

Open Science and Citizen Science: A Social Commitment to Communities and Civil Society

Josep Perelló, OpenSystems, Universitat de Barcelona / UBICS
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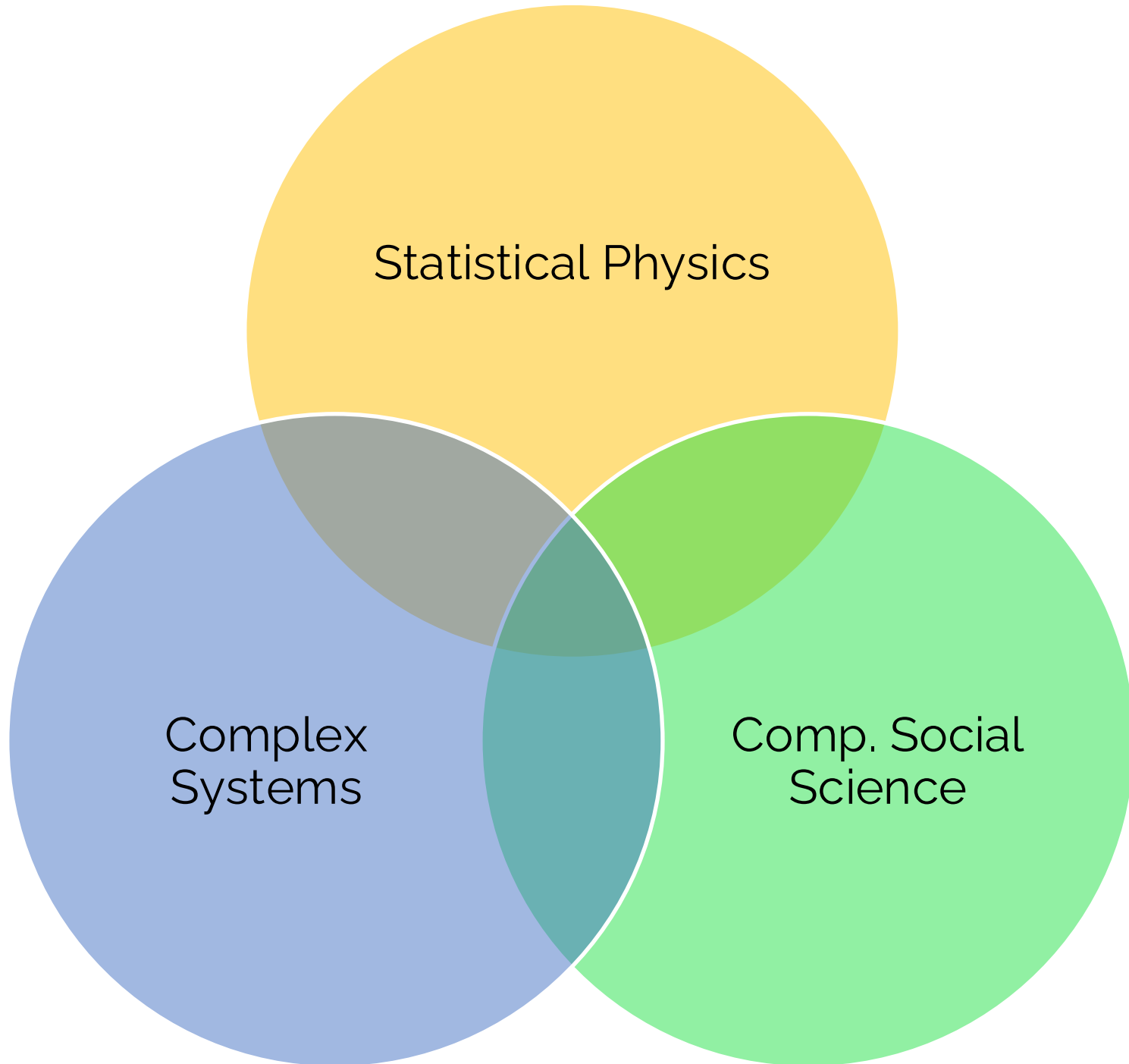
UMinho Open Science Festival, Oct 20, 2026

Complex social
phenomena

Why and what?

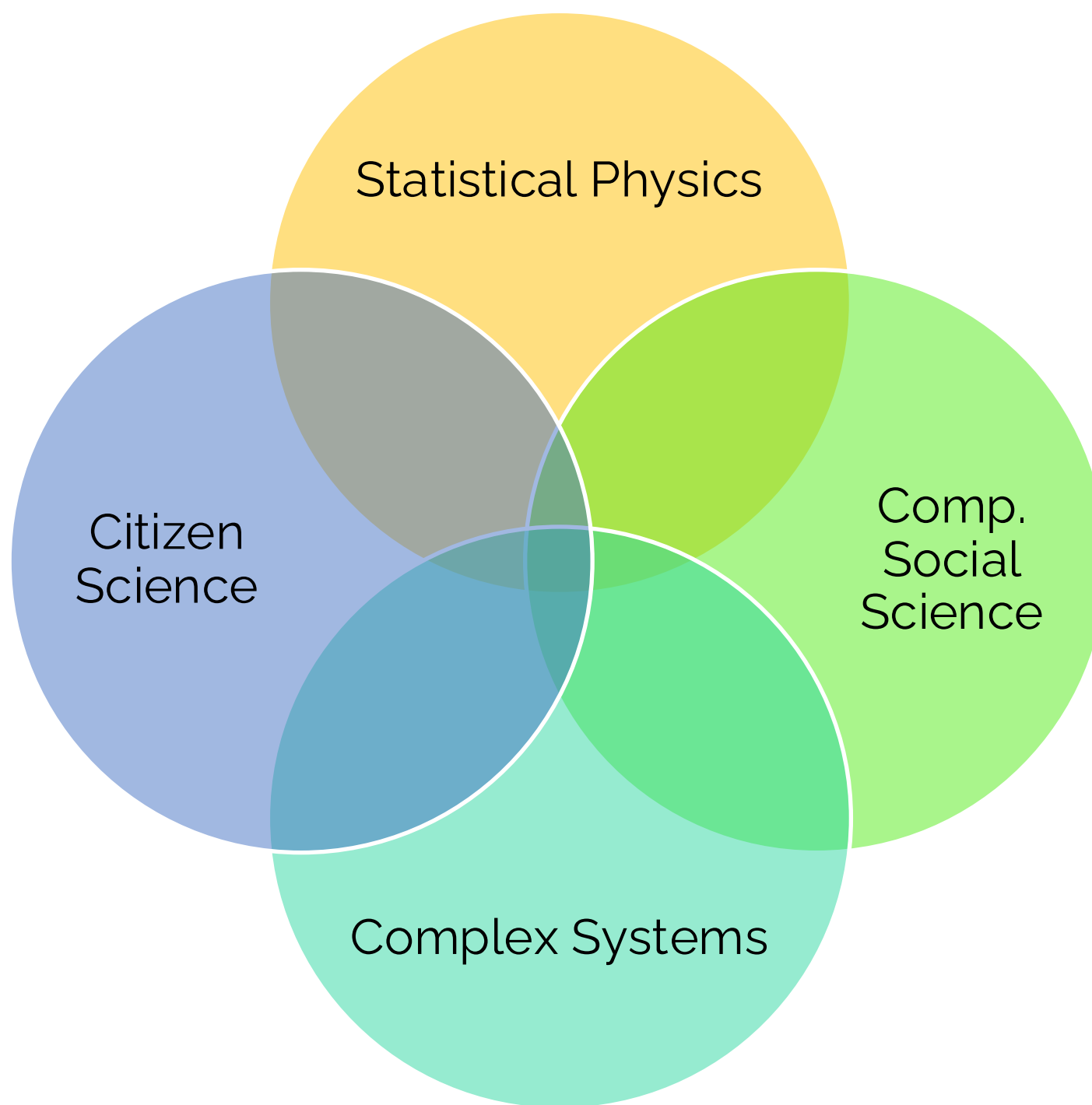
Which data?

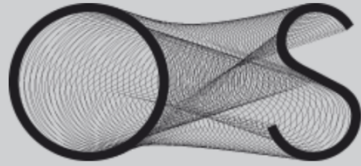
What for?



Complex
social
phenomena

Participation
Do it together





CoAct for Mental Health

Linz Sep 05, 2024

We receive the EU 2024 Citizen Science Prize in the Ars Electronica awards ceremony

Josep Perelló and Isabelle Bonhoure Isabelle together with the co-researchers Assumpta Mateu and Amanda Figueras received the 2024 Citizen Science Prize of the European Union in the digital communities category. The prize was given along with prestigious prizes like the Golden Nica, the S+T+ARTS Prize and the Ars Electronica Award for Digital Humanity.

[See full story](#)



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<https://www.ub.edu/opensystems>

ACTIVE BUT UNDER RENOVATION



Josep Perelló



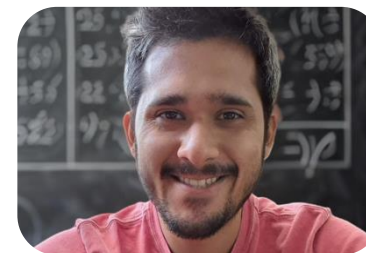
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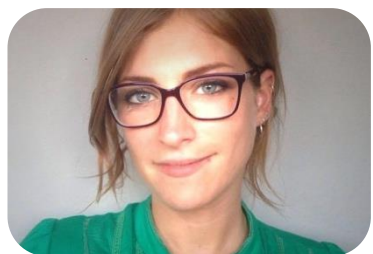
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Julià Vicens (former member)



Franziska Peter (former member)



Mario Gutiérrez-Roig (former member)

Premi Mercè Durfort de Ciència Oberta de Catalunya (2025)

Awarded by the Government of Catalonia to Josep Perelló for his career-long contribution to Open Science and Citizen Science. The award recognizes his leadership of OpenSystems-UB and his pioneering work in democratizing knowledge production through participatory and citizen-driven research

Open Science with and for Society



Premis Ciència Oberta de Catalunya



Background

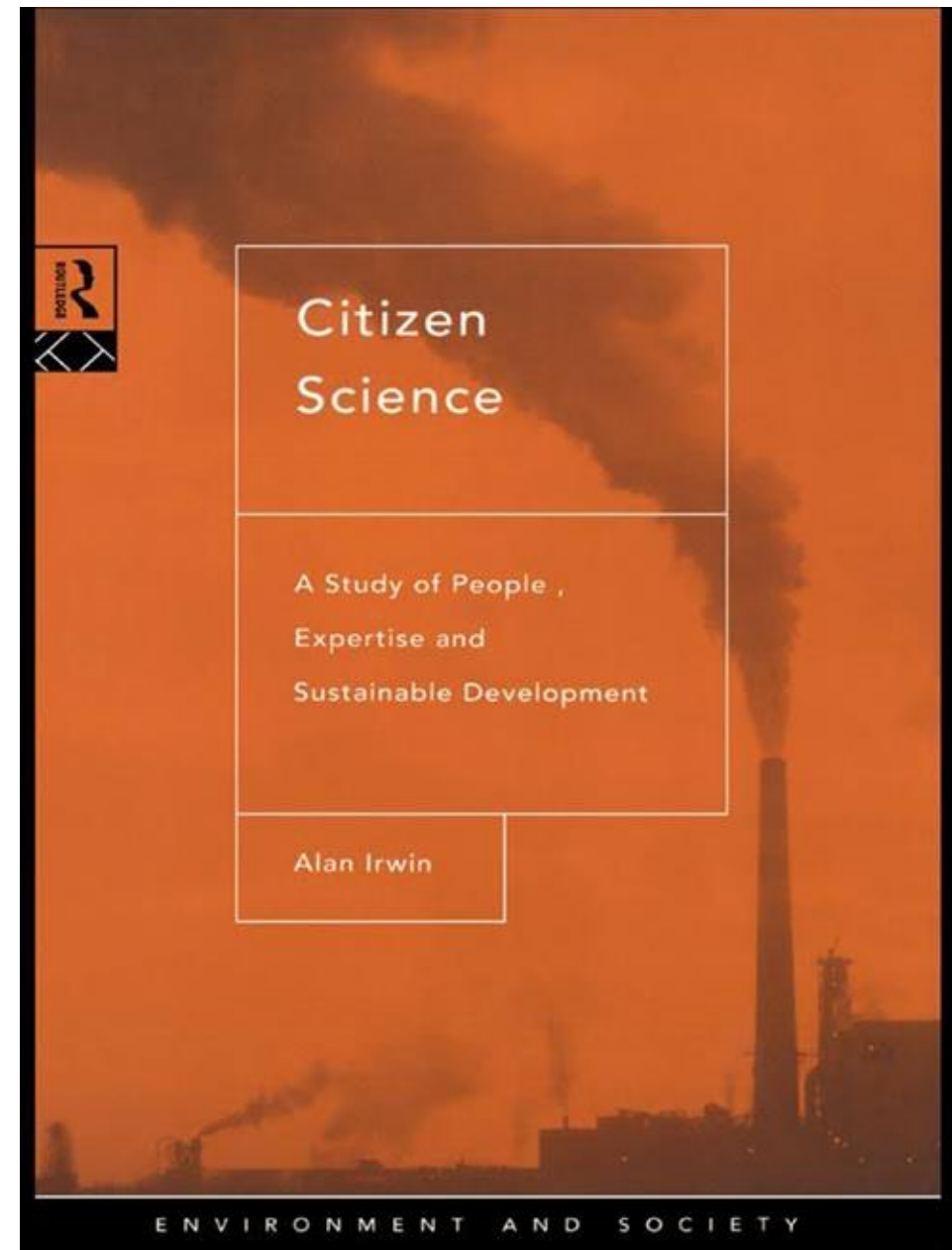
[Citizen] science...

