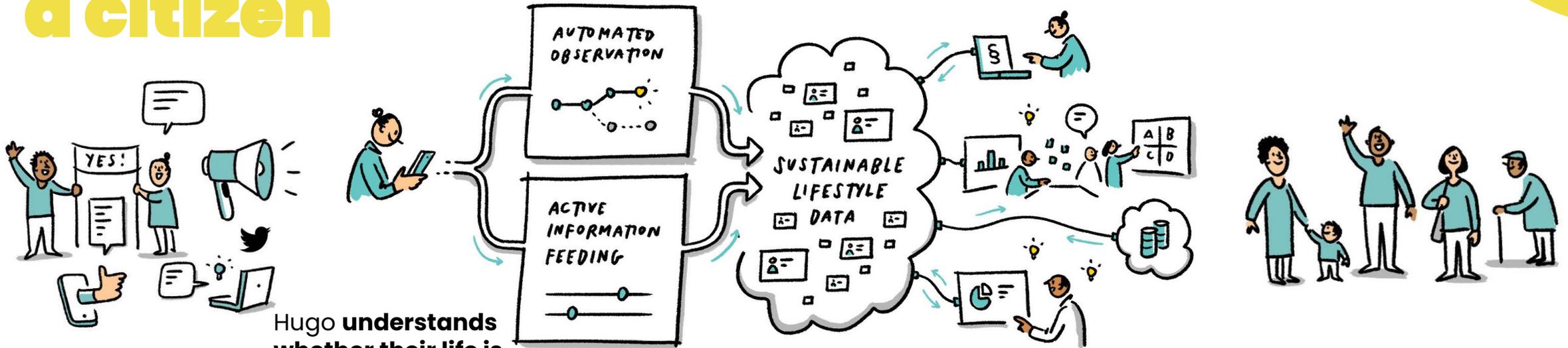
Different lifestyles ought to be acknowledged to understand what **motivates and limits** European citizens' more sustainable consumption behaviour. That is what citizen themselves know best.

Participation and dialogue



European citizens are important stakeholders to **participate in decision- and science-making**, and to ensure that policy incentives and interventions are realistic and applicable to our everyday life.

PSLifestyle - from the perspective of a citizen



"Hugo" comes across communication measures by a local partner who **have localized their version of the online citizen engagement tool "PSLifestyle"**

Hugo **understands whether their life is sustainable in terms of their carbon footprint and chooses actions** to reduce their environmental impact and still live a good life according to the suggestions of the PSLifestyle online service.

The actions Hugo selects improve their own life but additionally are also accumulated into a DataSet that enables European citizens to participate in environmental and sustainability data reporting while making personalised sustainable lifestyle choices.

The PSLifestyle project partners work with policy makers and businesses to remove hurdles for people in making personalised sustainable lifestyle choices.

Hugo becomes a citizen co-creator with businesses and policy-makers in improving the sustainability and well-being of their own life but also of their neighbourhoods/region/ country by accelerating the online service and **contributing to the European behaviour change policies, advice, and actions.**

PSLifestyle – main exploitable results



PSLifestyle citizen engagement online tool

- replicable to other countries as well
- Including; source code, carbon footprint calculations for 8 countries & EU-average + templates for replicating it, actions for reducing environmental impact, feature to create a personal PSPlans



Citizen-science PSDataset

- Citizen-created data from the PSLifestyle online tool.
- Data architecture to create e.g. behavioural, spatial, trend analysis
- anonymised



Local multi-stakeholder ecosystems

- In 8 local partner countries, stakeholders committed to utilise and follow-up on the data insights created by the PSLifestyle online tool users



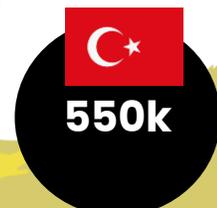
Citizen engagement resources

- Communication and dissemination resources designed to catalyse behaviour change and consider other motives to pursue meaningful, sustainable, healthier lifestyles
- Participants of the living labs educated and engaged to act as ambassadors of sustainable lifestyles, promoting participation via the PSLifestyle online tool in their own communities

Community structure for the local pilots & all documentation to replicate the process in other countries

PSLifestyle pilot sites

- Living-labs & multi-stakeholder structures set up in 8 pilot countries
 - Finland (Helsinki, Tampere, Lappeenranta, Turku-Raisio)
 - Germany (Wuppertal)
 - Estonia (Tallinn, Tartu)
 - Slovenia (Ljubljana)
 - Portugal (Lisbon)
 - Italy (Parma, Prato, Milan, Florence)
 - Greece (Athens, Xanthi)
 - Turkey (Izmir)
- Dissemination in other EU countries through other networks (long-term goal to expand to other countries)
- Target outreach of the online tool to **4.000.000** European citizens and **400.000** citizens creating their PSPlans (=PSDataset)

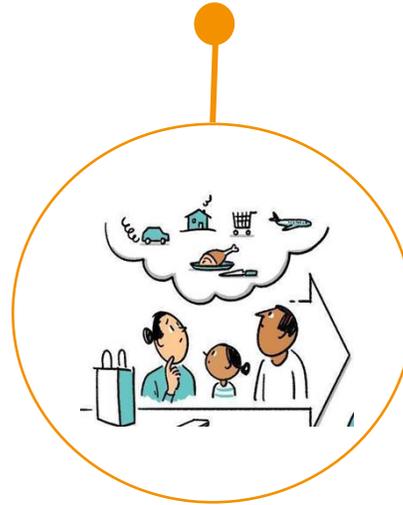


Citizen science labs and application rollout

Lab 1.1 (Spring, 2022) –
Understanding the
good sustainable life



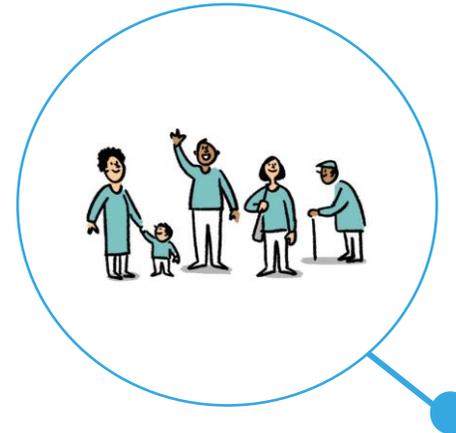
Lab 2 (Fall, 2022) – Let's learn
about the actions we can take
and create our own good
sustainable life



Summer, 2023 – PSL
App coming soon to a
festival near you :D



Lab 1.2 (Spring, 2022) –
Let's do the Lifestyle Test
and understand our
lifestyle.



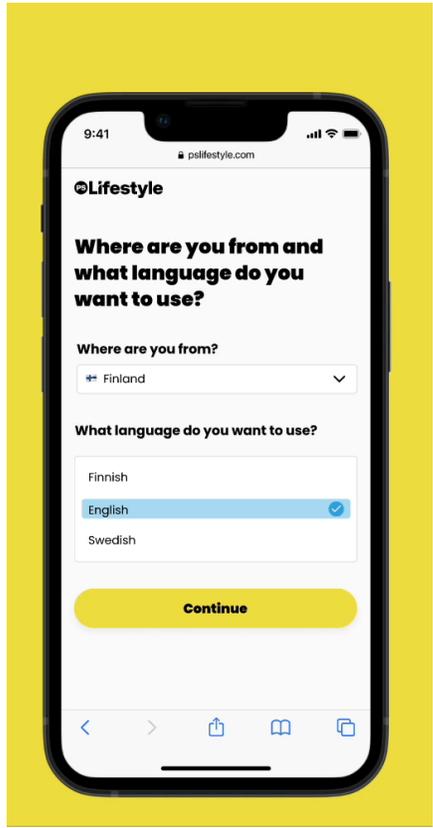
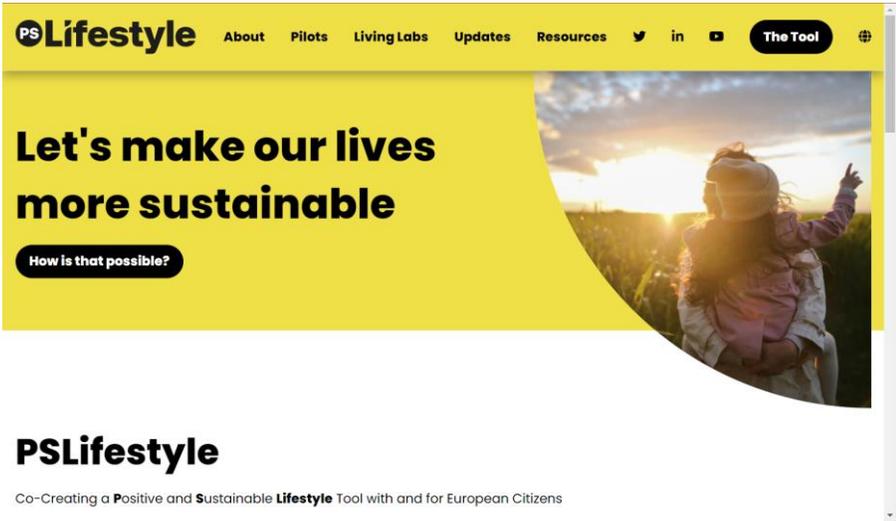
Lab 3 (Spring, 2023) –
Understanding
Motivations that
govern our life

Results from Living Labs

Country	Cities in which labs were held	No. of participants in total by the end of iteration II
Estonia	Tartu, Tallinn, and Narva	106
Finland	Tampere, Lappeenranta, Helsinki, Turku	182
Germany	Wuppertal	131
Greece	Athens, Xanthi	150
Italy	Prato, Parma, Verona	141
Portugal	Lisbon	115
Slovenia	Ljubljana	113
Turkiye	Izmir	138

