

JOURNAL

PROJECT

EPIU - Energy Poverty Intelligence Unit

Getafe, Spain

TOPIC

Urban poverty

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Journal 3: Energy Poverty Intelligence Unit (EPIU)

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This is the third journal of the Energy Poverty Intelligence Unit (EPIU) project since its start in September 2019. EPIU, led by Municipality of Getafe, has reached the end as a project but remains as an ambitious initiative to identify and combat energy poverty through an intelligent tool for advanced analysis. EPIU has successfully established the essential infrastructure for identifying and categorizing hidden energy poverty using data. Overcoming significant challenges such as data protection regulations, accessing external databases, and initial deficiencies in data storage and management practices within the city council, these accomplishments serve as the bedrock for future advancements not only in energy poverty and social services but also across various municipal departments, with the potential for far-reaching impacts. The Healthy Homes Office (HHS) has emerged as a pivotal service, offering crucial support to energy-vulnerable families in Getafe. To ensure the continuity of this service beyond the EPIU project, the City Council has facilitated a successful referral network with other municipal departments and local civil society organizations and has provided with infrastructure and resources the service, at least during 2024. Getafe's HHS has played a key role in orchestrating tailor-made solutions for beneficiaries, evolving into the linchpin of EPIU's data collection efforts and a model for data acquisition and treatment across all municipal departments. While delays in completing the intelligence unit affected the delivery of tailor-made solutions at the home and building scale, proactive measures have been implemented, and valuable lessons from the applied methodology indicate a high potential for replication in similar municipalities. Notably, interventions at the neighbourhood scale have garnered substantial public attention, establishing a model for future heat-island mitigation initiatives. As EPIU transitions, its legacy stands as a beacon of innovation with the potential to reshape approaches to energy poverty and urban interventions on a broader scale.

How the project fits in the policy context at EU, national and regional level.

EPIU's objectives have been in line with EU, national and regional latest political priorities.

EPIU focuses on one of the EU challenges: energy poverty

Energy poverty affects citizens across every EU country. In 2022, high energy prices together with the cost-of-living crisis meant that an estimated 9.3% of Europeans were unable to keep their homes adequately warm,

compared to 6.9% in 2021. Protecting vulnerable citizens is a cornerstone of the European Union and in 2023, the recently adopted revision of the Energy Efficiency Directive includes, for the first time, an EU-wide definition of energy poverty.

Besides, European Commission just published in October 2023, a new [Recommendation](#) on energy poverty. Investment in energy efficiency and renewable energy, as the ones proposed in EPIU, are among the structural measures included in this document of reference. Measures such as energy renovation are designed to have a long-lasting impact, addressing the root causes of energy poverty such as the low energy performance of homes and household appliances, high energy expenditure in proportion to household budgets and lower income levels.

EPIU, 100% aligned with the National Strategy against Energy poverty in Spain

In Spain, the National Strategy against Energy Poverty 2019 – 2024 seeks to address energy poverty, that affects between 3.5 and 8.1 million citizens, reducing at least 25% current indicators but seeking to reach 50%. Although the strategy entered into force after EPIU was approved, the project is 100% aligned with its four axes:

- Improving knowledge about energy poverty
- Redesign of subsidy mechanisms such as the social bond for electricity and the social thermal bond.
- Creating a structural change for the reduction of energy poverty- energy efficiency and rehabilitation
- Implementing measures to protect consumers and social awareness.

These months, the national strategy against energy poverty is under revision and EPIU results will permeate, for sure, into the coming National Strategy.

COVID-19 and invasion of Ukraine events have reinforced the importance of projects as EPIU, that guarantees the energy right.

The Covid crisis, labelled as a “total social fact” in 2020, highlighted the urgency of addressing energy poverty if we are to create a social Europe that guarantees the basic needs of all its inhabitants. Projects as EPIU will contribute to overcome the situation in an effective manner. Besides the Russian invasion of Ukraine in February 2022 dramatically changed the economic and social situation in Europe in relation to energy as energy prices rose considerably.

Different measures at all levels (national, regional and local) have been implemented to protect those suffering a situation of vulnerability which reinforces the need of specific services such as EPIU’s one to provide advice.