“[...] assists the needs and concerns of citizens”

“a form of science developed and enacted by citizens themselves”

Irwin (1995)

Irwin, A. (1995). Citizen science: A study of people, expertise and sustainable development. Routledge Press.



Motivation

It is time [...] to address the ethics of inclusion

Strauss, D. H., White, S. A., & Bierer, B. E. (2021). Justice, diversity, and research ethics review. *Science*, 371(6535), 1209-1211.

<https://doi.org/doi/10.1126/science.abf2170>

POLICY FORUM

ETHICS AND DIVERSITY

Justice, diversity, and research ethics review

It is time for institutional review boards and research ethics committees to address the ethics of inclusion

By David H. Strauss^{1,2}, Sarah A. White^{3,4},
Barbara E. Bierer^{1,2,4}

The disproportionate impact of COVID-19 on certain populations, such as Black, Latina, and Indigenous populations in the United States, has focused attention on inequalities in health and on the need to increase enrollment of racial and ethnic minorities and other underrepresented groups in biomedical research (1). Yet too often, in the United States and globally, participant enrollment in research has not reflected the demographic composition of the general population, those affected by the health conditions being studied, or those for whom the investigational product is intended (2), with racial and ethnic minorities and the young and the elderly, among others, being consistently underrepresented (3). Underlying causes for this underrepresentation have been described (4, 5), but change has been slow. Notwithstanding the roles of other stakeholders in addressing this issue, we maintain that the specific value of institutional review boards (IRBs) and research ethics committees (RECs) in promoting diversity has been underrecognized and their authority underutilized. Here, we substantiate the role of and outline practical steps for the IRB and REC (hereafter "IRB") to help achieve greater diversity in clinical research.

The appropriate inclusion of diverse populations in clinical research is necessary if we are to understand how biological variability and social determinants of health contribute to disease prevalence, transmission, course, experience of illness, and treatment outcome. The inclusion of understudied and underserved groups informs clinical decision-making and health policy and can

serve efforts to address mistrust of research and health care (6, 7). Responsibility to the goals of diversity lies with all stakeholders in the clinical research enterprise (8), and a commitment to diversity, individually and collaboratively, by research sponsors, funders, academic institutions, contract research organizations, study sites, investigators, and IRBs is necessary.

RESPECT, BENEFICENCE, JUSTICE

Most regulated clinical research undergoes obligate review and approval by an IRB. IRBs are charged with safeguarding the rights and well-being of human participants in accordance with the foundational tenets of respect for persons, beneficence, and justice, as described in the Belmont Report (8). An IRB's ethical responsibilities with regard to diversity derive from these and other principles, guidelines, and standards (9, 10).

The discussion of justice in Belmont cites "moral requirements that there be fair procedures and outcomes in the selection of research subjects." As Belmont and other codes of ethics emerged from a historical backdrop of abuse and injustice in research, "fair procedures" have been applied by IRBs largely (and, we believe, too narrowly) to ensure that subjects are not exploited and enrolled as a matter of convenience. The idea of justice within the Belmont Report also includes the notion of access to the benefits of research (i.e., knowledge gained); this has direct implications for populations that have been understudied, whether incidentally or systematically. Subject selection cannot be equitable, and the requirements of justice cannot be met, when there is de facto exclusion of understudied populations.

This notion of justice is supported by the World Health Organization's International Ethical Guidelines for Health-related Research Involving Humans, Guideline 3, which states, "In cases where the underrepresentation of particular groups results in or perpetuates health disparities, equity may

require special efforts to include members of those populations in research" (9), and by the World Medical Association Declaration of Helsinki, which states, "Groups that are underrepresented in medical research should be provided appropriate access to participation in research" (10). Therefore, consideration of diversity is essential to the question of fairness in subject selection and to IRB review.

Diversity in clinical research is responsive to the principle of beneficence, which places priority on the welfare of research participants and creates the obligation that research presents a favorable balance of benefit to risk, after risks and burdens have been minimized. In calling for "maximization of benefits" in the research, Belmont directs attention to both individual benefit and to the broader value of research to society. A clinical research enterprise that is not inclusive does not adequately address the health needs of a diverse society. Group differences in susceptibility to disease and in treatment outcome can only be identified when those groups are studied. It is the obligation of an IRB to maximize benefits through the inclusion of understudied groups in a manner that is consistent with the study aims and does not introduce unacceptable harm or burden.

Belmont describes two ethical convictions in relation to respect for persons, self-determination, and decision-making: the obligations to treat individuals as autonomous agents and to protect those with diminished autonomy. IRBs provide additional safeguards for research involving participants with compromised voluntariness (e.g., prisoners) or impaired comprehension. With regard to the inclusion of diverse populations, respect for persons demands efforts to foster informed and autonomous decision-making and, therefore, to address common barriers posed by age, language, culture, and educational disadvantage. Respect for persons requires the identification of opportunities and resources to engage understudied populations and to enhance awareness, access, and inclusion in research (4, 6). It also demands modification of those aspects of research and of consent that inadvertently limit the participation of understudied populations. For example, although inclusion of non-English speakers in a study may involve additional expenses of translation and/or interpreters, it strengthens the commitment to autonomy and justice.

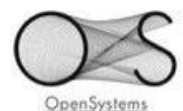
The ethical positions presented above compel attention to inclusion of diverse populations in clinical research and define a specific duty for the IRB. In a 2019 survey (11), a majority of IRB chairs, IRB ad-

Citizen Social Science

Participatory research co-designed and directly driven by **citizen groups** sharing a **social concern**.

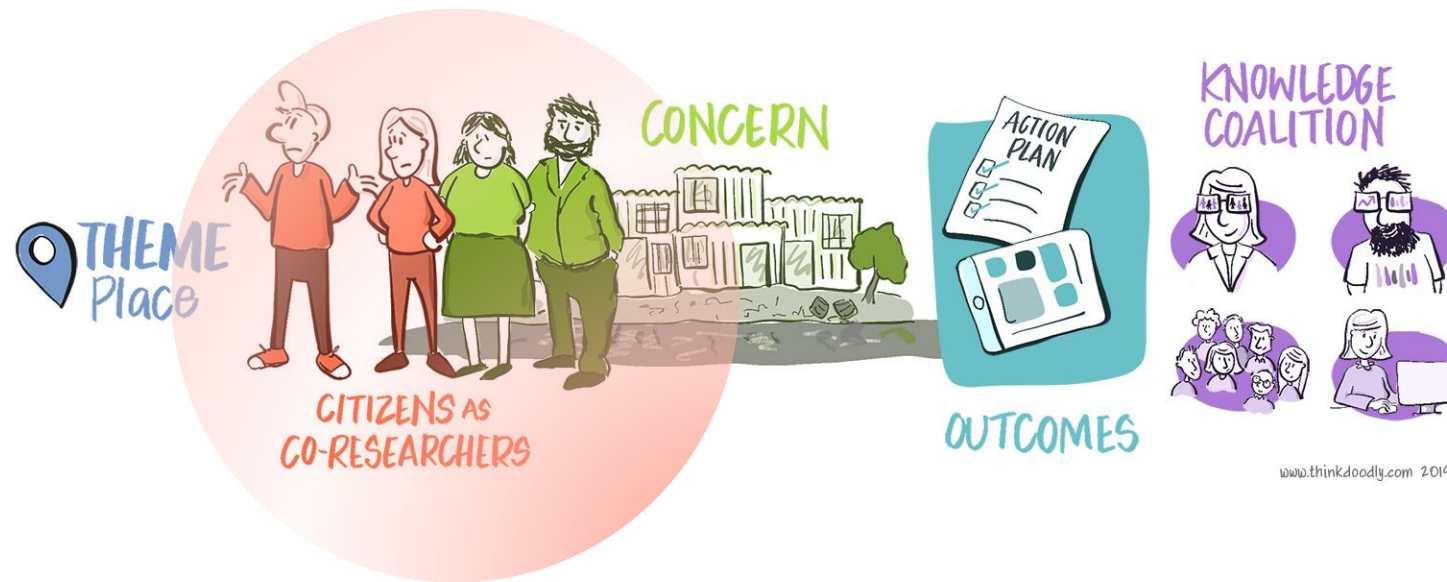


The CoAct project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No. 873048

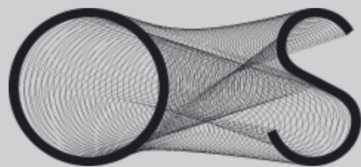


Co-Researchers:

Having a **lived experience** in relation to the social concerns, **experts-in-the-field**.



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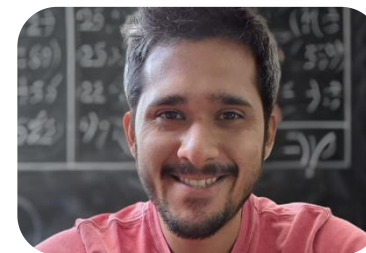
Isabelle Bonhoure
(Lecturer)



Ferran Larroya
(Postdoc)



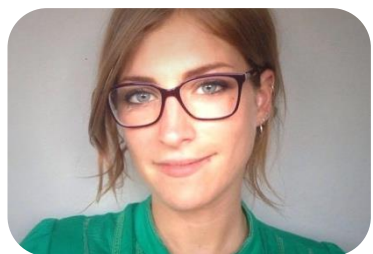
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Martín F. Díaz (PhD
student)



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Human behaviour

Human mobility

Mental health

Urban heat

Human behaviour

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Empirical approach
with stylized
settings to capture
behavioural traits



Public experiments

Public experiments

Research in the wild

An umbrella term to refer to how, what, and where research is conducted in naturalistic settings.

Public Experiment

Instead of as far as possible on Nature, it should now be carefully balanced on matters of concern'.

Collective Experiment

An experiment conducted by and with us all

Experimental infrastructure



Vicens J, Perelló J, Duch J (2018)
Citizen Social Lab: A digital platform
for human behavior experimentation
within a citizen science framework.
PLOS ONE 13(12)
<https://doi.org/10.1371/journal.pone.0207219>

Photo: Thomas Vilhelm



Julià Vicens
OpenSystems & UBICS



Anna Cigarini
OpenSystems & UBICS



Artists

Ada Vilaró
Chris Salter
Alexandre Saunier



Cigarini, A., Vicens, J. & Perelló, J. Gender-based pairings influence cooperative expectations and behaviours. Sci Rep 10, 1041 (2020). <https://doi.org/10.1038/s41598-020-57749-6>



Vicens Julian, Cigarini Anna, & Perelló Josep. (2018). urGENTestimar (1.0.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.1308978>



Computer code of the experimental digital interface is available at Github <https://github.com/CitizenSocialLab/urGENTestimar>



Gender-based behaviour



Opening event in a
Street Arts Festival.
FiraTàrrega
Tàrrega, September
2017



Cigarini, A., Vicens, J. & Perelló, J.
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Gender-based behaviour