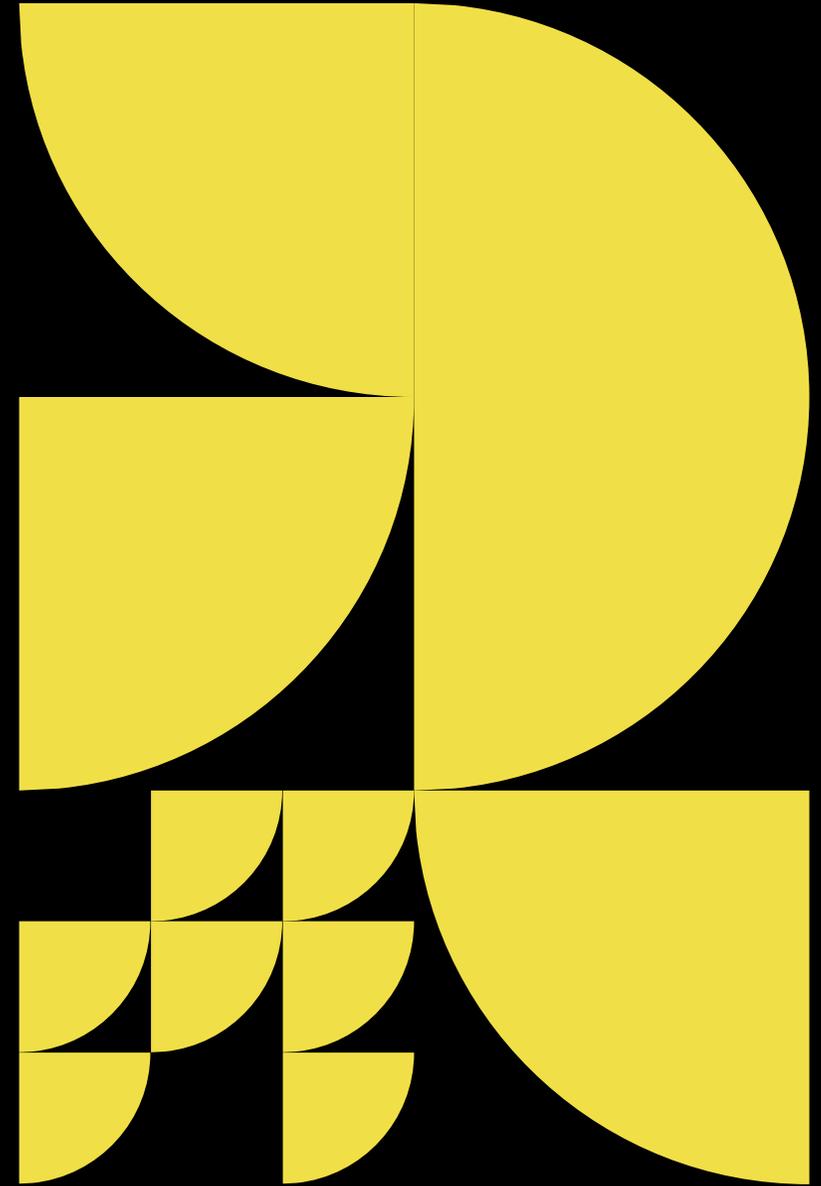
Pslifestyle.eu

Lifestyletest.eu



Twitter: @PSLifestyleEU #PSLifestyle
LinkedIn: PSLifestyle Project

**Thank you for your
attention.**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101037342.

pslifestyle.eu

The SOCIO-BEE Project



Wearables and drones for city socio-environmental observations and behavioral change

A brief introduction to SOCIO-BEE

Beatriz Noriega Ortega and Evangelos Kopsacheilis



CERTH
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RESEARCH & TECHNOLOGY
HELLAS



Funded by the
European Union

- **SOCIO-BEE** (GA No: 101037648)
- **Wearables and droneS fOr City Socio-Environmental Observations and BEhavioral ChangE**
- Duration: 36 months, Start date: 01.10.2021 – End date: 30.09.2024
- Budget: **5 455 801.66** Euro (EU contribution: **4 999 858.91** Euro)
- Coordination: Dr. Anastasios Drosou (CERTH-ITI), Email: drosou@iti.gr
- **18** Partners from **7** European countries

The SOCIO-BEE Consortium



Eighteen (18) partners from seven (7) European countries



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Hypertech



M3C
Multidisciplinary Media & Mediated Communication



Deusto
Universidad de Deusto
University of Deusto

ecsa

European
Citizen Science
Association

bettair
Mapping Air Quality



LSTS
LAW, SCIENCE,
TECHNOLOGY
& SOCIETY
RESEARCH GROUP



SMIT
STUDIES IN MEDIA,
INNOVATION & TECHNOLOGY



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



ID2M^ove
CAP INNOVE
CRÉATEUR DE SUCCÈS

HKU
university of the arts utrecht



Comune di
Ancona



Fundación Zaragoza
Conocimiento



Zaragoza
AYUNTAMIENTO



Δήμος Αμαρουσίου

The SOCIO-BEE proposition

Community engagement and social innovation
with **Citizen Science**

through emerging technologies and playful interaction

can **bridge the gap** between:

the capacity of communities to adopt sustainable
pro-environmental behaviors and

the citizen intentions and real behavior



- ❑ **18** Partners from **7** EU countries
- ❑ Now on **Month 20**
- ❑ Ready to commence the **1st round** of pilots

The wider frame of SOCIO-BEE

LC-GD-10-3-2020:

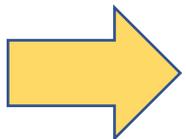
Enabling **citizens to act** on climate change, for sustainable development and environmental protection through education, citizen science, observation initiatives, and civic engagement

Grant agreement ID: 101037648



- 🏠 **European cities:** Home of **75%** of the European population (~**340** million people)
- 🏠 **Air pollution:** One of the **key threats** for the inhabitants of many European cities
- 🏠 **Energy demand & mobility:** One of the drivers behind pollution

The behavioral change due to COVID-19 pandemic, showed a **change in energy demand** patterns & a **17% drop in CO₂ emissions** during the lockdown due to the reduced surface transport



Policy-measures and human action have great potential on emission reduction

🏠 Reducing air pollution requires:

🏠 Technological innovation &

🏠 A behavioral shift

🏠 Such changes require collaboration between:

🏠 Citizens

🏠 Businesses

🏠 Volunteers

🏠 Decision makers



The SOCIO-BEE ecosystem



Role in SocioBee	Role Explained
Queen Bee	A knowledgeable citizen that is interested in leading CS-based activities (Teachers, activists, science students or people interested in what-if testing)
Working Bee	Citizens who lack the knowledge to lead, but are willing to collaborate, learn, and help (citizens with interest in science or in societal change in general, people with spare time)
Drone Bee	Citizens who do not care or are unaware of the potential of CS fighting against Climate Change, but they can be informed and consulted (lay citizens, well-off citizens, over 40+ with children)
Bear	Stakeholders that sponsor, launch, set the common strategy (in a neighborhood, city, etc.), and are willing to support societal and pro-environmental behavior change (Municipalities, Schools, Businesses, Elderly associations)
Hive	A CS action group, led by at least one Queen Bee and including a set of Working Bees (Citizen observatories, volunteering groups, affiliation groups)

The SOCIO-BEE Solution

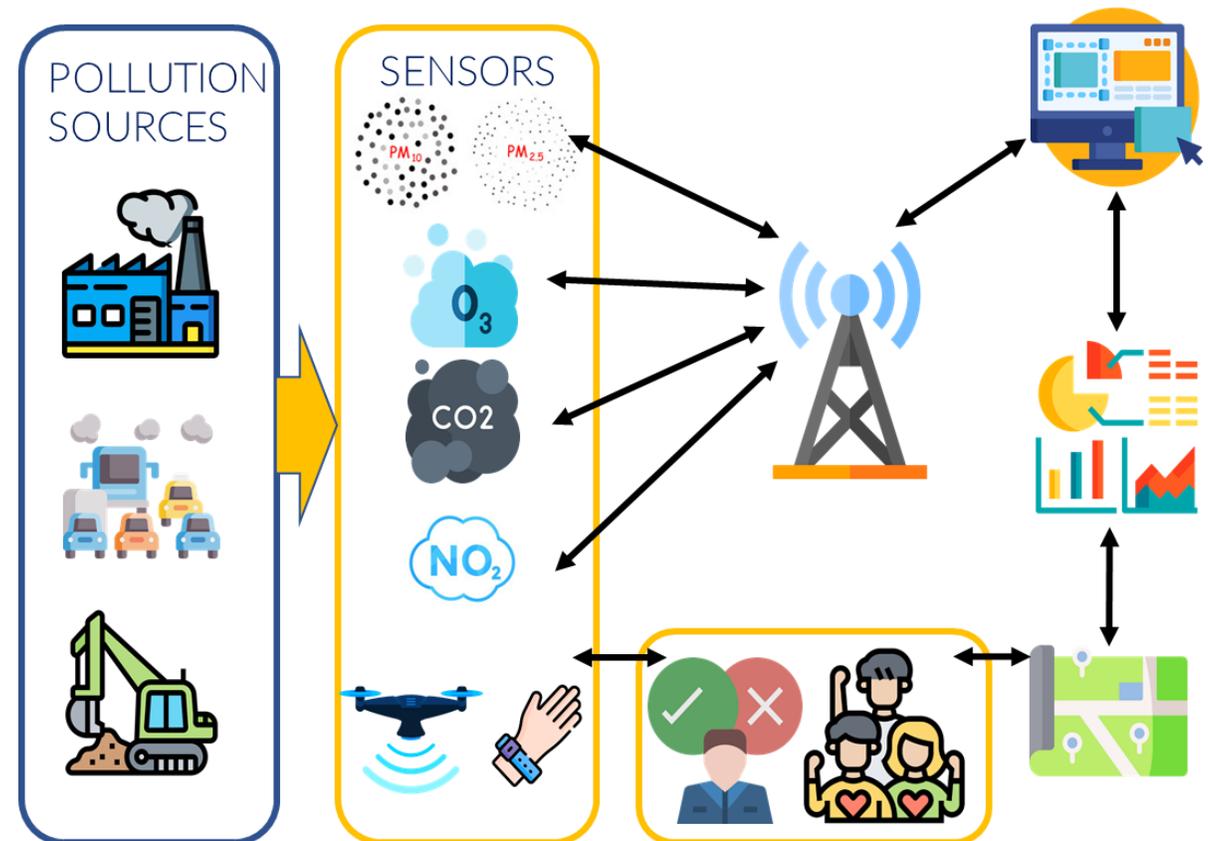
🔗 A citizen science **web platform** for air quality monitoring:

- Supported by decision makers and action groups
- Bridging citizens and policymakers

🔗 An affordable ICT – based and accessible **wearable**

- Attachable to objects like bracelets and drones

🔗 A stakeholder **engagement strategy**



Pilot features



Zaragoza

 **Challenge:** Boost a change of behaviour in children (8 to 16 yo) on environment issues through a technological, agile and joyful approach based on citizen science

 **Targeted Population:** Kids and teenagers



Ancona

 **Challenge:** Motivate the elderly (>65 yo) to be active outdoors in a non-polluted and non-crowded environment, promoting a healthy lifestyle

 **Targeted Population:** Aged population



Marousi (Amaroussion)

 **Challenge:** Commuters to actively contribute in understanding their individual exposure to air pollution through CS campaigns - Feedback to citizens on most/less polluted neighborhoods

 **Targeted Population:** Commuters and general population

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@SOCIO-BEE

Interested to know more?

