



BOTTOM UP CITIZEN
SCIENCE AND
CLOSED DATA

Grassroots Climate Adaptation mobilises private data network

Inspired by:

- CALOR
- Data Trusts Initiative
- Mozilla Foundation's Data Futures Lab
- European Commission's Data Governance Act
- Aapti Institute
- ODI & Roche Health data governance
- Enabling data sharing for social benefit through data trusts
- ODI Blog: What are 'bottom-up' data institutions and how do they empower people?

Broader Context

With Spain experiencing multiple heatwaves in 2030, and the hottest summer temperatures ever being recorded across Europe, finding ways to tackle the long-term effects of climate change and the heat island effect is now an urgent issue we must adapt to and mitigate together. These crippling heatwaves are also exacerbated by a surge in the cost of living crisis that has continued to rise over the last five years, leading to a lack of volunteering capacity on the part of individuals who have no time to engage in non-work related activities due to increasing employment demands.

CS Initiatives

The Extreme Heat Climate Adaptation Initiative (EHCAI) was set up by a grassroots activist group in 2025 to mobilise a community of affected individuals who are struggling due to the impact of extreme heat in Barcelona. The aim of the project is to empower citizens to become agents of change by raising awareness about the issues of urban extreme heat and providing tangible routes to action. Having been running for 5 years, the project is well established and recognised within Barcelona.

The group behind the initiative is highly motivated, passionate about the topic, and has built up a situated knowledge about the particular impact of urban extreme heat in Barcelona, and more specifically on vulnerable groups in the city. Whilst resources and access to funding are limited due to the overall cost of living crisis, the organising group managed to secure a large amount of heat-sensitive sensors through a large tech company and to activate a community of citizen scientists to regularly go out and collect data on urban extreme heat spots throughout the year.

Following the gathering of a municipality-wide rich dataset of sensitive, geolocated data on extreme hotspots over time across the city, the initiative was able to set up a private data network to sell data on urban extreme heat spots back to the municipality representatives and other private companies, based on a community voting system. The community voting system allows those who are network members to decide who best to sell the data they collected to, and on what terms (prices, length of time, frequency of access etc).

Risks & Limitations

A lack of expertise and resources to ensure data interoperability creates some challenges for the initiative and this also affects data security and the type of cybersecurity the group has access to. There is also a potential threat to individuals' livelihoods if the data is compromised or if the data is used to take advantage of a situation by the municipal authorities, and potentially coopted. The broader lack of investment in citizen science means that a segment of the citizen science community - including those from the initiative's founding group - starts to explore complex discussions about how to create mechanisms to allow people who can't pay for the data to still be able to access it. This risks leading to the exploration of less than legal or less ethical means of accessing data that is usually kept closed. The risks associated with these sorts of activities include prosecution.

Opportunities

The collective citizen data governance mechanisms mean that there is an opportunity for the data to generate revenue for the initiative and the groups running the initiative can decide the best ways to dispense of this revenue.

Policy Provocations

Lack of data interoperability and adequate resourcing for innovation in this scenario means that climate adaptation initiatives are not as impactful as they potentially could be.

How to enhance data security to avoid any potential threat to individuals' livelihoods if the data is compromised?

What measures can be put in place to tackle the cost of living crisis that has continued to rise over the last five years, leading to a lack of volunteering capacity on the part of individuals who have no time to engage in non-work related activities due to increasing employment demands?

How to create an enabling environment for data trusts and collective data governance and to encourage new forms of data stewardship?