			
		C	D
C		10	0
D		15	5

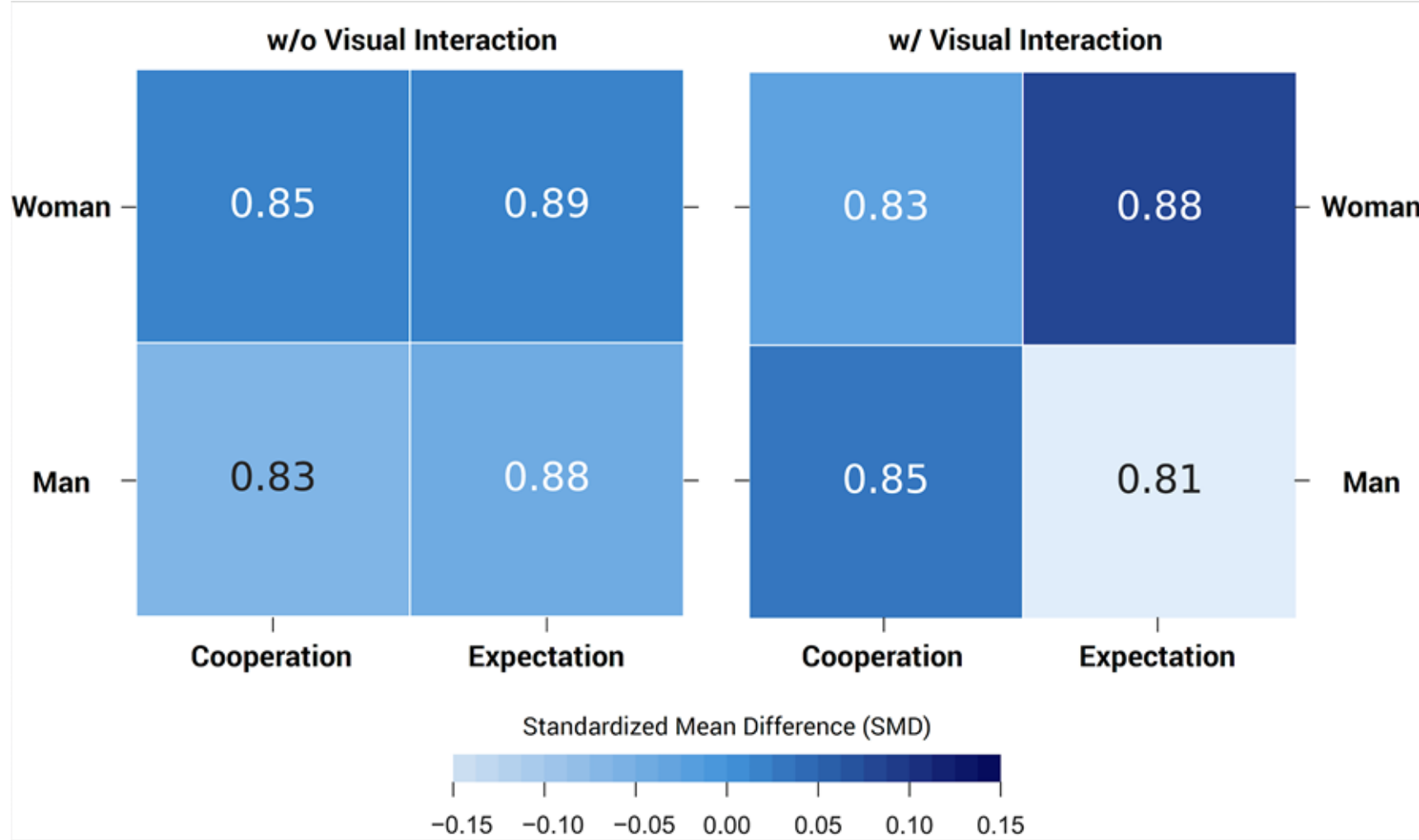
Optimism, choose which action (**C**ooperate or **D**efect) do you expect from the other.

Cooperation, choose **C**ooperate or **D**efect with the other.

Cigarini, A., Vicens, J. & Perelló, J. Gender-based pairings influence cooperative expectations and behaviours. Sci Rep 10, 1041 (2020).

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Gender-based behaviour



Cooperation and expected cooperation by gender.

Ratio of cooperation and expectation of cooperation by gender in the Prisoner's Dilemma with (n = 290) and without (n = 374) visual interaction. The number in each cell shows the ratio; the colour represents the standardised mean difference, calculated as the difference in means between groups for each behavioural domain divided by the standard deviation of each behavioural domain.

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Gender-based behaviour



Behavioural domains by gender pairing.

Cooperation refers to the ratio of cooperative decisions; Expectation refers to the ratio of positive expectations regarding the partner's behaviour, namely cooperation; Amusement refers to the ratio of positive arousal following eye contact; Accuracy refers to the ratio of correct guesses regarding the partner's behaviour; Payoff refers to the average payoff. The number in each cell shows the normalised value; the colour represents the standardised mean difference, calculated as the difference in means between groups for each behavioural domain divided by the standard deviation of each behavioural domain.

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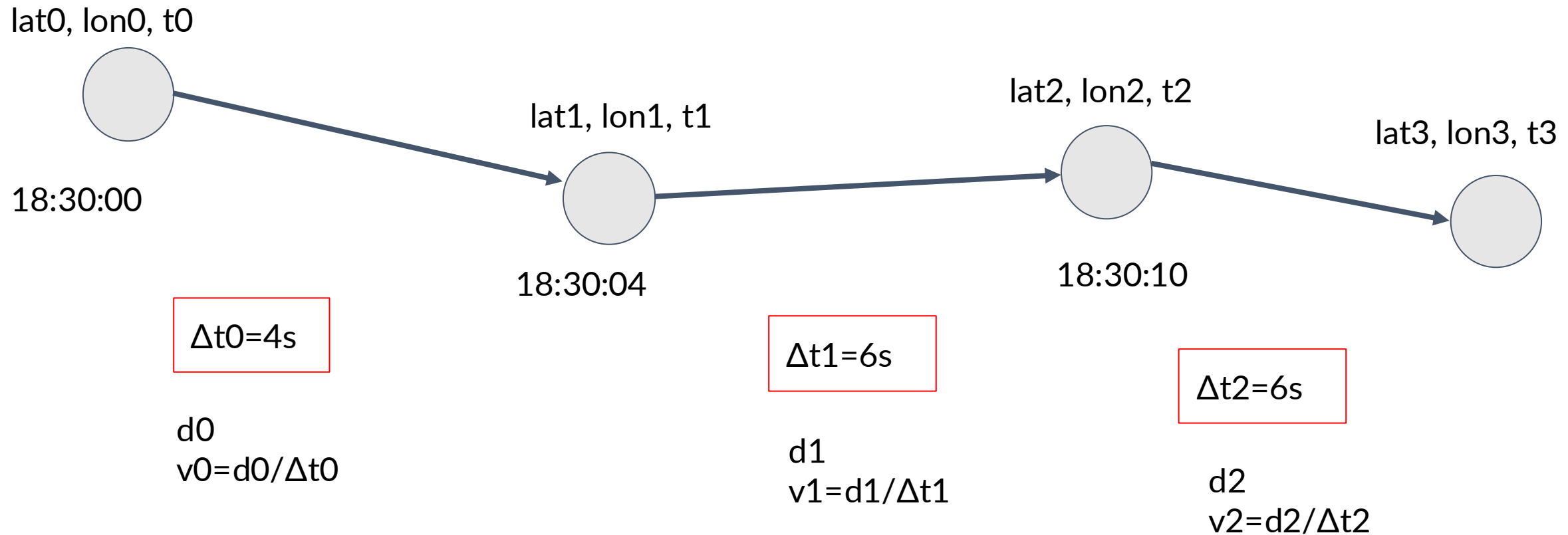
Human behaviour

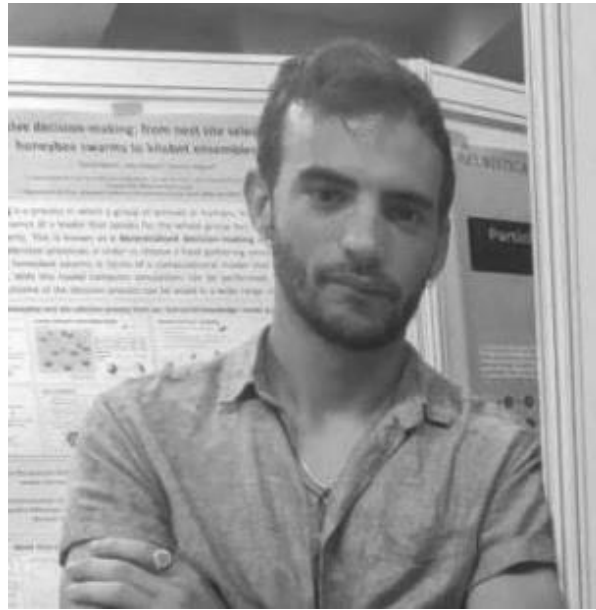
Human mobility

Mental health

Urban heat

Pedestrian mobility





Ferran Larroya
 OpenSystems & UBICS
 Complex systems & citizen science
 & pedestrian mobility



Roger Paez
 Design for City Making Research Lab
 Civic placemaking & Design &
 Architecture



Manuela Valtchanova
 Design for City Making Research Lab
 Civic placemaking & Design &
 Architecture

SCIENTIFIC
 DATA

Larroya, F., Paez, R., Valtchanova, M. and Perelló, J. Explorative pedestrian mobility geolocated data from a citizen science experiment in a neighbourhood. *Sci Data* **12**, 1036 (2025). <https://doi.org/10.1038/s41597-025-05307-y>

scientific reports

Larroya, F., Perelló, J., Paez, R., and Valtchanova, M. Pedestrian mobility citizen science complements expert mapping for enhancing inclusive neighborhood placemaking. *Sci Rep* (2026). <https://doi.org/10.1038/s41598-026-57891-7>

CORA Repositori de
 Dades de Recerca

Larroya Paixà, Ferran; Perelló, Josep, 1974-, 2023, "Explorative pedestrian mobility GPS data from a citizen science experiment in a neighbourhood", <https://doi.org/10.34810/DATA898>, CORA.Repositori de Dades de Recerca, V1



A citizen science experiment

Purposed-based situated mobility

Primer de Maig, Granollers, Catalonia, Spain

Aim: activate & improve public space

Key facts:

- Built in 1957, oldest modern housing development
- 2,964 residents in 3 ha → very dense

Issues:

- Poor-quality public space
- Socio-economic challenges
- Limited community resources



A citizen science experiment

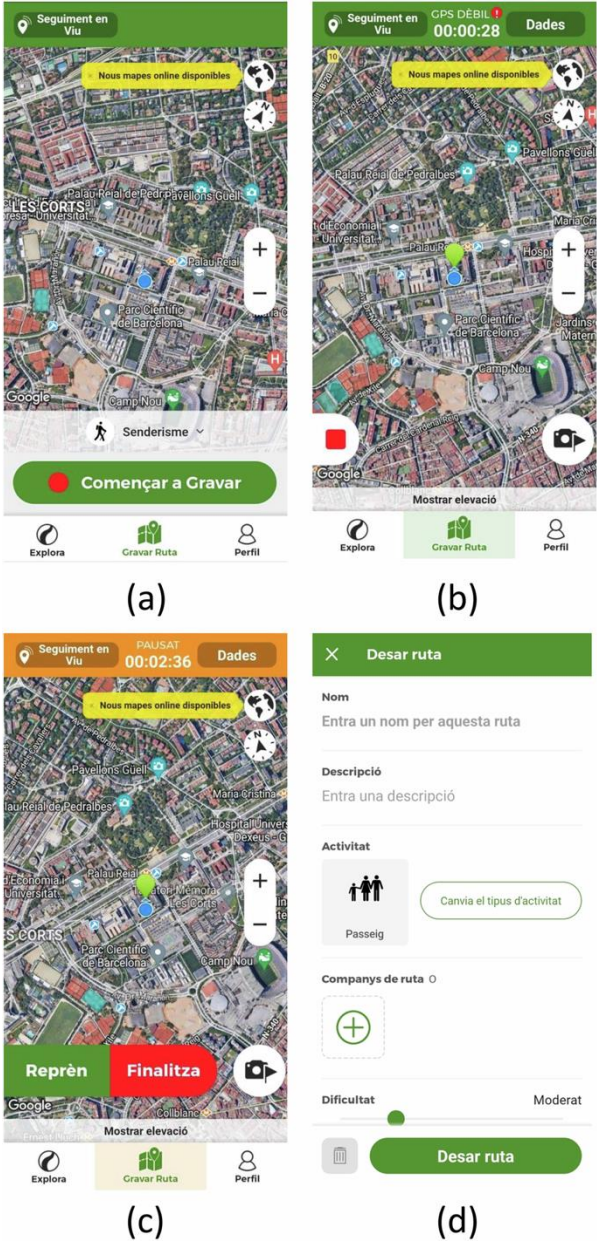
Data collection of pedestrian mobility with concerned communities

Municipality	Strategic plan	Public school	Neighbourhood association	Older adults
 Ajuntament de Granollers	 Pla de Barris	 Escola Ferrer i Guàrdia	 SOYA EL CAMI REAL	 Espai Actiu de la Gent Gran

2 981 GPS processed records
19 groups
72 participants



- (a) Initial screen when opening the Wikiloc App.
- (b) A real time recording
- (c) The screen after pausing the recording
- (d) The screen after finalizing the recording.



Missions–Activation of public space

72 residents into 19 groups (3-6 people) to explore the neighbourhood



Actions	Instructions
Dance	Explore and choose a place to dance using the speaker via Bluetooth
Play	Explore and choose a place to play with the ball
Chat	Explore and choose a place to sit and share personal neighbourhood stories
Lunch	Explore and choose a place to lay out the carpet and sit down to eat/snack
Celebration (toast)	Explore and choose a place to celebrate a special occasion with champagne/soft drink
Celebration (confetti)	Explore and choose a place to celebrate a special occasion shooting the confetti gun

Cartographic expert-based mapping

Urban profile

41 buildings → **550 residential units** + **12 commercial spaces**

Total area: **26,429 m²**

Pedestrian spaces: **11,774 m² (44.5%)**

Expert-based análisis identify areas with **high appropriability** for placemaking

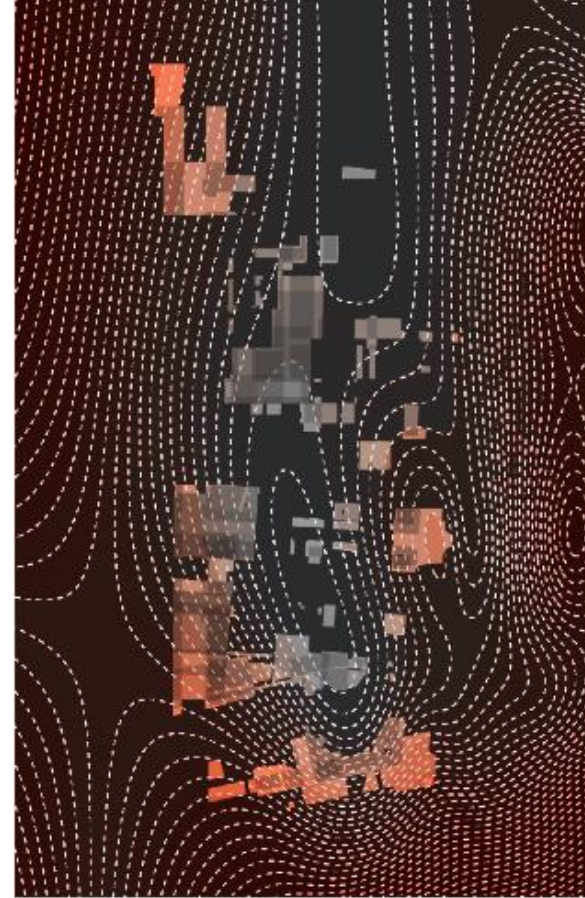
Mapped **visual, spatial & social** features

Visual: Facades and vertical public space.