Visit our website
<https://socio-bee.eu>



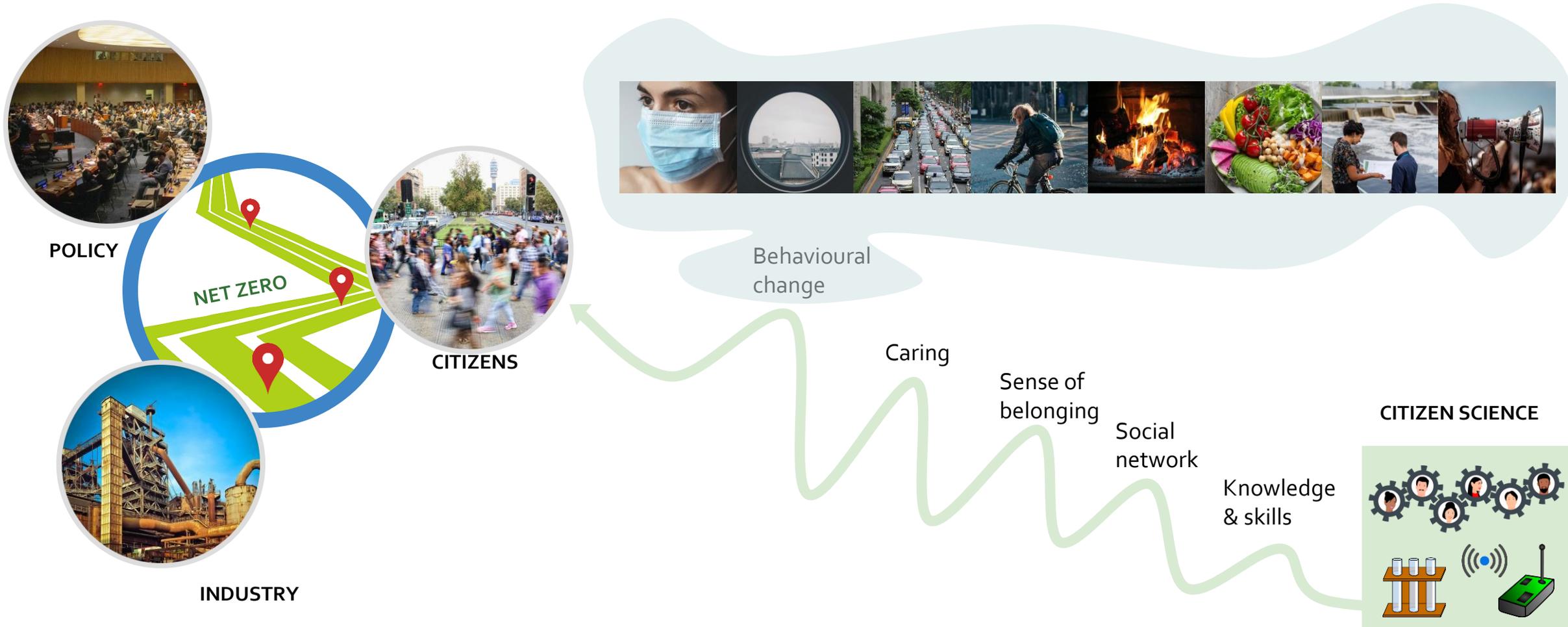
Funded by the
European Union

COMPAIR

Community
Observation
Measurement &
Participation in
AIR Science



Empowering and upskilling citizens.. why?







Flanders: Herzele

Monday, Tuesday, Thursday, Friday

8:15 am - 8:45

3:20 pm - 3:50

Wednesday

8:15 am - 8:45 am

12:00 pm - 12:30 pm



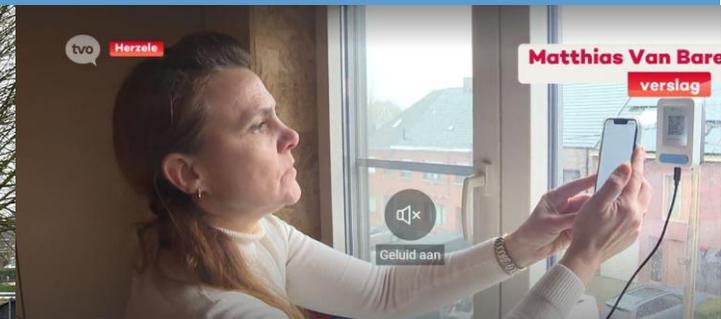
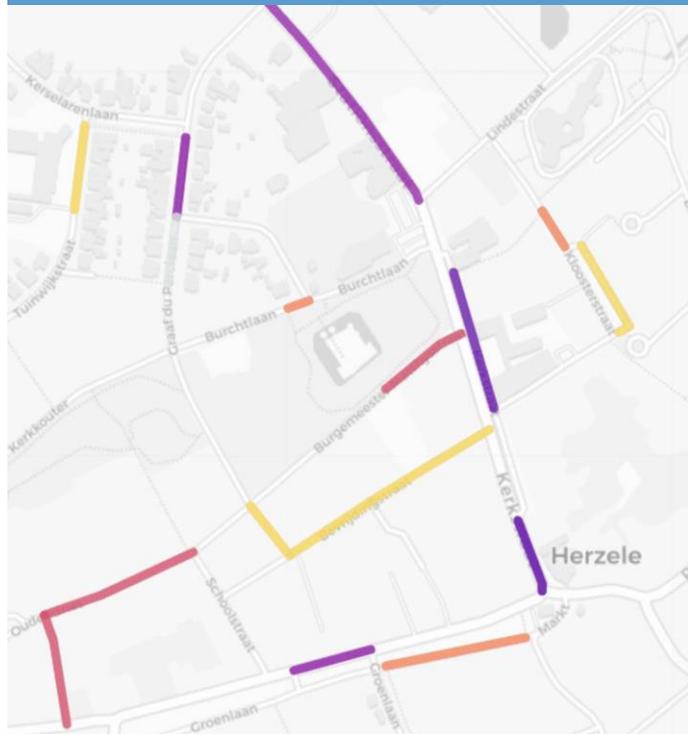
Benefits

- ↓↓↓ Traffic volume near schools
- ↓↓↓ Air pollution
- ↓↓↓ Inconsiderate parking
- ↑↑↑ Increased walking & cycling

Flanders: Herzele

School street evaluation

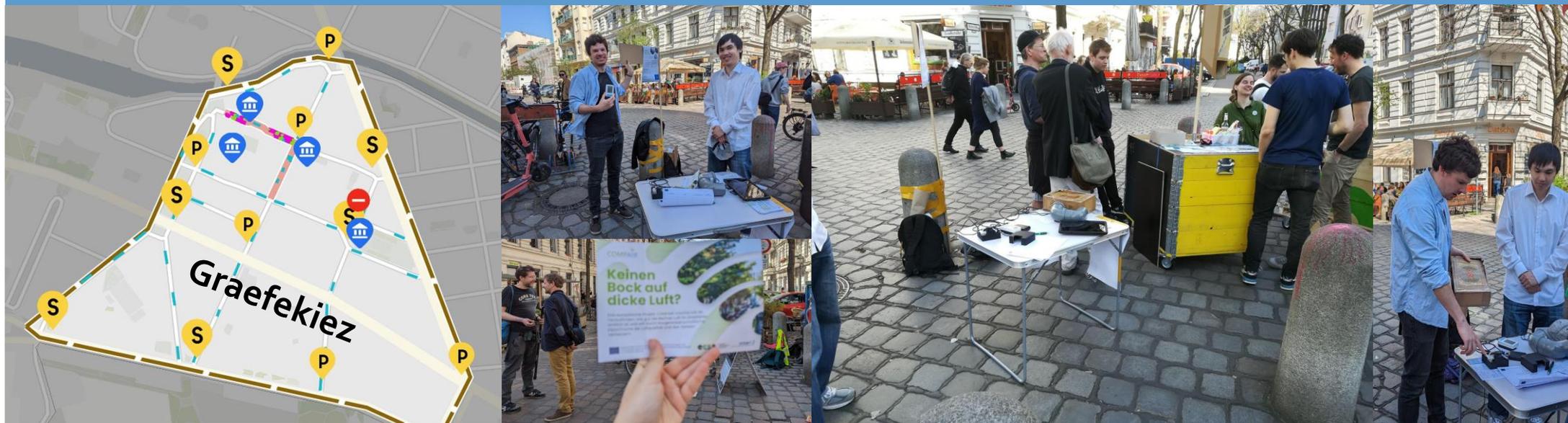
- CS campaign 17 April - 16 June
- Traffic sensors to measure displacement
- 20 citizens + 3 schools



Berlin

Graefekiez Public Space Redesign Plan

- Set up loading & delivery zones
- Expand sharing (mobility) stations
- Erect barrier for street closures



Plovdiv

Bulgarian NRRP:

- Improve STEM education in schools
- Enhance digital literacy among students
- Promote extracurricular activities

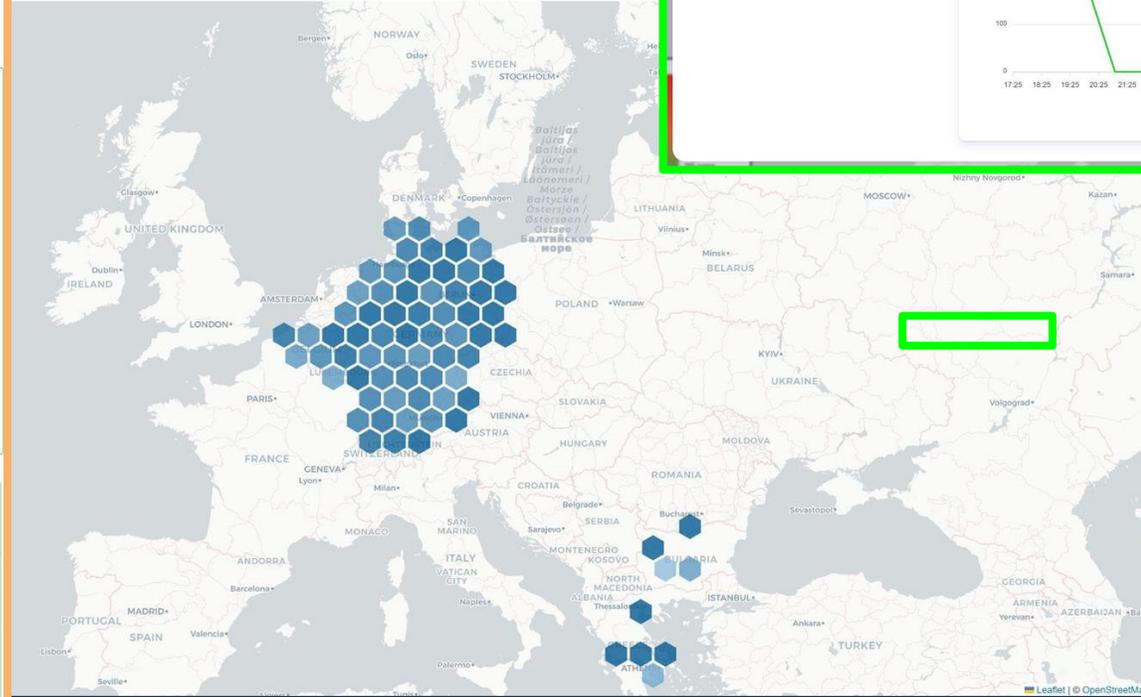


Data insights

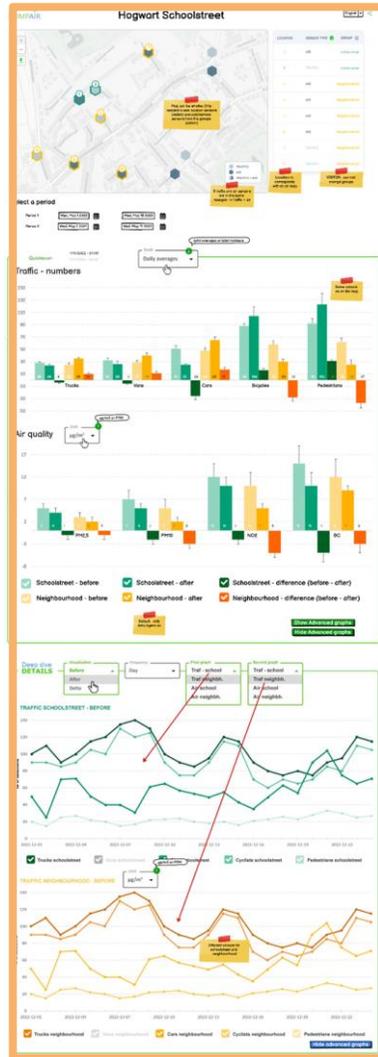
Currently



Policy Monitoring Dashboard



Planned



Dynamic Exposure Visualisation App



DEVA is about:

