Quan la ciència ciutadana canvia la manera de fer recerca

Josep Perelló, OpenSystems, Universitat de Barcelona / UBICS

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Alfabetització

Escoles, universitats

Centres de recerca, infraestructures científiques

?

1800

2000

2020

Margaret Cavendish



Ciència jove

Senyor i senyores de la ciència

Ciència professional

Institucionalització

Ciència obera, coproducció de coneixement, crowdsourcing, democratització de la ciència

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Extret de presentació de M Haklay (UCL)

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«Un projecte coproduït és aquell en què investigadors, professionals i ciutadania **comparteixen el poder i la responsabilitat** del treball al llarg de tot el procés.»

INVOLVE, UK health-research advisory group

Co-production of research, Nature, 03 October 2018
https://www.nature.com/collections/nnqkvntryl

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«Ha arribat el moment [...] d'afrontar **l'ètica de la inclusió**.»

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[1,3], Barbara E. Bierer[1,3,4]

The disproportionate impact of COVID-19 on certain populations, such as Black, Latinx, 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.

Multi-Regional Clinical Trials Center of Brigham and Women's Hospital and Harvard University, Cambridge, MA, USA. [2]Vagelos College of Physicians and Surgeons, Columbia University, New York, NY, USA. [3]Brigham and Women's Hospital, Boston, MA, USA. [4]Harvard Medical School, Boston, MA, USA. Email: bbierer@bwh.harvard.edu

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-

Downloaded from http://science.sciencemag.org/ on March 22, 2021

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Ten principles of Citizen Science

2015

https://ecsa.citizen-science.net/2016/05/17/10-principles-of-citizen-science/

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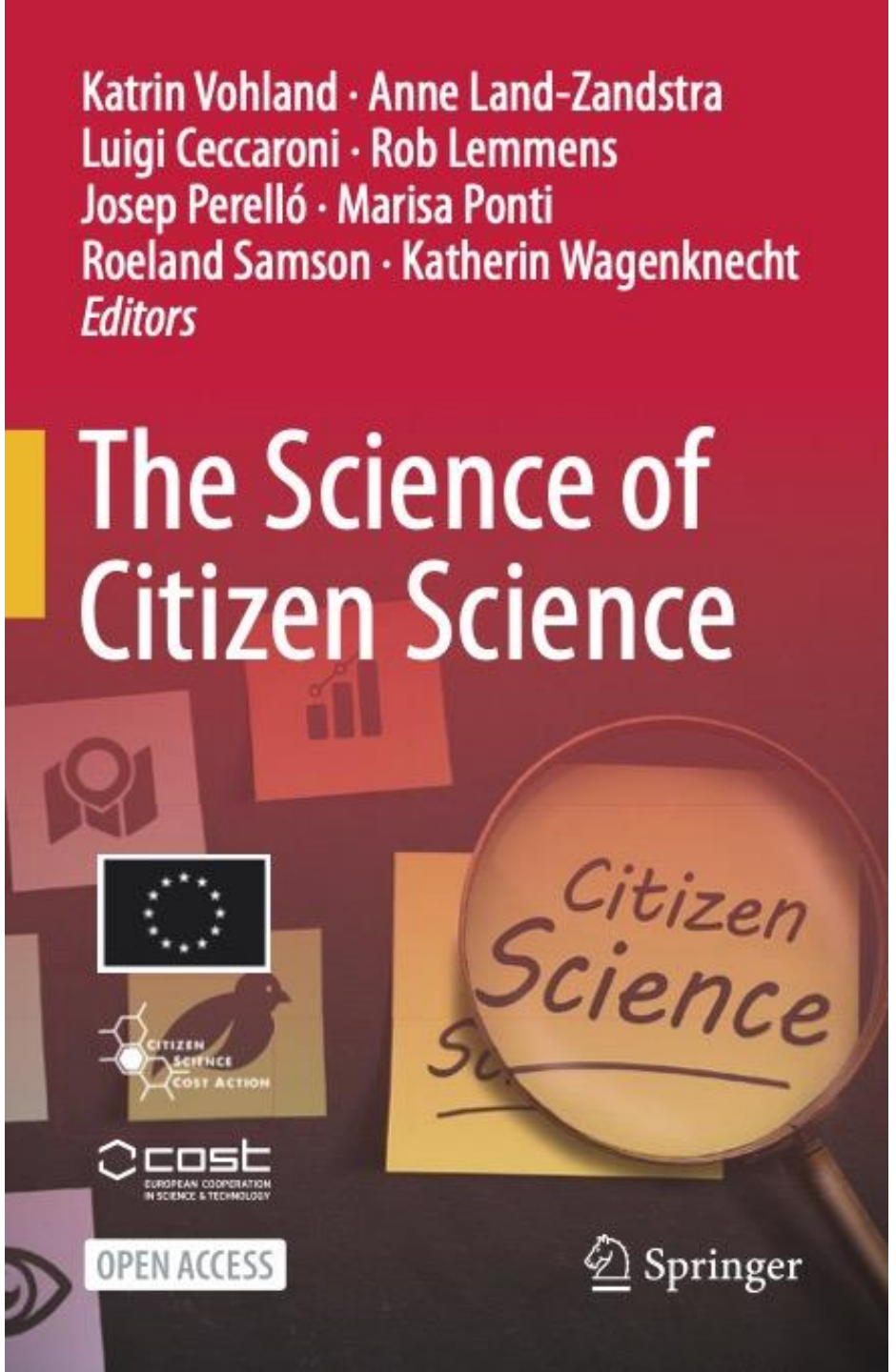
Vohland, K., Land-Zandstra, A., Ceccaroni, L., Lemmens, R., Perelló, J., Ponti, M., ... & Wagenknecht, K. (2021). The science of citizen science (p. 529). Springer

OPEN ACCESS
https://doi.org/10.1007/978-3-030-58278-4



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Citizen science…

as a participatory data gathering.

Bonney (1996)

Bonney R. 1996. Citizen science: a lab tradition. Living Bird 15, 7-15.
https://www.biodiversitylibrary.org

CITIZEN SCIENCE

A Lab Tradition

BY RICK BONNEY

The history of ornithology is replete with the contributions of amateurs. From the early 1800s, when a Scottish poet named Alexander Wilson published the first comprehensive account of North American birdlife, to the turn of the century, as the Audubon Christmas Bird Counts were born, to the present time, as thousands of birders participate in bird censuses, surveys, and research projects across the continent, amateurs have gathered a treasure house of information on bird numbers, bird movements, even basic bird biology.

The Cornell Lab of Ornithology has played a major role in this tradition. In 1929 our founder, Arthur A. Allen, began soliciting bird watchers' sightings to construct a comprehensive database of the birds of central New York's Cayuga Lake Basin. Our Nest Record Program, begun in 1965, was one of the first North American projects to seek amateur-collected data in an organized fashion. Project FeederWatch, which started in 1987, is one of the largest amateur-based data collection programs under way today. And FeederWatch is now joined by several other Lab citizen-science projects, including Project Tanager, Project PigeonWatch, and the Cornell Nest Box Network.

It's safe to say that the Lab of Ornithology depends on amateurs to collect data. But citizen science is a two-way street: Participants gain from the projects, too. From backyard birders to school children, amateur ornithologists become proficient in bird identification, acquire the skills of patient observation, imbibe the process of scientific investigation, and gain the satisfaction of furthering scientific knowledge.

The Lab also hopes that public participation in bird studies will spawn action on behalf of birds. As project participants evolve from birders to citizen scientists, we hope they'll go to work on behalf of birds. Our goal? That bird watchers will save the world.

The next few pages present an overview of the Lab's many citizen-science projects. ■

For more information on any of our citizen-science projects, contact: Education Program, Cornell Lab of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850, or telephone: (607)254-2440; e-mail: birdeducation@cornell.edu; or visit our web site (http://www.ornith.cornell.edu).

By contributing data on bird numbers and behavior on a continentwide scale, the Lab's "Citizen Scientists" make a real contribution to bird conservation. Here two Cornell Nest Box Network participants check the contents of a Tree Swallow nest.



TIM GALLAGHER

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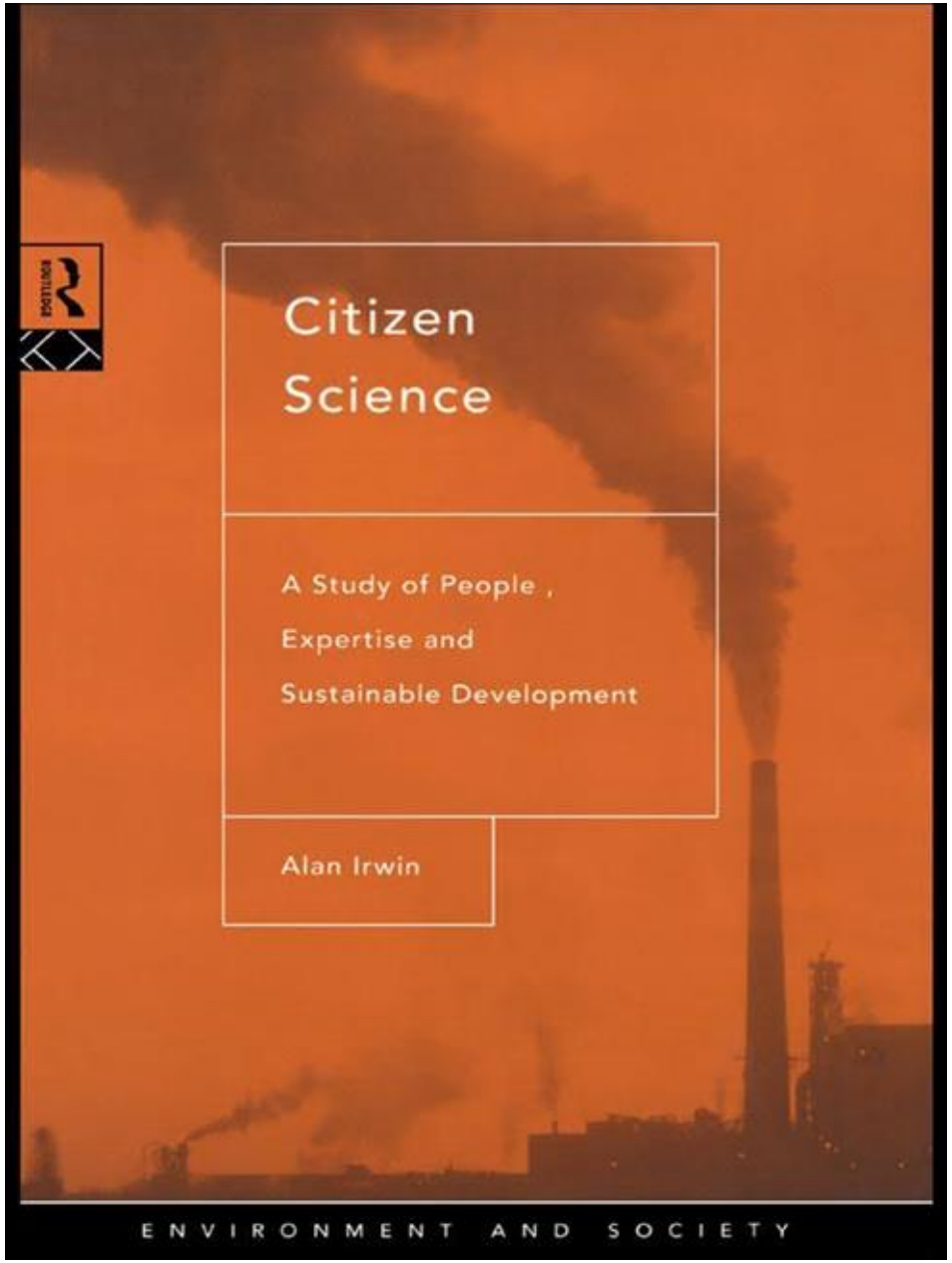
[Citizen] science…

"[…] 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.