Addressing seven challenges

The seven implementation challenges outlined below have been analysed periodically, during EPIU’s implementation period. For each challenge, a critical analysis has been made based on previous reporting. The journal analyses the seven challenges during the last implementation phase of the project.

Leadership

A committed and constant leadership is essential for any municipal innovation. During the final implementation period, EPIU project has evolved in leadership, adapting it to ensure good results and impacts.

When the internal leadership pivots inside the local government, magic occurs.

During the first year of EPIU, there was an important top-down leadership approach driven by the local government in the early project stages. During the second year, more intense participation from different areas in the municipality such as social services or Human Resources developed. Furthermore, during the last year of the project the IT department was consolidated. This resulted in key data advances such as data pruning and anonymization from social services files or data lake availability, data storage and a communication node for data injection and download.

In letting other departments lead, the success was shared and grew in line with the shifts in project implementation.

Leadership after the project ends.

This is a permanent challenge as the right and acceptance of a leadership needs to be constantly validated at all levels and all statements of the city. However, several months after the end of the project, the presence of EPIU remains at all levels in Getafe and beyond, which supports the legitimate leadership of the project. Whilst challenging to uphold, it is positive that the leadership from the Housing, Sustainability and Urban Planning councilor and other areas such as Concejalía de Educación, Infancia, Recursos Humanos y Modernización de la Administración or Concejalía de Bienestar e Inclusión Social y Atención a la Discapacidad, have been guaranteed

which prevents EPIU's legacy from being diluted.

In terms of the project consortium, leadership may evolve differently. Contractual obligations have disappeared so leadership will rely on personal and professional connections after the project. Many collaborations have been established within EPIU consortium partners, but correlation of forces is different in each case and leaderships take different shapes and dimensions.

Public procurement

UIA projects tender contracts and procure services during the implementation phase. This was not a relevant challenge in the previous journals but has become important in the last phase of the project.

The importance of contingency plans

In projects involving building and neighbourhood-level construction, it is essential to plan activities carefully considering the timelines and processes of public administrations. In the original planning of project activities, construction was scheduled for the final stage. Regardless of delays in the EPIU's tools development, issues arising from supply shortages, or the energy crisis and rising energy prices, the time allocated for construction execution were underestimated (call times, contracting, and development). A contingency plan would have been helpful to identify which activities might be affected and to plan, determining the point of no return for initiating an alternative path for the project.

The knowledge gained on streamlining the public procurement process has been shared with other UIA's projects, and consideration should be given to what changes are necessary to facilitate the process.

Unforeseen events promote innovation too.

Despite the security that a good planning offers to projects, it is true that unforeseen events can lead to different solutions that result positive in terms of impacts too. In the case of EPIU, there were delays in procedures such as the software tender, the sensors deployment, and the limitations to get energy consumption data conditions the initial plan. However, the proposed solution produced the desired result of having a tool to effectively address the multidimensional problem of energy poverty. On the side of the energy renovation works, the initial tender was declared unsuccessful, so new alternatives were designed, forcing innovation. In this case, EPIU, took advantage of the power granted by the contractual national regulation in Spain (LCSP) and reopened the tender without advertising through a negotiated procedure which is shorter in time and repeated the procedure eliminating the causes that could have led to the lack of bids.

Organizational arrangements within the urban authority (cross-department group)

Energy poverty is a transversal social priority that affects different departments such as social services, housing, consumer protection, health, or emergency departments. Combining and coordinating these different areas are essential to effectively implement EPIU's integrated approach.

Getafe's units and departments, work quite isolated and there is not a regular transversal culture, so this is one of the most relevant challenges that EPIU has faced. However, the project has provoked changes in the collaboration culture that remain beyond EPIU's implementation period which is a good sign.

To define consolidated services that remain beyond project implementation period to promote coordinated actions.

One of the pivotal services conceived within the framework of the EPIU project was the Healthy Households' Office (HHO). During the meticulous planning of this service, the project fostered cross-department collaboration, contributing significantly to the enrichment of the overall process. However, it is imperative to recognize that sporadic support alone does not instigate lasting changes in the organizational culture.

A key point for inducing transformative shifts in UIA projects lies in the formulation of consolidated services that extend beyond the project's implementation period. In the case of Getafe, the HHO has been integrated into the municipality's service portfolio.