- Dynamic exposure
- Pollution visualisation
- Pollution intensity
- Gamification

CO2 calculator

CO2 Calculator Results

User

Flights CO2
Flights: 0.86 / Total: 4.97 tons CO2
Percentage: 17.30%

Buildings CO2
Buildings: 3.29 / Total: 3.73 tons CO2
Percentage: 88.20%

Trains CO2
Trains: 0.73 / Total: 8.59 tons CO2
Percentage: 8.50%

Waste CO2
Waste: 0.49 / Total: 8.59 tons CO2
Percentage: 5.70%

EUROPE

Transportation

- Consider increasing cycling by 30% (micromobility)
- Consider using the train for medium length distances (instead of the car)
- Consider carpooling to work
- Consider using public transport in your daily routine

Flights

- Consider replacing all business and first class trips by economy classtrips
- Consider replacing indirect flights with direct flights
- Consider reducing air travel by using trains or ferries

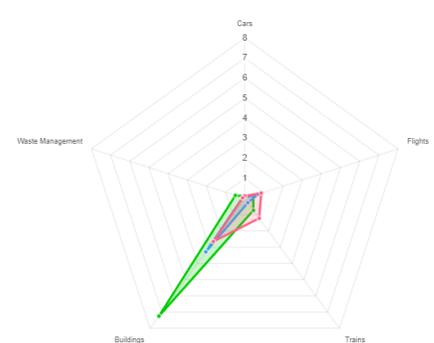
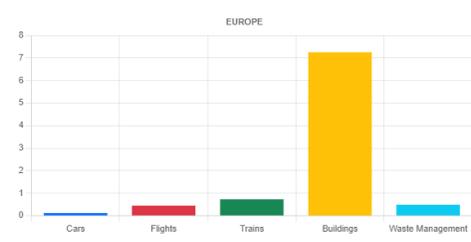
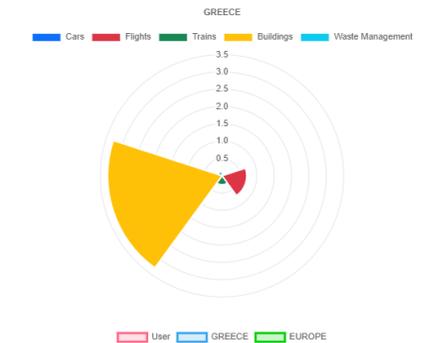
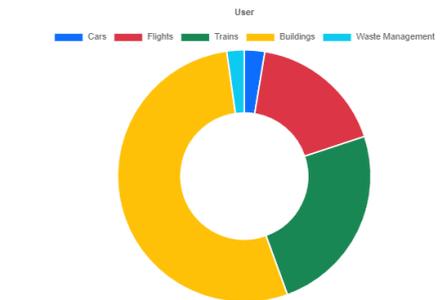
Trains

Buildings

- Consider replacing old fluorescent lighting with LED's
- Consider switching to Energy Efficient appliances
- Consider using smart power strips
- Consider unplugging electronical equipment when fully charged

Waste

Good job!



Final words..

Citizen Science a powerful tool for empowering & upskilling citizens, young and old

For best results, link CS activities to concrete policies & use digital tools to enhance quality of insight

Thank you!


















This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036563. This presentation represents the views of the COMPAIR project only.

ECF4CLIM: Changing the conditions, the people and the systems. An innovative hybrid participatory approach to education.



Ana Prades¹, Yolanda Lechón¹, and Terhi Nokkala²

¹ Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas CIEMAT, Spain

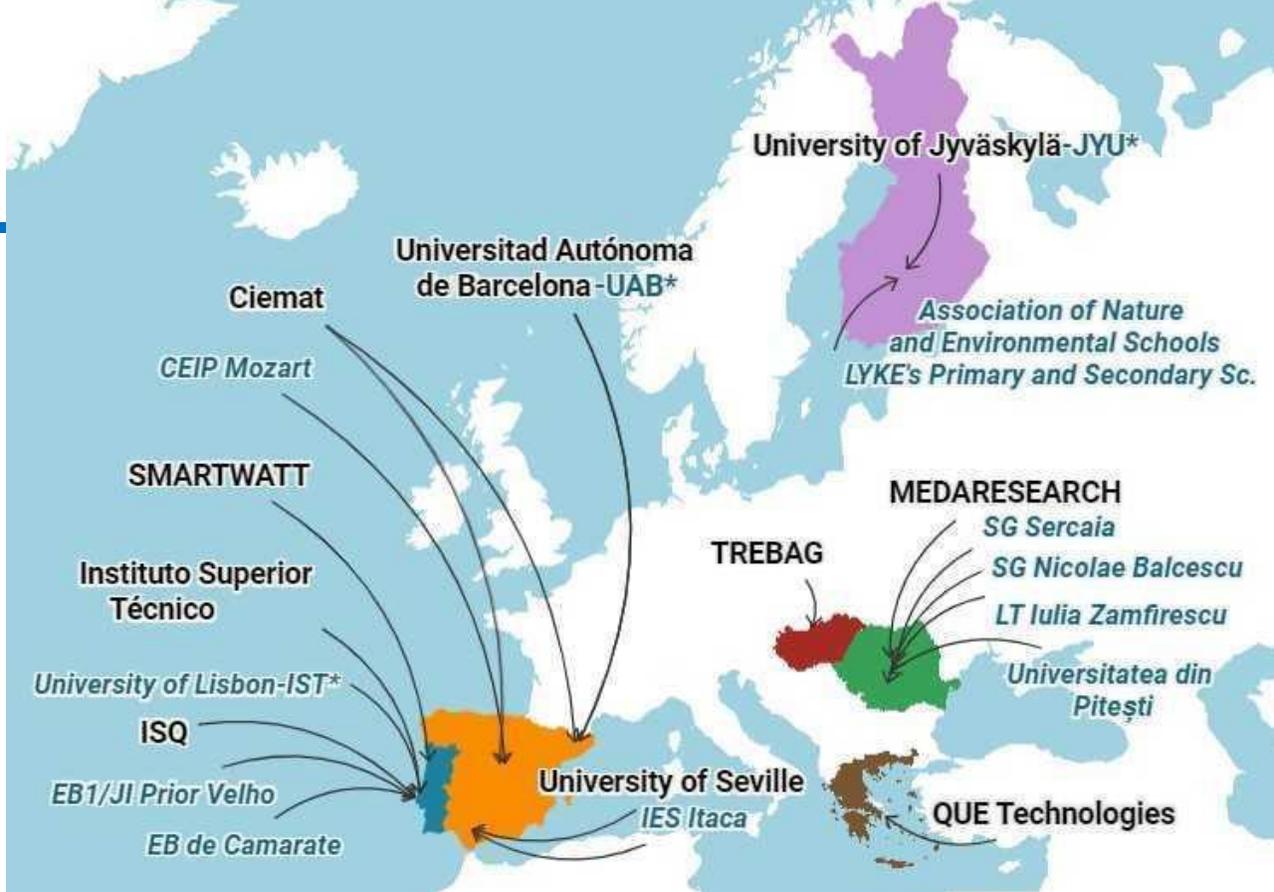
² University of Jyväskylä JYU, Finland



Through a transdisciplinary and participatory process **ECF4CLIM** develops, tests and validates a **European Competence Framework (ECF)** for transformational change which will empower the educational community to take action against climate change and towards sustainable development.



ECF4CLIM: team



10 research partners
13 demonstration sites
(schools and universities in
Finland, Portugal, Romania and Spain)





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



Defining the ECF

The baseline → The interventions → The evaluation

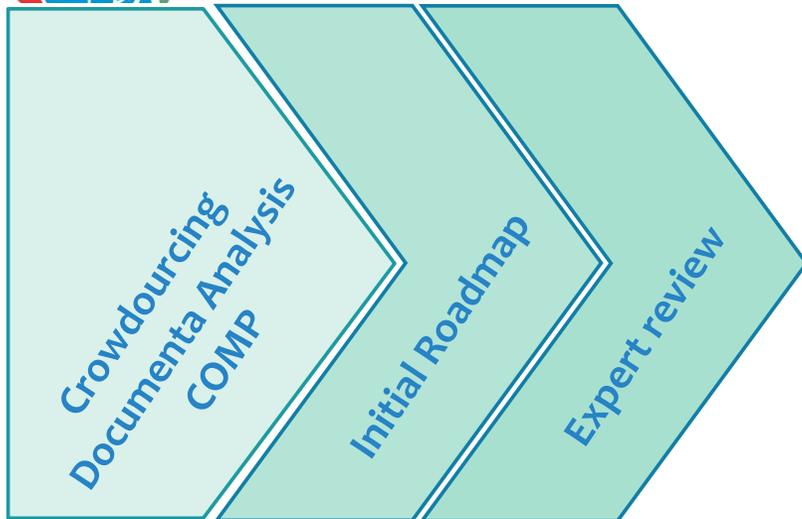
- Individual competences
- Collective competences
- Environmental performance