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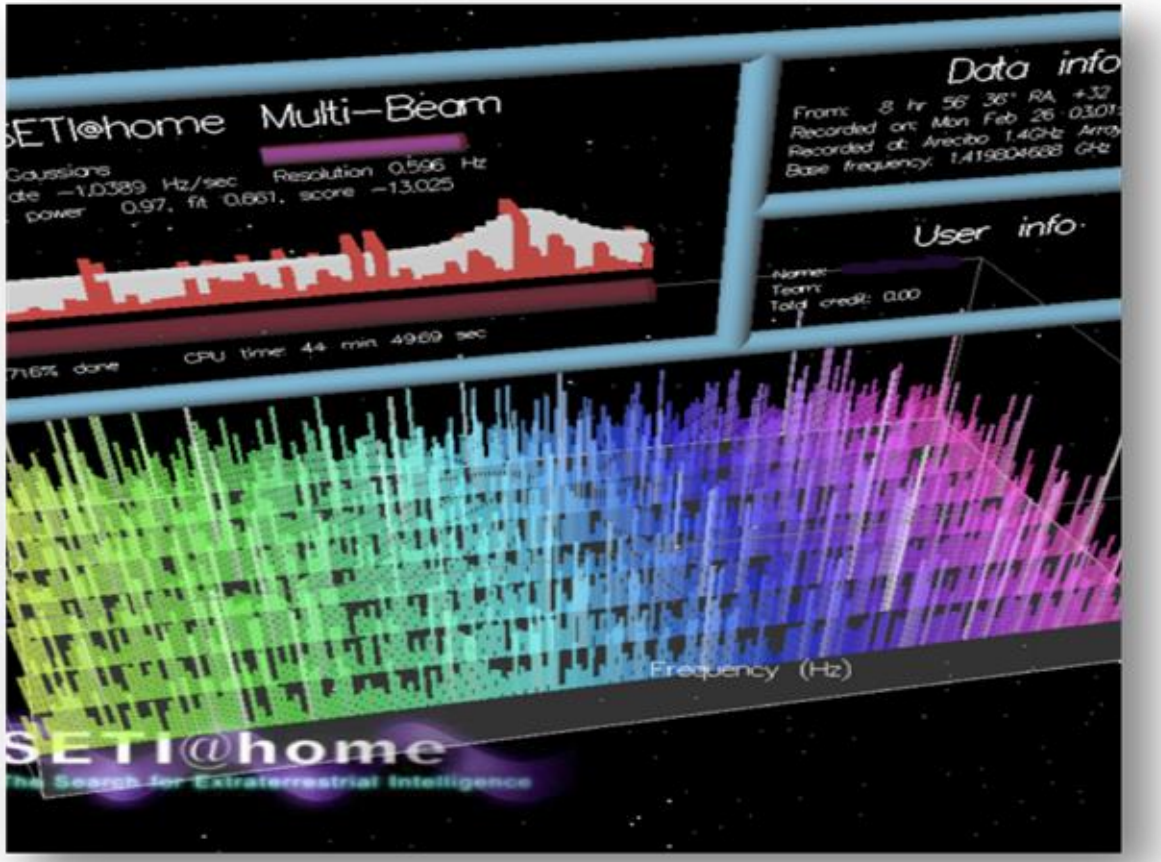
Volunteer computing

1999: SETI@home. Search for Extraterrestrial Intelligence (SETI)

Berkeley Open Infrastructure for Network (BOINC). 2002



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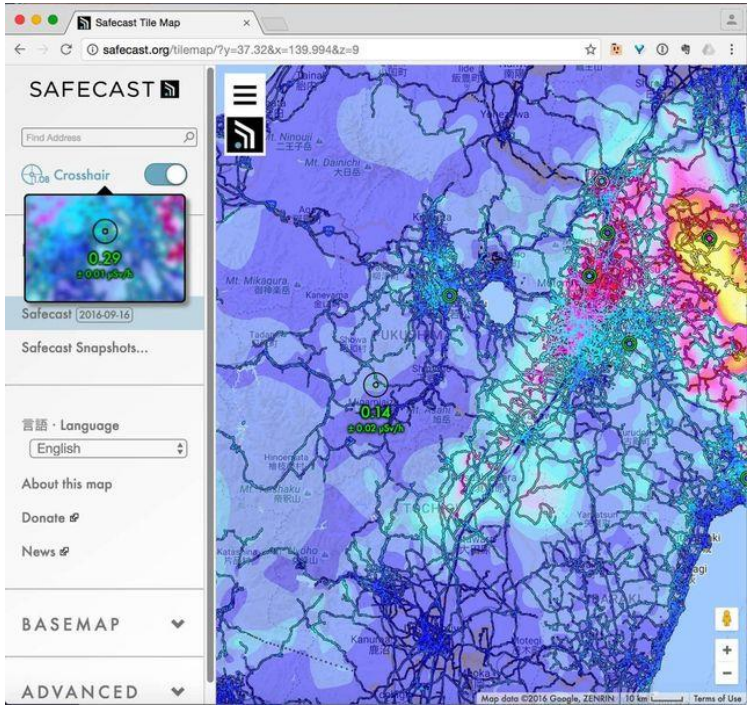
https://safecast.org



Crowdsourcing

Safecast
International volunteer driven non-profit organization whose goal is to create useful, accessible, and granular environmental data. All Safecast data is published, free of charge, into the public domain.



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OECD

Topics | Countries & regions | Publications | Data | News & Events | About | English

OECD > Topics > Citizen science and engagement

Citizen science and engagement

There is growing interest in citizen science and engagement to improve research efficiency and relevance, as well as to enhance trust in science. Effective public communication and robust engagement of civil society in co-designing and co-producing transdisciplinary research will be critical for addressing complex societal challenges. Open science and digitalisation are offering new opportunities in this regard.

Policy sub-issue



Key links

Addressing societal challenges using transdisciplinary research >

Open and inclusive collaboration in science >

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https://www.oecd.org/en/topics/sub-issues/citizen-science-and-engagement.html

Organisation for Economic Co-operation and Development (OECD)

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Key messages

Citizen engagement in science requires complementary approaches +

Effective communication of science is essential to promote public trust and evidence-based policies +

Citizen science and transdisciplinary approaches can help provide solutions for complex issues +

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https://www.oecd.org/en/topics/sub-issues/citizen-science-and-engagement.html
Organisation for Economic Co-operation and Development (OECD)

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ENG · ESP · CAT

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About | Projects | News | Publications | Press | Partners | Team



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



Cròniques de la Calor
Barcelona Jul 12, 2024

Last session of the 2024 campaign
The last session of Cròniques de la Calor was held in the Casal de Barri Congrés – Indians with the group of neighbors who went for a walk the week before. The data from their journey were analysed, together with the data from the other two participating groups. The experiences of the neighbors, some of whom have lived in the neighborhood for more than 50 years, helped contextualize the observations. During the summer campaign of 2024, 52 heat walks were held with 481 participants from 5 different neighborhoods.



SMACXS
Barcelona Jul 02, 2024

We publish a paper on citizen science for social physics
In The European Physical Journal Plus, we reflect on and share a selection of our own experiences on human mobility experiments in urban contexts and on human behaviour when collaborating with a civil society organization. The publication is part of a collection of a **Focus Point on Citizen Science for Physics**.

See full story



SENSE.
Barcelona Jul 02, 2024

Pantea presents Airmapping in Casa de l'Aigua
During the residency promoted by Idensitat and Centro Huarte, pantea has brought together artistic and scientific research in collaboration with OpenSystems. Airmapping is a laboratory of citizen culture and citizen science, envisioning alternatives for the ecosystem of the Besòs river. Pantea considers air as a social place to navigate the human and the more-than-human boundaries.

See full story

https://www.ub.edu/opensystems

www.ub.edu/opensystems



Josep Perelló



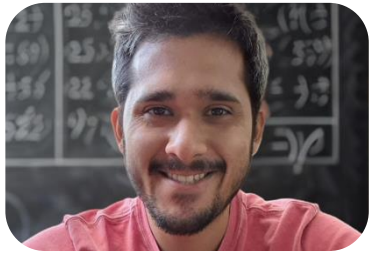
Isabelle Bonhoure



Ferran Larroya



Marc Sadurní



Martín F. Díaz



Ivan Casanovas



Anna Cigarini (former member)



Rebekah Breding (former member)



Femke Kim (former member)



Julià Vicens (former member)



Franziska Peter (former member)



Mario Gutiérrez-Roig (former meber)

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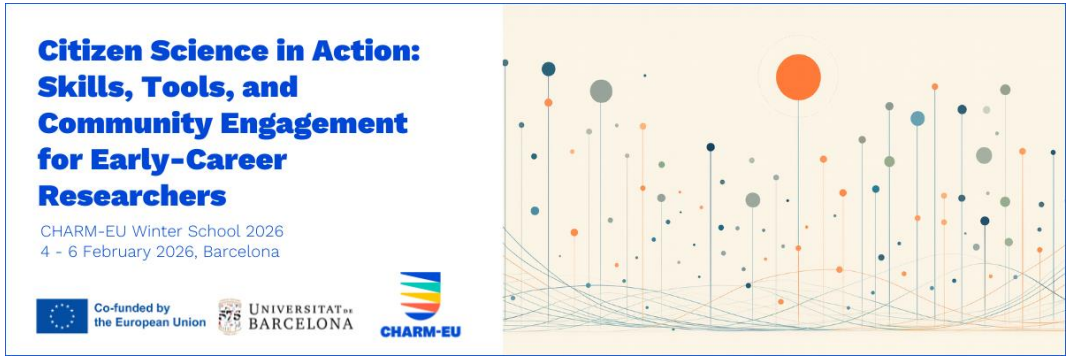
Formació

- **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**.





CHARM-EU

Institut de Desenvolupament Professional UNIVERSITAT DE BARCELONA

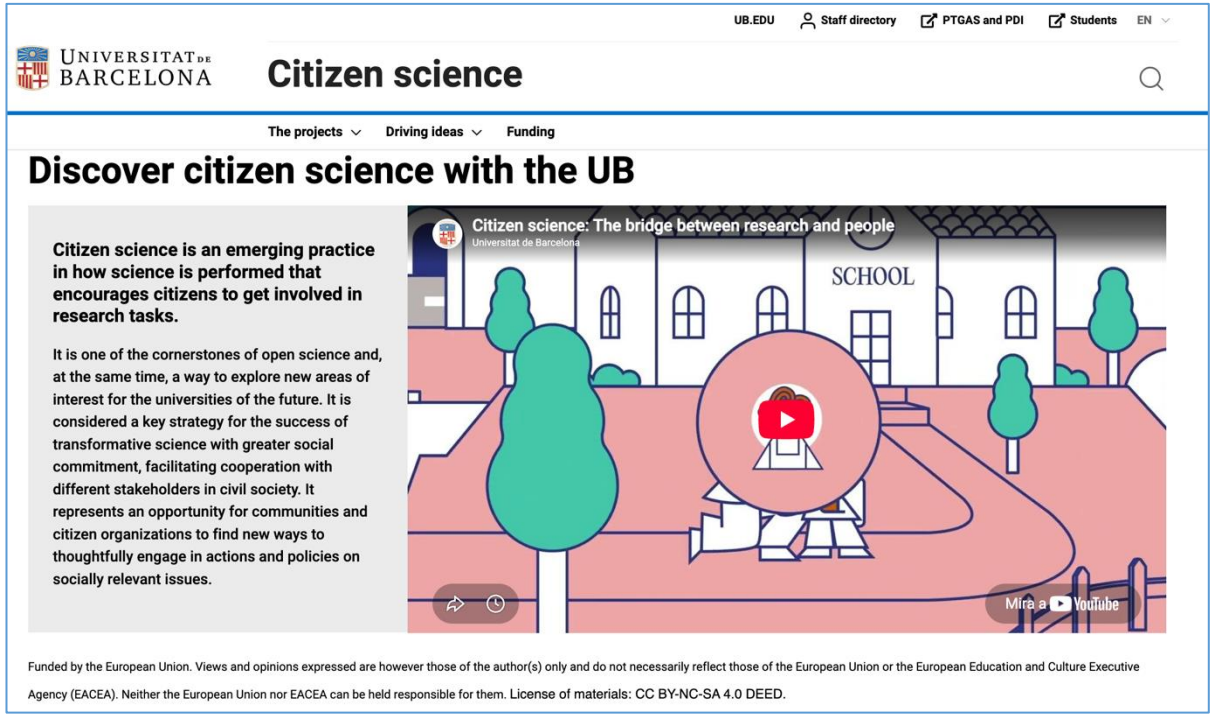
Taula d'entitats del Tercer Sector de Catalunya

Citizen Science NOW

SENSE.

TORCH Transforming Open Responsible Research and Innovation through CHARM

Recursos



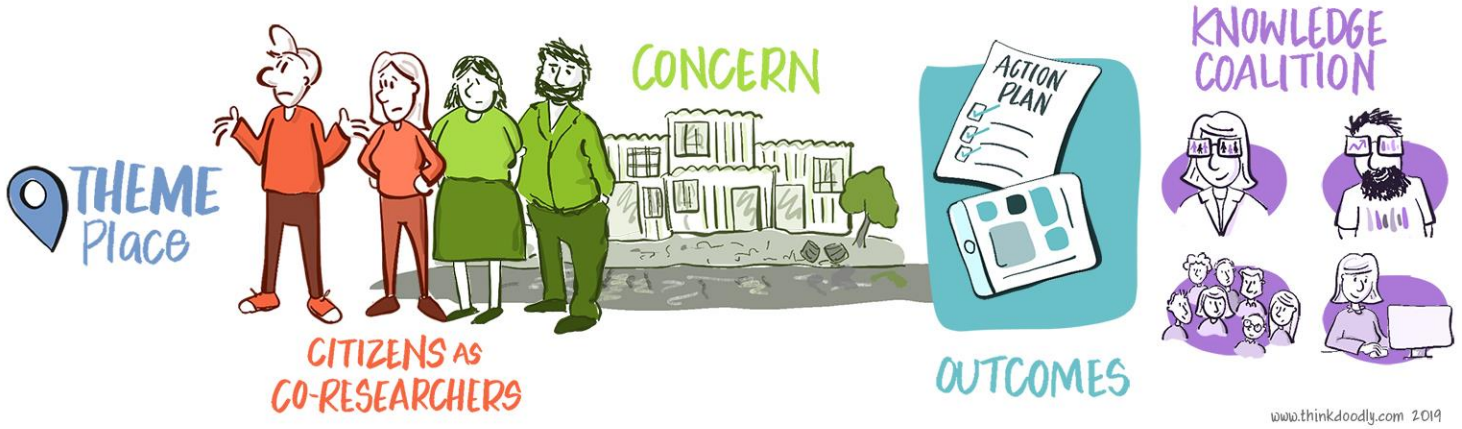
https://web.ub.edu/en/web/ciencia-ciutadana/