Spatial: Degrees of pedestrian appropriability

Social: Attractors of socio-cultural activity

8 opportunity units (OUs) with high activation potential



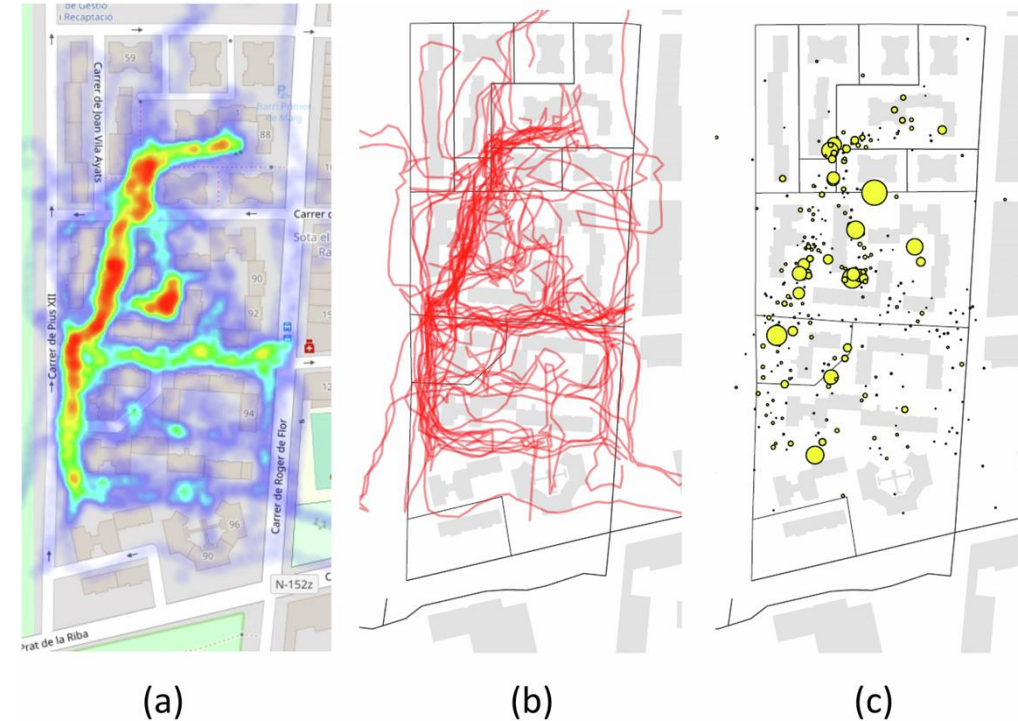
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Pedestrian exploratory mobility patterns

- Avg. duration: **~70 min** (out of 90)
- Avg. distance: **~955 m**
- **Effective speed:** 0.24 m/s (slow, due to many stops)
- **Instantaneous speed:** 1.38 m/s (when in motion)

Stops (key insight):

- Total stops: **339**. Avg. stop = **3 min**
- Action-related stops: **81**.
 - Avg. duration = **12 min**
 - Half lasted **5–16 min**
 - Range: **39 s** → **40+ min**



GPS trajectories and stops of all participating groups.

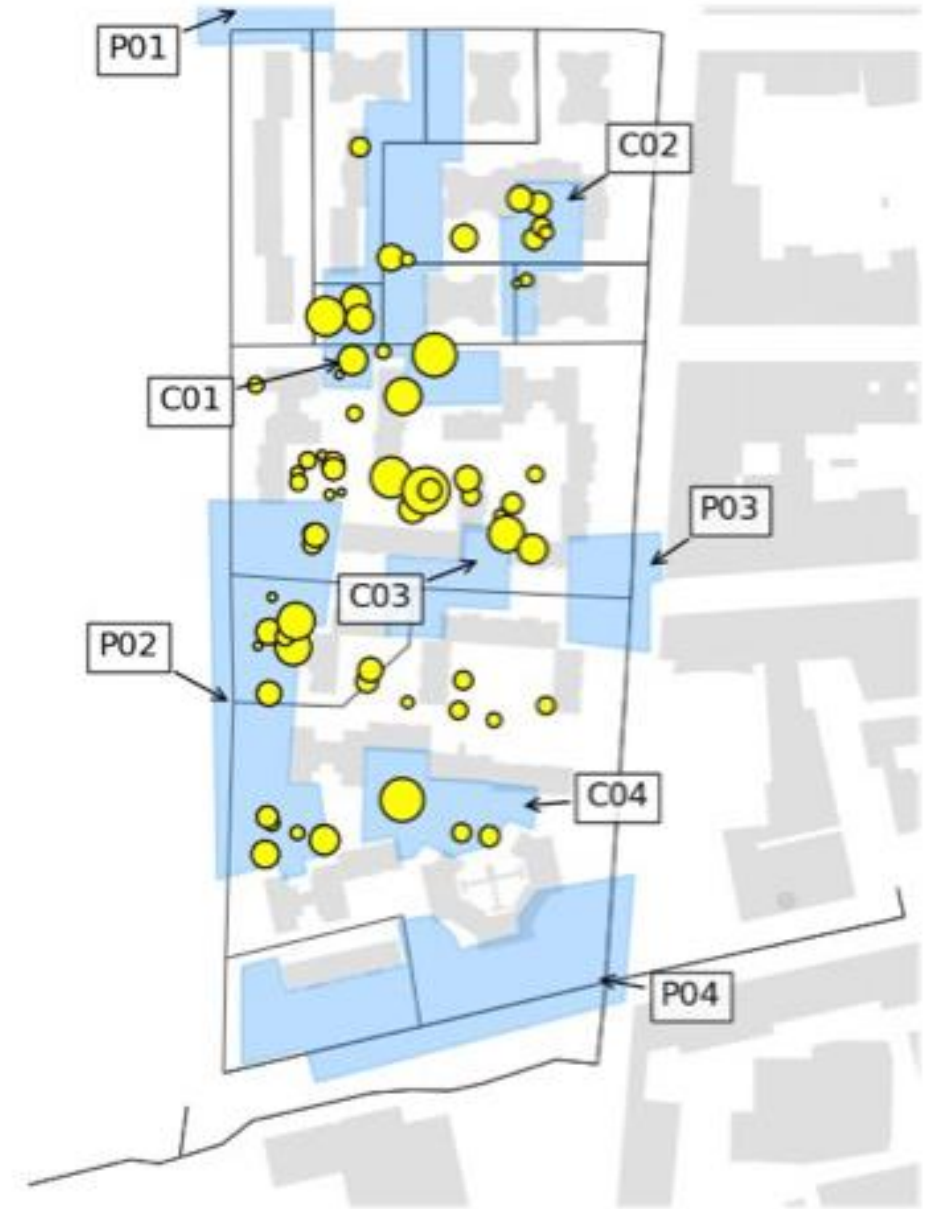
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Spatial analysis of citizen science data

68 action stops recorded in the neighborhood

- **38 (56%)** within OUs
- **30 (44%)** outside OUs

Stops inside OUs = **60% of total stop time**
(31,810s / 53,060s)



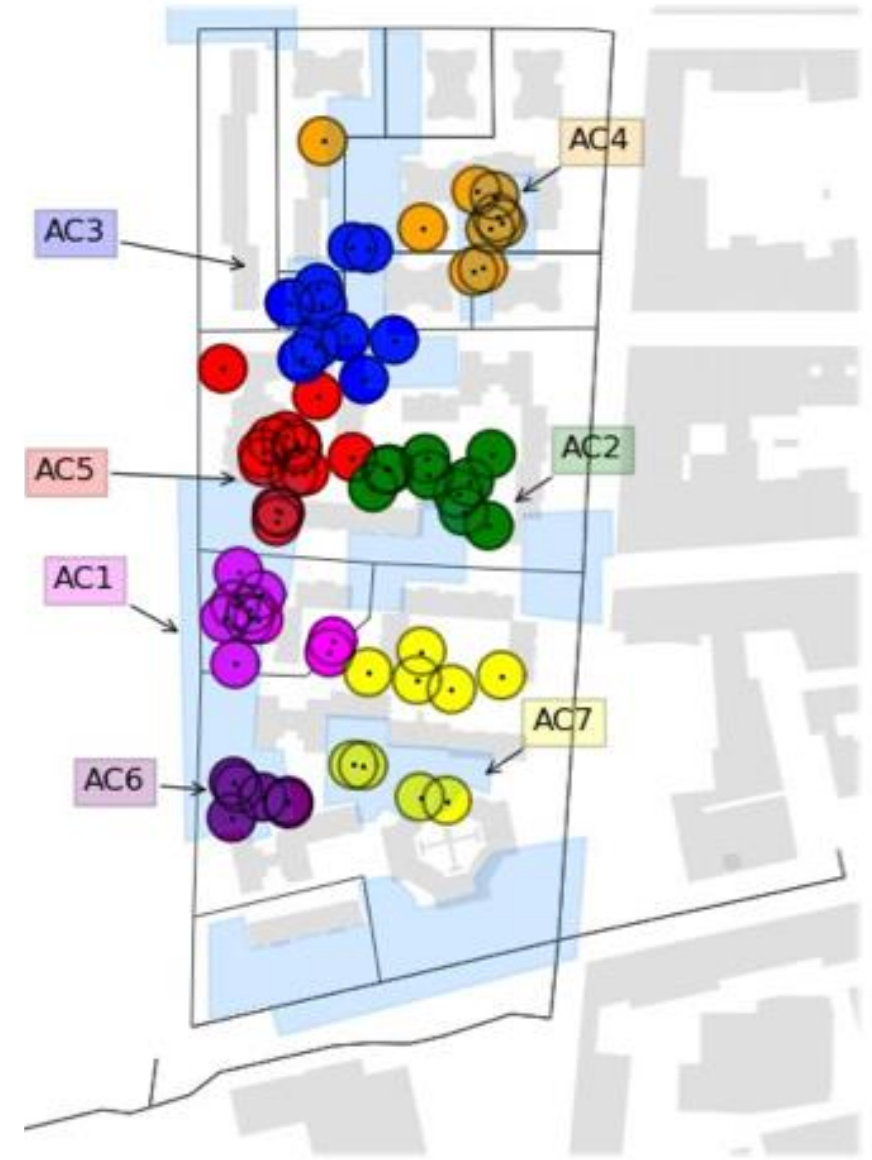
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Spatial analysis of citizen science data

Applied **weighted K-means** (stop duration as weight)

Optimal solution: **7 clusters (AC1–AC7)**

Result: Clusters reveal **new hotspots** not captured by expert mapping



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Approach & Contribution to community-centric placemaking

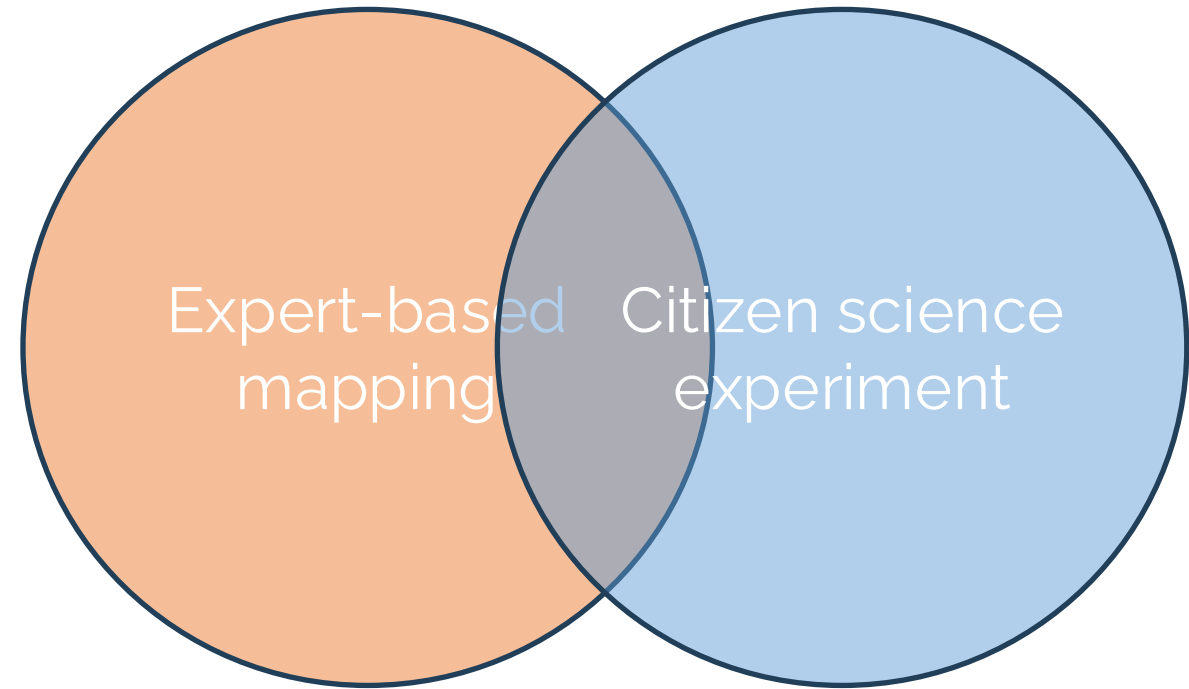
Expert-based mapping (benchmark):