Validating the ECF

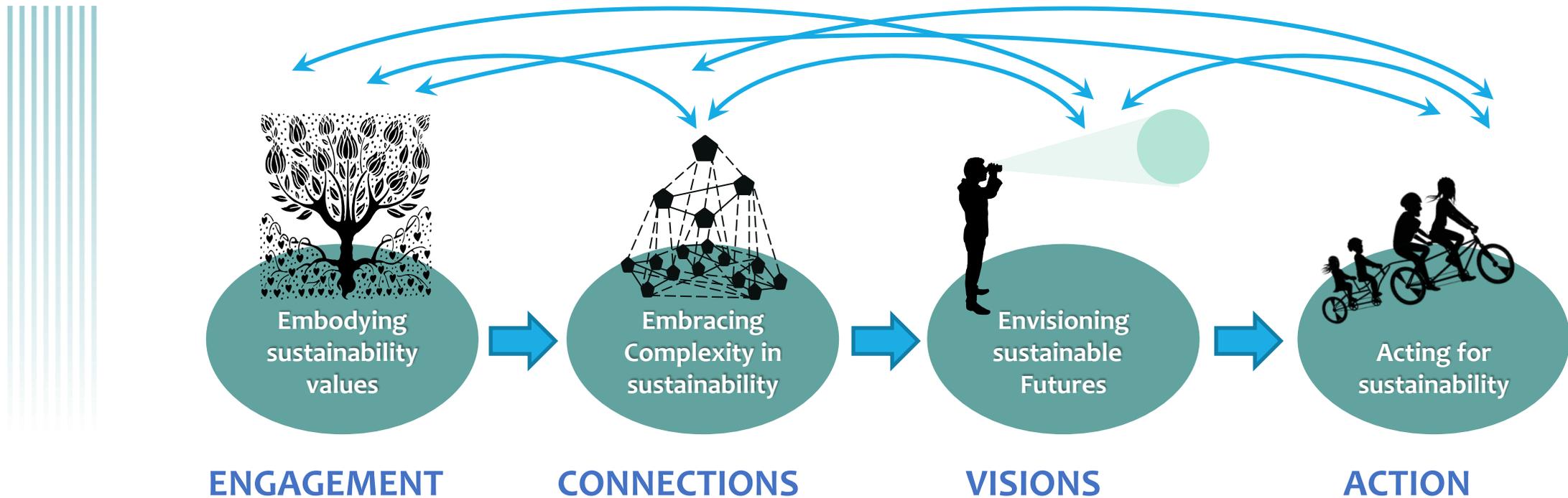




Defining the ECF: our roadmap

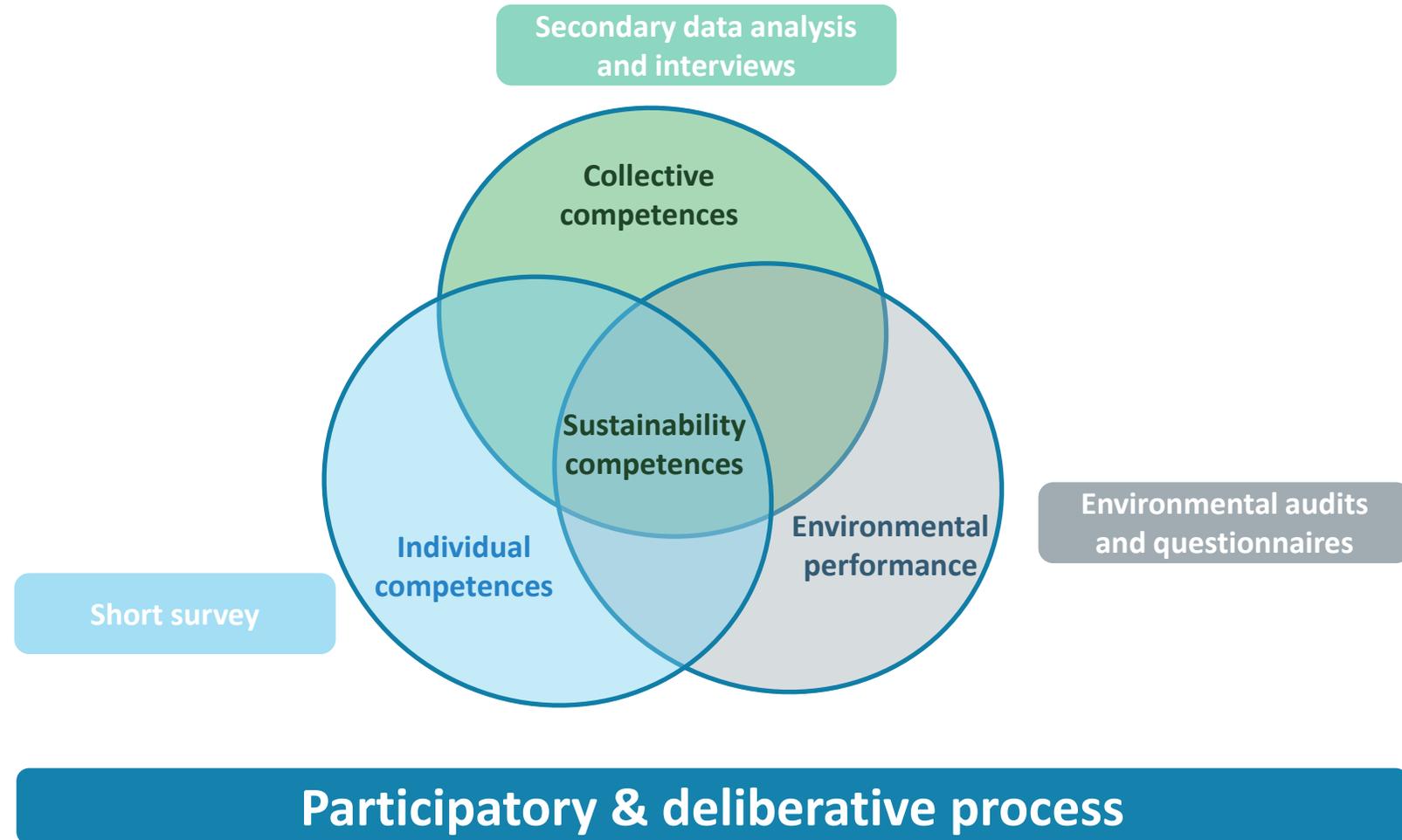


31 workshops: 500 participants
eDelphi: 119 participants
Expert review: 7 participants



Operationalizing the Roadmap: the baseline and the interventions

- ✓ **Assessing the baseline** of the individual and collective competences and the environmental performance
- ✓ **Co-designing measures to improve knowledge, skills, attitudes, and social practices relating** to sustainable development
- ✓ Implementing **innovative organizational structures for sustainability** at our DS through a participatory hybrid approach





Methods

Document analysis

Interviews

The baseline of collective competences

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.

Key findings:

- ✓ 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

ECF4CLIM.



NOVEDADES CONÓCENOS SERVICIOS

PLANES DEL CENTRO

En esta sección encontrarás los principales documentos de nuestro centro:

- [PLAN_CONVIVENCIA](#)
- [PLAN_DE_CONTINGENCIA](#)
- [PLAN_DIGITAL_DE_CENTRO](#)





Methods
Short survey
Deliberative workshops

Sample	967
Students	794
Teachers	114
Staff	59



- ✓ **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
- ✓ **Qualitative evidence reveals a much more complex picture ...**
 - Sustainability is understood in environmental terms (waste). The social & economic dimensions of sustainability remain secondary (EVOCATION).
 - Barriers are identified in the social values perceived as unsustainable, and in organizational-institutional factors (DRIVERS & BARRIERS)

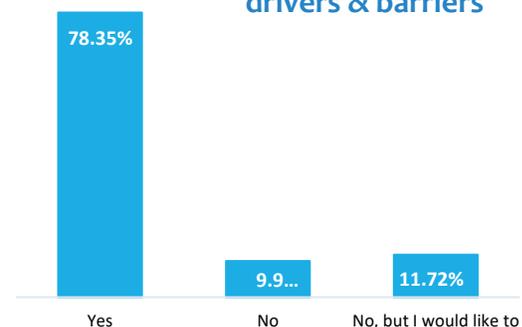


Findings must be interpreted with caution;

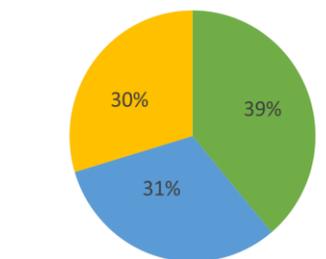
- ⇒ Personal interpretations & social desirability bias
- ⇒ Non-representatives samples
- ⇒ Contextual factors (environmental performance & collective competences)

The baseline of individual competences

Sustainable behaviour: drivers & barriers



Perceived barriers



- Environmental factors
- Organizational-Institutional factors
- Other factors



The baseline of environmental performance

The ECF4CLIM index

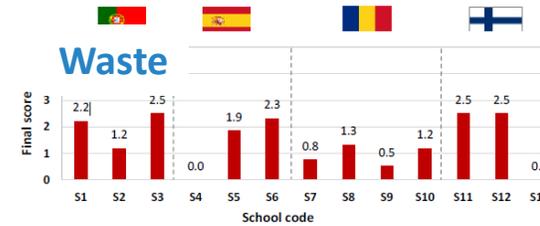
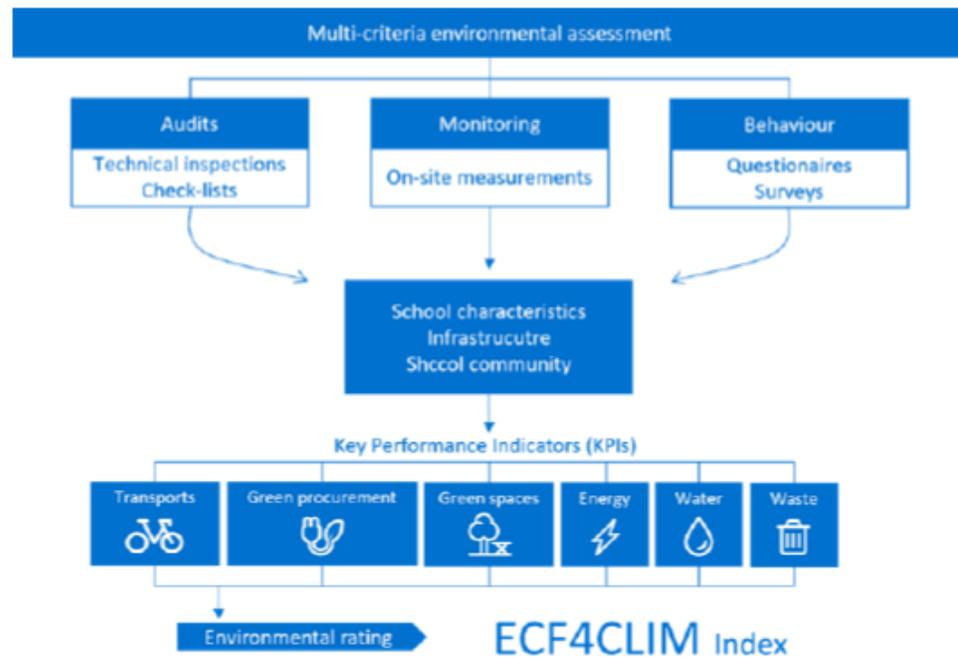


Figure 4 - Final score for the waste sector.

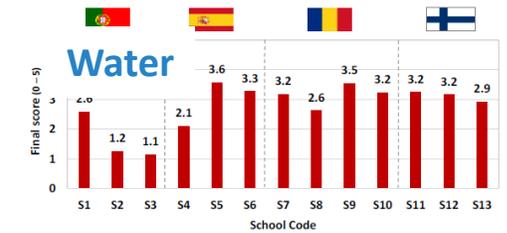


Figure 6 - Water final score (0-5).

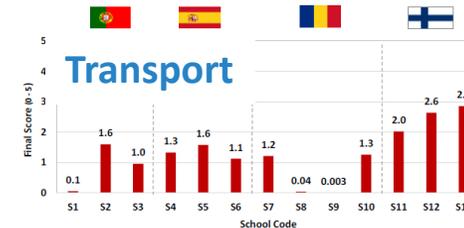


Figure 15 - Final score of the transport sector.

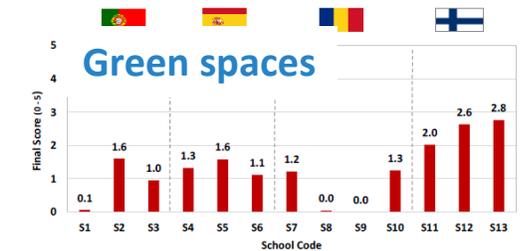


Figure 17 - Final score (0-5) for the green space sector.