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

Ciència Ciutadana Social

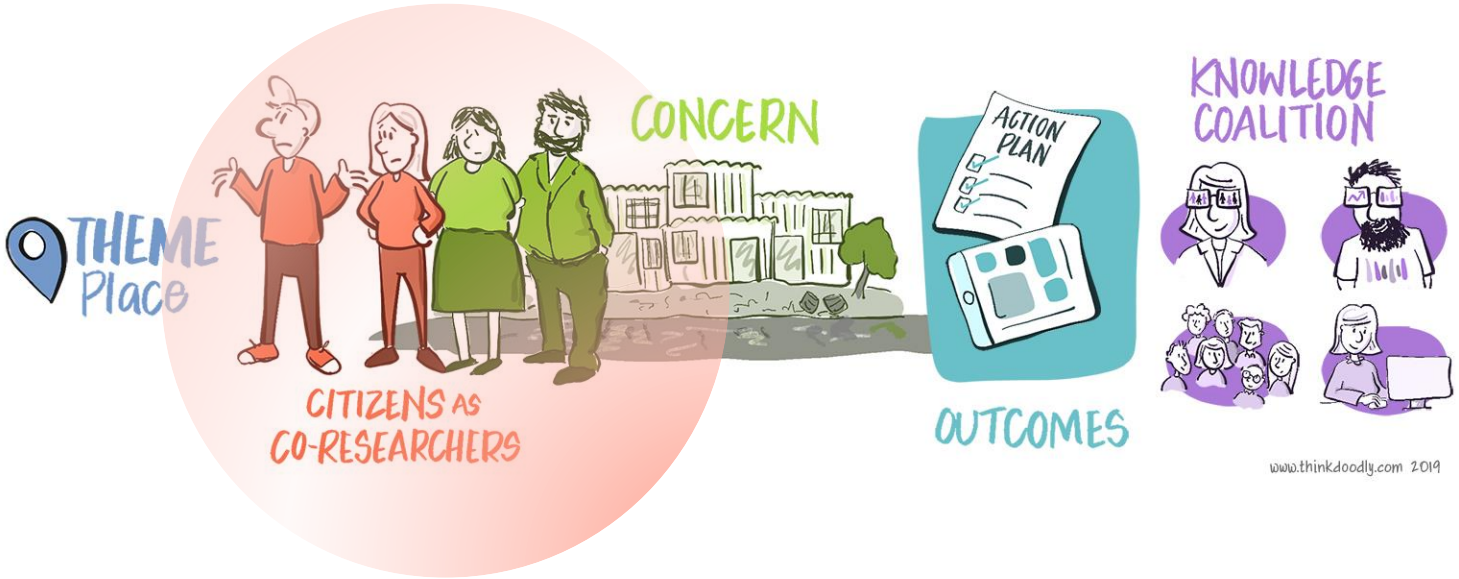
Recerca participativa co-dissenyada i impulsada directament per grups de ciutadans i ciutadanes que comparteixen una preocupació social.



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

Co-investigadores

Persones amb experiència viscuda en relació amb les problemàtiques socials abordades, expertes sobre-el-terreny.



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

Enfocament empíric amb entorns simplificats per captar trets de comportament.



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Experiments públics

Experiments públics

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

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Sagarra, O., Gutiérrez-Roig, M., Bonhoure, I., & Perelló, J. (2016). Citizen science practices for computational social science research: The conceptualization of pop-up experiments. *Frontiers in physics*, *3*, 93. https://doi.org/10.3389/fphy.2015.00093

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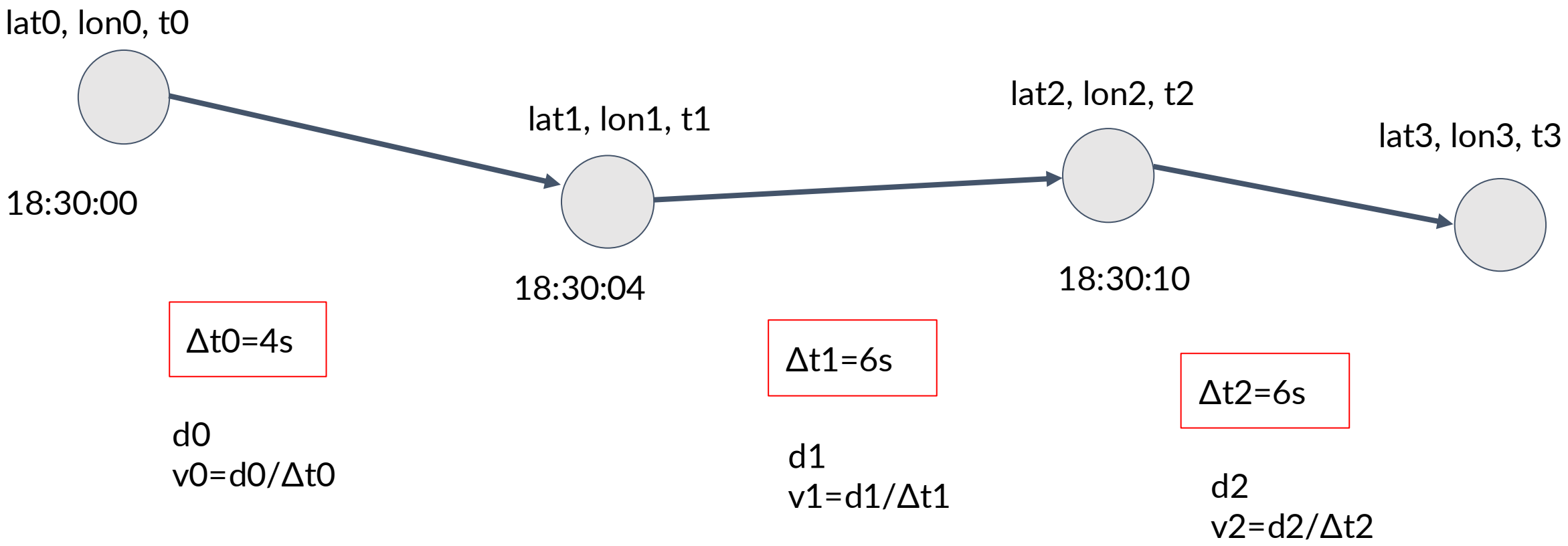
Mobilitat

Mobilitat de vianants



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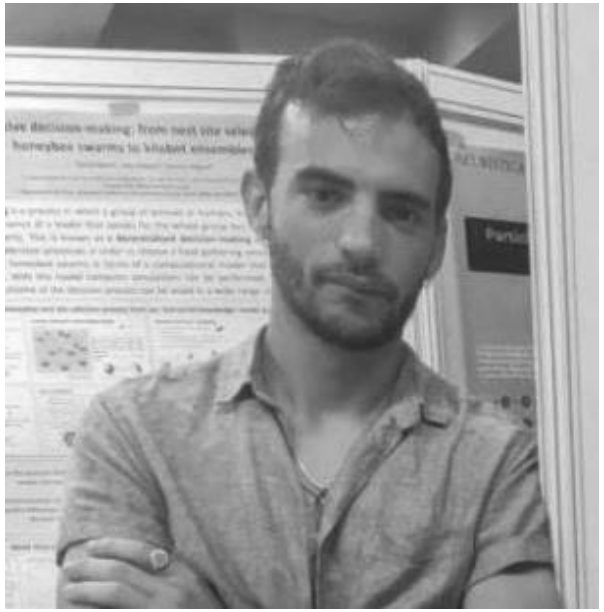

Ferran Larroya
OpenSystems & UBICS
Complex systems & citizen science & pedestrian mobility



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

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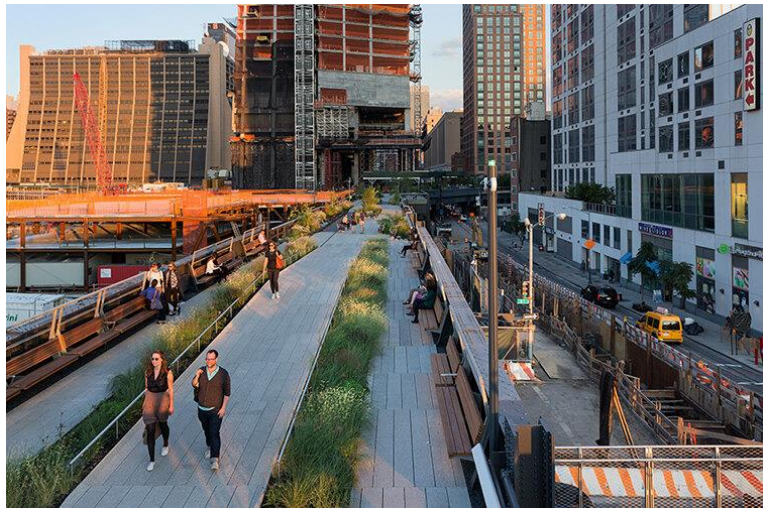
Placemaking– Sostenibilitat urbana

The High Line,
New York City, USA



Joel Sterfeld, 2009



Iwan Boan, 2014

Creació participativa de llocs centrada en la comunitat i a escala veïnal:

- Reapropiar-se dels espais públics i enfortir el vincle amb el territori.
- Promoure la inclusió i una major equitat urbana.

Palmer, L. New inroads on community-centric placemaking. Nat Cities 1, 2–4 (2024). https://doi.org/10.1038/s44284-023-00015-3
Ignatova, A. My Neighboorhood (UN-Habitat, 2023).

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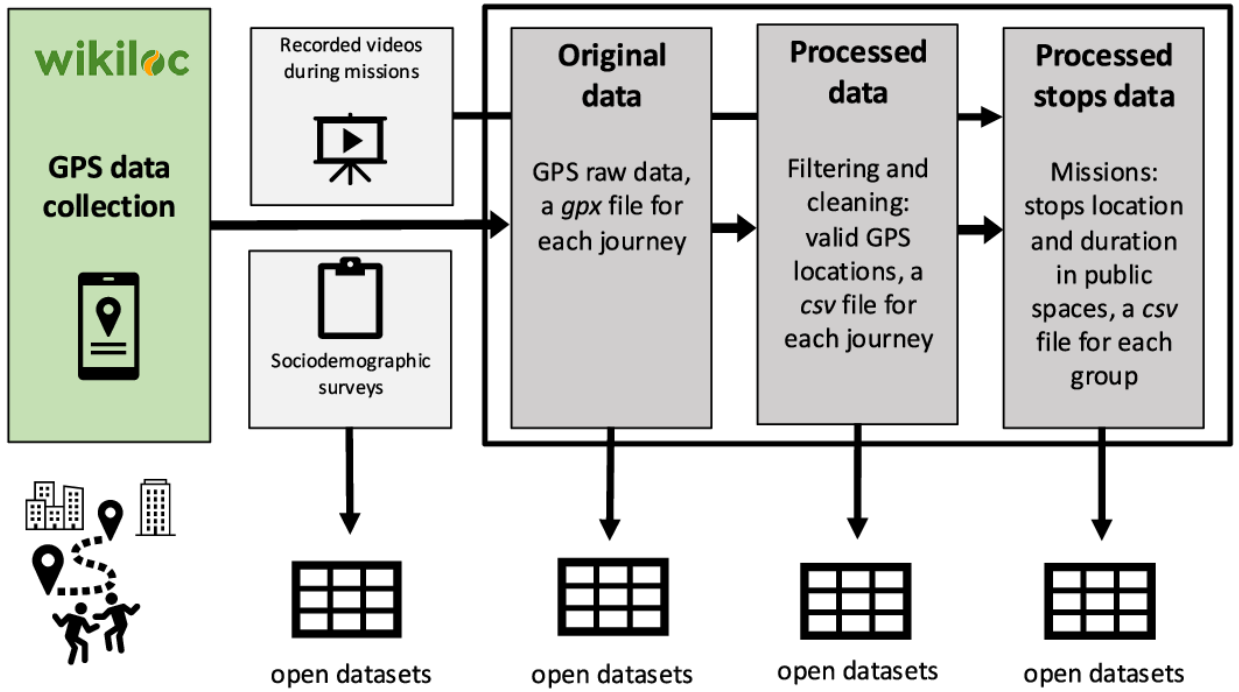
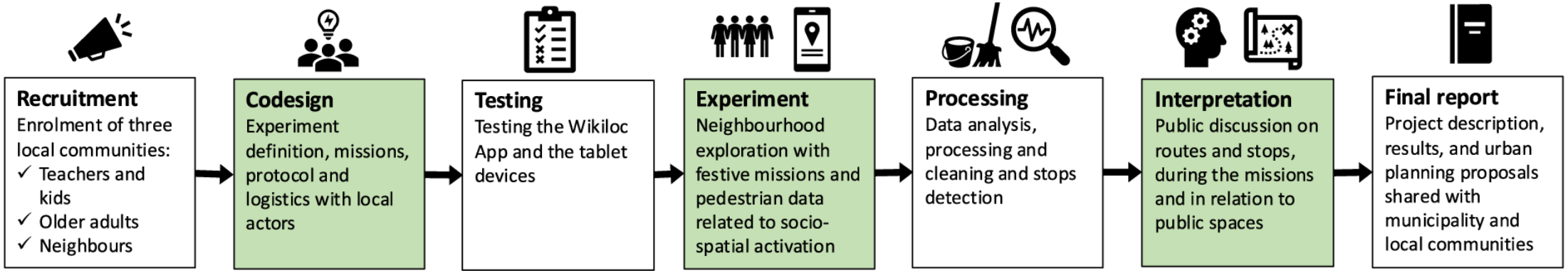
Concept and context

Livability	Walkability
Community-centric placemaking "Primer de Maig" neighbourhood	**Citizen science** Pedestrian mobility GPS data collection
Socio-spatial activation Unconsolidated public space Public space appropriation Festive actions and missions Operational cartography	Micro-mobility experiment Context-based research Purposed-based pedestrian mobility Anonymized research data Open data, algorithms and maps

Pedestrian mobility data – Neighbourhood exploration



Participatory research process



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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

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Experiment de ciència ciutadana
Mobilitat situada

Primer de Maig, Granollers (Catalunya)

- Construït el 1957.
- Conjunt d'habitatge modern més antic.
- 2.964 habitants en 3 ha (alta densitat).