An intriguing metric to gauge the success of this integration is the degree to which the HHO service is embedded within the municipal structure, particularly in terms of the number of users referred from other municipal areas. Therefore, one of the evaluation criteria was to assess the level of integration of this novel service within the municipal framework. According to the ex-post evaluation report, approximately 30.1% of HHO users were referred from other municipal areas, underscoring the widespread recognition and utilization of the service across different municipal domains.

Participative approach for co-implementation

The development of strong partnerships between public bodies, the private sector and civil society is widely recognized as a cornerstone of efficient urban development policies. In the case of EPIU, the participation of real practitioners in the consortium has proved an effective way to promote participation in the first stages of implementation as it was reported in a previous journal. On one side, ACA as an energy poverty practitioner supported the implementation of HHO and transferred their expertise on the direct contact with EPIU beneficiaries. On the other side, to have a local antenna of Red Cross in the project, as practitioners dealing with people suffering a situation of energy poverty, has contributed expertise on delivering support schemes for vulnerable people.

In this last stage of the project, the intensity of this challenge decreased, as the focus was not centred in the design anymore. However, partnerships and the participative approach for co-implementation remain important in this process too. For example, local charities and neighbourhoods associations have referred users to HHO which have weaved alliances between the local government and the local ecosystem. Now, one of the challenges of HHO will be to widen the collaborations and referrals to the service.

The mere existence of a tangible public service helps the way participation is promoted so the participative approach for co-implementation remains in Getafe in the context of tackling energy poverty.

Monitoring and evaluation

Monitoring and evaluation tools play a crucial role because they provide the essential evidence needed for urban authorities to determine the effectiveness of tested solutions. For UIA projects like EPIU, establishing clear parameters related to results is imperative, offering urban authorities and local partners a definitive measure of the success of the experimental solution.

In terms of project performance, EPIU has achieved a commendable level of integration among city council areas, with 1,370 users engaging with the HHO service. Notably, the successful integration of the HHO service into the municipal structure and the collaborative efforts among municipal services stand out as essential accomplishments. From a quantitative perspective, it has been observed that 30.1% of users were referred to the HHO from other municipal services, indicating effective collaboration and outreach.

Additionally, despite facing challenges in actively identifying hidden energy poverty through the Data Acquisition System (DAS), the multiplier effect of collective actions at the Getafe/community and neighbourhood/resident levels has been impactful. This has likely contributed to heightened awareness and brought individuals experiencing energy vulnerability closer to the HHO or civic centres.

EPIU's primary goal was to mitigate energy vulnerability and identify hidden energy poverty, primarily through the Data Acquisition System (DAS). While the results show promising strides in reducing energy poverty, the challenges encountered in developing this tool have somewhat constrained the overall impact of the project. Nonetheless, the achievements in integration, collaboration, and community awareness underscore the positive influence of EPIU, paving the way for continued refinement and enhancement of its strategies.

The oversight in anticipating the necessary time and fieldwork for gaining a profound understanding of the living conditions in households affected by energy poverty, as well as in establishing institutional agreements for implementing and adapting existing information systems, has been acknowledged. Additionally, the time required to conduct a survey with updated data from Getafe, generated by this project, was not adequately foreseen. This oversight has had implications for the development of the AI-based Data Acquisition System (DAS) tool, as it lacked suitable and relevant data.

Regarding the project's impact on addressing hidden energy poverty, a noteworthy achievement has been a reported 35% reduction in the number of households in Las Margaritas and Alhóndiga facing challenges in maintaining adequate home temperatures. Despite this positive outcome, the subjective perception of users regarding improvements in their housing conditions has been measured independently, with the data from the DAS tool remaining underutilized.

The execution of construction works in the final months of the project had a significant impact on monitoring and evaluation tasks, as the lack of information on intervention outcomes posed a challenge for some project activities and their proper assessment. However, it allowed for the identification of knowledge gaps, particularly in obtaining local and precise information about temperature or urban humidity in Getafe. This led to the development of a sensoriation plan, incorporating artificial intelligence, to understand the urban heat island effect in the city. This initiative aims to generate valuable records in a context where there is an urgent need to plan comprehensive health actions for climate change mitigation in urban environments.