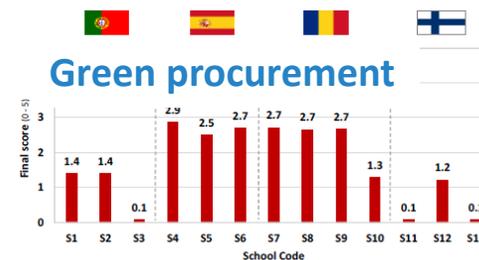


Figure 19 - Final score of the green procurement sector

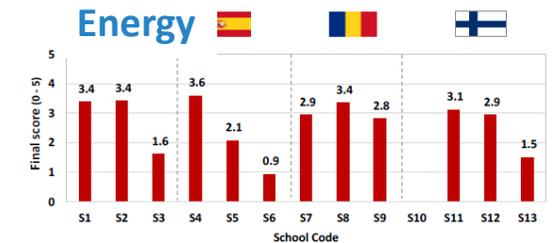


Figure 26 - Final score of the energy sector.

→ Setting up **innovative organizational models of engagement & action for sustainability** (tailoring STAVE* to the educational community)

- ✓ **Sustainability Competence Teams:** Students, Teachers, Administrative Staff (300 participants)
- ✓ **Sustainability Competence Committees:** SCT representatives + wider educational community (100 participants)

SCT1	TOTAL
Students	200
Teachers	78
Staff	49
TOTAL	327

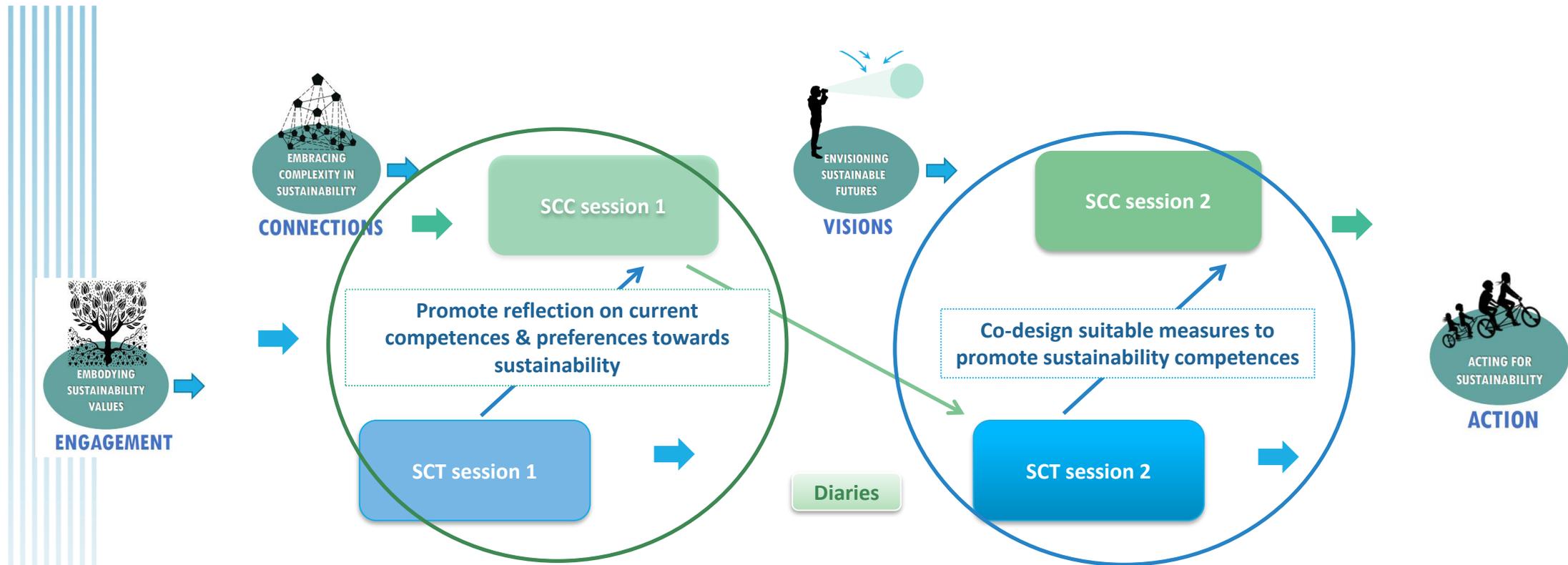
SCT2	TOTAL
Students	210
Teachers	71
Staff	38
TOTAL	319

SCC1	TOTAL
Participants	91
TOTAL	91

SCC2	TOTAL
Participants	110
TOTAL	110



Our hybrid participatory approach



Operationalizing the Roadmap: the 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



Environmental performance: Change of the conditions



NEW EQUIPMENT

- Reducing water use (sensors) (6)
- Producing energy (solar panels, water heating) (5)
- Saving energy (LED, smart lighting, radiators, valves, thermostats) (7)
- Thermal insulating (windows, roofs) (3)
- Air quality (sensors) (2)
- Recycling (bins, containers, systems) (9)

INFRASTRUCTURE

- Laboratory (2)
- Bus and bike lines & parking (3)
- Electric transport (3)
- Outdoor space and green constructions (Yard, garden, meadow, sports, wall, roof, trees, furniture, nebulizers) (20)
- School canteens (options, organic, vegetarian, healthy, sustainable) (5)
- Procurement and reuse (2)
- Timetables (1)

ACCOUNTING and MONITORING

- Waste produced (1)
- Smart monitoring (electricity, photovoltaics) (4)
- Inventory of existing learning materials (1)
- Impact of shading, bioclimatization (2)
- Environmental data and recommendations (1)

Individual competence: Change of the people

FIELD TRIPS

- Visits (museum, waste, nature, other thematics) (6)

EVENTS and THEME WEEKS

- Attending events of others (Resesarchers' night) (1)
- Theme day or week (greening, integration, cleaning, vegetarian food, clothing) (7)

INFORMATION and AWARENESS

- Campaigns or info (green spaces/ air quality, reducing water use, recycling, organic food, waste food, reuse, green mobility) (9)
- Visibility (sustainability, info panels and screens) (4)
- (Social) media (sustainability) (1)
- Exhibition (ideas) (1)

LEARNING POSSIBILITIES

- Lessons and trainings courses for students, teachers and community (energy, recycling, bicycling, sustainability, photovoltaics, garden) (9)
- Projects (tecnical, waste, vegetarian food, EE programmes) (5)
- Seminars, workshops and discussions (students, agriculture, will-formation, curriculum) (6)
- Concrete activities and encouregement for students, volunteering (4)

COMPETITION and REWARDS

- Efficiency of recycling, idea contest (3)

Collective competence: Change of the system

CURRICULA

- Integrating (assessment of energy consumption) (1)
- Harmonization (sustainability in various disciplines) (3)
- New curricular unit or course (7)
- Curricula work (3)

PEDAGOGY

- Extracurricular activities (1)
- Learning materials (sustainability, discussion cards) (3)
- Learning spaces (outdoor teaching, garden, transversal learning spaces, Space for reflection and info) (6)
- Digitalization and software (4)
- Engagement of students (1)

CULTURE

- Consolidating the best ideas (1)
- Sustainability in all activities (1)
- Coworking of teachers (1)
- Planning time (1)

STEERING DOCUMENTS

- Strategy (sustainability) (1)
- Plans and regulations (equipment repair, food) (2)

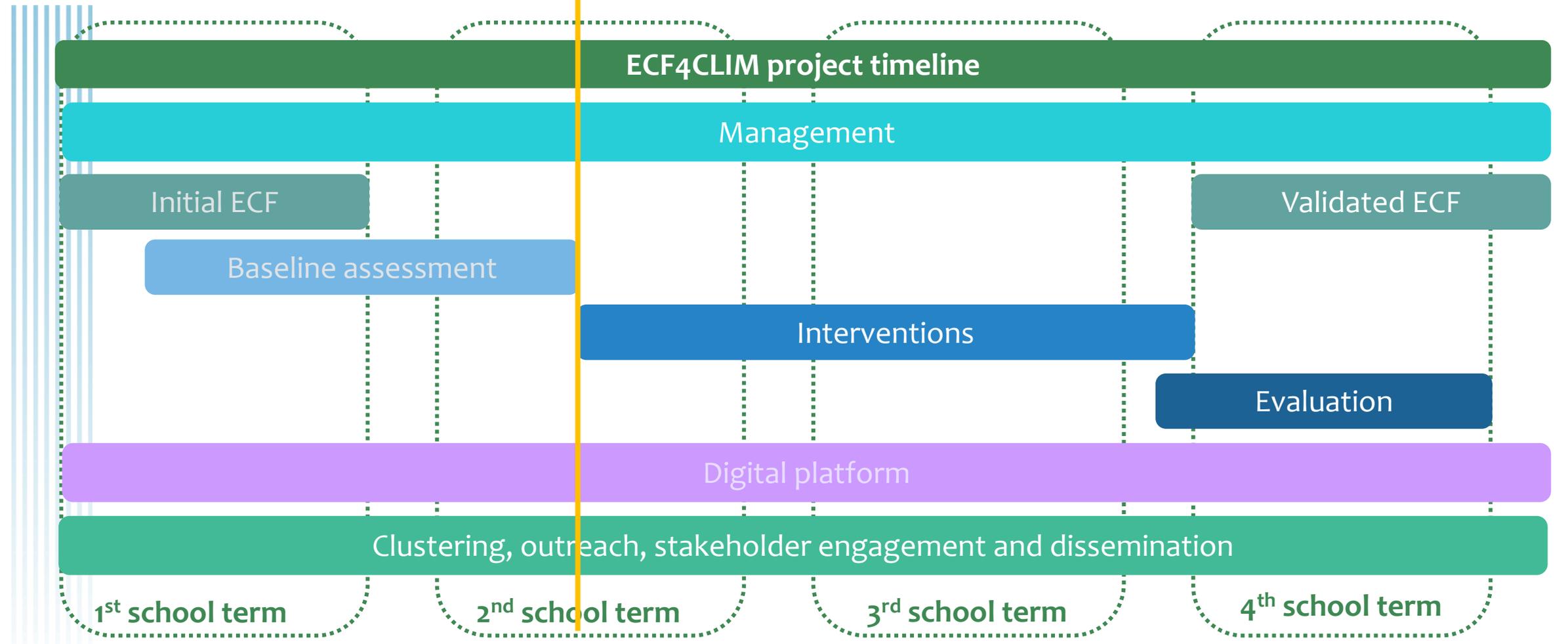
COOPERATION

- Partnerships (food, waste management, cleaning, students' union, communities of uni, surrounding towns) (7)
- Sustainability groups at school and collective activity (3)

RESEARCH

- Master and doctoral theses of sustainability (1)

June 2023



1st Oc 2021

30th Sep 2025

Of participatory research in educational settings

- Substantial time & resource limitations at the DS
- Need to adapt the methodological designs to the educational dynamics
- Flexibility in the application of the methods is crucial and impacts on the nature of the evidence we are generating

Of interdisciplinary research in educational settings

- Engineers moderating focus groups, social scientist in charge of installing metering devices, ...
- Risk of running in parallel
- Opportunities for gathering empirical evidence on such challenges



Thank you for your attention!

Kiitos huomiostasi!

Obrigado pela sua atenção!

Vă mulțumim pentru atenție!

¡Gracias por su atención!

Σας ευχαριστώ για την προσοχή σας!

Köszönöm a figyelmet!