Identified *opportunity units (OUs)* based on visual, spatial, and social analysis

Citizen science experiment:

Engaged residents with festive/playful actions + GPS tracking
Brought *subjective & community-based perspectives*

Goal: Compare methods → enrich urban diagnostics



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Implications

Citizen science complements expert diagnostics →
bottom-up + top-down synergy

Supports **urban transformation processes**
(rehabilitation, cultural initiatives, Plaça de la Font renovation)

Takeaway: Citizen science = powerful tool for inclusive, flexible, and sustainable urban design



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Human behaviour

Human mobility

Mental health

Urban heat



CoAct for Mental Health

2024 European Union Prize for Citizen Science

Digital Communities

https://rea.ec.europa.eu/events/eu-prize-citizen-science-2024-announcement-winners-2024-06-12_en



Research Group



Civil Society
Organization



Co-Researchers



Knowledge Coalition



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OpenSystems & UBICS



Anna Cigarini
OpenSystems & UBICS



Franziska Peter
OpenSystems & UBICS



More research team members:

Bàrbara Mitats – SMC, CSO
Itziar González-Virós – participation, cooperation
Pau Badia - chatbot drawings
Verity Harrison - storytelling

32 Co-Researchers, involved in all research steps and in the results dissemination, as experts-in-the-field.
50 representatives of organizations involved in mental health care provision, involved from 2020 to 2022.



Peter, F., Bonhoure, I., & Perelló, J. (2021). CoActD3.2: Digital and non-digital tools for conducting research. Zenodo. <https://doi.org/10.5281/zenodo.6078916>

Peter, F., Bonhoure, I., Cigarini, A., Perelló, J. (2023). Data from: CoAct Citizen Science chatbot explores social support networks in mental health based on lived experiences Zenodo. <https://doi.org/10.5281/zenodo.7443141>



Computer code of the chatbot is available at Github
https://github.com/Chaotique/CoActuem_per_la_Salut_Mental_Chobot



CoAct for Mental Health



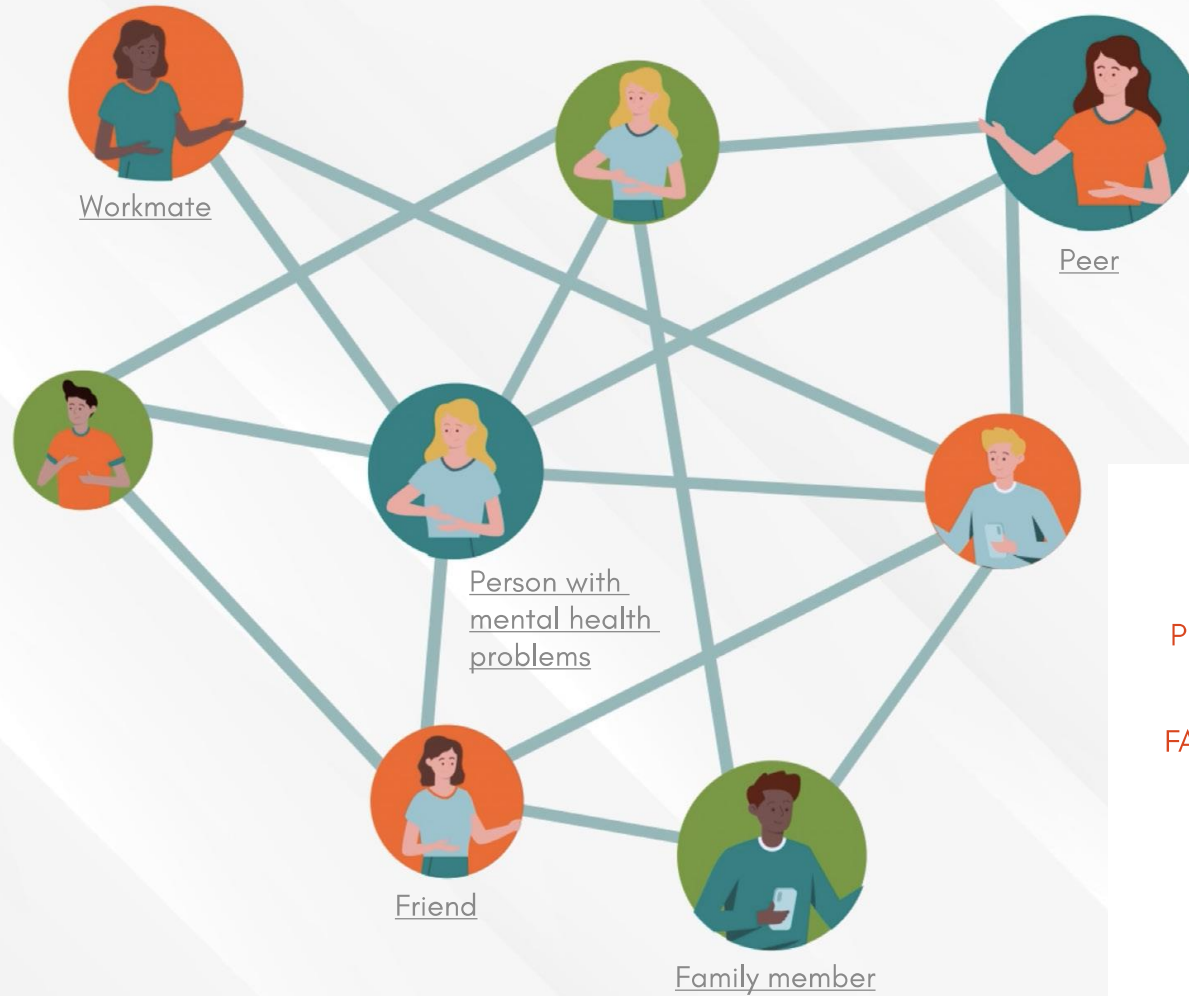


Drawings: Pau Badia



Drawings: Pau Badia

Social Support Networks



BENEFITS

PROTECT against mental health problems

FACILITATE empowerment and recovery processes

IMPROVE quality of life and well being

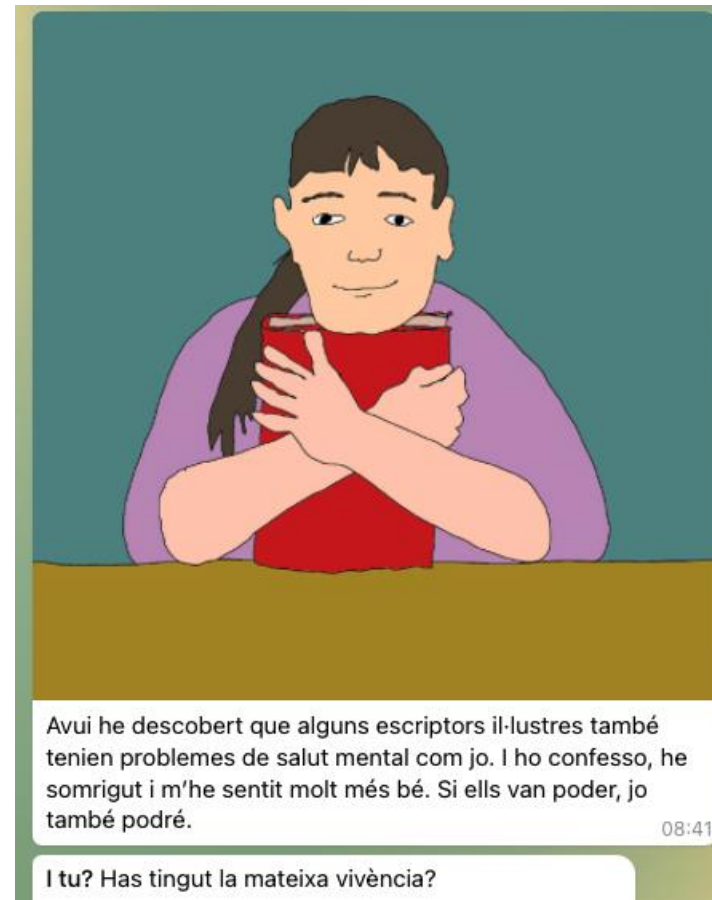
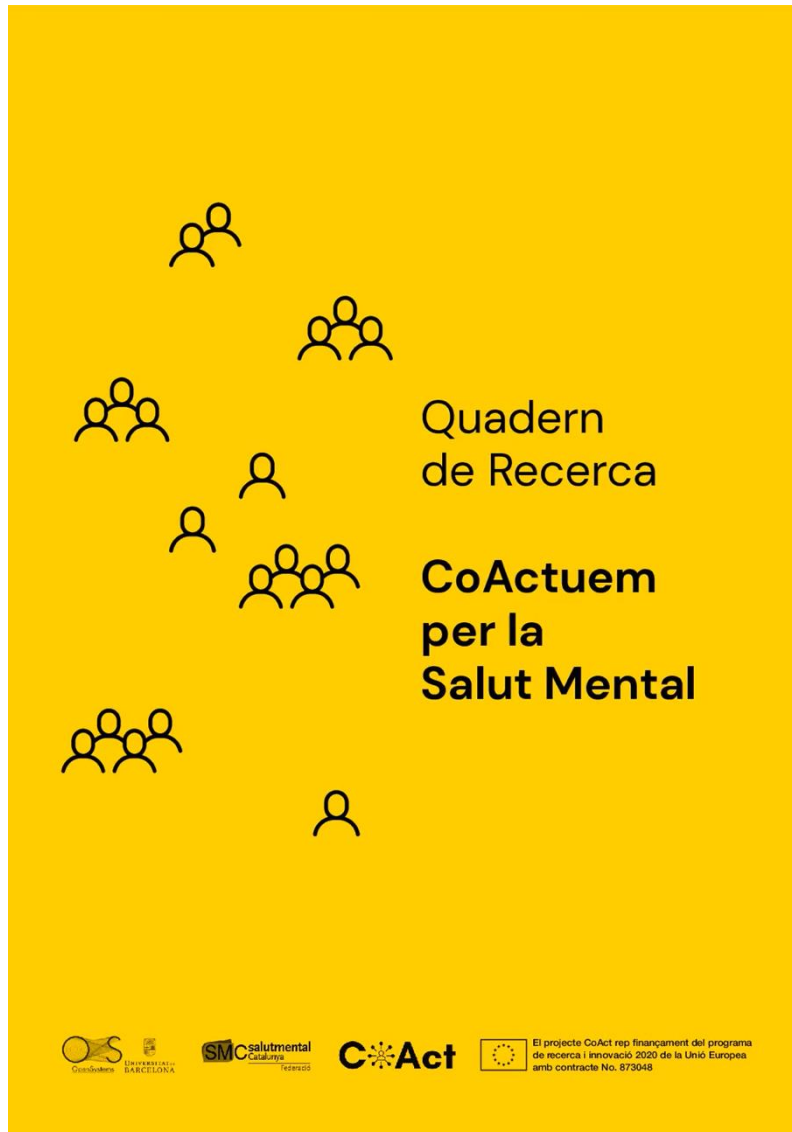
ACT against isolation and social exclusion

CONTEXTS

CLOSE ENVIRONMENTS: Personal life experiences, the closest family and extended family, close friends and intimate relationships

PROFESSIONAL AND INSTITUTIONAL ENVIRONMENT: Social support networks in mental health services

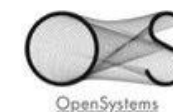
SOCIETY ENVIRONMENT: Social relations, activism and empowerment, learning spaces and meaningful occupation / working places



Available in Zenodo: <https://doi.org/10.5281/zenodo.5342488>



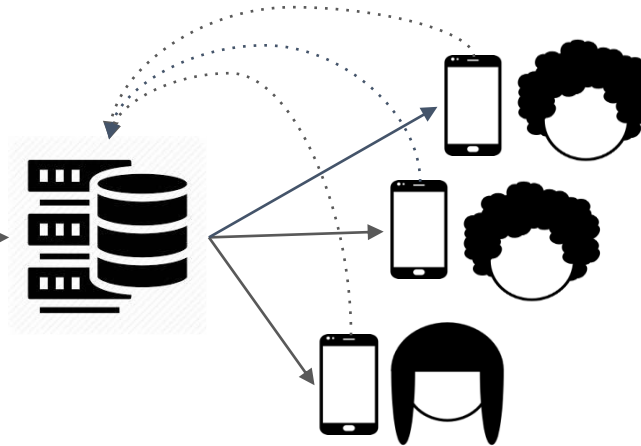
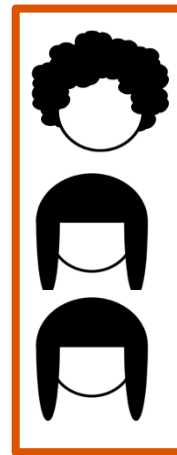
El proyecto CoAct ha recibido financiación del programa de investigación e innovación Horizon 2020 de la Unión Europea con contrato No. 873048



Chatbot **CoActuem** per la Salut Mental

Co-Researchers

- Persons with mental health issues and family members
- **Share experiences in the form of microstories**
- Co-design the chatbot



Participants

- Any person older than 18 years
- **4 languages**
Catalan
Spanish
German
English





HW-P smart 2020
M

Co-Researchers Testimonials Video: <https://youtu.be/IYcsrqmSYhw>

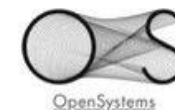


The CoAct project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No. 873048

Data interpretation



El proyecto CoAct ha recibido financiación del programa de investigación e innovación Horizon 2020 de la Unión Europea con contrato No. 873048



Chatbot shortfacts

704 people entered the Telegram chatbot, signed the informed consent and participated in the research.