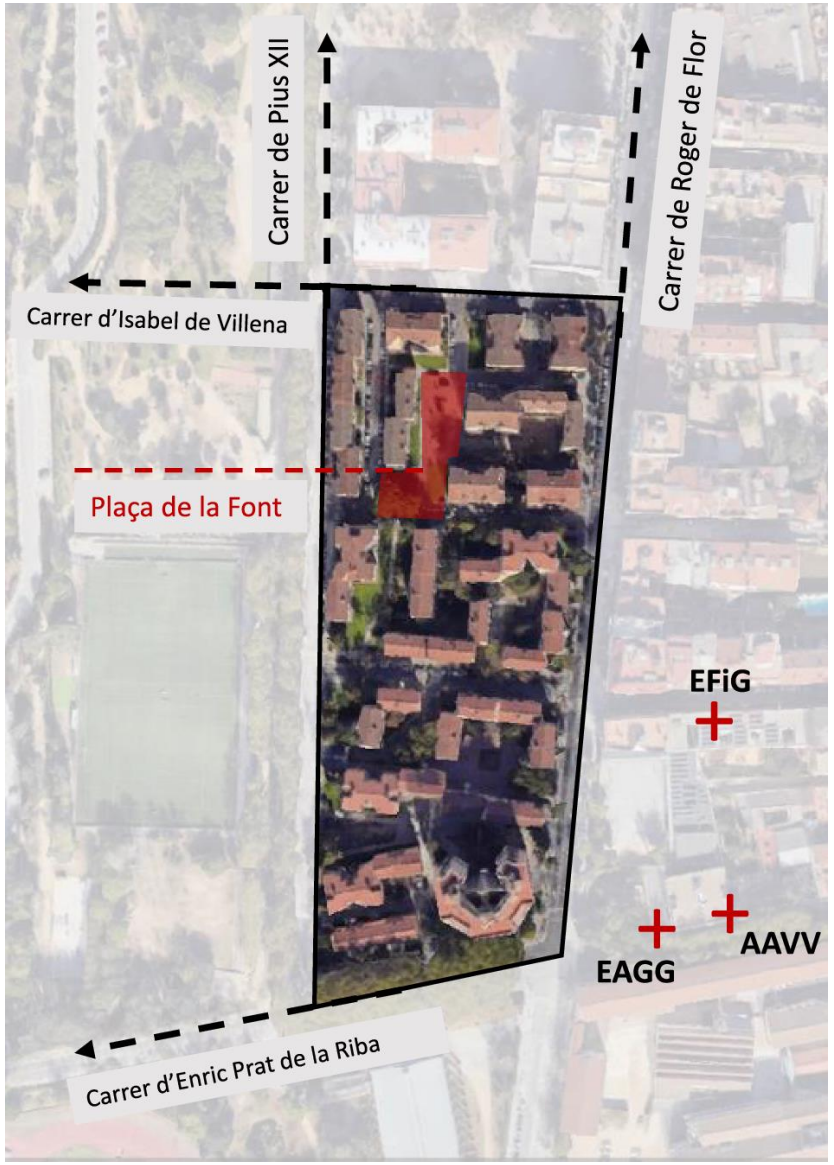
Objectiu: Activar i millorar l'espai públic.

Reptes:

- Baixa qualitat de l'espai públic.
- Vulnerabilitat socioeconòmica.
- Escassetat de recursos comunitaris.







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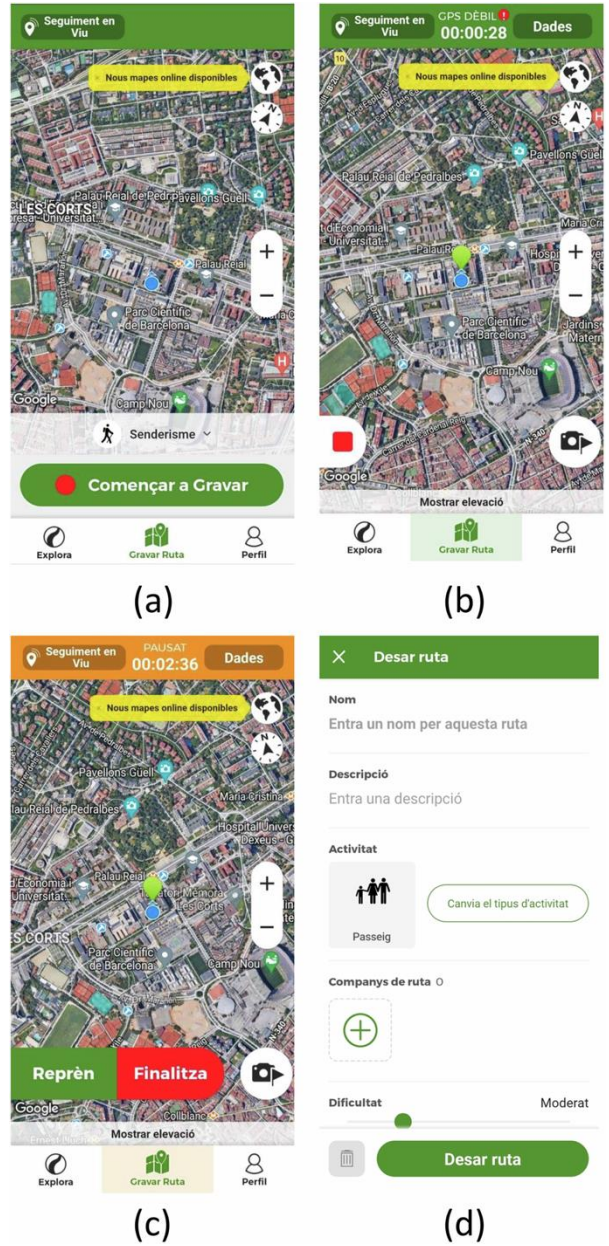
Experiment de ciència ciutadana

Recollida de dades sobre la mobilitat de vianants amb les comunitats implicades

Ajuntament	Pla estratègic	Escola pública	Associació de veïns	Residència gent gran
Ajuntament de Granollers	Pla de Barris	Escola Ferrer i Guàrdia	Sota el Camí Ral	Espai Actiu de la Gent Gran

2.981 dades GPS
19 grups
72 participants





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Missions. Activació de l'espai públic

Grups de 3-6 persones per explorar el barri





Accions
Ballar
Jugar
Xerrar
Menjar
Celebrar

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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

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Cartografia elaborada per persones expertes

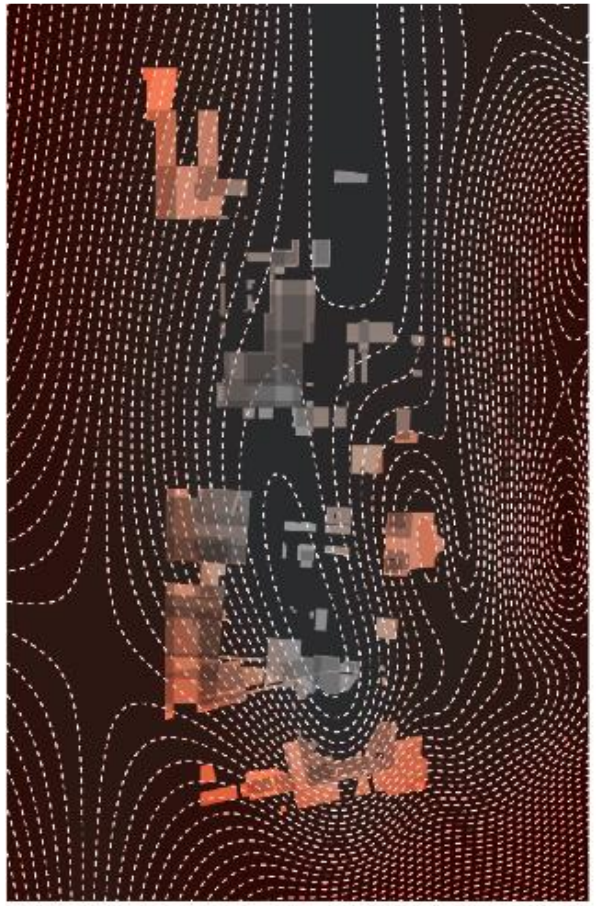
Perfil urbà

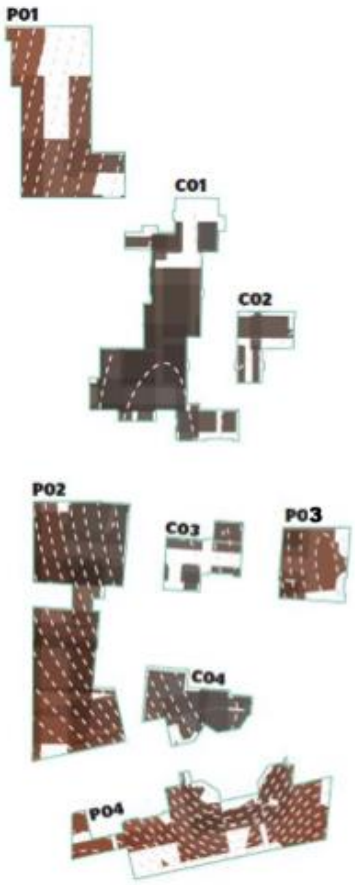
- 41 edificis → 550 habitatges residencials + 12 locals comercials.
- Superfície total: 26.429 m².
- Espais per a vianants: 11.774 m² (44,5%).

Elements cartografiats

- Visuals: façanes i pla vertical de l'espai públic.
- Espacials: graus d'apropiabilitat de l'espai per als vianants.
- Socials: pols d'atracció i activitat sociocultural.

Resultat: Identificació de 8 unitats d'oportunitat (OU) amb un alt potencial d'activació de l'espai públic.





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

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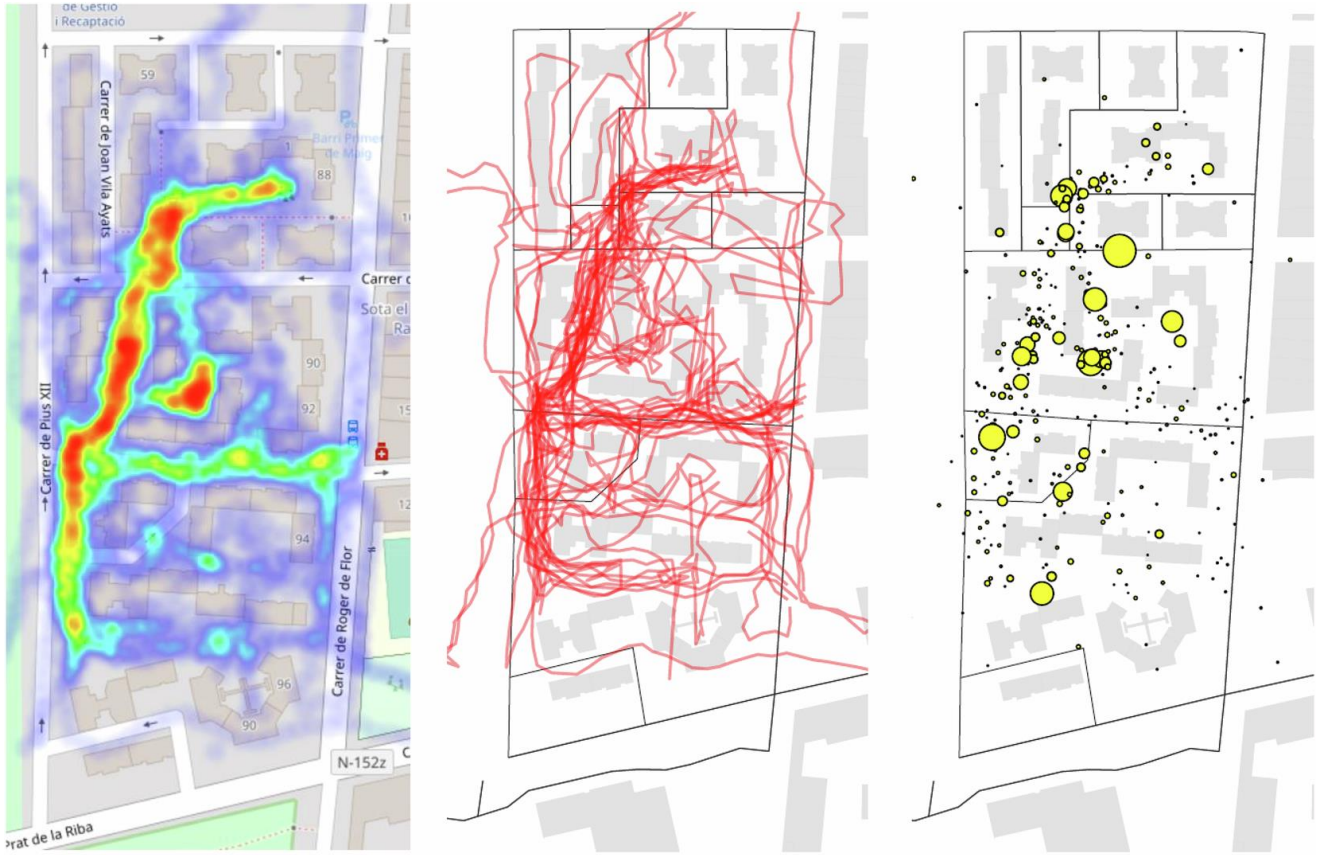
Experiment de ciència ciutadana

- Aproximadament: 70 min i 955 m per participant.
- La velocitat efectiva (0,24 m/s), molt inferior a la velocitat de desplaçament (1,38 m/s, nombroses aturades).
- 339 aturades, 81 de les quals estaven associades a les activitats proposades.
- Les aturades d'activitat van durar de mitjana 12 min, elevada capacitat d'atracció i apropiació de determinats espais públics.