GreenSCENT: Education and participation as drivers for change

Alessandro Caforio
International Telematic University UNINETTUNO



GreenSCENT ID-card



Part. No	Organization	Country
1 (Coord.)	Università Telematica Internazionale UNINETTUNO	IT
2	Engineering Ingegneria Informatica	IT
3	Universitat Autònoma de Barcelona	ES
4	Barcelona Supercomputing Center	ES
5	AGORIZE	FR
6	VTT	FI
7	Danish Board of Technology	DK
8	4sfera innova	ES
9	Serbia University - Faculty of Science	RS
10	ECQA	AT
11	Climate Risk Analysis	DE
12	Ellinogermaniki Agogi – Scholi Panagea-Savva	GR
13	Maunulan yhteiskoulu ja Helsingin matematiikkalukio	FI
14	Royal School of Transylvania	RO
15	RGSMART school	RS
16	CSR-C	CY

GreenSCENT (*Grant agreement ID: 101036480*)
Smart Citizen Education for a Green Future

Duration: 36 months (01/01/2022 – 31/12/2024)

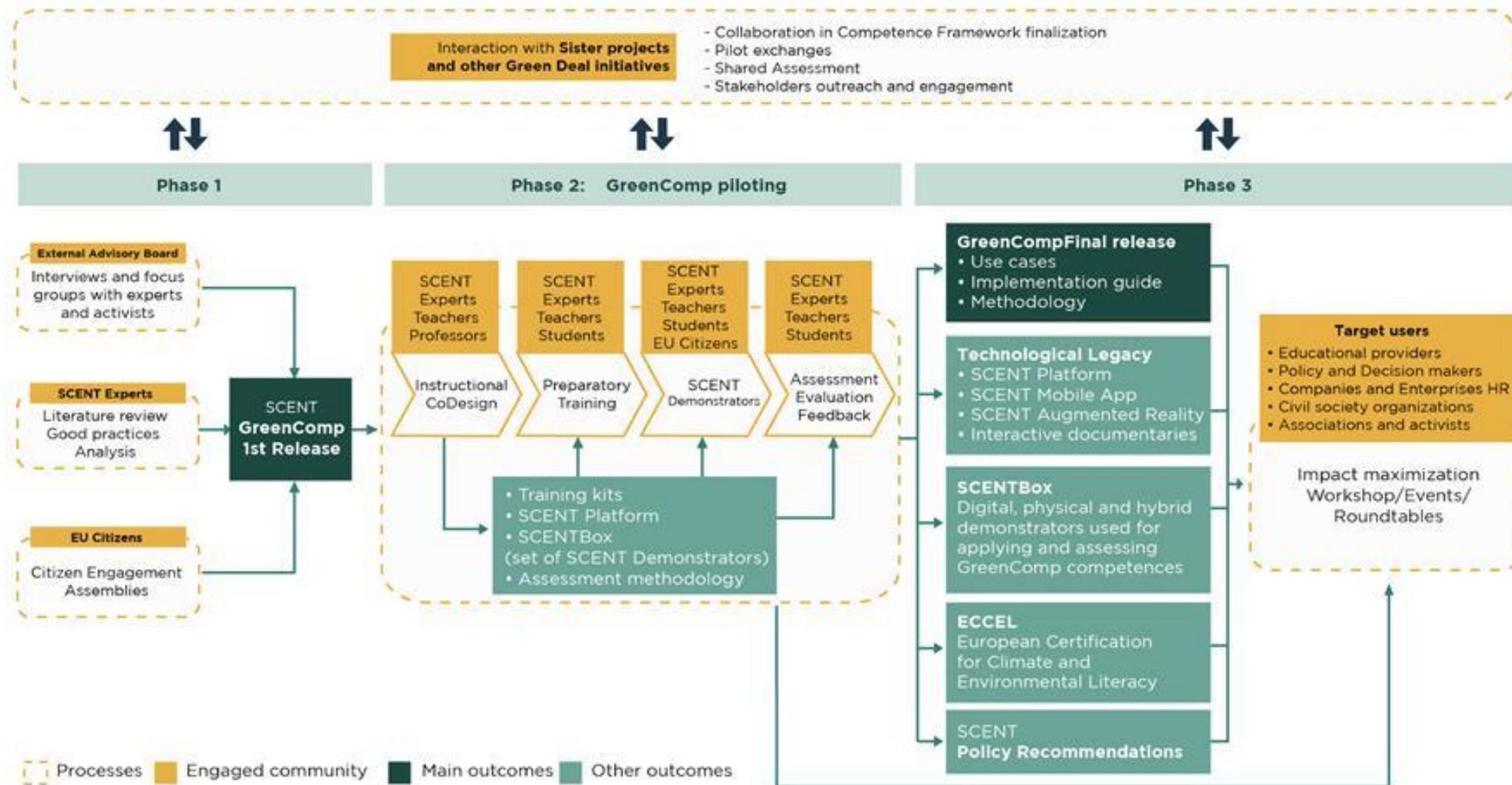
Coordinator: Università Telematica Internazionale
UNINETTUNO

Objectives of the project

GreenSCENT's main objective is to support Green Deal policy implementation involving EU citizens, and especially **youth, in co-creating, experimenting and validating a Multidisciplinary European Competence Framework (GreenComp)** covering the main thematic areas of the EU Green Deal, fostering its acceptance and adoption with a **participatory multi-stakeholder approach**, and measuring its efficacy in terms of **awareness, competences and implicit attitudes, key factors for a real behavioural change**

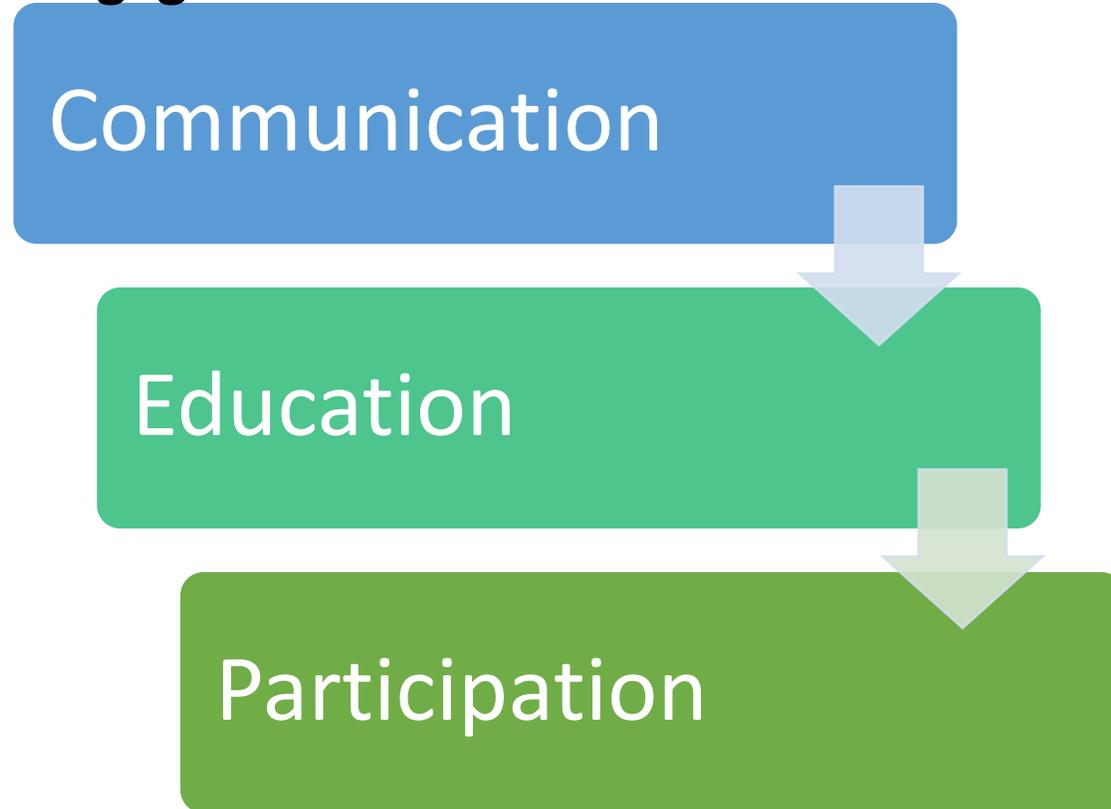
Specific objectives	Develop and test the GreenComp Competence Framework
	Break existing stereotypes, transform skeptic attitudes
	Demonstrate the link between the Green and the Digital transition
	Facilitate the adoption of the GreenComp Framework by co-creating
	Demonstrate the value of the GreenComp Framework by piloting
	Maximise the reach and impact through Dissemination, Clustering and Exploitation
	Guarantee the overall short-medium term impact