The vast majority of the 32 questions in the socio-demographics **cannot be compared with any open data for Catalonia.**

3 out of 4 chatbot participants experience or have experienced **mental health problems.**

People without or with mental health problems respond to the chatbot with the **same level of commitment.**

3 out of 10 chatbot participants identify themselves as **caregivers.**

7 out of 10 chatbot participants are **women.**

2 out of 3 people with mental health problems say that people in their **neighbourhood do not know about their problems.**

1 in 3 people with mental health problems say that their **work environment does not know about their problems.**

1 out of 2 microstories talk about mental health **stigma.**

Stories about **positive aspects of social support networks** are experienced by 1 in 5 chatbot participants.

November
2022

POLICY BRIEF

ON MENTAL HEALTH CARE

Brief on policy recommendations to promote and strengthen mental health social support networks

March
2023

**RECOMANACIONS
POLÍTIQUES:
PROMOCIÓ I ENFORTIMENT
DE LES XARXES DE SUPORT SOCIAL
EN SALUT MENTAL**



Magda Casamitjana,
director of the National
Mental Health Pact
Catalonia Government

Gemma Tarafa,
Responsible for of Health,
Aging and Care
Barcelona City Council



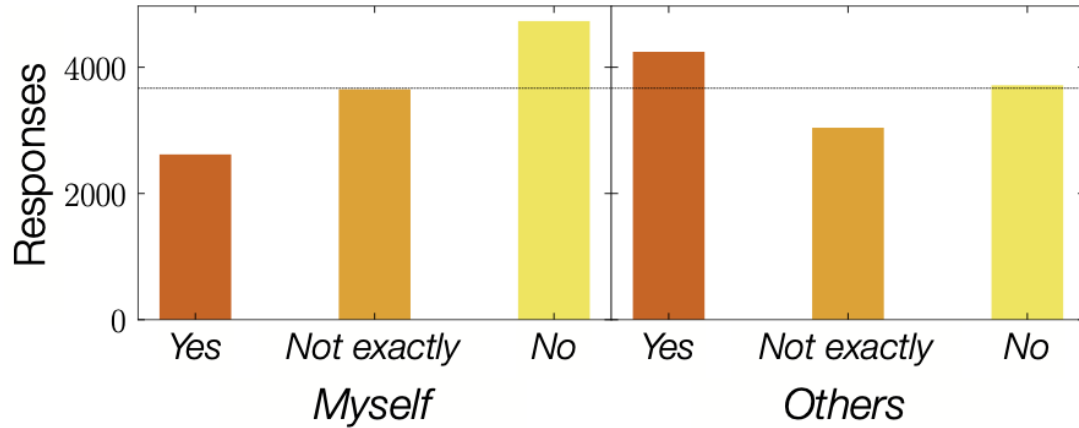
El projecte CoAct rep finançament del programa de
recerca i innovació Horitzó 2020 de la Unió Europea amb
contracte No. 873048



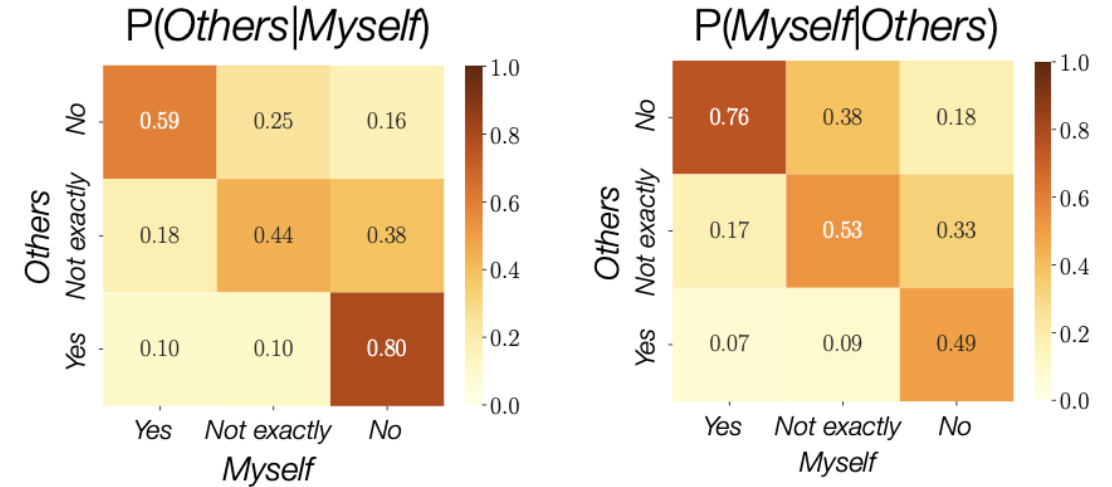


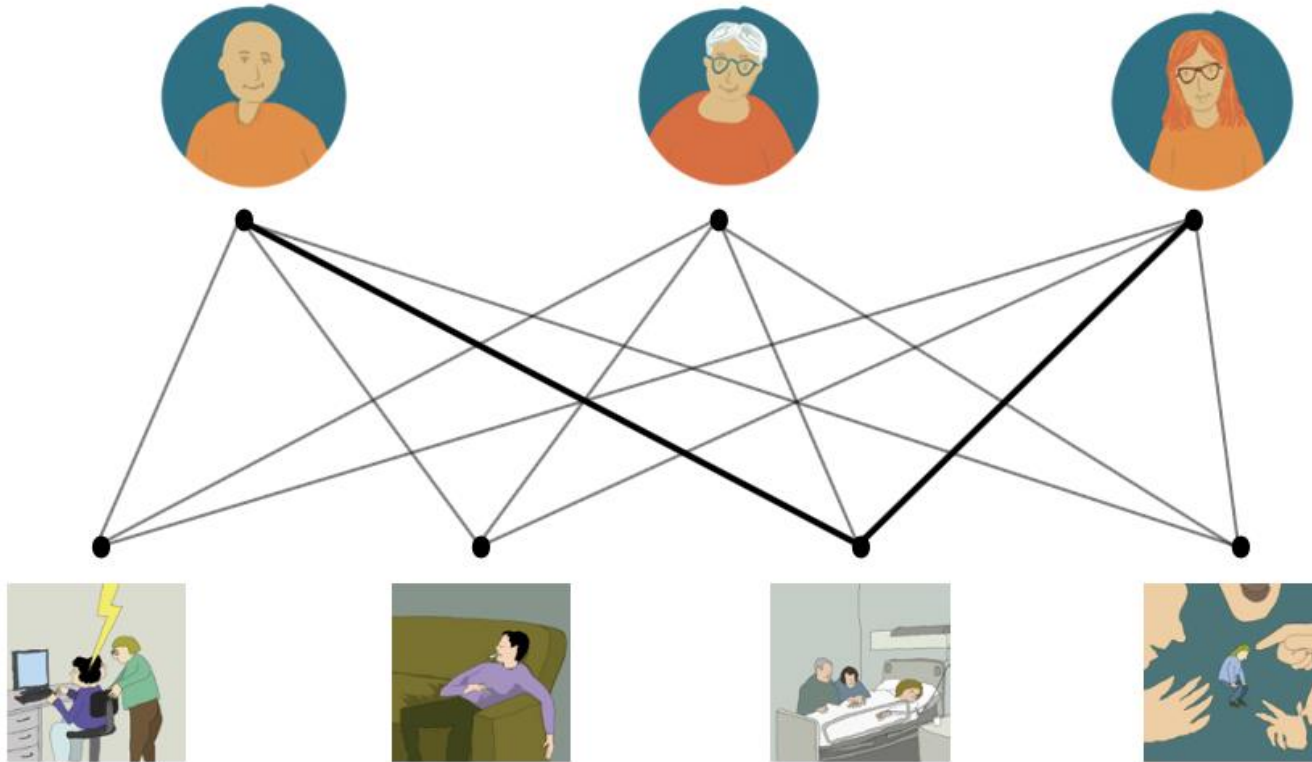
Participants perceive differently mental health experiences

Macroscopic distributions of the 11,002 responses of participants to micro-stories reveal distinct patterns.

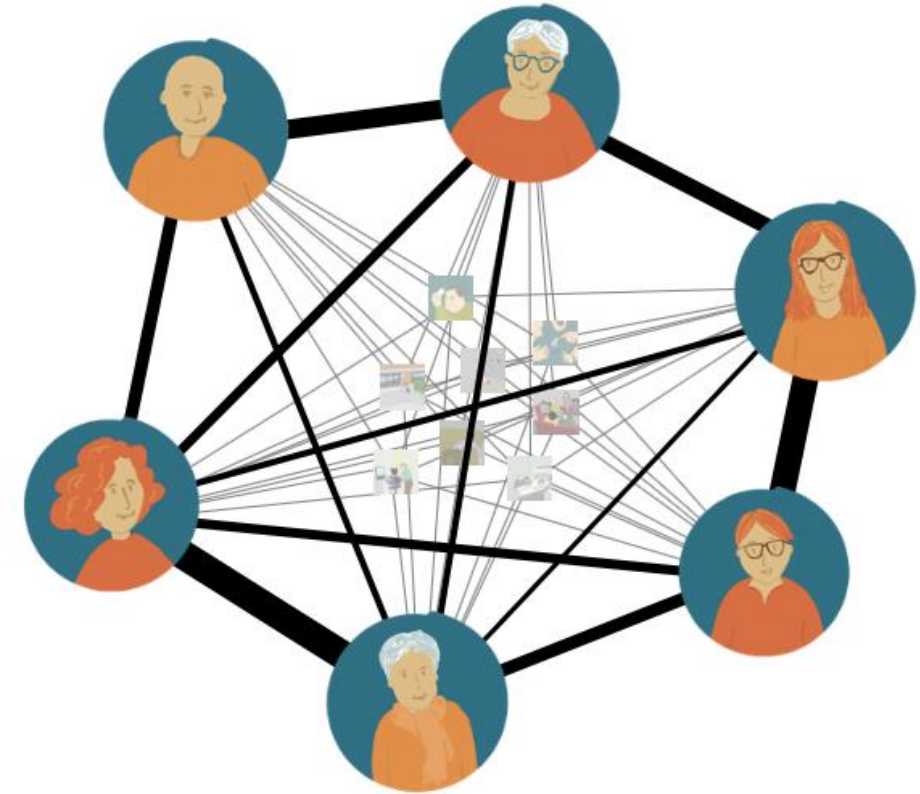


Conditional probabilities of responses in *Myself* (*Others*) given the *Others* (*Myself*) response.