GPS trajectories and stops of all participating groups.

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

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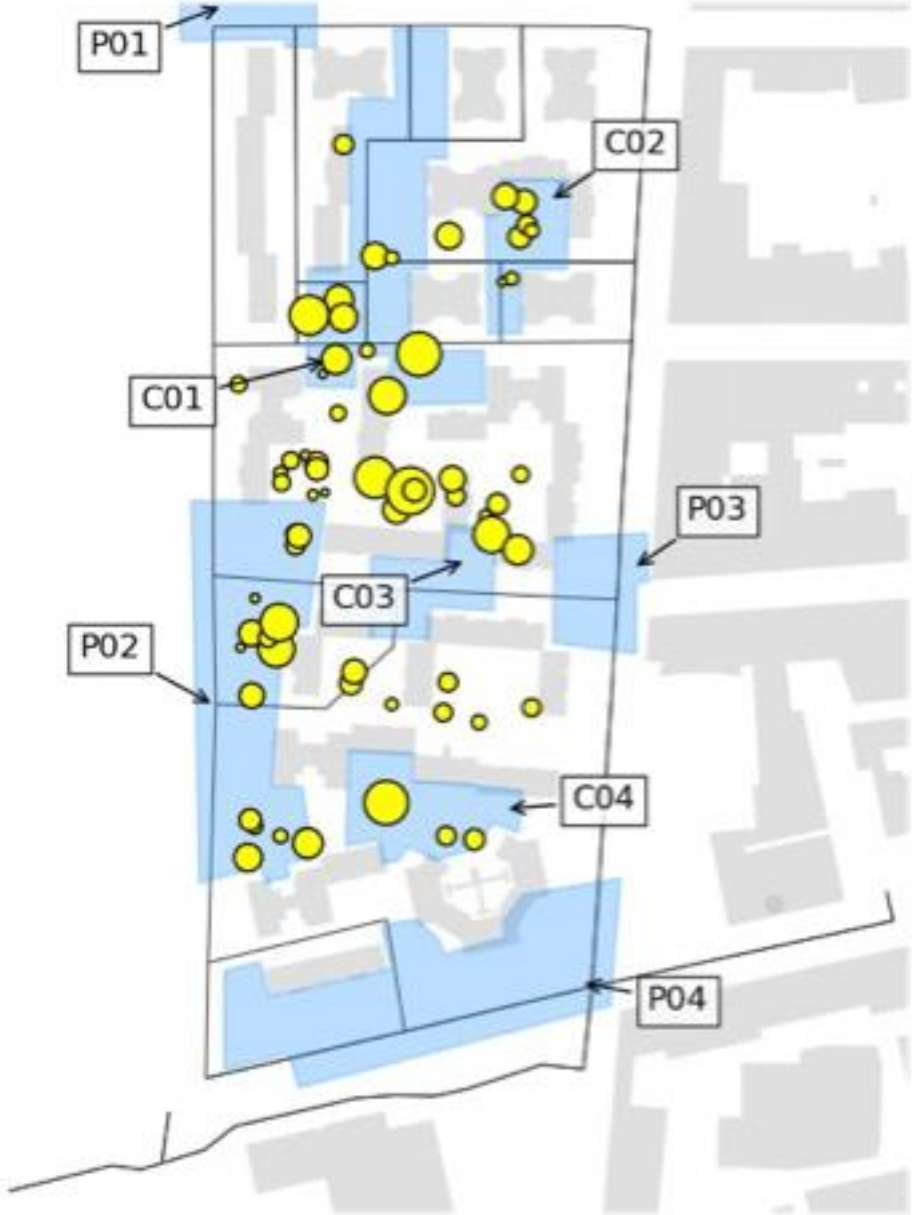
Anàlisi espacial de la mobilitat de vianants basada en dades de ciència ciutadana

- 68 aturades registrades.
- 56% de les aturades dins de les OU.
- 60% del temps total d'estada concentrat a les OU.



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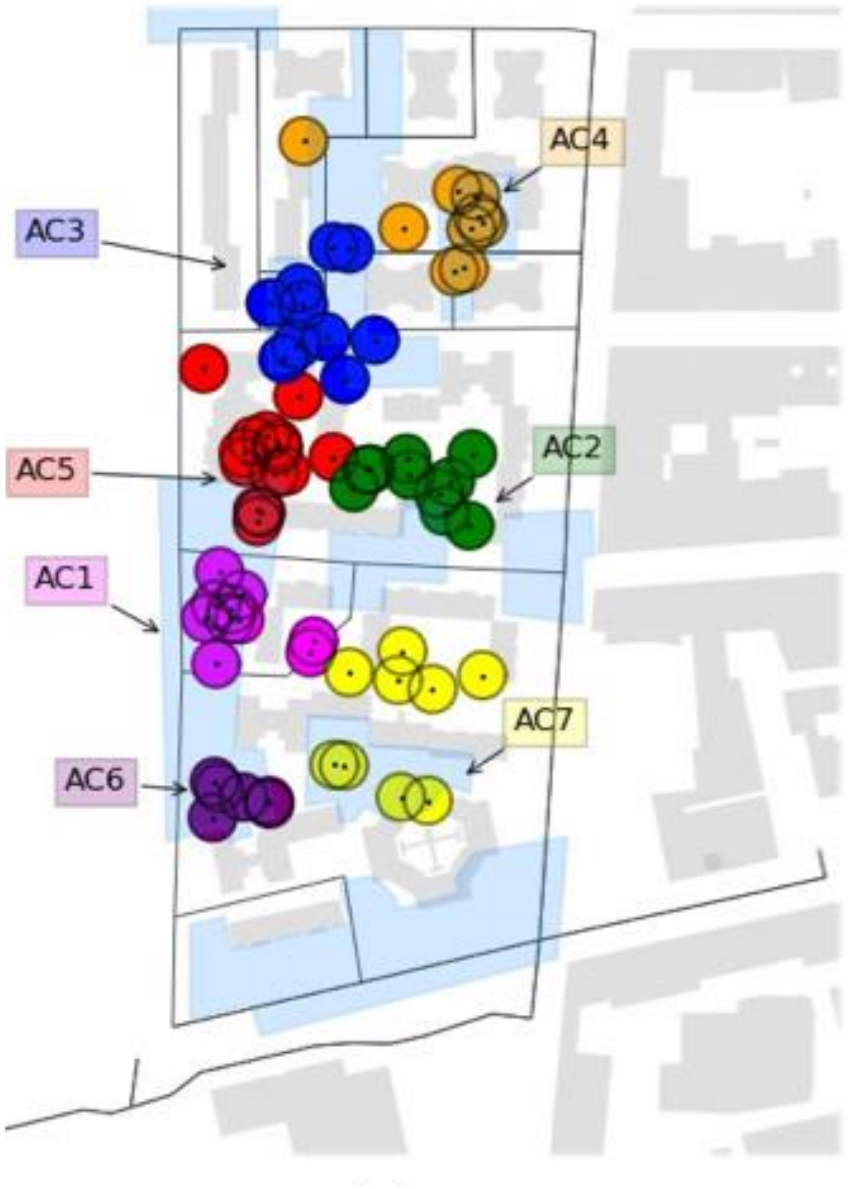
Anàlisi espacial de la mobilitat de vianants basada en dades de ciència ciutadana

Clústers d'activitat ciutadana

- K-means ponderat per la durada de les aturades.
- 7 clústers òptims (AC1–AC7).
- Identificació de nous espais d'alta activitat no detectats per l'anàlisi experta.



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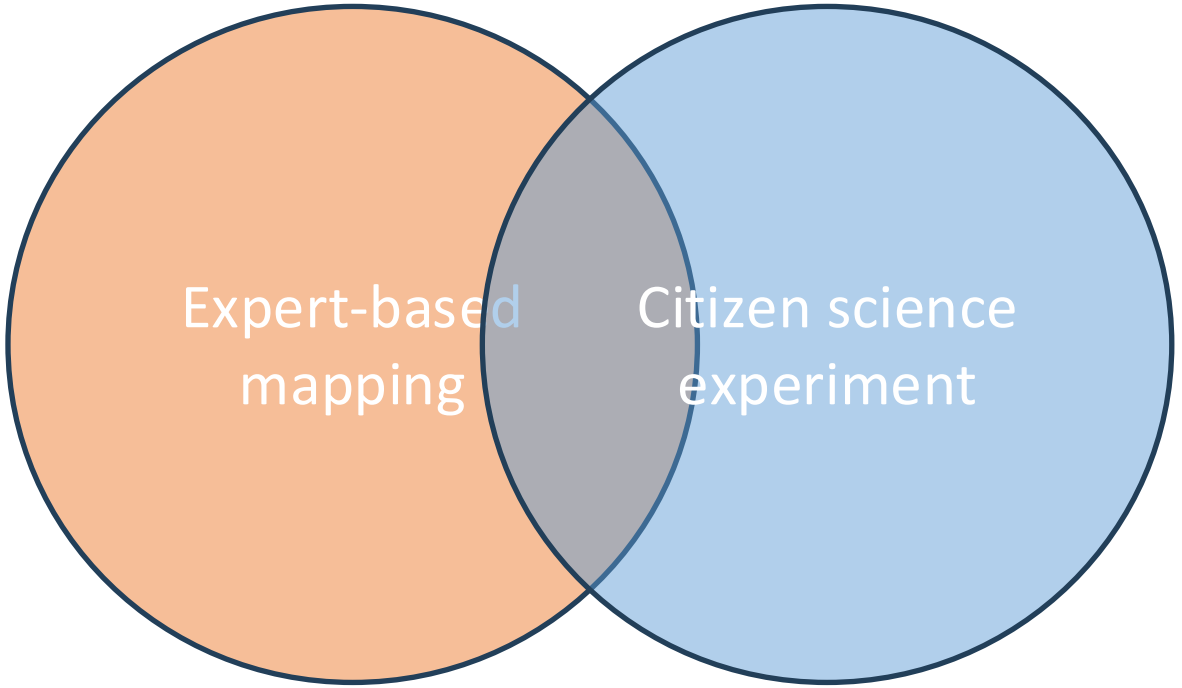
Les dades ciutadanes complementen i amplien la cartografia experta, revelant usos i oportunitats emergents de l'espai públic.

Cartografia experta + ciència ciutadana

- Experts: identificació d'unitats d'oportunitat (OU).
- Ciutadania: accions lúdiques + dades GPS + experiència viscuda.
- Comparar i integrar mètodes.



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Implicacions

- Sinergia entre coneixement expert i coneixement ciutadà.
- Diagnòstics urbans més complets i contextualitzats.
- Suport a processos de transformació urbana.

Idea clau: La combinació d'ambdós enfocaments proporciona un diagnòstic urbà més ric, contextualitzat i orientat a l'acció.