Having said that, the energy crisis in 2023 and Covid in 2020 impacted in EPIU implementation period and the project was able to adapt to the new context which is an unexpected result. This broader context provides an opportunity for greater visibility and impact, amplifying the significance of addressing energy-related challenges

within the community. Focusing on the actual challenges achieved locally rather on the delivered outputs and being able to monitor and evaluate to what extent projects are contributing to their achievement are essential aspects of sustainable urban development, and they are even more important for UIA projects.

Communication with target beneficiaries and users

The ultimate goal of any UIA project is to enhance the quality of life for citizens, a particularly crucial aspect in projects like EPIU, which addresses energy poverty. Throughout this period, the team has concentrated on solidifying the future HHO service and fortifying its connection with the intended users.

Communication strategy focused on people suffering a situation of vulnerability.

EPIU's communication strategy was designed to make EPIU known at a general level so social networks, talks at conferences and press releases formed the main communication actions. The challenge in this last implementation period was to focus the communications at the citizens' level which became a tough challenge. EPIU's ultimate objective was to identify and tackle hidden energy poverty so an extra effort will be needed now to reach the target beneficiaries and increase the demand in the HHO, EPIU's consolidated service.

Upscaling

Over the past months of project implementation, considerable effort has been invested in ensuring the sustained operation of EPIU. Collaborative endeavours among coordinating partners resulted in securing funding approvals for advancing the data analytics office and creating a dashboard for municipal decision-making. This achievement was made possible through the Spanish Ministry's 2030 Agenda subsidy program.

Engagements with key local stakeholders, including YMCA, Murialdo associations, and the local Red Cross, have been instrumental. These organizations have willingly participated in and endorsed the proposal, committing to contribute to social data acquisition, management, and transfer to the city council for integration into future iterations of the EPIU tool. Furthermore, collaborative initiatives with these local organizations have extended to providing energy poverty training, enhancing their capabilities in identifying, addressing, and referring energy-vulnerable residents.

Ensuring the continuity of HHO has been a priority, with Getafe successfully chosen by the European City Facility (EUCF) to develop an investment concept. This concept aims to expedite sustainable energy investments, particularly targeting vulnerable communities, and will be finalized and submitted to the EUCF by the end of 2024.

While scaling up the EPIU model to the Community of Madrid, as outlined in the initial application, proved challenging, close collaboration with the regional government facilitated access to the national social services database (SIUSS). The Community of Madrid has expressed significant interest in the intelligence unit and its potential for transferability. Additionally, the EPIU experience is actively being disseminated to new projects, such as Climate Ready in Barcelona, Urbact IV ITN, Horizon Europe and LIFE projects.

EPIU, initially conceived as an experimental test in Getafe, has, despite not achieving full completeness as anticipated, successfully paved the way for the upscaling of solutions at various levels. This aligns with one of the primary objectives inherent in planning innovative projects – the propagation of successful models to broader contexts.

Conclusion

The primary goal of EPIU-Getafe (Energy Poverty Intelligence Unit) has been to actively contribute to the identification, addressing, and mitigation of energy poverty, with a specific focus on Hidden Energy Poverty (HEP). This initiative took the form of a pilot project concentrated in Las Margaritas and La Alhóndiga-Fátima, recognized as vulnerable areas in the municipality.

The ground-breaking innovation of the project lies in its approach to energy poverty, transcending mere monetary considerations of poverty. EPIU-Getafe has pioneered a preventive methodology, utilizing the Data Analytics System (DAS). This includes the creation of a software tool for data analysis employing machine learning and artificial intelligence (AI) tools. In tandem, the project introduced the Healthy Homes Office (HHO) to facilitate a comprehensive home service.

The evolution of the EPIU-Getafe project has underscored the substantial efforts and challenges inherent in adopting a cross-cutting approach to energy poverty, acknowledging its intricate and multifaceted nature. These complexities have been further compounded by the broader contexts of the 2023 energy crisis and the 2020 COVID-19 pandemic.

While the impacts of EPIU could have been more pronounced, the reality of navigating such a multifaceted initiative is inherently complex. This UIA project serves as a compelling example of the adaptability required to navigate both foreseen and unforeseen risks and challenges in the pursuit of addressing and mitigating energy

poverty effectively.

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