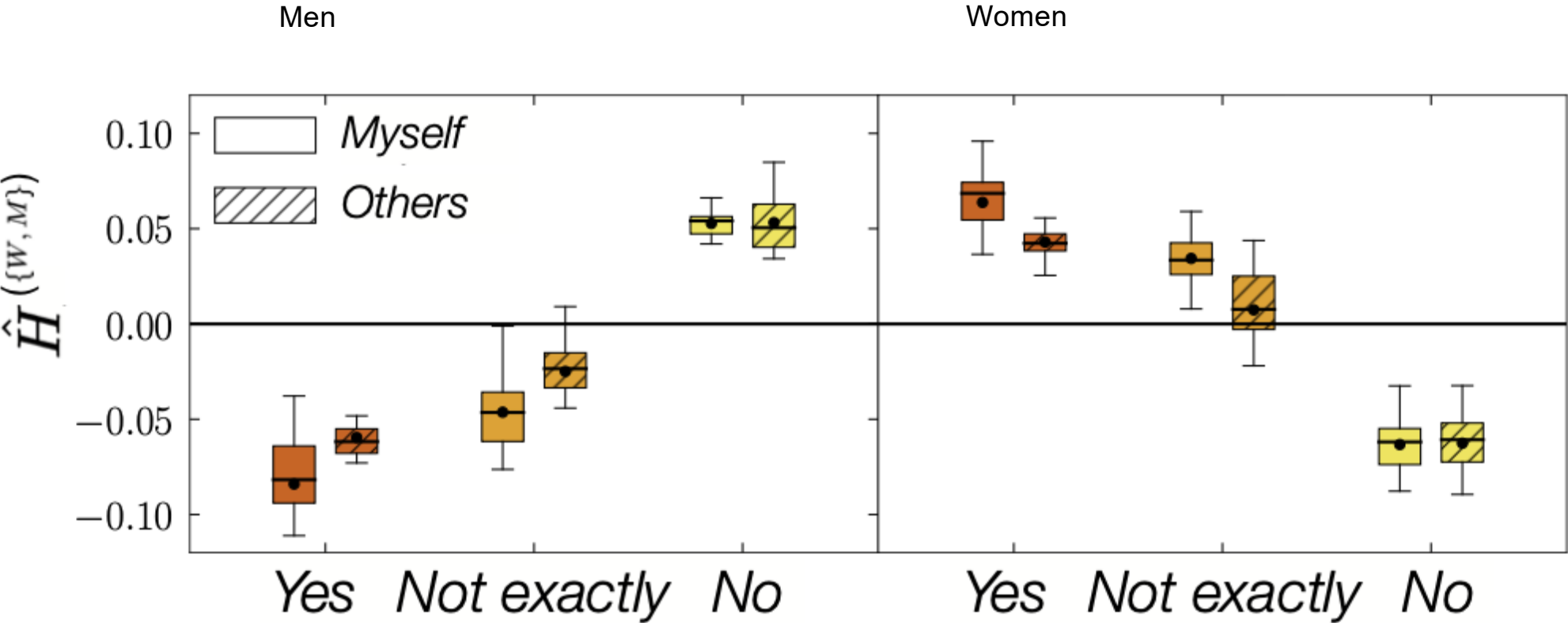
A **bipartite network** captures interactions between participants and stories based on individual experiences.



A **weighted participant network** is then derived, linking participants by the number of micro-stories to which they both responded the same.

We can go to gender or other socio-demographics traits...

Who shares same experiencies?



Human mobility

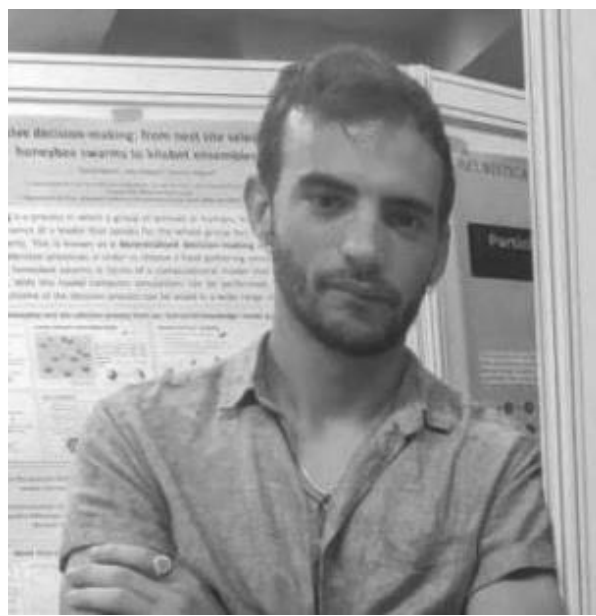
Human behaviour

Mental health

Urban heat



Isabelle Bonhoure
OpenSystems & UBICS



Ferran Larroya
OpenSystems & UBICS



Femke Min
OpenSystems & UBICS

Cròniques de la calor

14 community organizations: Fundació Comtal, Canòdrom, Casal de Barri Congrés–Indians, Fundació MAIN, Servei Residencial d'Acció Educativa Congrés–ISOM, Unió de Botiguers, Taula Comunitària del Barri del Congrés–Indians, Biblioteca Josep Janés, Escola Pep Ventura, Escola Bressol Nova Fortuny, Procés Comunitari Intercultural, Associació Educativa Itaca, Institut La Ribera, Escola La Guàrdia. Raquel Segura (Biblioteca Josep Janés), Mar Escarrabill (Canòdrom), Xavi Geis (Generalitat de Catalunya) and Jaume Puigpinós (Taula del tercer sector); Maday Rivero, Iván Casanovas, Rebekah Breeding, and Martín F. Díaz (OpenSystems), and Ferran Capell, Roger Jové, Uriel Merino, Ulises Fabián Náger, Víctor Ramos, César Recacha, and Oriol Riera (students from the Faculty of Physics at the University of Barcelona)

SCIENTIFIC
DATA

Larroya, F., Bonhoure, I., Min, F. et al. Citizen science dataset of urban heat perception and environmental measurements in outdoor public spaces across climate-vulnerable neighborhoods in the Barcelona metropolitan area. Sci Data (2026).

<https://doi.org/10.1038/s41597-026-08186-z>

CORA Repositori de
Dades de Recerca

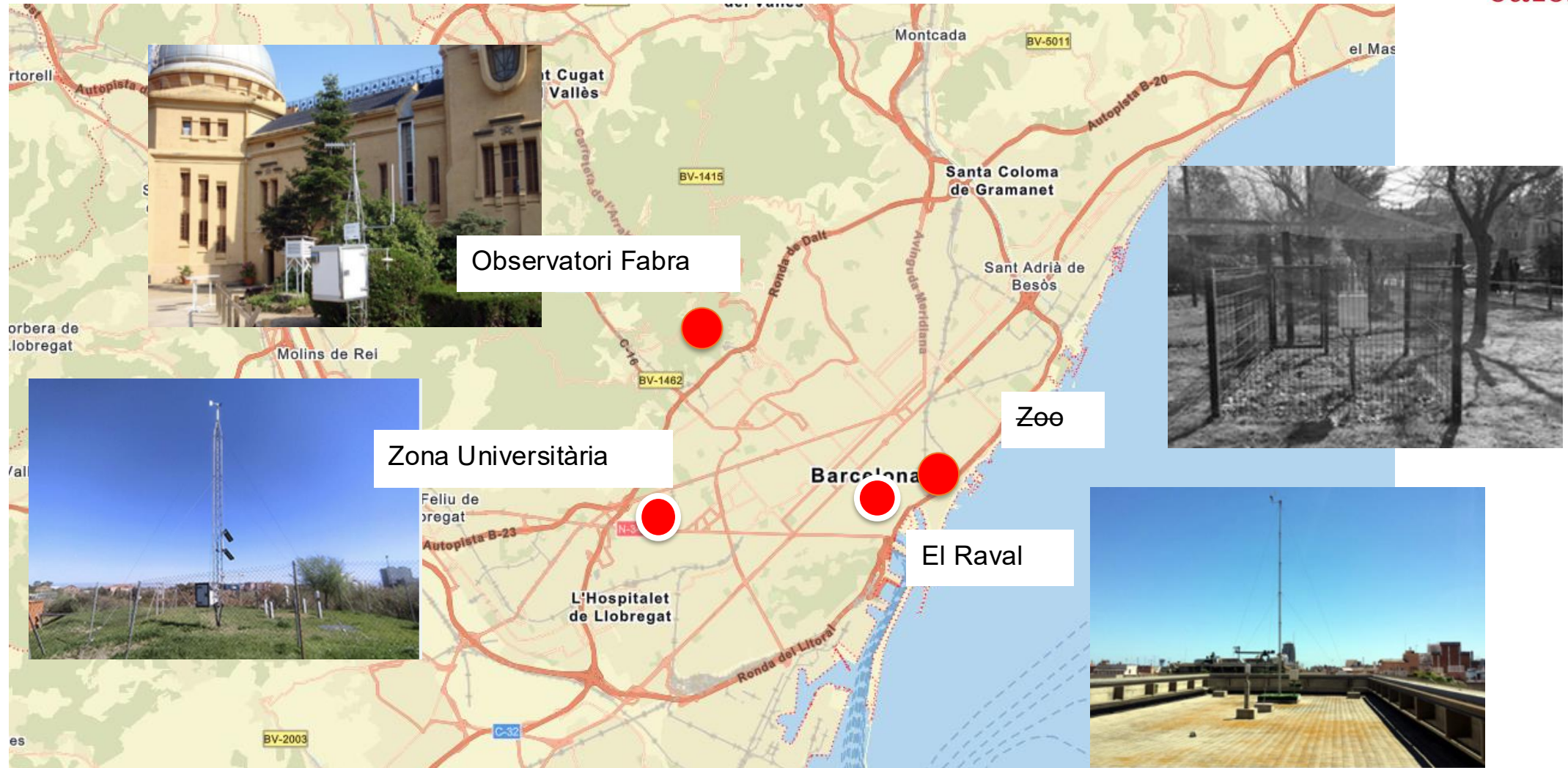
Larroya, F., Bonhoure, I., Min, F. & Perelló, J. (2025) Citizen science dataset on residents' urban heat perception in outdoor public spaces of climatevulnerable neighborhoods. CORA. Repositori de Dades de Recerca

<https://doi.org/10.34810/data2717>



Urban Heat Mapping?

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la
calor



Barcelona Automatic Weather Station. Meteocat. <https://www.meteo.cat/observacions/llistat-xema>

Heat Chronicles



To document the **heat** in **public space** and on a **micro-scale**, with the help of the **most affected neighbours** and taking into account **their** knowledge on the ground as users of public space.

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la
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48 thermal walks,

439 residents carried portable low-cost sensors that continuously recorded air temperature, relative humidity, and geolocation. **296,286 processed microclimatic data points**

210 public outdoor sites of relevance in their daily activity, characterized by spatial and environmental indicators linked to climate resilience

Surveys. Thermal Sensation Votes and Thermal Comfort Votes. **5,169 self-reported entries.**

Larroya, F., Bonhoure, I., Min, F. et al. Citizen science dataset of urban heat perception and environmental measurements in outdoor public spaces across climate-vulnerable neighborhoods in the Barcelona metropolitan area. Sci Data (2026). <https://doi.org/10.1038/s41597-026-08186-z>

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In collaboration
with RUN
Design



Session 1

Introduction and public spaces mapping

- ✓ Citizen science concept
- ✓ Rationale and objectives of the campaign
- ✓ Collective mapping of outdoor public space sites
- ✓ Thermal walks rehearsal



Mapping



Rehearsal



Session 2

Collective thermal data collection

- ✓ Simultaneous and circular thermal walks in small and homogeneous groups
- ✓ Microclimatic geolocated data from portable sensors
- ✓ Thermal perception votes



Walks with sensors



Thermal votes



Session 3

Results discussion and dissemination

- ✓ Preliminary scientific findings
- ✓ Collective data interpretation
- ✓ Discussion within the communities
- ✓ Dissemination of result in neighbourhood and city levels



Interpretation



Dissemination

Larroya, F., Bonhoure, I., Min, F. et al. Citizen science dataset of urban heat perception and environmental measurements in outdoor public spaces across climate-vulnerable neighborhoods in the Barcelona metropolitan area. Sci Data (2026). <https://doi.org/10.1038/s41597-026-08186-z>

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CANÒID ROOM

PARC DE
RECERCA CREATIVA



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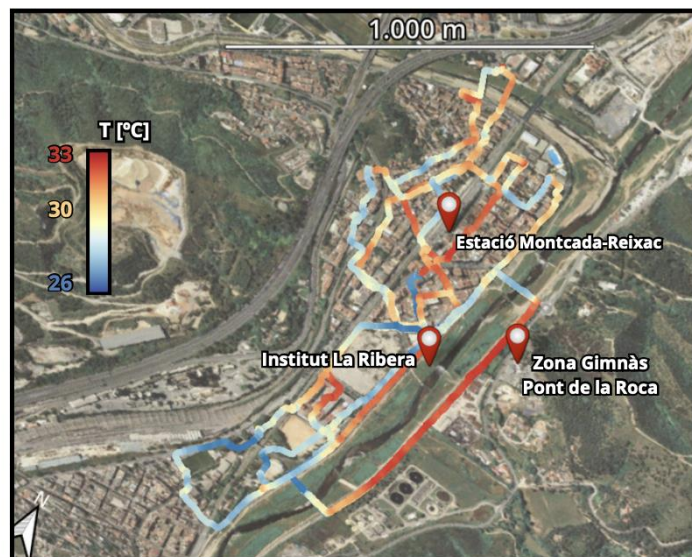
Cròniques
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(a)



(b)



(c)



(d)



(e)



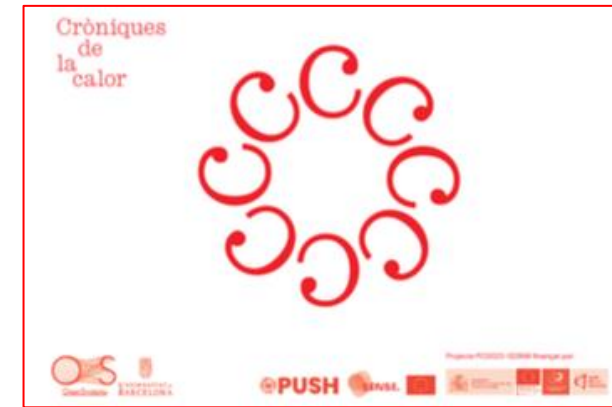
(a)



(b)



(c)



Vot 2, Codi de l'espai públic: ID: XXX

1. Com t'has trobat **mentre caminaves**? En termes de **confort tèrmic**, m'he trobat...

mol·t incòmode	incòmode	Refrigerant incòmode	neutre	Refrigerant còmode	còmode	mol·t còmode
1	2	3	4	5	6	7

2. Ara mateix, un cop ens hem aturat, com et trobes? En termes de **confort tèrmic**, em trobo...

mol·t incòmode	incòmode	Refrigerant incòmode	neutre	Refrigerant còmode	còmode	mol·t còmode
1	2	3	4	5	6	7

3. Ara mateix, com es l'espai segons la teva sensació tèrmica?

Fred	Refrigerant fred	Neutre	Refrigerant càlid	Càlid	Calorós	Molt calorós
1	2	3	4	5	6	7

4. Ara mateix, quin vent fa?

No fa vent	Un vent molt fluix	Un vent fluix	Un vent moderat	Un vent fort
1	2	3	4	5

5. Ara mateix, estic...

a petita	en una banda de sol i ombra	a plena ombra
1	2	3

Vot 1, Codi de l'espai públic: ID: XXX

1. Ara mateix, com et trobes? En termes de **confort tèrmic**, em trobo...

mol·t incòmode	incòmode	Refrigerant incòmode	neutre	Refrigerant còmode	còmode	mol·t còmode
1	2	3	4	5	6	7

2. Ara mateix, com es l'espai segons la teva sensació tèrmica?

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3. Ara mateix, quin vent fa?