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

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Salut mental



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

European Commission

CoAct
Citizen Social Science

OpenSystems
Universitat de Barcelona

Grup de Recerca

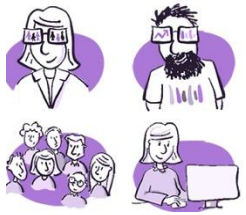


Co-investigadores

CoAct for Mental Health

SMC salutmental Catalunya Federació

Tercer sector



Entorn de coneixement

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

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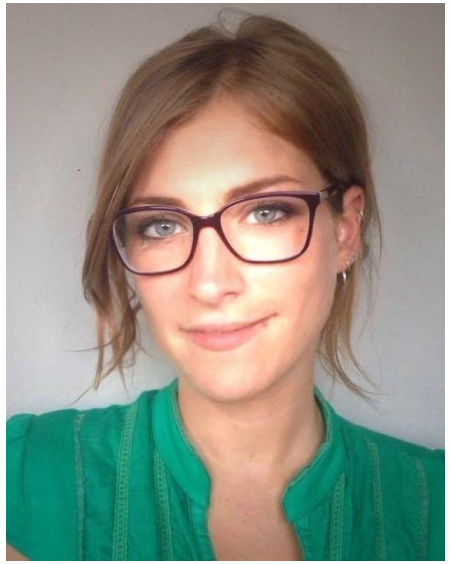
Isabelle Bonhoure
OpenSystems & UBICS



Anna Cigarini
OpenSystems & UBICS



Franziska Peter
OpenSystems & UBICS

SMC
SalutMental
Catalunya

Altres membres:
Bàrbara Mitats – SMC
Itziar González-Virós – participació i cooperació
Pau Badia - dibuixos
Verity Harrison - storytelling

32 coinvestigadors i coinvestigadores, implicats en totes les etapes de la recerca i en la difusió dels resultats, com a experts per experiència pròpia.
50 representants d'organitzacions vinculades a l'atenció en salut mental, implicats en el projecte entre 2020 i 2022.

zenodo

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

GitHub

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

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CoActuem per la salut mental



Pau Badia

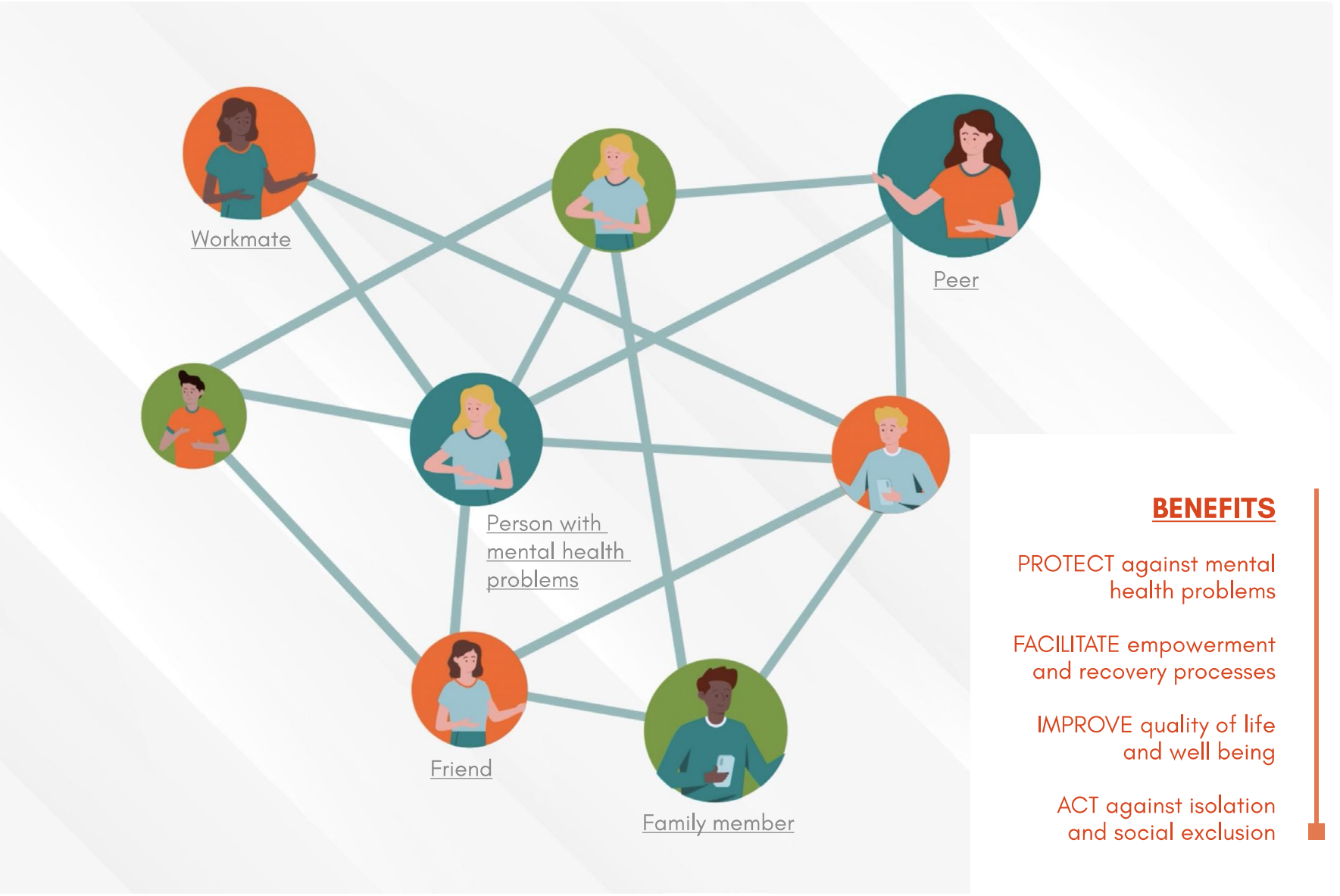


Pau Badia



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

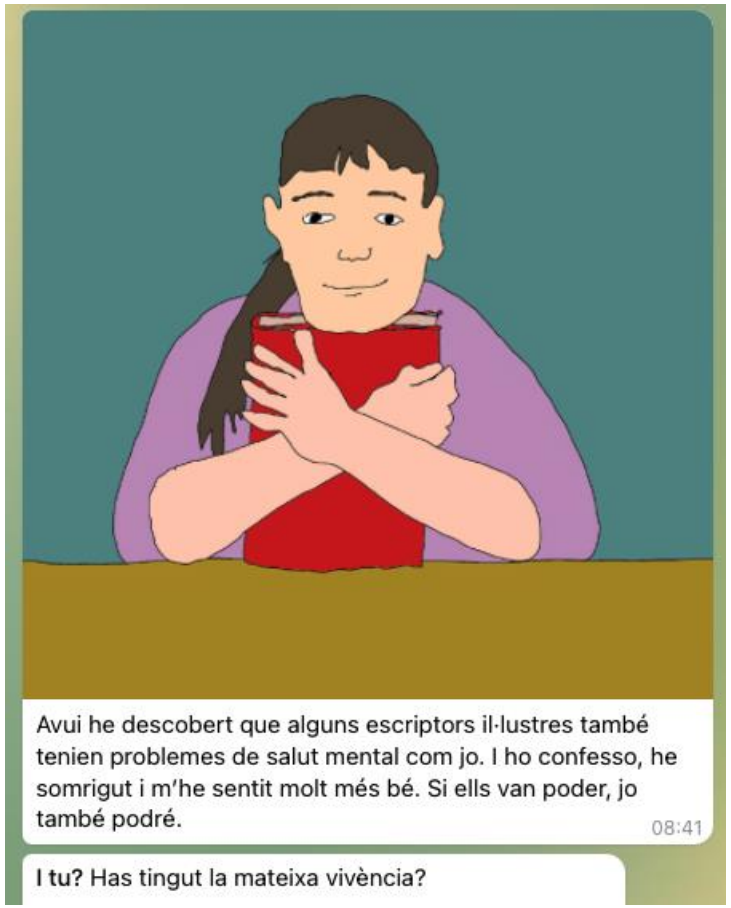
CONTEXTS

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

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

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





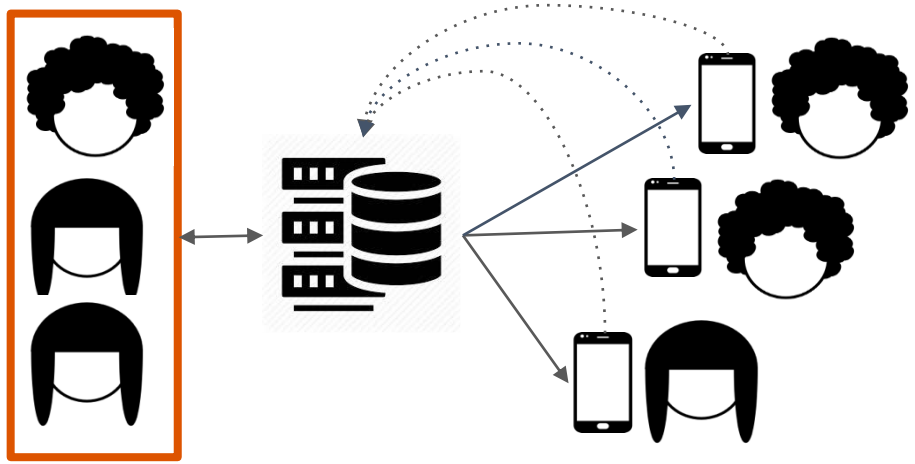
Zenodo: https://doi.org/10.5281/zenodo.5342488

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

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


HW-P smart 2020
M
CoActuem per la Salut...
bot
En Mick, amic teu de l'institut, t'ha dit que últimament fuma molta marihuana i que sent veus. Creu que necessita ajuda. T'ha dit que no sap a qui recórrer.
13:58
Què faries?
A) Dir-li que ho expliqui als seus pares.
B) Dir-li que vagi al metge de capçalera.
13:58
A) Dir-li que ho expliqui als seus pares.
B) Dir-li que vagi al metge de capçalera.
Menú

https://youtu.be/lYcsrqmSYhw



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

Interpretació col·lectiva de dades



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 paticipated in the research.

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

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.**

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.**

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.

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

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

November 2022

Novembre 2022

POLICY BRIEF

ON MENTAL HEALTH CARE

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

Març 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

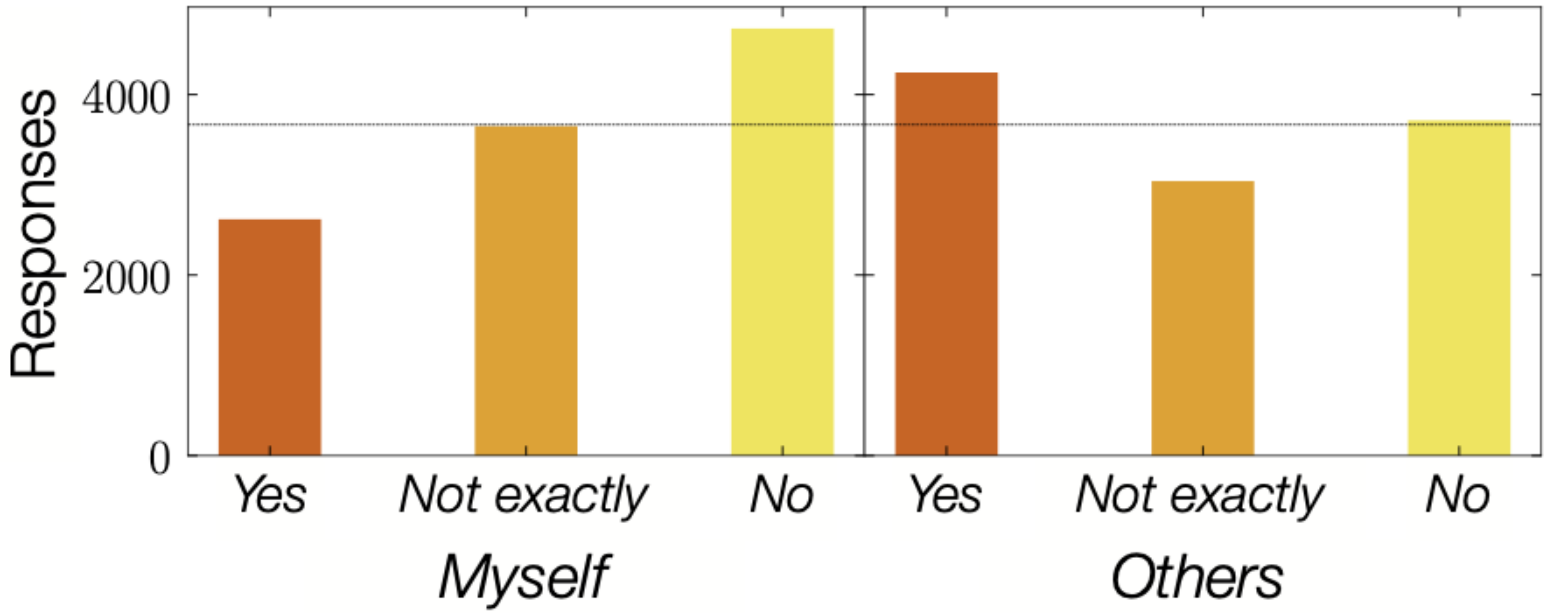
Gemma Tarafa, Responsible for of Health, Aging and Care
Barcelona City Council

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



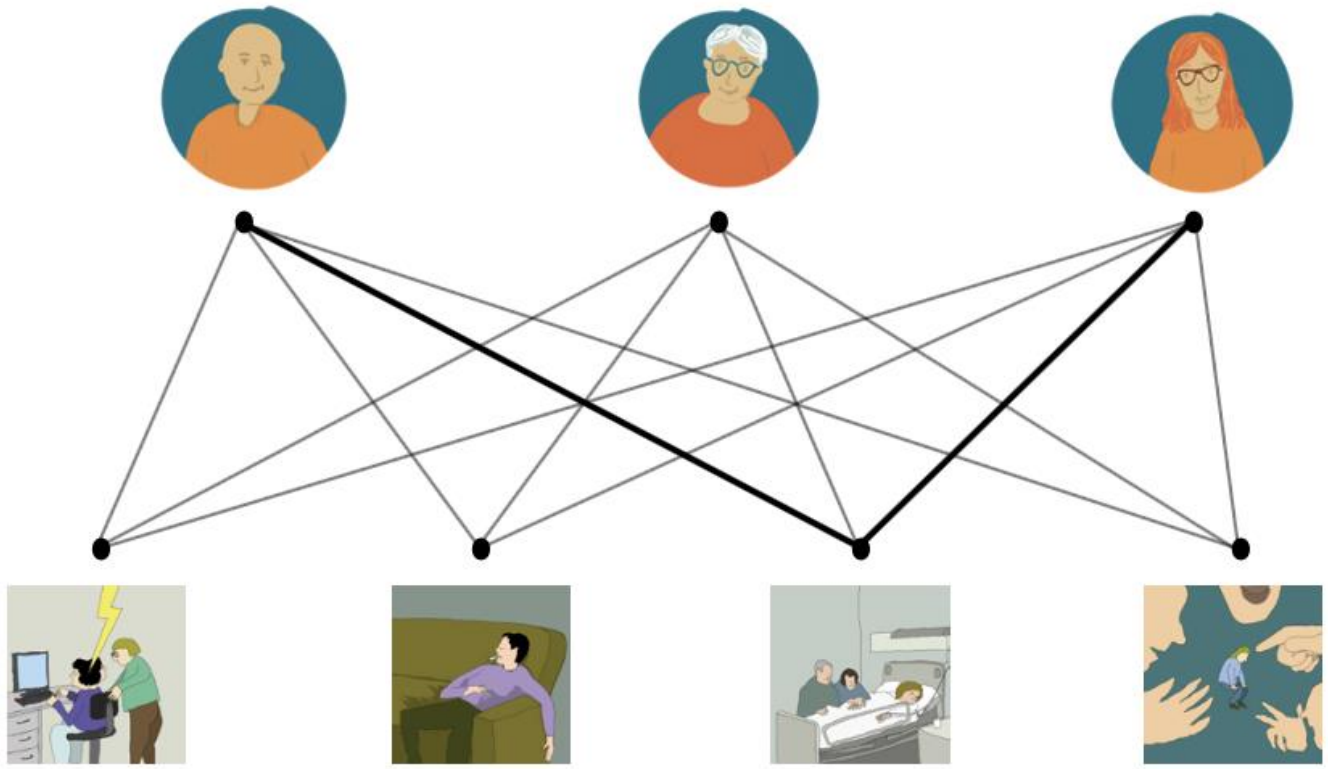
Participants perceive differently mental health experiences