GreenSCENT Overall Methodology

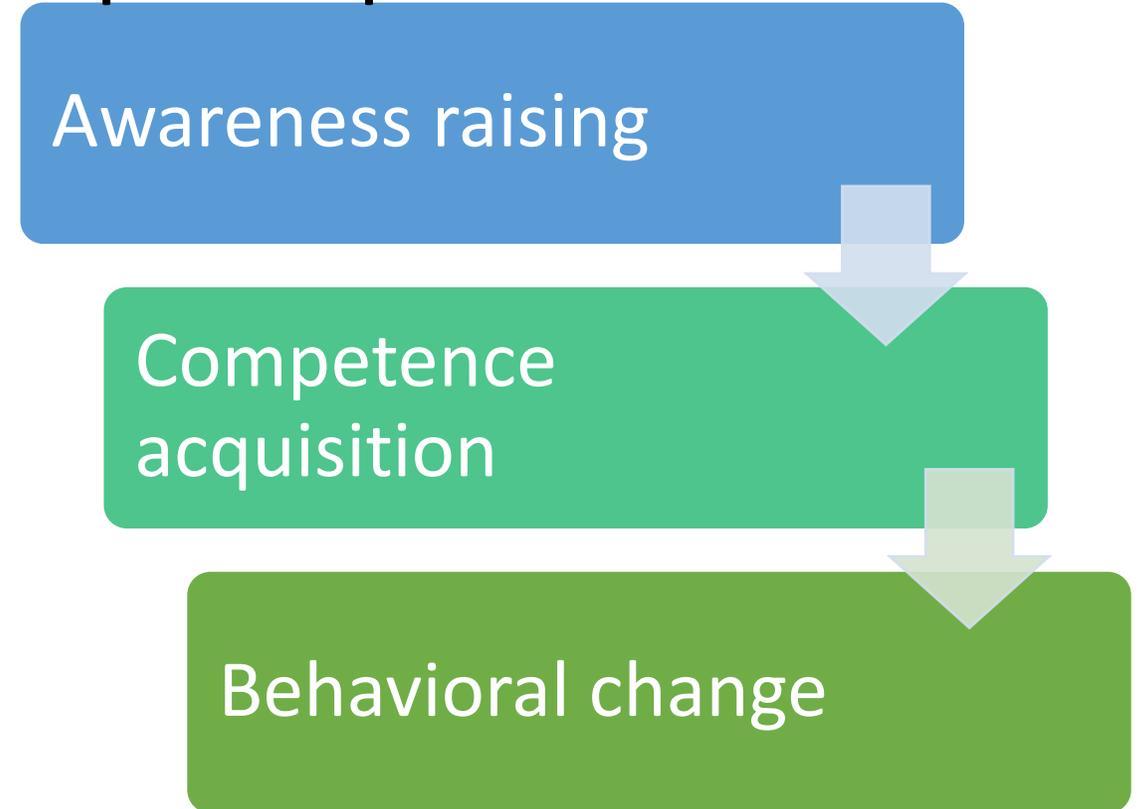


Challenges: Engagement

Engagement level



Expected impact



Challenges: Target - Educators

4.1.2.4. Climate Change – 2.1 Climate change cross-cultural practice (Table 12)

KSA	EQF	Statements	Keywords
Knowledge	1	Knows that environmental concerns are not equally distributed across cultures	cultural differences
	2	Is aware that many societies prefer economic and political stability over environmental security	conflict of interests
	3	Understanding that the security of the environment should be a personal goal	personal responsibility
	4	Understanding that for cross-cultural collaboration the psychological barriers must be reduced (e.g. distrust, belief in external control, individualism-collectivism)	barriers, cross-cultural collaboration
	5	Understanding that the thinking required by climate change, involves cultural changes along with shifts in perspectives and practices	change management
	6	Understanding the key characteristics of scenarios as a cultural form are that they provide space for collective and reflexive modes of acting on and thinking about uncertain futures	different scenarios, future thinking
	7	Integrates and communicates climate adaptation concerns and opportunities in ways that support disciplinary bridging and cooperation	adaption, concerns
	8	Understanding that integrating more culturally rooted contributions on climate change scenarios would enrich processes of future-thinking beyond climate model outputs	systemic, future thinking
Skills	1	Identifies what observed impacts of climate change may vary regionally and seasonally	impacts, variations
	2	Can identify different national and international regulations to mitigate climate change	national, interaction goals
	3	Works alone and cooperates to reduce gas emissions, air and water pollution	cooperation
	4	Is able to discuss scientific consensus with people who hold diverse beliefs about climate change	scientific consensus
	5	Models high standards of integrity, social responsibility, and ethical conduct through commitment to professional expertise, ethics, and adaptation standards	integrity, common responsibility
	6	Acts as a visible role model, embodying in actions and thinking the values and standards consistent with professional practice guidelines and standards	embodying, role model, high standard behaviour
	7	Practices a life-long learning orientation, continuously upgrading knowledge and expertise in ways that respond to evolving climate and climate adaptation knowledge and practice standards	lifelong learning
	8	Challenges traditional ways of thinking about things, doing things and planning for the future	critical-thinking, planning
	1	Willingness to learn from other cultures	openness
	2	Readiness to sacrifice the economical welfare to a certain level in order to preserve environment	economics, pro-environmental sacrifice
	3	Openness to other cultures attitudes and behaviours towards climate change	acceptance, trans-cultural values

Challenges: Target - Educators



greenscent



Search page or heading...

> 2. Circular Economy

3. Clean Energy

Clean Energy 1. Understanding the Challenge

Clean Energy 1.1 Ethical and sustainable thinking

Clean Energy 1.2 System thinking

Clean Energy 1.3 Collaboration

Clean Energy 1.4 Strategic action

Clean Energy 2. Embodying Clean Energy

Clean Energy 2.1 Renewable energy

Clean Energy 1.2 System thinking

1.2 System thinking

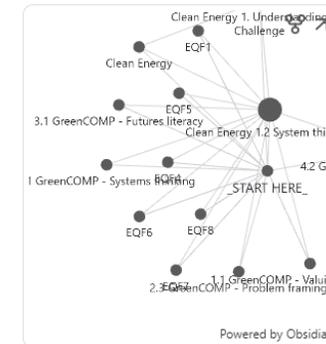
DESCRIPTOR: The abilities to think how different systems are embedded; awareness of complexity of global system and thinking in terms of an interrelated system; The ability to anticipate the effects caused by the use of unsustainable energy and to be able to change own behavior; Understanding multiple ways of knowing, including their respective methodologies, applications, benefits, and limitations. Also entails collaboratively and inclusively applying sustainability competencies to foster social change.

Knowledge

- Comprehension, empirical verification, and articulation of a system's key components, structure, and dynamics
- Understanding of complex systems phenomena, including unintended consequences, path dependency, systemic inertia, and intentionality
- Understanding of connectivity and cause-effect relationships
- Appreciation, evaluation, contextualisation, and use of knowledge and methods of different disciplines

#interconnection #systems #complexity #interdisciplinarity
#EQF4 #EQF5 #EQF6 #EQF7 #EQF8

INTERACTIVE GRAPH



ON THIS PAGE

1.2 System thinking

Knowledge

Skills

Attitudes

Powered by Obsidian

- Usable
- Expandable
- Understandable
- Adoptable

Challenges: Target - Students

Communication as participation: GreenSCENT Story – paper kit



Challenges: Target - Students

CleanAir@School – young citizens data collection

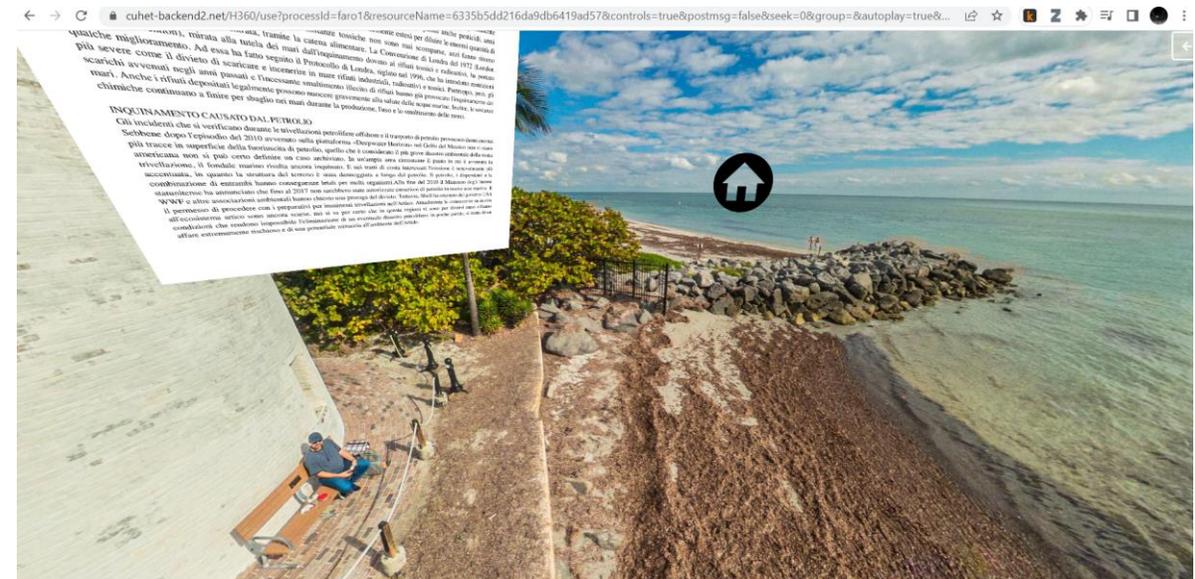
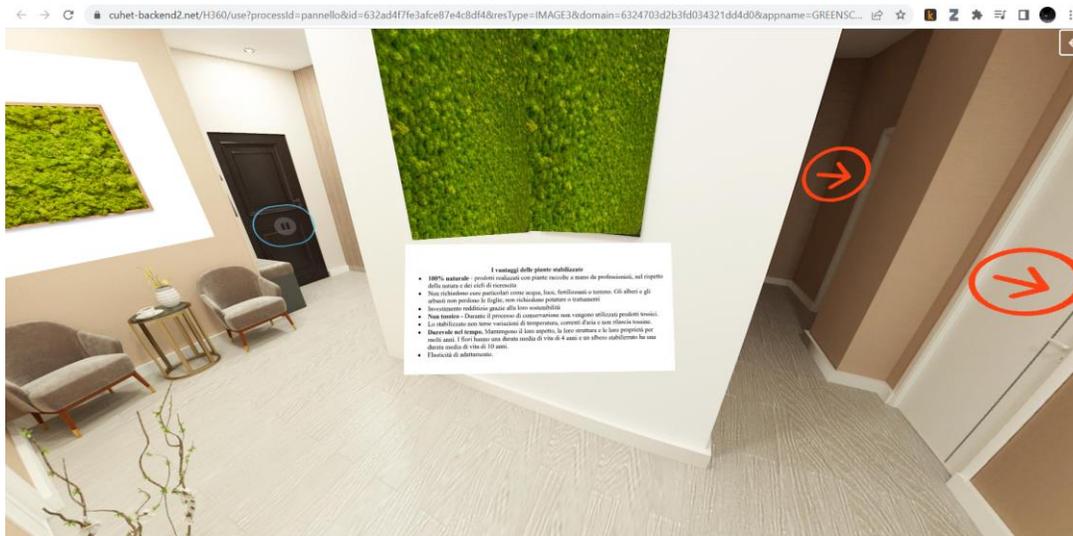
The image illustrates the user flow for data collection in the CleanAir@School app. It consists of four sequential smartphone screens and a map interface.

- Screen 1: Site details** - Shows 'SA-01' with 'Entrada escola' and 'Grup 1'. A QR code icon is highlighted with a red arrow.
- Screen 2: Scan code** - Shows a QR code being scanned. Text: 'Put QR code inside the square (For the correct operation of the scan, move the camera away from the QR code)'. A 'Type the code' button is highlighted with a red arrow.
- Screen 3: Tube details** - Shows a 'Type the code' input field. A 'Save changes' button is highlighted with a red arrow.
- Screen 4: Site details** - Shows 'SA-01' with 'Entrada escola' and 'Grup 1'. The QR code icon is highlighted with a red arrow.

To the right, a map interface shows a list of points (SA-01 to SA-20) and a map view. The map view shows a street map with a red pin at 'SA-01 Entrada escola Grup 1'. Below the map are buttons for 'Grup', 'Exportar mapa', 'Exportar taula', and 'Importar taula'.

Challenges: Target - Students

GreenVerse – Collaborative Interactive Documentary



Challenges: Target - Citizens

Open Innovation Challenges



Challenges: Target – Experts



GDA

Green Digital Accessibility

**ARE YOU INTERESTED IN
ACCESSIBILITY AND
SUSTAINABILITY?**

**SEND US YOUR PROPOSAL FOR
THE GREEN DIGITAL
ACCESSIBILITY CONFERENCE!**

**30 NOVEMBER 2023
1 DECEMBER 2023**

BARCELONA



- Intersectional approaches to sustainability and disability
- Perspectives of people with disabilities on climate change
- Best practice in sustainable and accessible design in traditional and digital media
- Intersectional approaches to disability and environmental activism
- Intersectional approaches to disability and policymaking: Examples of disability inclusive climate action policies and best practice
- Disability inclusive and accessible environmental communication
- Green Tech for All: Technologies that combine accessibility and sustainability
- Disability inclusive and accessible environmental education
- Industry perspective on sustainability and accessibility
- Sustainable working practices in media accessibility

Thank you!

Alessandro Caforio – GreenSCENT Project

<https://cordis.europa.eu/project/id/101036480>

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greenscent@uninettunouniversity.net

Twitter: https://twitter.com/Greenscent_eu

LinkedIn: <https://www.linkedin.com/company/greenscent-project>

Panel discussion



Thank you for coming!



The recording will be:

- sent via email
- uploaded to the [Green Deal Projects Support Office website](#) and [CIRCABC](#).



3-11 June 2023

**#EUGreenWeek
PARTNER EVENT**