No fa vent	Un vent molt fluix	Un vent fluix	Un vent moderat	Un vent fort
1	2	3	4	5

a petita	en una banda de sol i ombra	a plena ombra
1	2	3

El teu perfil ID: XXX

1. Marca la identitat de gènere amb la qual més t'identifiques:

☐ Dona ☐ Home ☐ No-biniària ☐ Prefereixo no dir-la

2. Si us plau, indica la teva edat (en anys):

☐ Menys de 10 ☐ 10 - 12 ☐ 13 - 15 ☐ 16 - 18 ☐ 19 - 24 ☐ 25 - 34 ☐ 35 - 44 ☐ 45 - 54 ☐ 55 - 64 ☐ 65 - 74 ☐ 75 - 84 ☐ Més de 85

3. Com definiries el teu coneixement d'aquest barri?

No el coneix	Coneixement parcial	Coneixement mitjà	Coneixement bo	Coneixement molt bo
1	2	3	4	5

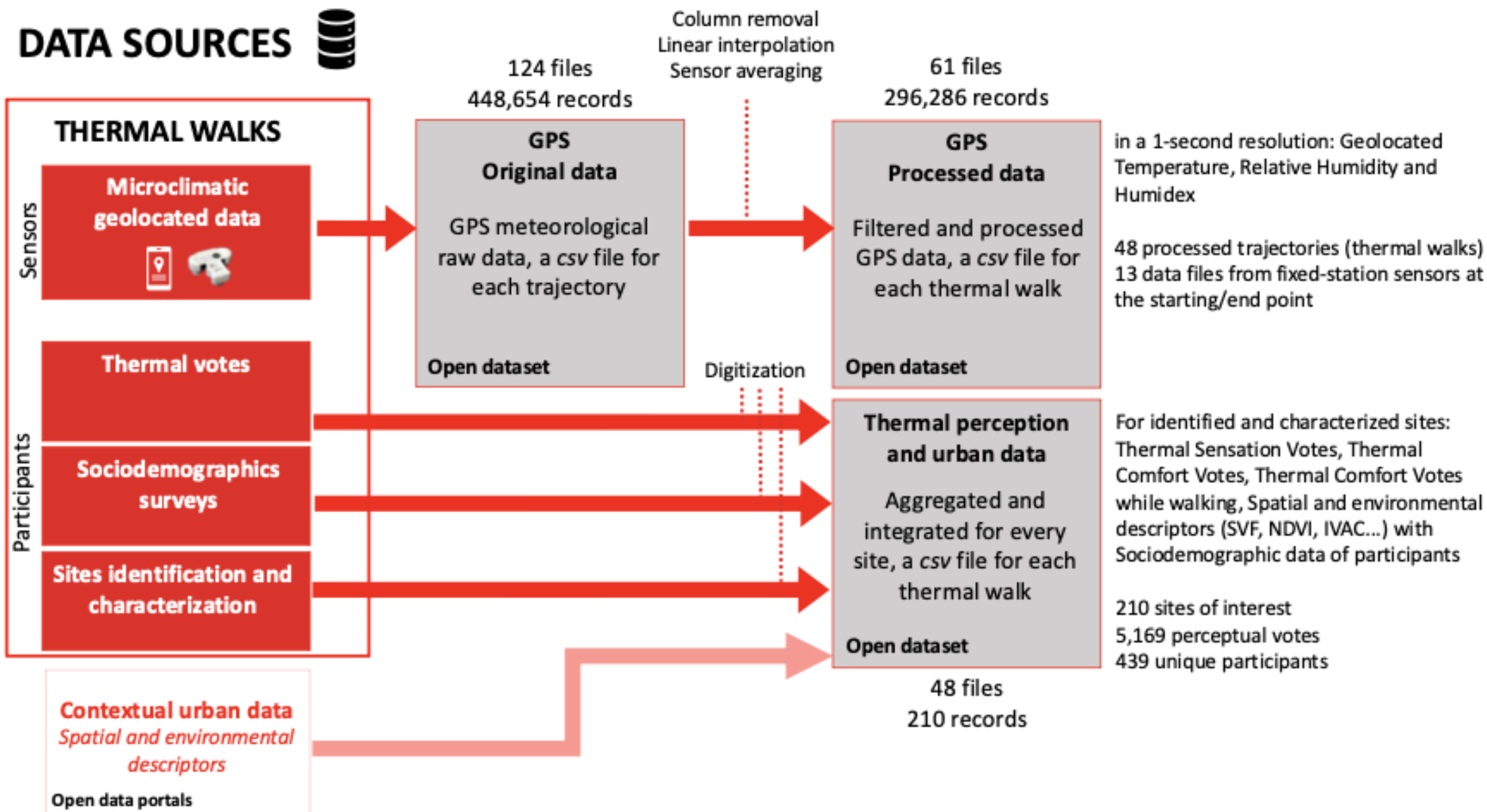
4. De mitjana, quantes hores passes cada dia en espais públics exteriors (carers, places, parcs, etc)?

Ménys de 30 min	30 min - 1 h	1 h - 2 h	2 h - 4 h	més de 4 h
1	2	3	4	5

Larroya, F., Bonhoure, I., Min, F. et al. Citizen science dataset of urban heat perception and environmental measurements in outdoor public spaces across climate-vulnerable neighborhoods in the Barcelona metropolitan area. *Sci Data* (2026). <https://doi.org/10.1038/s41597-026-08186-z>

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DATA SOURCES



Larroya, F., Bonhoure, I., Min, F. et al. Citizen science dataset of urban heat perception and environmental measurements in outdoor public spaces across climate-vulnerable neighborhoods in the Barcelona metropolitan area. Sci Data (2026). <https://doi.org/10.1038/s41597-026-08186-z>

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Primary Care Health Center



Cròniques
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Square



Park



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Metro Station

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ATENCIÓN
AL SEMÁFORO
PASO EXCLUSIVO
PEATONES



Integrating Citizen Thermal Walks into City Planning

Communicating heat risk

Thermal Walks Role

- Engage residents to identify urban micro-hotspots.
- Building Community.
- Community-Based Thermal Information.



Combining Data Types

- High-Resolution Thermal Data.
- Thermal variations across urban áreas.
- Integrating geolocated sensor data with subjective thermal comfort assessments.

Informing Urban Planning (in progress)

- To guide city interventions like shading, greenery expansion, and heat mitigation actions.

Human mobility
Human behaviour
Mental health
Urban heat

Citizen Social Science

Social concerns

Civil society organizations

Communities

Data

Methods

Perelló, J., Larroya, F., Bonhoure, I., Peter, F. (2024). Citizen science for social physics: Digital tools and participation. *The European Physical Journal Plus* **139**, 572. <https://doi.org/10.1140/epjp/s13360-024-05336-3>

Bonhoure, I., Cigarini, A., Vicens, J., Mitats, B., Perelló, J. (2023). Reformulating computational social science with citizen social science: the case of a community-based mental health care research. *Humanities and Social Sciences Communications* **10**, 81. <https://doi.org/10.1057/s41599-023-01577-2>

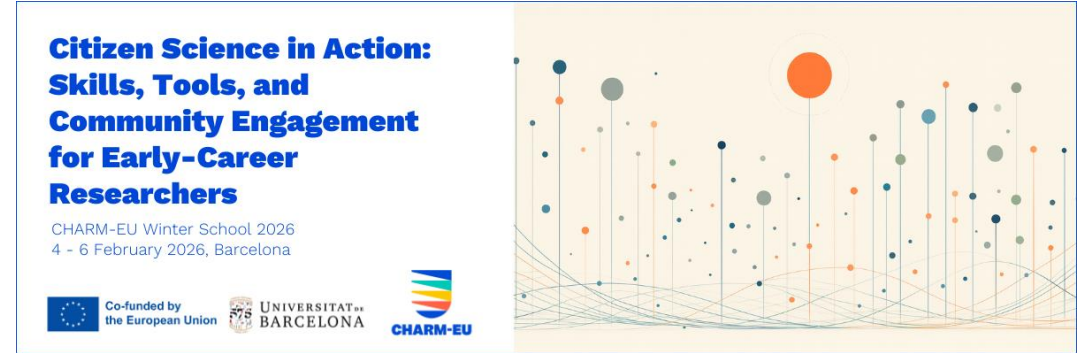
Perelló, J. (2022). New knowledge environments: On the possibility of a citizen social science. *Mètode Science Studies Journal* **12**, 24-31. <https://doi.org/10.7203/metode.12.18136>

Citizen Science: Promises and Tensions

Promises	Tensions
New research questions	Participation is not automatically inclusive
Lived experience as expertise	Power asymmetries persist
Knowledge linked to action	Co-creation requires time and resources
Openness and interdisciplinarity	Academic incentives favour conventional outputs
Stronger societal relevance	Community and scientific priorities may diverge

Training

- **Coordinator of two CHARM-EU Citizen Science Schools** for early-career researchers across the alliance universities.
- Co-creation of **microcredential programmes** with social-sector organizations and the **Taula del Tercer Sector Social de Catalunya**.



Resources

UB.EDU Staff directory PTGAS and PDI Students EN

UNIVERSITAT DE BARCELONA

Citizen science

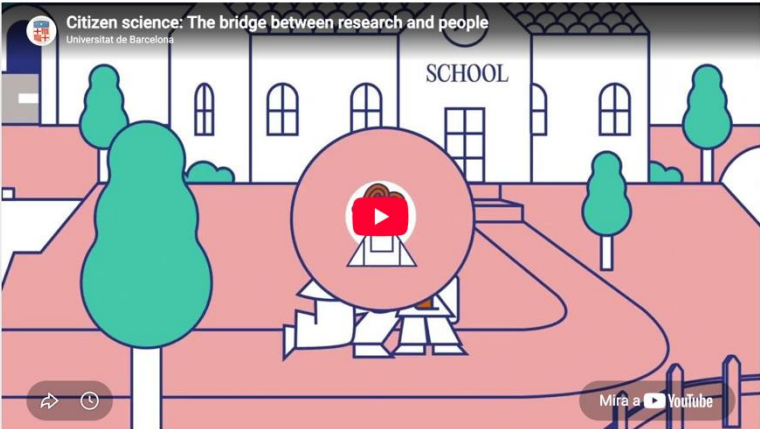
The projects Driving ideas Funding

Discover citizen science with the UB

Citizen science: The bridge between research and people
Universitat de Barcelona

Citizen science is an emerging practice in how science is performed that encourages citizens to get involved in research tasks.

It is one of the cornerstones of open science and, at the same time, a way to explore new areas of interest for the universities of the future. It is considered a key strategy for the success of transformative science with greater social commitment, facilitating cooperation with different stakeholders in civil society. It represents an opportunity for communities and citizen organizations to find new ways to thoughtfully engage in actions and policies on socially relevant issues.



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. License of materials: CC BY-NC-SA 4.0 DEED.



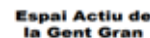
Perelló, J. (2023). Infographics of six key aspects in the development of citizen science projects. Zenodo. <https://doi.org/10.5281/zenodo.10366173>

<https://web.ub.edu/en/web/ciencia-ciutadana/>

The challenge is not simply to bring citizens into research.

The challenge is to rethink how research itself is organized.

Projecte PCI2022-132996 finançat per:



/AEI/10.13039/501100011033 y por FEDER, UEstochastic Methods And Citizen science practices in the study of social Complex Systems (SMACXS, PID2022-140757NB-I00)

HYbrid statistical models in a citizen science for complex social PHENomena (HYPHEN, PID2025-171705NB-I00)



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Rebekah Breeding (former member)



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