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

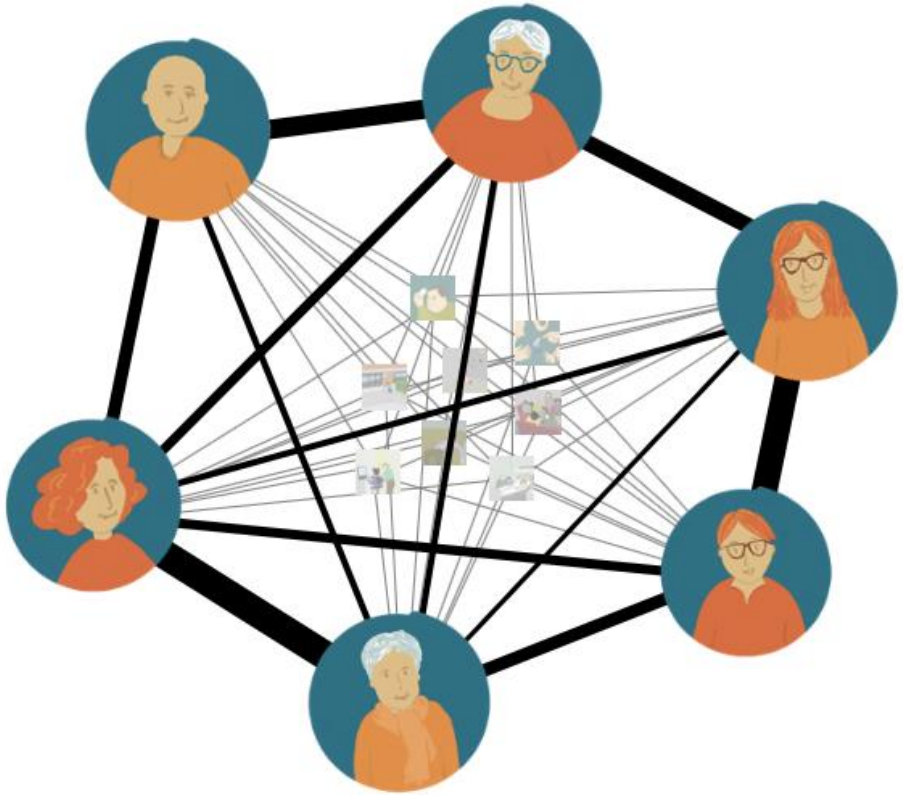




Ivan Casanovas (PhD student)
OpenSystems & UBICS



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.



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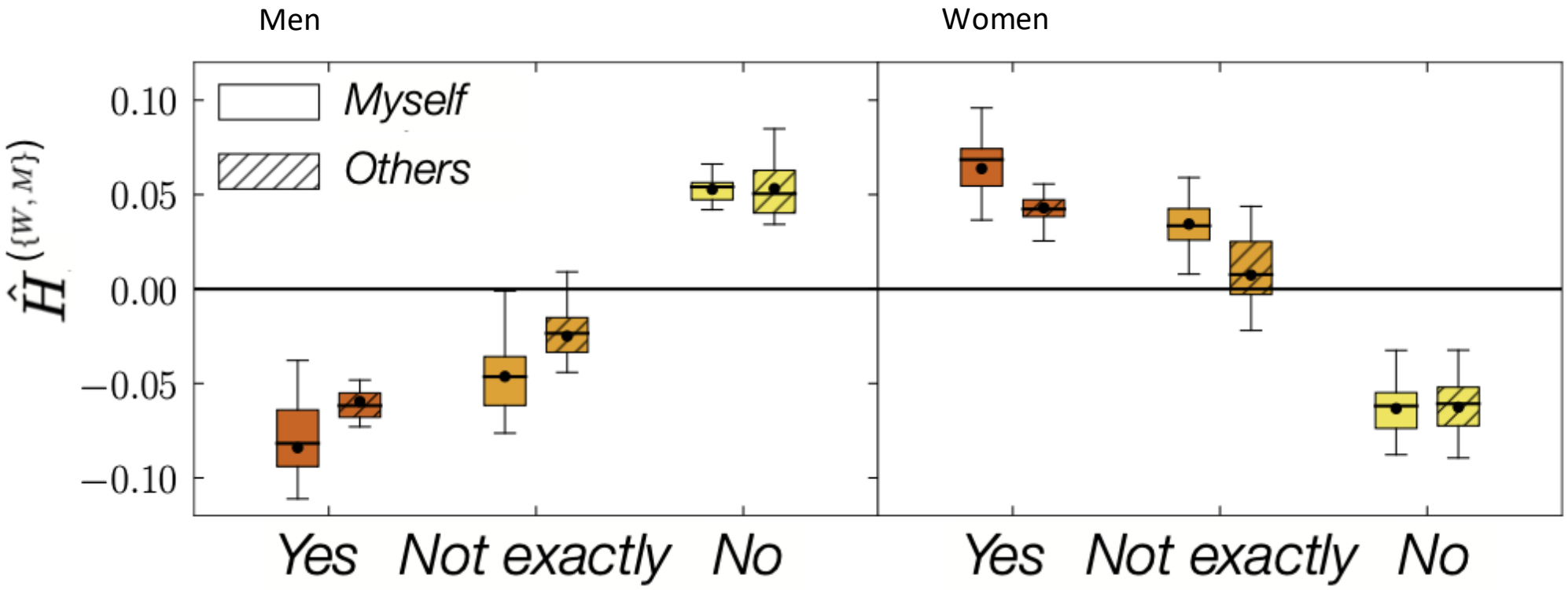
We can go to gender or other socio-demographics traits…

Who shares same experiencies?





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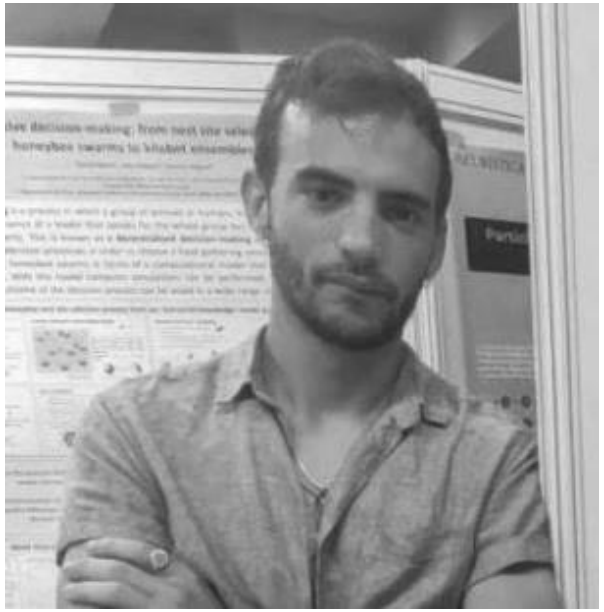
Calor urbana



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 Breding, 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

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



Documentar la calor a l'espai públic a microescala, amb el veïnat més afectats, integrant el seu coneixement situat.

Crònigues
de
la
calor



48 passejades tèrmiques de ciència ciutadana

439 participants amb sensors de temperatura i humitat, geolocalitzats.
296.286 dades microclimàtiques processades.
210 espais públics caracteritzats segons indicadors de resiliència climàtica.
5.169 valoracions subjectives de sensació i confort tèrmic (vots).

Integració de mesures ambientals objectives i experiències tèrmiques.

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

Cròniques de la calor


Cròniques de la calor
Cròniques de la calor
Cròniques de la calor

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

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

Session 3
Results discussion and dissemination

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


Mapping


Rehearsal



Walks with sensors


Thermal votes


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

Cròniques de la calor



Cròniques de la calor



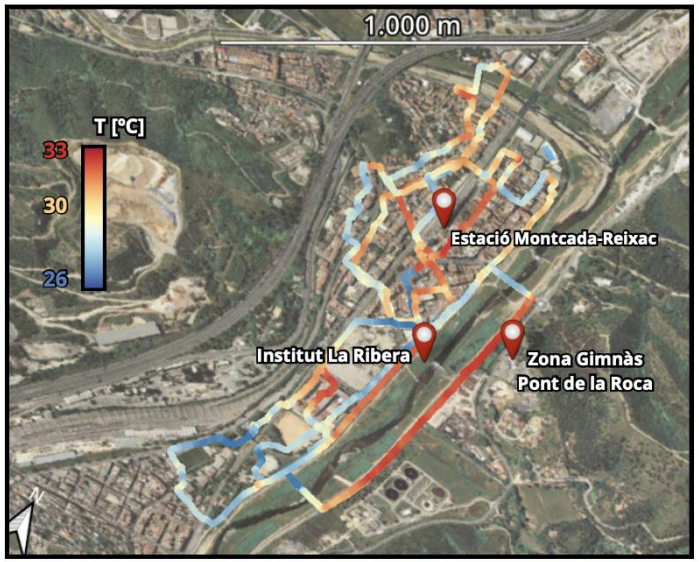
Cròniques
de
la
calor



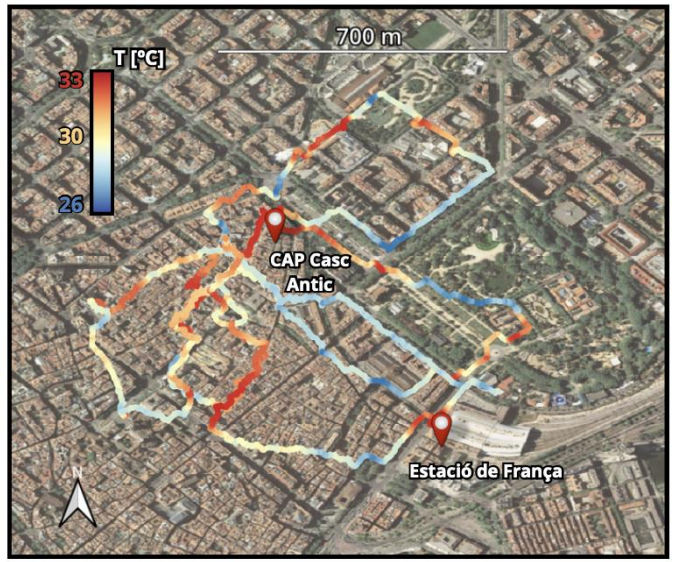
(a)



(b)



(c)



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(e)

Cròniques
de
la
calor



(a)

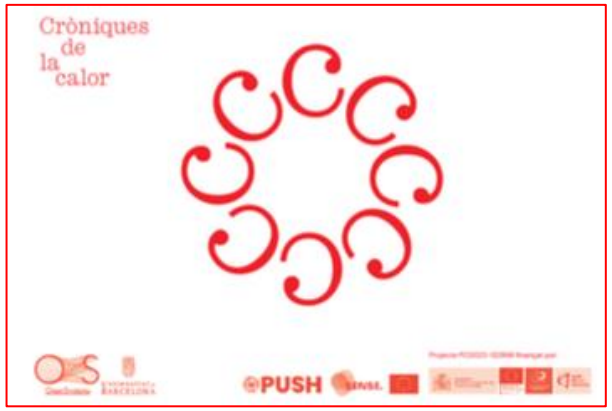


(b)



(c)





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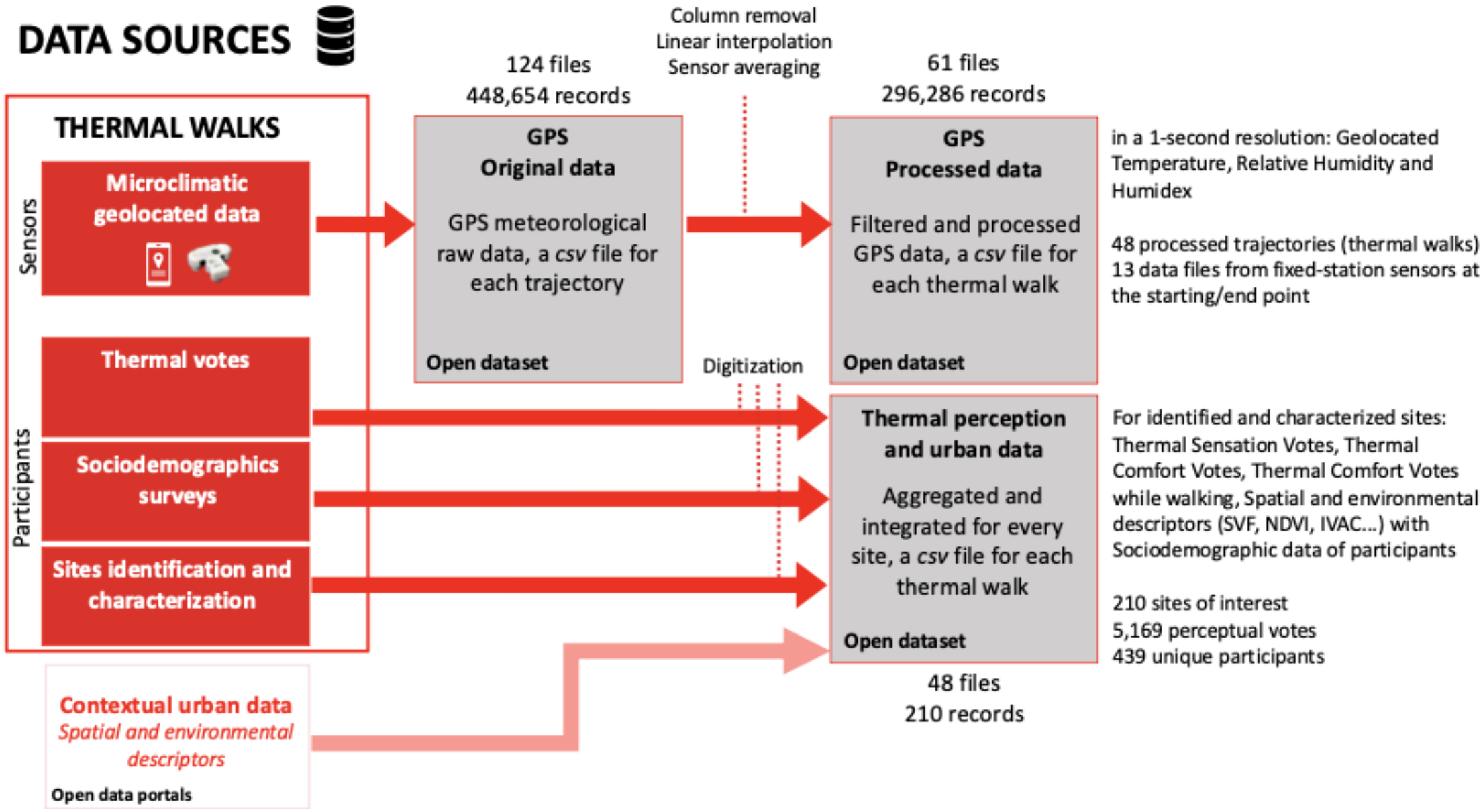
Cròniques
de
la
calor



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Cròniques de la calor

Centre d'Atenció Primària



Cròniques de la calor

Plaça




CONSTRUIDA
ESTA FUENTE
PARA FAVORECEREL
DESARROLLO DE
LA TORRASA
ZONA DE ENSANCHE
DE L
HOSPITALET
MODERNO
LAS AGUAS SE
DESTINARAN
EXCLUSIVAMENTE
AL
SERVICIO DOMESTICO
DE SUSHABITANTES

Parc



Cròniques
de
la
calor



Metro

Cròniques de la calor


29/5/24 15:00h
LLOC MÉS CALORÓS:
CAMP DE FUTBOL
DE LA GUARDIA
Cròniques de la calor
33,2 °C
Connecta't al nostre canal de Telegram
si vols saber més! Entra al través del codi QR.
PUSH


LA
CTIMA.
O ENS
S VIES
AS ÉS
LLÓS! OLE!
Cròniques de la calor
ATENCIÓN
AL SEMÁFORO
PASO EXCLUSIVO
PEATONES





Paper de les passejades tèrmiques

- Implicar la ciutadania en la identificació de microespais de calor urbana.
- Generar informació tèrmica basada en la comunitat i en l'experiència quotidiana dels residents.
- Enfortir els vincles comunitaris a través de la participació activa en la recerca.

Cròniques de la calor



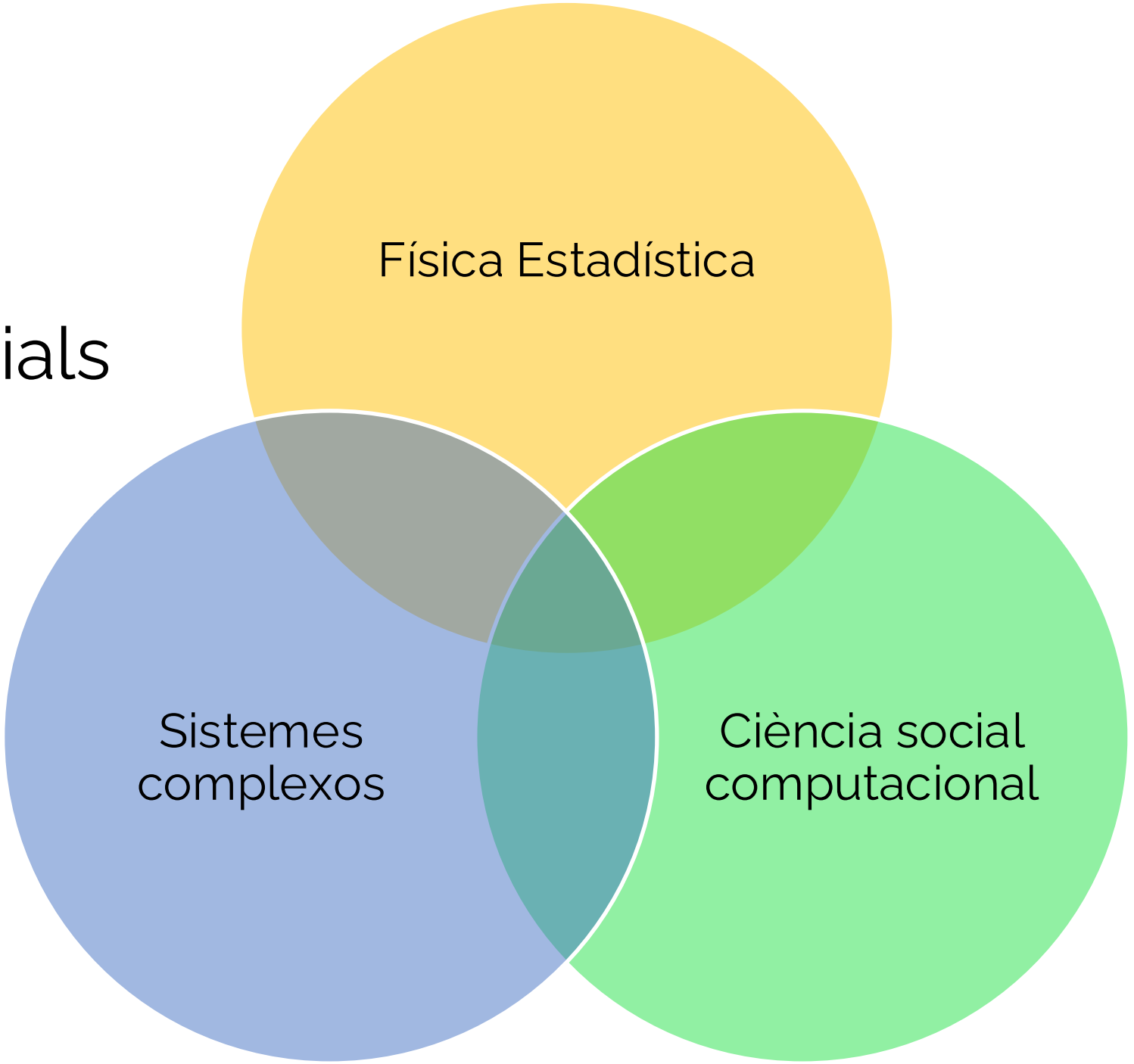


Paper de les passejades tèrmiques

- Obtenció de dades tèrmiques d'alta resolució espacial.
- Caracterització de les variacions tèrmiques entre diferents espais urbans.
- Integració de dades geolocalitzades de sensors amb valoracions subjectives de confort i sensació tèrmica.

Cròniques de la calor

Fenòmens socials complexos



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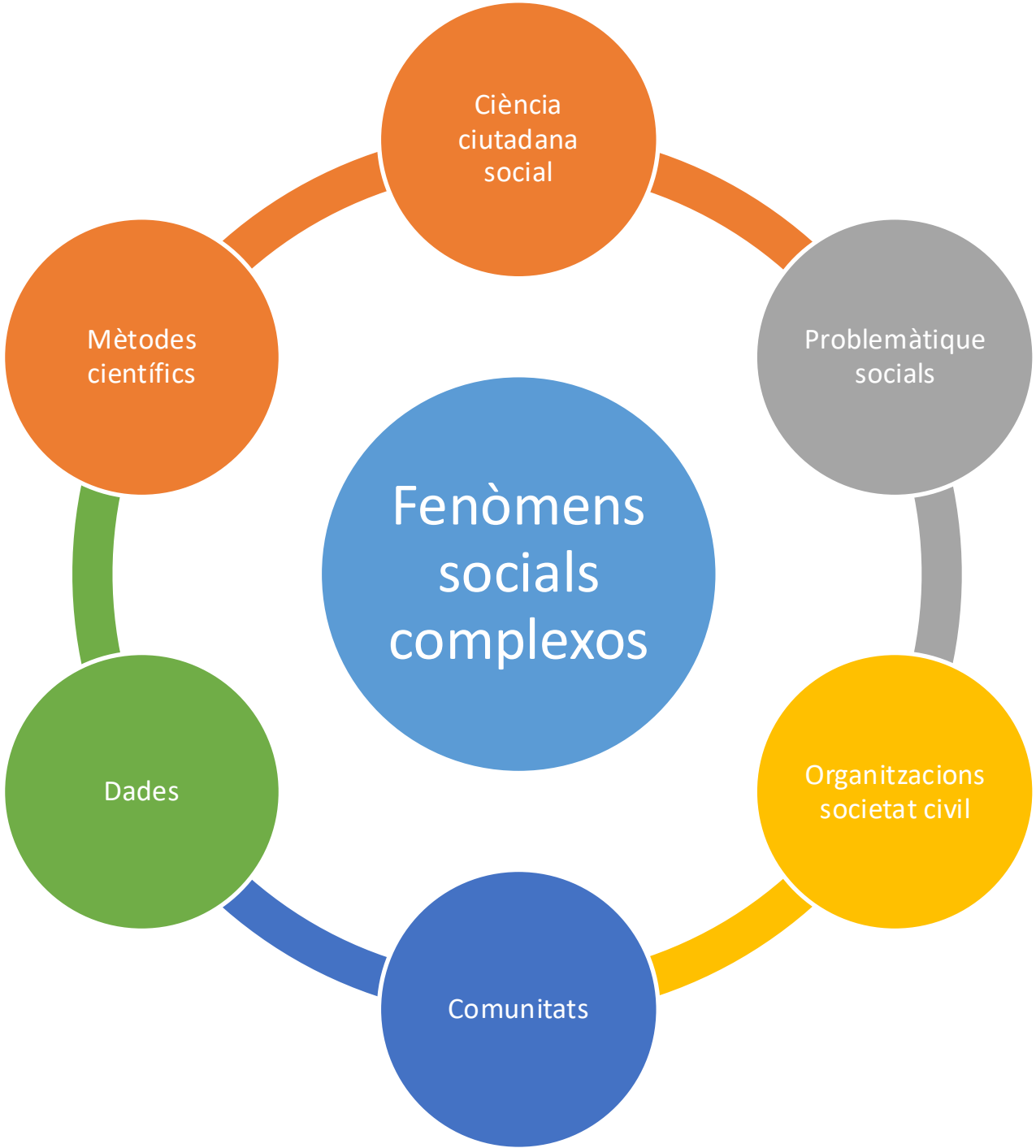
Mobilitat humana
Salut mental
Calor urbana

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



Ciència ciutadana: Promeses vs. tensions

Promeses	Tensions
Noves preguntes de recerca	La participació no és automàticament inclusiva
Experiència viscuda com a expertesa	Les asimetries de poder persisteixen
Vincular coneixement amb acció	La cocreació requereix temps i recursos
Obertura i interdisciplinarietat	Els incentius acadèmics afavoreixen aproximacions convencionals
Major rellevància social	Les prioritats de la comunitat i de la recerca poden no coincidir

El repte no és simplement **incorporar la ciutadania** a la recerca.

El repte és **repensar la manera** com s'organitza la recerca mateixa.

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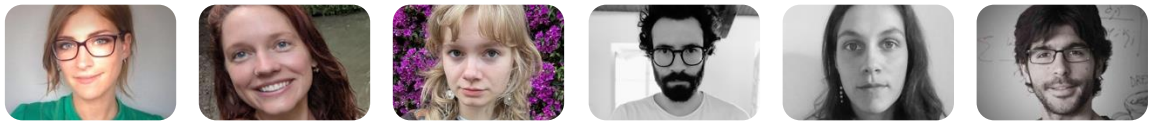

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